SAN FRANCISCO
**PLANNING DEPARTMENT**

# Executive Summary
# Institutional Master Plan

HEARING DATE: MARCH 13, 2014

1650 Mission St.
Suite 400
San Francisco,
CA 94103-2479

Reception:
**415.558.6378**

Fax:
**415.558.6409**

Planning
Information:
**415.558.6377**

| | |
|---|---|
| *Date:* | March 6, 2014 |
| *Case No.:* | **2012.0355I** |
| *Project:* | **UNIVERSITY OF SAN FRANCISCO (USF) INSTITUTIONAL MASTER PLAN (IMP)** |
| *Project Sponsor:* | University of San Francisco<br>Elizabeth Miles<br>Master Plan Manager<br>2130 Fulton Street<br>San Francisco, CA 94117 |
| *Staff Contact:* | Mary Woods – (415) 558-6315<br>mary.woods@sfgov.org |
| *Recommendation:* | **No action required. This is an informational item only.** |

## BACKGROUND ON INSTITUTIONAL MASTER PLANS

Planning Code Section 304.5 requires post-secondary institutions and medical institutions to file an Institutional Master Plan (IMP) every 10 years detailing current facilities and operations, and outlining development plans and other information. The purpose of the IMP is to provide this information to the Planning Commission and the public and receive comments at a public hearing. This enables the institution to modify its master plan before seeking entitlements. Any significant proposed changes (including alterations to existing structures, demolitions, or new construction) described in the IMP may require separate review and approval by the Board of Supervisors, Planning Commission and/or Department staff, as applicable.

## USF CAMPUSES

The University's primary campus is the 52-acre Hilltop Campus, located one block east of Golden Gate Park and three blocks north of the Panhandle. The campus is comprised of two large parcels and other adjacent properties. The Upper Campus parcel (also known as Lone Mountain) is bounded by Turk Boulevard to the south and Anza Street to the north, between Parker and Masonic Avenues. The Lower Campus parcel is located one block south bounded by Golden Gate Avenue to the north, Fulton Street to the south, between Parker and Masonic Avenues. The Koret Center and the Negoesco Field are located immediately west of the Lower Campus. In addition to the Hilltop Campus, USF offers limited course work at two other locations in the City and throughout California. The two other City locations include a building in the Presidio at 920 Mason Street, and the Folger Coffee building at 101 Howard Street. The total student enrollment on the Hilltop Campus was 8,731 in Fall 2011. The faculty and staff population is 2,170.

## BACKGROUND INFORMATION ON USF'S IMP

The University has submitted numerous IMPs over the years. USF submitted its last full IMP in 2004 and has since submitted updates to the City, including the most recent in 2010. The 2004 IMP described a variety of projects to support academic and administrative uses as well as enhance the student experience. Most of the projects in the 2004 IMP have been completed, notably the renovation of the Lone Mountain Chapel for additional space, the renovation of Campion Hall, now Kalmanovitz Hall, improvements to the War Memorial Gym, and the in-fill of the Fromm Courtyard to create new classrooms. The science building, now named the John Lo Schiavo SJ Center for Science and Innovation, has been completed and opened in 2013.

The table below lists projects proposed in USF IMPs from 1975 through 2012. The table shows the projects which were implemented as originally conceived as well as some that, over the course of time, were reconceived and proposed accordingly in succeeding plans. For example, the "new housing" proposed in 1979 was eventually built as Loyola Village in 2002. The "Harney Science Center" also proposed in 1979 became the Center for Science & Innovation (CSI), which was completed and opened in 2013.

### History of Projects Proposed in IMPs from 1975 - 2012

| Initial IMP Proposal | Projects Proposed in IMPs | Status |
|---|---|---|
| **1975** | Recreation Center | Complete |
| 1975 | Gleeson Library Addition | Complete |
| 1975 | Cultural Center (theater, gallery, conference center, visitor center, chapel) | Suspended |
| 1975 | Theater (@ Cole & Fulton) | Suspended |
| **1979** | Cowell Hall Enclosure | Complete |
| 1979 | Kendrick Hall Addition | Complete |
| 1979 | New Housing (students, faculty, staff) | Loyola Village 2002 |
| 1979 | Campion Hall/ Renovate or Replace | Kalmanovitz Hall |
| 1979 | Harney Science Center Addition | CSI |
| 1979 | Loyola Hall Demolish & Replacement. | Complete |
| **1983** | Co-Generation Facility (1985 CU) | Complete |
| 1983 | Wind Turbine Generators | Suspended |
| **1990** | Kendrick Law School Parking Structure | Complete |
| **1993** | Second Level Parking Deck at Parker & Turk | Complete |
| 1993 | Re-landscape Center of Campus | Complete |
| 1993 | Xavier Hall Renovation: convert to housing & offices (Fromm) | Complete |
| 1993 | Lone Mountain Renovations | Complete |
| 1993 | Parking Under Ulrich Field | Suspended |
| 1993 | Kendrick Hall Expansion (Library) | Complete |
| 1993 | Lone Mountain site/expansion | ongoing proposal |
| **1996** | Convert space NW of Presentation Hall to parking | Complete |
| **1998** | Jesuit Residence (*Loyola House* ) | Complete |
| 1998 | Housing @ Parking Lot C (east of WMG) | Suspended |

| | | |
|---|---|---|
| 1998 | Parking under Negoesco and/or Welch Field | ongoing proposal |
| **1999** | 281 Masonic (Lincoln Univ) - lease site, remodel offices | Complete |
| **2001** | Remodel McLaren - offices & classrooms | Complete |
| 2001 | Childcare center | Suspended |
| **2004** | Fromm: courtyard infill, add classrooms | Complete |
| 2004 | University Center -reconfigure existing spaces | Complete |
| 2004 | University Center Terrace - offices & student space | ongoing proposal |
| 2004 | War Memorial Gym (WMG) Renovation | Phases 2 & 3 complete |
| 2004 | Remove Underhill blgs,/install parking | ongoing proposal |
| 2004 | Campus Streetscape improvements & other open space improvements | ongoing proposal |
| 2004 | Crosswalk & intersection improvements | ongoing proposal |
| 2004 | Signage & Wayfinding plan | ongoing proposal |
| **2008** | Cowell Hall - added section on 4th floor | Complete |
| 2008 | Gleeson Library convert storage & dock space to offices | Complete |
| 2008 | Fulton House - renovation | ongoing proposal |
| **2010** | War Memorial Gym Renovation | Phase 4 Complete |
| 2010 | Cowell Interior Renovation | Complete |
| 2010 | Existing Harney Science Renovation | Ongoing |
| 2010 | 281 Masonic Interior Renovation | Complete |
| 2010 | Phelan Hall Refurbishment/Ground Flr | In progress |
| **2012** | Upper Campus Student Residence Hall & Parking | Proposed |
| 2012 | Upper Campus Academic Building | Proposed |
| 2012 | Upper Campus dining Commons | Proposed |
| 2012 | Mixed-Use Bldg near Negoeco Field | Proposed |
| 2012 | Visitor Center on Lone Mtn | Proposed |
| 2012 | New Grounds & Maintenance Facilities | Proposed |
| 2012 | UC & Harney Loading Facility | Proposed |
| 2012 | Hayes Healy/Gillson Common Area Front Desk | Proposed |
| 2012 | Gleeson Rare Book Rm Renovation | in progress |
| 2012 | Gleeson 1st Flr Renovation (Current Disability Offices | Proposed |
| 2012 | Froom Hall Lounge Renovation | Proposed |
| 2012 | Cowell Hall Learning & Writing Ctr Refurbishment | Proposed |
| 2012 | Memorial Gym New West Entrance & Interior Ren | Proposed |
| 2012 | Presentation Theater Renovation | Proposed |
| 2012 | Lone Mountain Main, Lower Level ADA upgrade | Proposed |
| 2012 | Lone Mountain Main, MEP | Proposed |
| 2012 | Lone Mountain Main, Window Replacement | Proposed |
| 2012 | Koret Interior Refurbishment | Complete |
| 2012 | Mission House Renovation (284 Stanyan St) | Proposed |
| 2012 | St Ignatius Parish Mtg Space & Office Renovation, including courtyard infill | Proposed |
| 2012 | Parker Street Visitor Arrival | Proposed |
| 2012 | Hayes Healy/Gillson Forecourt | Proposed |

| | | |
|---|---|---|
| 2012 | Lone Mountain Drive realignment | Proposed |
| 2012 | Replacement Tennis Courts | Proposed |
| 2012 | Welch Field Academic Building | Proposed |
| 2012 | Gleeson Library Roof Space Enclosure | Proposed |
| 2012 | 2350 Turk Blvd Courtyard Infill | Proposed |
| 2012 | Cogeneration Plant Technology Upgrade | Proposed |
| 2012 | Fromm Hall X-Arts Renovation | Proposed |
| 2012 | 2350 Turk Renovation | Proposed |
| 2012 | Library Learning Commons and Entrance Renovation | Proposed |
| 2012 | Lone Mountain Stacks Renovation | Proposed |
| 2012 | Loyola Village Renovation for Student Lounge Space & Exterior Refurbishment | Proposed |
| 2012 | Hayes Healy/Gillson Lounge, Bathroom, and Sleeping Room Renovation | Proposed |
| 2012 | Bicycle Storage Facility | Proposed |
| 2012 | 281 Masonic Classroom Renovation | Proposed |

## INFORMATION IN USF'S 2012 IMP (WITH AMENDMENTS MADE IN 2013)

**Key Points:**

- The USF's IMP outlines over 40 possible projects to the campus physical plant to be considered over the next ten years. While not all projects will be constructed, each is an important campus improvement that supports the mission of the University and helps contribute to the intellectual, cultural and economic life of the City.
- The determination of which projects might be implemented will be a function of strategic importance, funding, and support of the University's mission.
- USF has committed to limiting student enrollment growth to an average of less than 1% per year at its Hilltop Campus.
- One of the priority projects of this IMP is the construction of a new residence hall for student housing on Lone Mountain/Upper Campus. The proposed residence hall would increase USF's student housing stock by up to 635 bedrooms, which will:
    - foster a positive University community and learning environment;
    - allow the University to attract and retain lower income students;
    - help relieve the City's affordable housing gap, and
    - reduce traffic and parking congestion in the neighborhood.
- USF/UTA TRAFFIC CALMING PLAN. Pursuant to their Settlement Agreement, the University Terrace Association (UTA) and USF collaborated on the development of a traffic calming plan for the University Terrace neighborhood in collaboration with Fehr & Peers transportation consultants (see plan below on page 5). UTA appointed a traffic subcommittee that met over a six-month period to tailor the plan to the neighborhood's specific concerns. USF has committed $1.2 million for implementation of the plan. The traffic calming plan is currently under review at SFMTA (San Francisco Municipal Transportation Agency).


Figure 1.
USF / UTA Traffic Calming Plan

1/17/14

- USF continues to work with its neighbors to build productive and positive relationships and to respond to their concerns. Since 2010, USF has met with neighborhood organizations and residents over 85 times regarding IMP development, traffic calming, parking, noise mitigation, student behavior, construction impacts, and the proposed residence hall.
- USF has implemented numerous tangible mitigating actions in an effort to respond to neighbor requests or complaints.
- USF is committed to continuing to reduce its transportation effects and has an overall 31% drive alone rate, less than the SF average of 37% (US Census).
- As the City's 15th largest employer and through its curriculum and student organizations, USF contributes substantially to San Francisco's intellectual, cultural, and social fabric.

## IMP SUMMARY

To accommodate the demand for new and expanded programs, USF will implement a "Distributed Campus Plan" (see plan below on page 11). This plan will move some independent graduate programs off the Hilltop Campus to strategic locations in San Francisco where they will be better able to serve students and be integrated with San Francisco. USF will also increase enrollment at its branch locations outside San Francisco, develop an online learning program for graduate students, and promote study-away programs. USF plans to increase enrollment on the Hilltop Campus by less than 1% per year, on average, through 2022.

The University anticipates a need for 60,000 to 75,000 gross square feet of academic and support space at the Hilltop Campus. These space needs include new classrooms, instructional labs, faculty and staff offices, and study space, in new facilities.

USF houses the smallest percentage of undergraduates in its residence halls of any of its peers, and USF's dormitories operate at full capacity. In response, USF plans to increase the percentage of undergraduates housed on the Hilltop Campus by building a 635-bed student housing facility on the Hilltop Campus. The new student housing will be designed as living-learning space.

The key elements of the Hilltop Campus physical master plan are:

- accommodation of enrollment growth of less than 1% annually on average, over the next ten years;
- enhancement of the image and identity of the University through the physical environment with strategic building, landscape, and wayfinding improvements;
- retention and accommodation of a mix of building uses on the Upper and Lower Campuses, and
- creation of a stronger visitor arrival experience and a safe, cohesive, and user-friendly pedestrian environment.

### POTENTIAL PROJECTS

Campus facilities are a significant factor in student and faculty recruitment and retention. They provide the physical platform for student life and learning as well as influencing visitors' impressions of the University. USF needs to invest in its facilities to ensure that they are not only modern and attractive, but also meet or exceed the peer standard, particularly in housing and learning facilities.

The University has translated the needs for facility growth and renewal into a list of capital projects for the University, which are described below.

In general, the priority projects for the next five years are related to providing housing for a higher percentage of the current student population as well as additional academic space and upgrades to existing facilities in an effort to optimize current usage. Site improvements such as improving the appearance of the campus edge, new visitor arrival sites on both the Lower and Upper Campuses are also planned. Additionally, many of the improvements to athletic facilities will alleviate public concerns on the surrounding neighborhood.

**FIVE-YEAR PROJECTS** (descriptions of each project can be found on pages 67 - 72 of the IMP)

**New Construction**

- Upper Campus (a.k.a. Lone Mountain) Student Residence Hall and Parking
- Upper Campus Dining Commons
- Upper Campus Academic Building
- Mixed-Use Buildings at Negoesco Field
- Visitor Center on Lone Mountain
- Ulrich Field Intercollegiate Baseball Facility Improvements
- Grounds Storage and Maintenance Facilities
- Parking Under Negoesco Field

**Building Renovations or Upgrades**

- University Center and Harney Science Loading Facility
- Hayes-Healy/Gillson Common Area Front Desk
- Existing Harney Science Renovation
- Gleeson Rare Book Room Vault Renovation
- Gleeson First Floor Renovation (Current Disability Services Offices)
- St. Ignatius Parish Meeting Space and Office Renovation, including Courtyard Infill (Fromm Hall)
- Fromm Hall Lounge Renovation
- Cowell Hall Learning and Writing Center Refurbishment
- Fulton House Student Housing Renovation (1982 Fulton Street)
- War Memorial Gym New West Entrance and Interior Renovation
- Presentation Theater Refurbishment
- Lone Mountain Main Lower Level ADA Upgrade
- Lone Mountain Main Mechanical, Electrical, And Plumbing Upgrade
- Lone Mountain Main Window Replacement
- Koret Interiors Refurbishment
- Mission House Renovation (284 Stanyan Street)
- Phelan Ground Floor Renovation

**Site Improvements**

- Parker Street Visitor Arrival Area
- Hayes-Healy/Gillson Forecourt
- Lone Mountain Drive Realignment
- Streetscape improvements
- Bicycle Storage Facility

**TEN-YEAR PROJECTS**

The projects contemplated for a ten-year horizon include energy efficiency upgrades, improvements to student housing, and on-going facility renovations.

**New Construction**

- Welch Field Academic Building

**Building Renovations or Upgrades**

- Gleeson Library Roof Space Enclosure
- 2350 Turk Boulevard Courtyard Infill
- University Center Terrace Infill
- Library Learning Commons and Entrance Renovation
- Cogeneration Plant Technology Upgrade
- Fromm Hall X-Arts Renovation
- Hayes-Healy/Gillson Lounge, Bathroom and Sleeping Room Renovation
- 2350 Turk Boulevard Renovation
- Lone Mountain Stacks Renovation
- Loyola Village Renovation For Student Lounge Space and Exterior Refurbishment
- 281 Masonic Classroom Renovation
- Replacement of Tennis Courts

## ENVIRONMENTAL REVIEW

Institutional Master Plans are non-action items, and as such, do not require CEQA (California Environmental Quality Act) review.

## HEARING NOTIFICATION

| TYPE | REQUIRED PERIOD | REQUIRED NOTICE DATE | ACTUAL NOTICE DATE | ACTUAL PERIOD |
|---|---|---|---|---|
| Classified News Ad | 20 days | February 21, 2014 | February 19, 2014 | 22 days |
| Posted Notice | 20 days | February 21, 2014 | February 21, 2014 | 20 days |
| Mailed Notice | 20 days | February 21, 2014 | February 21, 2014 | 20 days |

## PUBLIC COMMENT

USF has held extensive meetings with neighborhood organizations and residents with regard to its IMP. Some of the issues raised include:

- enrollment growth and its effect on quality of life
- pedestrian safety
- traffic on neighborhood streets
- University-related parking on neighborhood streets

- student behavior
- students and staff passing through the neighborhood
- noise at outdoor fields
- noise and disruption from service and delivery vehicles and construction
- issues related to one-time USF events and ongoing programs that draw outside attendance
- quality of the physical environment, particularly at the University's neighborhood edge

USF responded to these concerns in the IMP and is implementing new policies for management of ongoing University functions. (Copies of concerned letters from neighborhood organizations and residents are attached, and one letter of support from the International Union Local No. 3 representing 200 Program and Office Assistants at the USF.)

In February 2013, area neighbors met with SFMTA on campus to discuss SFMTA's proposed installation of parking meters in the area. One of the outcomes of that meeting was the formation of a neighborhood coalition, comprised of representatives from UTA, Francisco Heights, West Of Lone Mountain, NOPNA, Ewing Terrace, and McAllister Street, that has engaged with USF to seek solutions for traffic and parking issues. The Coalition and USF have met five times since May 2013 seeking to improve parking conditions in the area.

In a June 5, 2013 letter (see attachment) to the University, the Coalition asked that *"… the university administration and community members to take immediate, short-term, and long-term steps to alleviate the impact of car trips and parking…"* by USF. The letter asked: *"What specifically will USF do that will produce an obvious improvement in the parking and traffic situation as of this September?"*

In response to the June 5, 2013 letter, the University implemented the following actions:

1. completed negotiation with USF Faculty Union to eliminate seniority-based campus parking permit system for one year pilot in order to create a more equitable and efficient parking program using spaces most efficiently. Implemented: July 15, 2013.
2. parking permit prices will increase 3% per year for the next three years. Implemented: first 3% increase on August 1, 2013.
3. expanded ZipCar program. Implemented: increased the number of ZipCars to 10 cars.
4. implemented incentives for students to use ZipCar: negotiated a $25 credit per student, thereby reducing or eliminating registration fee for first-time users. Move-in Day sign ups and tabling efforts at the start of the semester.
5. expanded marketing to discourage students from bringing cars: added to Welcome Guide 14, FAQs, "Send-Offs".
6. investigating ways to have continuing students register license plates along with off-campus housing address.
7. USF is preparing a TDM (Transportation Demand Management) survey in spring 2014 to determine the impact of past two years' improvements.
8. pursue secured/covered bicycle shelter to IMP, add to budget request, and work with City organizations to apply for grant.
9. implemented new campus parking management system - "iParq".
10. with new survey and registration data, establish a task-force to determine feasibility of potential shuttle.
11. expand commuter checks to include part-time faculty.

12. in fall 2014, on-campus housing agreements will prohibit students from bringing cars to campus. Those who violate the policy may lose access to on-campus housing.
13. submitted letters to SF Parking Enforcement requesting extra enforcement at the beginning of each semester.
14. submitted letter to the City requesting that students residing in dorms be denied parking permits (because it is a violation of University policy to live on campus and bring a car to school).

USF has continued to meet with the Parking Coalition. The most recent meeting was held on March 3, 2014. USF seeks the Parking Coalition's collaboration in exploring solutions beyond the boundaries of campus. USF has proposed the following for the Coalition's consideration:

- no overnight parking (2:00 a.m. to 6:00 a.m.) on adjacent streets;
- possible prevention of Zip Code 94117 from receiving "L" permits, and
- revisit changing unrestricted street parking along USF borders to 2-hour time limitation.

## Other Items of Interest

- **Center for Science & Innovation (CSI):** The building opened in August 2013 with 17 new labs. 17 labs in Harney Science Center are being decommissioned as agreed.

- **CSI Construction Impacts:** USF and UTA collaboratively developed a construction logistics plan for CSI. Restrictions were incorporated into Cahill's and subcontractor's contracts that defined construction truck traffic flow, start and end times, required a shuttle for workers to and from the worksite and prohibiting workers and subcontractors from parking in University Terrace, limited dust, noise and pests, along with other restrictions.

  August 21, 2013: USF held an open meeting seeking feedback on the impact & effectiveness of the logistics plan. Two representatives from UTA attended to report that they had no complaints and considered the logistics plan a success.

  USF will implement similar restrictions for the construction of the proposed residence hall.

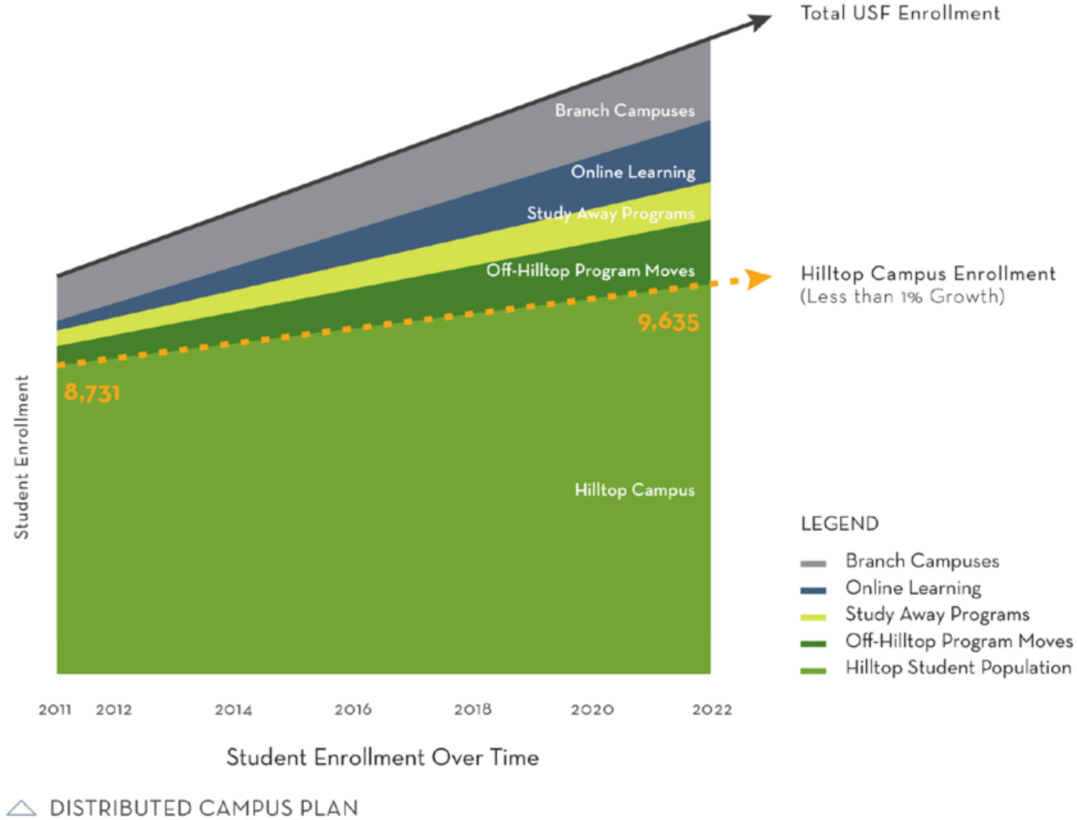
- **Distributed Campus Model/Plan**: The DCM is the strategic underpinning of the IMP. It defines the business model that will allow for less than 1% annual growth at the Hilltop Campus (see plan below on page 11). The University has implemented DCM strategic actions that offset the limited growth at the Hilltop Campus:

  - New position created: Vice Provost for Branch Campuses and Online Education; Responsible for expanding branch campuses and online education;

  - Four new online degree programs have been implemented and two are in development;

  - About 800 business graduate students attend classes at 101 Howard, acquired in August 2011, who now do not commute to the Hilltop campus, and

  - New programs to be offered at branch campuses are being developed in Health Studies, Psychology, and Management.




**UTA/USF Settlement Agreement:** USF and UTA representatives met in July 2013 to review the fulfillment of the Settlement Agreement in detail.

Of the 66 obligations
- 52 have been fulfilled and completed
- 7 are in progress
- 6 are either on-going or yet to be done.
- One item did not occur by mutual agreement.
- No substantive variances were identified by either party

- **Noise** at athletic facilities: PA systems have been installed at the baseball and soccer field facilities. Acoustic paneling at the batting cage is installed. Noise complaints have declined dramatically.

- **Other Neighborhood impacts:**
  - USF initiated a student "CleanUP Crew". Student workers walk the neighborhood and pick up trash. Up to 6 workers per semester for up to 8 hours per week.

## Neighborhood Meetings on the IMP, Traffic, and Neighbor Relations from August 2010 to March 2014

KEY MEETINGS TO DATE:

| | | |
|---|---|---|
| **August 9, 2010** | UTA, USF User | Student Behavior Committee |
| August 12 | UTA reps, Sasaki, USF | Initial IMP process meeting |
| September 14 | UTA reps, Sasaki, USF | IMP meeting |
| September 30 | UTA reps, Fehr & Peers, Sasaki, USF | Walk UT to ID traffic Issues |
| October 29 | UTA reps, MTA, Fehr & Peers | Traffic calming with SFMTA |
| November 9 | UTA reps, Charles Salter Associates | Review Sound Study findings |
| November 10 | UTA reps, Fehr & Peers | Traffic Calming review |
| November 15 | UTA Community meeting | Traffic calming, IMP & const. update |
| November 18 | UTA Board & Sasaki, USF | IMP update |
| December 14 | UTA representatives, Provost Turpin | Discuss IMP process, issues |
| | | |
| **Feb 2, 2011** | UTA reps, Fehr & Peers, Cahill | Traffic Altern, CSI logistics |
| February 8 | UTA reps, Sasaki | IMP update |
| February 28 | UTA Community Meeting | Traffic Calming, Cahill Logistics |
| March 1 | UTA, USF Student Behavior Committee | |
| March 8 | UTA reps, Charles Salter Assoc. | Review Sound mitigations |
| March 17 | UTA reps, Sasaki | IMP update |
| March 24 | UTA reps, Sasaki, Fehr & Peers | IMP, Traffic update, process |
| March 31 | UTA, Fehr & Peers - Traffic Work Session | Examine traffic options |
| April 12 | UTA Annual Meeting | |
| April 20 | UTA reps, USF, Sasaki | IMP update |
| April 26 | UTA President Mira Ringler meets with USF student senate | |
| April 27 | UTA Traffic Subcommittee, Fehr&Peers | Examine traffic options |
| May 10 | UTA Community Meeting | IMP initial review Part 1 |
| May 18 | UTA Community Meeting | IMP initial review Part 2 |
| May 19 | UTA/USF Master Plan working meeting | |
| May 23 | *Construction of CSI commenced* | |
| June 14 | UTA Traffic Subcommittee | Examine traffic options |
| August 3 | UTA Traffic Subcommittee | Examine traffic options |
| Sept 1 | UTA Board USF | Settlement Agmt review |
| Sept 7 | UTA Board USF | Settlement Agmt review (cont) |
| Sept 7 | UTA, USF Student Behavior Committee | Academic yr 2011 kickoff mtg |
| Sept 14 | UTA Traffic Subcommittee | Examine traffic options |
| October 5 | UTA Community Meeting | Traffic Calming - Plan Review |
| November 1 | UTA, USF Public Safety, SFMTA | Spot Devices Demo/Pedestrian safety |
| November 15 | UTA Community Meeting | USF IMP - present Draft IMP |
| December 5 | UTA, USF Student Behavior Committee | |
| | | |
| **January 13, 2012** | *Draft IMP posted online. Comment period for 30 days.* | |
| January 30 | USF, UTA individuals regarding student behavior issues | |
| February 7 | UTA Traffic Comm, USF, Fehr & Peers, Sasaki | Traffic Calming & Parking |

| | | |
|---|---|---|
| February 10 | UTA Board reps, USF rep | Start standing meetings |
| February 13 | *Close of comment period re IMP draft* | |
| February 24 | UTA Board reps, USF rep | Standing meeting |
| March 9 | UTA Board reps, USF rep | Standing meeting |
| March 23 | UTA Board reps, USF rep | Standing meeting |
| *March 2012* | *USF submits Draft IMP to SF Planning Department* | |
| April 6 | UTA Board reps, USF rep | Standing meeting |
| April 17 | UTA individuals, Vice Provost, Public Safety | Student issues |
| April 19 | UTA & USF Executive staff | Social event |
| May 2 | UTA USF Student Behavior Committee | Neighborhood Relations |
| May 11 | UTA Board reps, USF rep | Standing meeting |
| May 30 | UTA Board reps, USF rep | Standing mtg/Settlement Agmt review |
| June 19 | UTA Board reps, USF rep | Standing meeting |
| June 29 | UTA Board reps, USF rep | Standing meeting |
| July 16 | UTA Board reps, USF rep | Standing meeting |
| August 6 | UTA meets with USF dorm RAs and Res Life staff | |
| August 20 | UTA Board reps, USF rep | Standing meeting |
| August 29 | UTA Traffic Comm, USF, SFMTA | Traffic Calming plan review |
| Sept 10 | UTA Board reps, USF rep | Standing meeting |
| Sept 19 | UTA, USF Neighborhood Relations | |
| Sept 24 | UTA Board reps, USF rep | Standing meeting |
| Oct 25 | UTA Board reps, USF rep | Standing meeting |
| November 2 | UTA, USF, SFMTA | BB parking |
| November 20 | UTA Board reps, USF rep | Standing meeting |
| December 10 | UTA Board reps, USF rep | Standing meeting |
| December 12 | UTA reps, USF reps, SFMTA | Parking |
| December 12 | UTA, USF Neighborhood Relations Committee | |
| **January 10, 2013** | UTA Board reps, USF rep | Standing meeting |
| January 14 | UTA Bd, USF rep calls in | Conference call |
| February 7 | UTA/USF/SFMTA | SFMTA parking proposal |
| February 21 | UTA/Neighborhood groups/SFMTA/USF | SFMTA parking proposal |
| February 26 | Martin MacIntyre/PSAC UTA, USF | UT Walk thru |
| April 15 | UTA Board, USF reps | IMP update |
| May 2 | Ewing Terrace Bd (John Munz), USF reps | IMP update |
| May 3 | Richard Rabbitt, USF reps, Coblenz | IMP update |
| May 6 | SFMTA, WLMA, FHeights, UTA, MacAllister | Parking & SFMTA |
| May 14 | Ewing Terrace Board, USF reps | IMP update |
| May 15 | Campus Town Hall | IMP update |
| May 16 | Community Town Hall | IMP update |
| June 12 | Community Town Hall (UTA,ET, FH, WLMA) | Parking/Traffic issues |
| June 18 | UTA Annual Mtg: USF rep report | |
| June 26 | SFMTA, USF rep, UTA rep, F&P rep | Traffic calming |
| July 11 | UTA Board reps, USF rep | Standing meeting |
| July 25 | Community Work Group (UTA,ET, FH, WLMA) | Parking/Traffic issues |
| *August* | *USF submits Draft II IMP to SF Planning Department* | |
| August 21 | Neighborhood reps, USF rep | Construction debrief |

| | | |
|---|---|---|
| August 27 | UTA Board reps, USF rep | Standing meeting |
| September 25 | Community Work Group (UTA,ET, FH, WLMA) | Parking/Traffic issues |
| October 14 | UTA Board reps, USF rep | Standing meeting |
| November 5 | Ewing Terrace Reps, USF reps | IMP/res hall |
| November 13 | Community Work Group (UTA,ET, FH, WLMA) | Parking/Traffic issues |
| November 21 | Ewing Terrace Reps, USF reps | IMP/residence hall |
| **January 27, 2014** | USF rep, MVE, Sobrato, Ewing Terrace reps | Resid. hall design mtg |
| January 28 | USF rep, MVE, Sobrato, UTA reps | Resid. hall design mtg |
| February 4 | Community Work Group (UTA,ET, FH, WLMA) | Parking/Traffic issues |
| March 3 | Community Work Group (UTA,ET, FH, WLMA) | Parking/Traffic issues |

## REQUIRED COMMISSION ACTION

No formal Planning Commission action is required and the Commission's acceptance of the IMP by closing the public hearing does not indicate approval of any project. It merely acknowledges that the IMP contains the required items and that there has been a public hearing.

By holding a public hearing in order to receive public testimony, the Planning Commission has fulfilled the requirements of Planning Code Section 304.5. This hearing is for receipt of public comment on USF's IMP. Pursuant to Planning Code Section 304.5(d), "the public hearing conducted by the Planning Commission on any institutional master plan, or revisions thereto, shall be for the receipt of public testimony only". Additionally, pursuant to Planning Code Section 304.5(h), "no hearing shall be held…by the Commission on any such application for a new conditional use until three months shall have elapsed after the date on which the public hearing is closed and the IMP, is accepted."

The Planning Department believes that USF's IMP adequately addresses all of the required items outlined in Planning Code Section 304.5.

## BASIS FOR RECOMMENDATION

The Planning Department believes that this IMP complies with the requirements of Planning Code Section 304.5.

**RECOMMENDATION:** **No action required. This is an informational item only.**

**Attachments:**

- USF IMP (includes Supplements A & B and Transportation Study Update Memo)
- Fehr & Peers' Technical Appendix for the Transportation Study dated March 2012
- Letters from Neighborhood Organizations and Residents

Attachment Checklist:

- [x] Executive Summary
- [x] USF IMP
- [x] Fehr & Peers Technical Appendix
- [x] Letters from Neighborhood Organizations and Residents

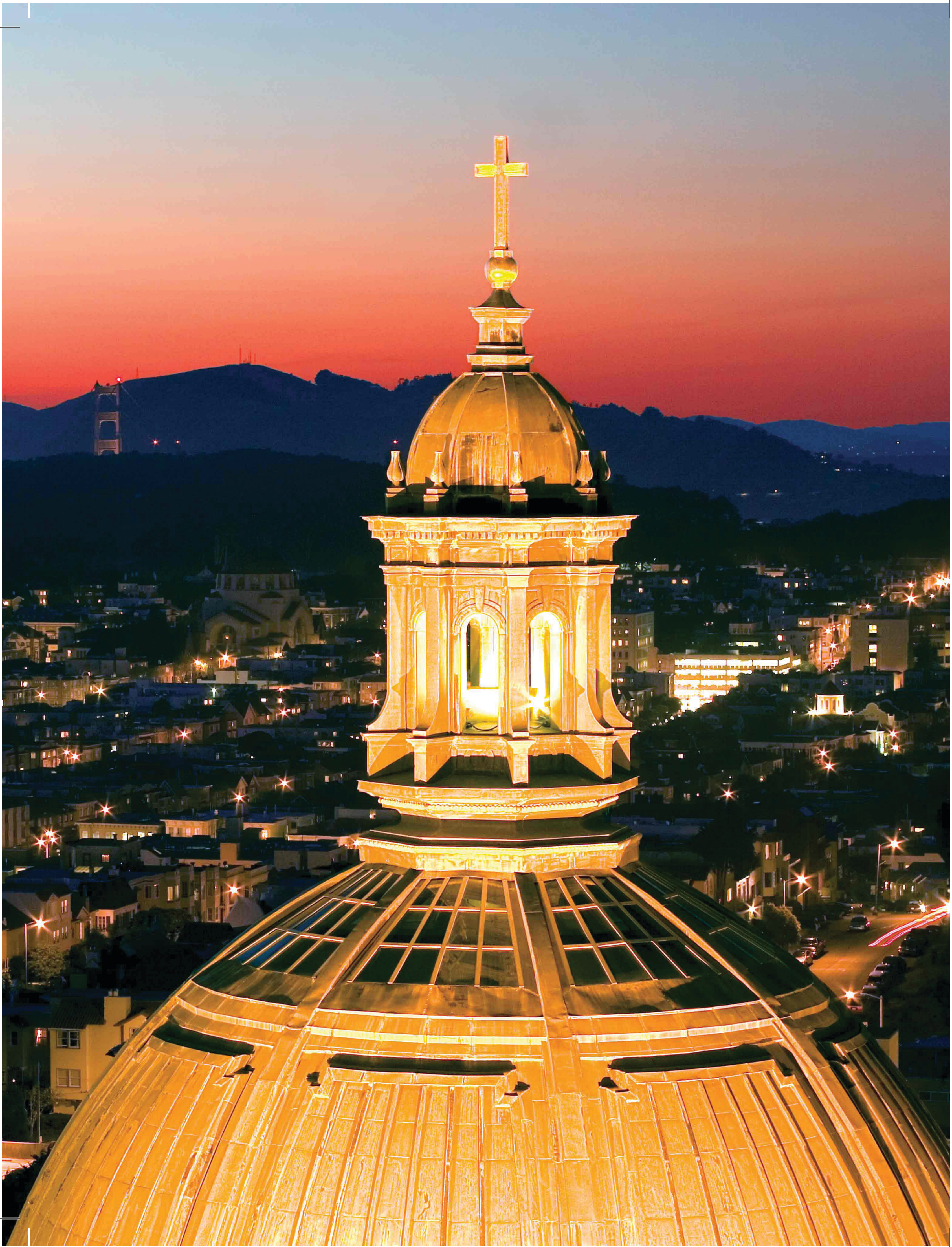
Exhibits above marked with an "X" are included in this packet ____________

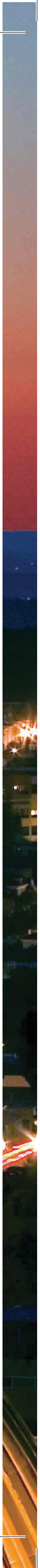
Planner's Initials

*MW:G:\Documents\CU\2130 Fulton - USF ExeSum.doc*

# UNIVERSITY OF SAN FRANCISCO

INSTITUTIONAL MASTER PLAN
AUGUST 2013





# / Letter from USF Leadership

Located in the center of one of the world's most dynamic cities, the University of San Francisco challenges its students to a call to action — to change the world from here.

In 2008, the University of San Francisco developed USF 2028, a strategic plan to support its mission and to focus its endeavors over the next two decades. In USF 2028, five areas of distinction are identified—Jesuit Catholic tradition, academic excellence, our San Francisco location, diversity and a global perspective. These five qualifiers are closely interwoven strands that together, and only together, are the "whole cloth" of educational excellence in our distinctively Jesuit tradition.

As part of USF 2028, the University began work on its Institutional Master Plan (IMP). After a year of close collaboration with University stakeholders and neighbors, the plan includes an assessment of current conditions, identifies facility needs and recommends projects that will meet those needs, ensuring delivery of a high quality, holistic and engaging educational experience for our students. The IMP fully supports the strategic initiatives outlined in USF 2028.

Our Institutional Master Plan draws from a key strategic initiative to optimize the use of the University's resources outside of its main Hilltop Campus, specifically its branch campuses and online learning, while carefully crafting academic programming to limit enrollment growth over the next 10 years on the Hilltop Campus.

The result is a comprehensive physical development and land use plan that supports USF 2028, guides change and growth with thoughtful care, and ensures we have the physical setting to provide a USF education in the Jesuit tradition.

Sincerely,

Rev. Stephen A. Privett, S.J.
President

Jennifer E. Turpin
Provost and Vice President
for Academic Affairs

August 2013

# UNIVERSITY OF SAN FRANCISCO

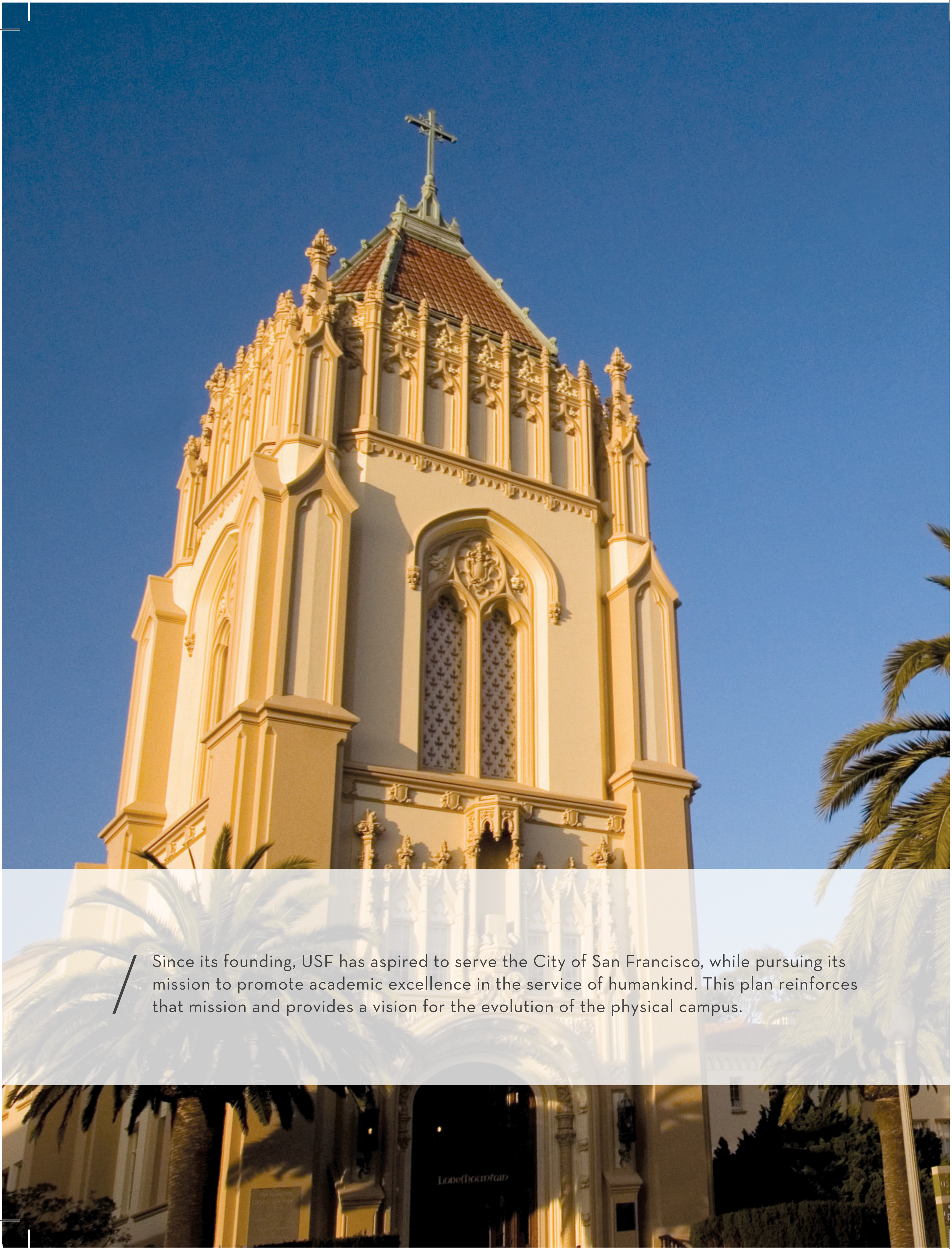
## Institutional Master Plan 2013



**Figures**



**Tables**



Since its founding, USF has aspired to serve the City of San Francisco, while pursuing its mission to promote academic excellence in the service of humankind. This plan reinforces that mission and provides a vision for the evolution of the physical campus.

# / Executive Summary

The Institutional Master Plan for the University of San Francisco is a plan to ensure the continuing excellence and evolution of the University for the next ten years. The University of San Francisco (USF, or the University) is San Francisco's oldest University. For more than 150 years, the University has educated many of the City's and region's public, business, and academic leaders. Since its founding, USF has aspired to serve the City of San Francisco, while pursuing its mission to promote academic excellence in the service of human kind. This plan reinforces that mission and provides a vision for the evolution of the physical campus from 2012 through 2022.

USF's primary campus is the fifty-two acre Hilltop Campus, located just north of the Golden Gate Park Panhandle. The campus is integrated into the city, and is made up of two large parcels, and other adjacent properties. A table of all San Francisco property owned or leased by USF is included in Chapter 1. Upper Campus is located on Turk Boulevard between Parker Avenue and Masonic Avenue. Lower Campus is located one short block away between Golden Gate Avenue and Fulton Street. The total student enrollment on Hilltop Campus was 8,731 in Fall 2011. The faculty and staff population is 2,170. In addition to the Hilltop Campus, USF offers limited course work at two other locations in San Francisco, and throughout California. The San Francisco locations include a building at the Presidio and the Folger Coffee building at 101 Howard Street acquired in Fall 2012.

USF has deep connections to the economy, community, and cultural life of the City of San Francisco and the projects and initiatives proposed in this IMP support the City's Eight Priority Policies. Those policies serve as a guide to ensure that the qualities that make San Francisco unique are preserved and enhanced.

- The University **enhances the local economy and employment opportunities** through its continued financial viability. USF is the 15th largest employer in the City and its annual operating and capital expenditures, along with student and faculty/staff spending, total an estimated $111 million in San Francisco. These economic activities ripple through the local economy, generating over $323 million in economic impacts in the City.
- USF's proposal to build a new residence hall on Lone Mountain will contribute to **preserving the City's affordable housing supply.**
- The University will **protect and enhance the campus and nearby neighborhood character** by implementing traffic calming, landscape guidelines and visitor arrival features. As any passerby can attest, the University is a conscientious and diligent **steward of its open space** and **of campus architecture**.

- USF's investment in local traffic calming and the expansion of its transportation demand management plan will **support Muni, reduce impacts on neighborhood parking, and not overburden City streets**.
- In cooperation with City departments, USF is positioned to provide **support services in the event of a major emergency** or earthquake.

## Plan Development

This Master Plan is the result of a collaborative process involving the University, residents of adjacent neighborhoods, the City of San Francisco, and numerous specialists in the planning, urban design, landscape architecture, transportation, and impact mitigation fields. The IMP process was led internally by USF's Master Plan Working Committee, which is composed of senior academic, facilities, student life, and administrative leadership. The Working Committee reported to and conferred with USF's governing bodies, including the President's Cabinet and the Board of Trustees.

The IMP Working Committee analyzed various development scenarios through several strategic filters: meeting the University's mission, insuring academic rigor, insuring financial health and viability, insuring an enriching student experience, and mitigating neighborhood impacts.

The committee concluded that a distributed campus and enrollment model that includes a less than 1% growth in Hilltop enrollment provided the optimal combination of meeting key strategic goals. The plan diverts growth away from the Hilltop while developing alternative revenue streams; it provides for new academic space to accommodate already crowded and outdated academic facilities, it modernizes and optimizes the use of current facilities, and it provides modern housing facilities that benefit the student population while also reducing transportation impacts on surrounding neighborhoods and the broader city.

USF submitted its last IMP in 2004 and has since submitted updates to the City, including the most recent in 2010. The 2004 IMP proposed a variety of


USF LOCATIONS IN SAN FRANCISCO

projects to support academic and administrative uses as well as enhance the student experience. Most of the projects proposed in 2004 have been completed, notably the renovation of the Lone Mountain Chapel for additional office space, the renovation of Campion, now Kalmanovitz, Hall, improvements to War Memorial Gym, and the in-fill of the Fromm Courtyard to create new classrooms. The proposed science building, now named the John Lo Schiavo SJ Center for Science and Innovation, is completed and will open in August 2013.

## Engagement Process

As part of the master planning process, USF worked closely with neighbors from the neighborhoods surrounding the campus. Collaboration was particularly close with the University Terrace Association (UTA). The University Terrace (UT) neighborhood lies between the upper and lower portions of the Hilltop Campus. USF also engaged other neighbors and neighborhood associations, including the Ewing Terrace Neighborhood Association and the Francisco Heights Neighborhood Association. The University held approximately fifty community meetings over the course of the planning effort and continues to meet regularly. Issues covered included enrollment growth and accommodation, transportation and parking, traffic calming and pedestrian safety, acoustics, student behavior, and the impact of USF activities on the neighborhood. Neighborhood engagement is ongoing.

In addition to USF's engagement of the neighboring community, USF faculty, staff and students provided input on the Master Plan through numerous meetings and Campus Town Halls.

## Trends in Higher Education

The higher education system in the U.S. has seen dramatic changes over the last decade, and more significant changes are expected in the years ahead. Tuition has risen across the industry in response to decreased government funding and higher fixed costs. At the same time, demand for higher education is rising. As state colleges and universities in California raise tuition, more and more students are applying to and attending private institutions like USF.

The market changes in higher education increase competition for the most talented students. This competition applies pressure to increase both financial aid and programmatic and facilities expenditures. Students also expect high levels of personal support, innovative academic programs and high quality facilities. USF is committed to continuing to provide excellent educational experiences to a diverse student body in the context of this challenging higher-education market. To do so, it must continually optimize its programs, facilities, and operations.

## Academic Development

In order to satisfy program demand from students and employers, USF will implement four major academic-programming strategies over the institutional master planning period. These include: expanding the School of Nursing into the School of Nursing and Health Professions, which now offers a Masters in Public Health; refining science and technology programs; enhancing and integrating arts programs; and increasing global diversity on campus. This Master Plan is designed to accommodate the growth and change of USF's academic programs.

## Student Life

USF is a community grounded in the Jesuit principles of inquiry and service. USF provides for the education of the whole person and therefore offers students a wide range of academic and non-academic activities. USF has made the integration of academic and student life a high priority, and is developing new living-learning communities that will surround students with curious and academically engaged peers.

USF believes that students' personal and academic needs should be supported holistically and recognizes the benefits of integrating the life of the mind with all other aspects of a student's life. The University's plan to provide additional housing, a new dining commons, and improved athletics and recreation facilities will facilitate this integration.

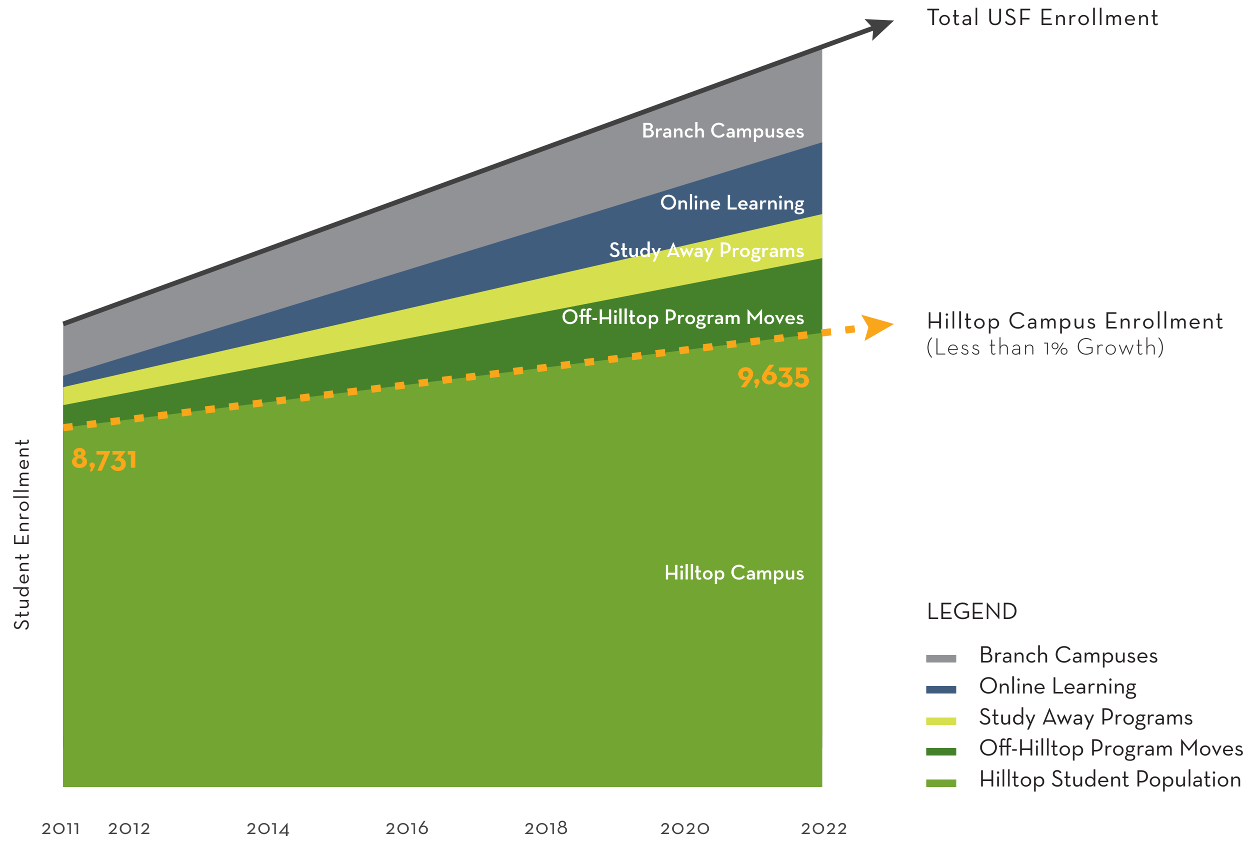
## Plan Summary

### CAMPUS FACILITY PROGRAM

To accommodate the demand for new and expanded programs, the University will implement a distributed campus plan. This plan will move some independent graduate programs off the Hilltop Campus to strategic locations in San Francisco, where they will be better able to serve students and be integrated with San Francisco. USF will also increase enrollment at its branch locations outside San Francisco, develop an online program for graduate students, and promote study-away programs. USF plans to increase enrollment on the Hilltop Campus by less than 1% per year, on average, through 2022.

The University anticipates a need for 60,000 to 75,000 gross square feet of academic and support space at the Hilltop Campus. These space needs include new classrooms, instructional labs, faculty and staff offices, and study space, in new facilities.

USF houses the smallest percentage of undergraduates in its residence halls of any of its peers, and USF's dormitories operate at full capacity. In response, USF plans to increase the percentage of undergraduates housed on the Hilltop Campus and build 635 new student housing bedrooms on the Hilltop Campus. The new student housing will be designed as living-learning space.




Student Enrollment Over Time

△ DISTRIBUTED CAMPUS PLAN

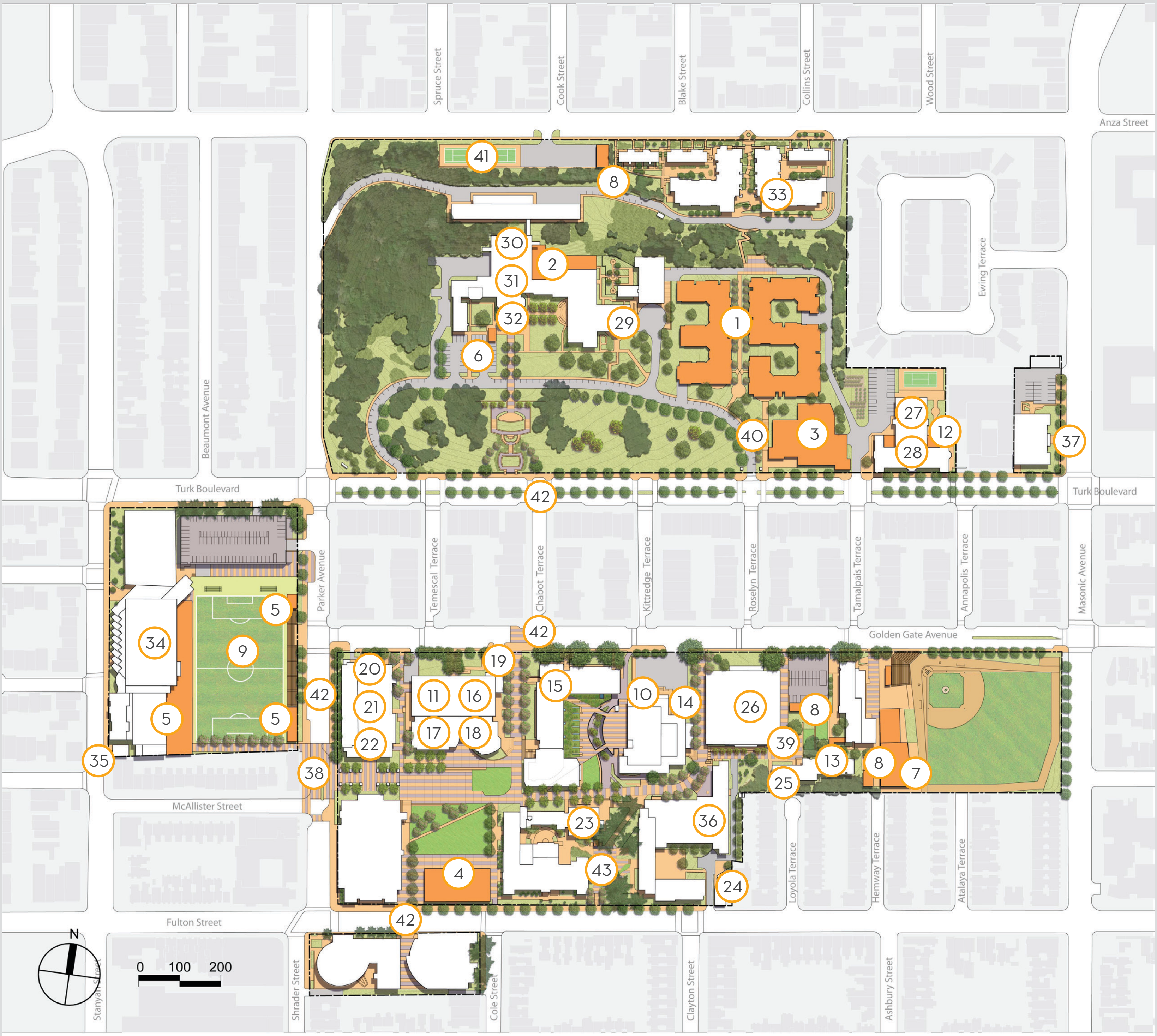
The key elements of the Hilltop Campus physical master plan are:

- Accommodation of enrollment growth of less than 1% annually on average, over the next ten years.
- Enhancement of the image and identity of the University through the physical environment with strategic building, landscape, and wayfinding improvements.
- Retention and accommodation of a mix of building uses on the Upper and Lower Campuses.
- Creation of a stronger visitor arrival experience and a safe, cohesive, and user-friendly pedestrian environment.

## POTENTIAL PROJECTS

Campus facilities are a significant factor in student and faculty recruitment and retention. They provide the physical platform for student life and learning as well as influencing visitors' impressions of the University. USF must invest in its facilities to ensure that they are not only modern and attractive, but also meet or exceed the peer standard, particularly in housing and learning facilities.

The University has translated the needs for facility growth and renewal into the list of capital projects for the Hilltop Campus shown on the following pages. A description of these projects is included in Chapter 2 of this report.




POTENTIAL PROJECTS, 2012 – 2022

## LEGEND

- USF Hilltop Campus Boundary
- Existing Buildings
- Proposed Buildings

## POTENTIAL HILLTOP CAMPUS PROJECTS, 2012–2022

### NEW CONSTRUCTION

1. Upper Campus Student Residence Hall and Parking
2. Upper Campus Dining Commons
3. Upper Campus Academic Building
4. Welch Field Academic Building
5. Mixed-Use Buildings at Negoesco Field
6. Visitor Center on Lone Mountain
7. Ulrich Field Intercollegiate Baseball Facility Improvements
8. Grounds Storage and Maintenance Facilities
9. Parking Under Negoesco Field

### BUILDING RENOVATIONS / UPGRADE

10. University Center and Harney Science Loading Facility
11. Gleeson Library Roof Space Enclosure
12. 2350 Turk Boulevard Courtyard Infill
13. Hayes-Healy/Gillson Common Area Front Desk
14. University Center Terrace Infill
15. Existing Harney Science Renovation
16. Library Learning Commons and Entrance Renovation
17. Gleeson Rare Book Room Vault Renovation
18. Gleeson First Floor Renovation (Current Disability Services Offices)
19. Cogeneration Plant Technology Upgrade
20. Fromm Hall X-Arts Renovation
21. St. Ignatius Parish Meeting Space and Office Renovation, Including Courtyard Infill (Fromm Hall)
22. Fromm Hall Lounge Renovation
23. Cowell Hall Learning and Writing Center Refurbishment
24. Fulton House Student Housing Renovation (1982 Fulton Street)
25. Hayes-Healy/Gillson Lounge, Bathroom and Sleeping Room Renovation
26. War Memorial Gym New West Entrance and Interior Renovation
27. 2350 Turk Boulevard Renovation
28. Presentation Theater Refurbishment
29. Lone Mountain Stacks Renovation
30. Lone Mountain Main Lower Level ADA Upgrade
31. Lone Mountain Main Mechanical, Electrical, and Plumbing Upgrade
32. Lone Mountain Main Window Replacement
33. Loyola Village Renovation for Student Lounge Space and Exterior Refurbishment
34. Koret Interiors Refurbishment
35. Mission House Renovation (284 Stanyan Street)
36. Phelan Ground Floor Renovation
37. 281 Masonic Classroom Renovation

### SITE IMPROVEMENTS

38. Parker Street Visitor Arrival Area
39. Hayes-Healy/Gillson Forecourt
40. Lone Mountain Drive Realignment
41. Replacement Tennis Courts
42. Streetscape Improvements on Golden Gate, Turk, Parker, Fulton
43. Bicycle Storage Facility

Open space improvements throughout campus including enhanced campus arrival, pedestrian gateways, new plantings, paving material upgrades, screening of service/parking areas, wayfinding signs, and installation of public art

## Impacts and Mitigations

Chapter 3 of this report outlines in detail USF's neighborhood engagement practices, its current impact on its neighborhood and the city at large, and the projected impact of implementing the Master Plan.

The extent to which USF has engaged its neighbors in this planning process represents an affirmation of the University's commitment to a positive shift in USF neighbor relations. As the plan was being developed, USF held approximately fifty meetings with community members on issues related to the IMP development, traffic calming and pedestrian safety, noise, student behavior, and other neighborhood concerns.

At the outset, USF's neighbors articulated a number of primary neighbor concerns regarding the impact of the University on the neighborhood.

The primary concerns are:

- Enrollment growth and its effect on quality of life
- Pedestrian safety
- Traffic on neighborhood streets
- University-related parking on neighborhood streets
- Student behavior
- Students and staff passing through the neighborhood
- Noise at outdoor fields
- Noise and disruption from service and delivery vehicles
- Impact from one-time USF events and ongoing programs that draw outside attendance
- Quality of the physical environment, particularly at the University's neighborhood edge

Throughout the planning process, USF has carefully considered concerns related to the impact the University has on the neighborhood. USF's commitment to growing at less than 1% per year on the Hilltop Campus for the plan duration represents a significant strategy to mitigate this impact.

USF is addressing additional neighborhood concerns through new policies for management of ongoing University functions. For example, the University has installed noise management systems at the baseball and soccer fields. USF has also established a position within the Student Life office that is specifically dedicated to improving student/neighbor relations. Other impacts and mitigations are detailed in Chapter 3.

### TRAFFIC CALMING

Many people arrive daily at the Hilltop Campus, using a variety of transportation modes. The University has partnered with the UTA to develop a traffic calming and pedestrian safety plan for the UT area. This plan aims to slow traffic and increase safety along Golden Gate Avenue, Turk Boulevard, and UT streets and to reduce congestion and parking demand on UT streets. The plan conforms with the City's Better Streets Initiative. USF and the UTA will work with the San Francisco Metropolitan Transportation Authority (MTA) to develop a plan for implementation.

The key interventions of the Traffic Calming plan include:

- A planted median and road diet on Turk Boulevard
- Bulb-outs at major pedestrian crossings
- San Francisco bike lane connections
- Restricting traffic and parking on UT streets
- Redesigning Golden Gate Avenue to promote a pedestrian atmosphere and slow traffic
- Aligning Upper Campus drive with the City street grid

## Transportation Impact Study

The evaluation of the IMP's potential impact on traffic, transit, bicyclists, pedestrians, loading, and construction activities showed that the IMP is not expected to result in any significant impacts to the surrounding transportation network according to the standards established by the City and County of San Francisco.

Travel demand characteristics and forecasts for the USF Hilltop Campus are based on the projected number of students and employees, as well as on travel survey responses by faculty, staff, and students. The following key findings for each travel mode are:

- The IMP's contribution toward unacceptable levels of vehicular traffic would be minimal. The IMP is expected to have a less than significant traffic impact under all scenarios through 2022.
- The IMP would have a less than significant impact on transit.
- Improvements to facilities for bicyclists proposed by the IMP are consistent with the San Francisco Better Streets Plan and Bicycle Plan.
- Improvements to facilities for pedestrians are consistent with the San Francisco Better Streets Plan.
- The IMP is expected to have a less than significant impact on pedestrian traffic congestion.

The traffic analysis assumes that the mode split and travel patterns to and from the Hilltop Campus are the same in future years. While USF has identified a comprehensive Transportation Demand Management (TDM) strategy that would encourage non-auto travel to and from campus those potential impacts are not incorporated in the TIS; therefore, the traffic analysis is conservative. The IMP's minimal contribution to traffic operations is expected to be further reduced with the planned TDM program.

### TRANSPORTATION DEMAND MANAGEMENT

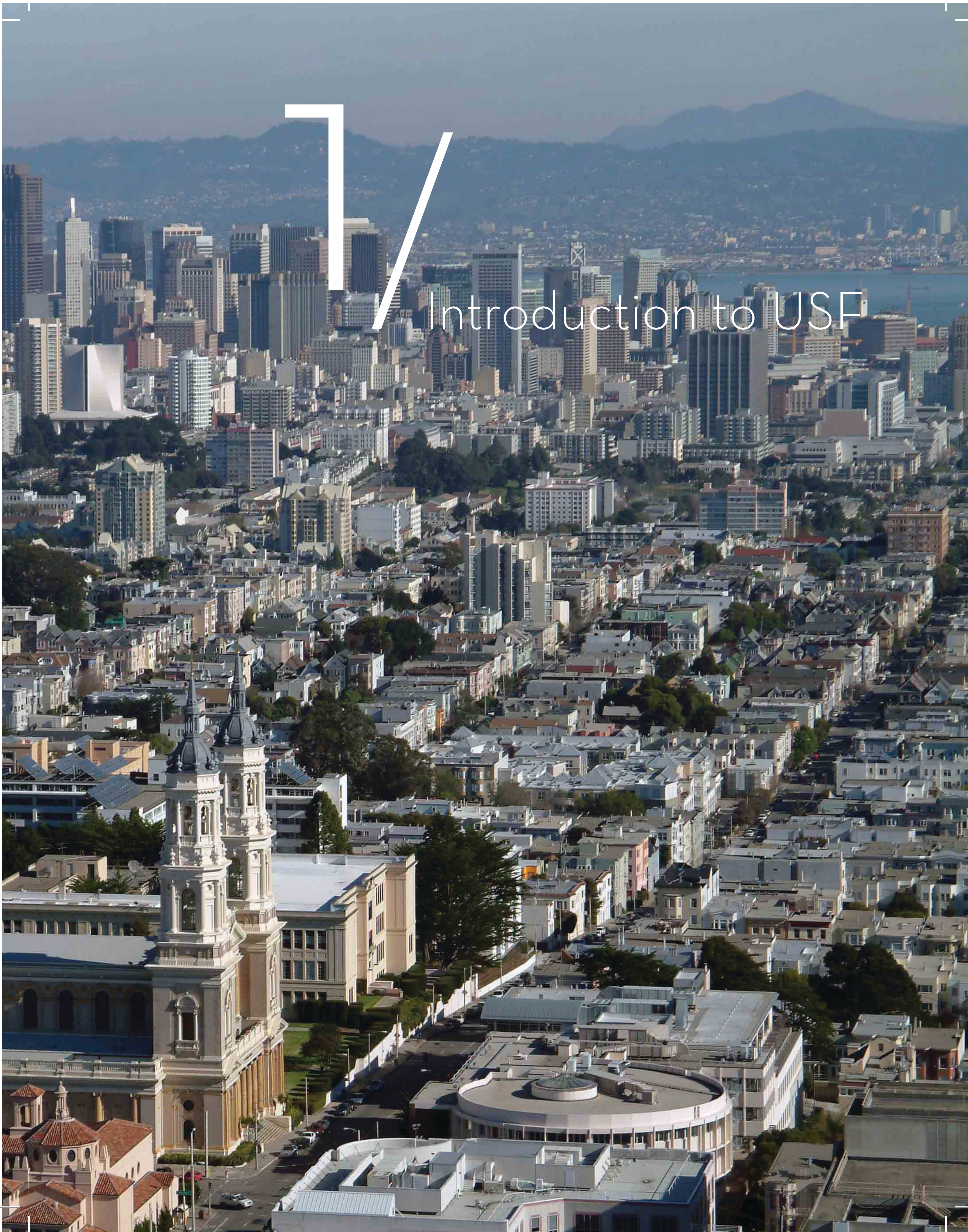
Even with projected growth having a less than significant impact, the University is committed to mitigating intensity of use on the Hilltop. USF has identified strategies to supplement its current Transportation Demand Management plan (TDM). Although it is currently estimated that 69% of trips to campus do not involve single occupant vehicles, the primary goal of USF's TDM strategy is to further reduce the number of people who drive alone to campus because they have the largest impact compared with people who use other modes of transportation.

The updated TDM plan includes strategies to offset the IMP induced increase in vehicle trips and vehicle miles traveled by USF faculty, students and staff. The University has identified fourteen strategies to augment the campus TDM program currently in place. Two of the key measures to track success of the program are the drive-alone rate and the peak hour parking demand.

## IMP Impact and Compliance

The IMP is consistent with the City's eight Priority Policies and with all sections of the General Plan of San Francisco and advances many of its objectives. The IMP also complies with the City's Downtown and Better Streets Plans. Environmental impact is expected to be minimal. The distributed campus plan proposed in this IMP is a strategy that allows the University to meet its mission, remain financially viable, and manage its impact on the surrounding neighborhoods.

# 1/ Introduction to USF




For more than 150 years since its founding in 1855, the University has served the citizens of San Francisco, California, and the wider world. It is dedicated to learning in a Jesuit Catholic tradition, and to educating the hearts and minds of students so that they may become just, compassionate, and visionary leaders.

# / Introduction to USF

The University of San Francisco is a doctoral intensive and community engaged Jesuit Catholic university. For more than 150 years since its founding in 1855, the University has served the citizens of San Francisco, California, and the wider world. It is dedicated to learning in the Jesuit Catholic tradition, and to educating the minds and hearts of students so that they may become just, compassionate, and intelligent leaders.

During the University's first six decades of service the main campus was relocated several times from its original location on Market Street, and was settled in the early 1900s on what is now known as the Hilltop Campus between Fulton Street and Turk Boulevard, near the geographic heart of the City of San Francisco. Since then, the University has established program offerings at two other locations in the City of San Francisco and at five centers in other cities in Northern and Southern California.

# Institutional Overview

## USF 2028 UNIVERSITY VISION

In August 2009, USF underwent a strategic planning process and elaborated on its vision for the future, summarized in the USF 2028 Planning Document (USF 2028). USF 2028 articulates five qualities that are central to the pursuit of its mission. The following is an abbreviation of the USF 2028 vision. The full document is included in Appendix 4.

"The core mission of the University of San Francisco is to 'promote learning in the Jesuit Catholic tradition' (Mission Statement). In this tradition, education aims at fully developing every dimension of a person's humanity — intellectual, moral, social, religious and aesthetic—so that our graduates, in addition to mastering a requisite body of knowledge, think clearly, analyze critically, communicate effectively, evidence a disciplined sensitivity to human suffering, construct lives of purpose and meaning and work effectively with persons of varying background and cultures for the common good.

In pursuit of its mission, USF offers students a demanding, integrated and holistic education that is the product of:

1. Jesuit Catholic tradition
2. Academic excellence
3. San Francisco location
4. Diverse experiences, perspectives and opinions within the University community and the Bay Area
5. A global perspective.

The University's goal is to interweave these five qualities into a single multi-hued tapestry that is Jesuit Catholic education at the University of San Francisco."[2]

## DEGREE PROGRAMS

Academic programs at USF are housed in one college and four schools: the College of Arts and Sciences; the School of Education; the School of Law; the School of Management; and the School of Nursing and Health Professions. All of these entities are driven by a dual emphasis on academic rigor and social justice.

As an urban institution, the integration of education and student life at USF involves engagement with the City itself. Students and faculty treat the City of San Francisco and its larger context as their research laboratories, while remaining attentive to the societal impact of their work.

USF is a comprehensive university, offering bachelor's, master's and doctoral degrees through over one hundred degree programs. USF's teaching offerings are complemented by the research conducted at its twenty-one interdisciplinary centers and institutes.

## STUDENT LIFE

Student life at USF is as vibrant and varied as the City of San Francisco itself. USF is host to just over one hundred student organizations with a broad range of focuses, from women's rugby to Alpha Sigma Nu — the Jesuit National Honor Society. The number of student organizations—including twenty-one multicultural and international groups and eleven service-oriented organizations—demonstrates a high level of student dedication to service and mutual understanding in fulfillment of the University mission. USF's Student Senate actively advocates for students as their elected representatives with the University's administration and strives to foster compassion, understanding, and cooperation in the community.

Students collaborate on a class project.

USF has an engaged and active residential student population. All freshman students are required to live on campus, and some sophomores, juniors, and seniors also choose to do so. Creating a student experience that combines living and learning is central to USF's mission to educate students as complete individuals.

Athletics and recreation are an important part of student life at USF and contribute significantly to the holistic educational experience. USF's NCAA Division I teams include men's basketball, soccer, baseball, golf, tennis, track and field, and cross-country; and women's basketball, cross-country, golf, soccer, tennis, volleyball, and track and field. In the fall of 2010, there were 223 student-athletes at USF, 156 of who had full or partial athletic scholarships. For other students, USF's Koret Health and Recreation Center offers the opportunity to exercise independently, receive personal training, and participate in group exercise classes, intramural sports, club sports, and outdoor adventure programs.

## POPULATION CHARACTERISTICS

According to the USF Fall 2011 Enrollment Census Report total enrollment for the term was 9,837 students; with 8,731 students enrolled on-campus at the San Francisco Hilltop Campus and 1,106 students enrolled at other sites. Of the 8,731 enrolled on-campus, 5,497 students were undergraduates and 3,234 were graduate and professional students. Of the 1,106 enrolled at other sites, 74 students were undergraduates and 1,032 were graduate and professional students.

USF's student body is co-educational (37.6% male and 62.4% female) and represents diverse ethnic, religious, social, and economic backgrounds, from 47 states and 75 countries. The average undergraduate student age is 21. The average graduate student age is 30. Approximately one-third of USF's undergraduate students come from families where they are the first person to attend college; and 62.5% of students work while attending school.

Sixteen percent of USF students come from families living in the City of San Francisco. Fifty-seven percent are from outside San Francisco in the State of California; thirteen percent are from other U.S. states, and fourteen percent are international students.

The USF student population breakdown is:

- African American: 4.8%
- Asian: 20.6%
- International: 12%
- Latino: 15.6%
- Native American: 1.9%
- Native Hawai'ian/Pacific Islander: .5%
- Unspecified: 4.1%
- White: 40.6%

Among traditional undergraduate students, the religious affiliations were:

- Buddhist: 2.0%
- Catholic: 38.5%
- Hindu: 0.6%
- Jewish: 2.1%
- Muslim: 1.5%
- No religion: 10.2%
- Other: 8.1%
- Protestant: 6.6%
- Unspecified: 30.4%

### FINANCIAL AID

For the 2011-2012 academic year, 54.9% of USF's undergraduate students received institutional financial aid; 15.2% received state aid; and 56.9% received federal financial aid, including: (Note: A student can receive more than one type of financial aid in the same year.)

- Pell Grants: 26.9%
- Perkins Loans: 9.0%
- Work Study: 19.5%
- Supplemental Educational Opportunity Grants: (2.4%)

### USF FACULTY

In Fall 2011, the faculty population (headcount) was 992 and the staff population was 1,178. Over 1,000 USF employees live in the City of San Francisco.

#### AFFIRMATIVE ACTION POLICY

"The University is an equal opportunity institution of higher education. As a matter of policy, the University does not discriminate in employment, educational services and academic programs on the basis of an individual's race, color, religion, religious creed, ancestry, national origin, age (except minors), sex, gender identity, sexual orientation, marital status, medical condition (cancer-related and genetic-related) and disability, and the other bases prohibited by law. The University reasonably accommodates qualified individuals with disabilities under the law."[4]

## The University in Context

### USF IN THE CITY OF SAN FRANCISCO

Located near the geographic heart of San Francisco, USF has deep connections to the economy, community, and cultural life of the city.

#### ECONOMY

Over 1,000 USF employees live in the City as do the majority of students. In Fiscal Year 2011–2012, USF is generating substantial economic impact on both the San Francisco and larger regional economy. USF is responsible for directly employing approximately 2,000 faculty and staff in San Francisco, making it the 15th largest employer in the City. Annual operating and capital expenditures by the University, along with student and faculty/staff spending, totals an estimated $111M in San Francisco. These economic activities in turn, ripple through the local economy, ultimately generating over $323 M in economic impacts in San Francisco.[5]

[4] USF Equal Opportunity and Non-Discrimination Policy, December 2007

[5] University of San Francisco Economic Imports Report, February 2012
BAE Urban Economics
Includes direct, indirect, and induced economic impacts from USF annual operations, capital expenditures, household income from faculty/staff households, and student spending.

USF's innovative professional degree programs are unique in responding directly to the economic development goals of the City of San Francisco. For example, the new M.S. in Biotechnology to be offered by the College of Arts and Sciences will provide a unique curriculum combining business management and sciences tailored specifically to San Francisco's burgeoning bio-sciences industry. USF is currently involved in numerous collaborative research projects with other San Francisco institutions, including the University of California, San Francisco, San Francisco State University, and the San Francisco Bay National Estuarine Research Reserve.

### COMMUNITY

Community engagement and service learning are critical components of the University's mission. This commitment is manifest in a wide range of the University's programs, academic curriculum, faculty research, and student activities. All undergraduate students at the University must complete a service learning requirement in order to graduate. About 46% of the Hilltop Campus student population volunteer off campus and, overall, those students devote approximately 200,000 volunteer hours per year in community service in San Francisco. Among students who volunteered, those that volunteered for San Francisco public schools donated more time, averaging 17 hours per month, while those that volunteered for San Francisco government agencies donated almost 19 hours per month. The University has more than fifty student organizations and six living-learning communities dedicated to community service.

In 2009, USF was ranked as one of the hundred top universities in the nation for civic engagement in a study entitled "Saviors of our Cities," authored by Dr. Evan Dobell, president of Westfield State University. Because of the University's high level of community engagement, the Corporation for National and Community Service has placed USF on the President's Higher Education Community Service Honor Roll for the last six years (2006-2012). In 2011, USF was one of just seventy-six colleges and universities in the U.S. to be designated a "community engaged" institution by the Carnegie Foundation for the Advancement of Teaching in the categories of curriculum engagement and outreach and partnerships.

### CULTURE

In addition to USF's service and economic-related engagement in San Francisco, USF makes a significant contribution to the intellectual and cultural life of the City and the world. In 2010 alone, faculty members wrote forty-two books, articles, and book chapters, received thirty-four awards, including three Fulbright Scholar Program awards, and presented at or organized nineteen conferences. In 2011, an unprecedented three faculty received Guggenheim Fellowships, awarded for those who "have already demonstrated exceptional capacity for productive scholarship or exceptional creative ability in the arts." Many faculty are called upon to speak to the media on current affairs issues in their areas of expertise.

USF offers a wide range of cultural events and exhibitions that are open to the public, including exhibitions at the Thacher Gallery, the Davies Forum lecture series; and numerous other public lectures and performances.

USF is a truly diverse and multi-cultural institution annually ranked by US News & World Report in the very top tier of national universities for Campus Ethnic Diversity and host to a large international student population.


FIGURE 1: USF LOCATIONS IN SAN FRANCISCO

Hilltop Campus

101 Howard Street

Presidio (920 Mason Street)

## USF LOCATIONS

### THE HILLTOP CAMPUS

The largest independent university campus in San Francisco, USF's main campus is located on a hilltop with dramatic views overlooking the City. The campus consists of two primary sites as well as several small adjacent sites, which together comprise the Hilltop Campus. The total Hilltop Campus area is approximately fifty-two acres.

As of 2012 USF also offers programs at two other locations in San Francisco (see Figure 1), and five centers in other cities around the San Francisco Bay Area and in Southern California.

The Hilltop Campus's two primary sites are called Upper Campus and Lower Campus. As illustrated in Figure 2, the Upper Campus (also known as Lone Mountain) is located one short block north of the Lower Campus on a large parcel bounded by Anza Street, Parker Avenue, Turk Boulevard, and Masonic Avenue. Ewing Terrace, a private residential area, is located in the northeast corner of this block.

The Lower Campus is located on the block between Golden Gate Avenue, Parker Avenue, Fulton Street, and Masonic Avenue. USF shares this block with three residential cul-de-sacs: Loyola, Hemway, and Atalaya Terraces. The Jesuit Saint Ignatius Catholic Church stands at the corner of Parker Avenue and Fulton Street on a site that is contiguous with, but separate from, the campus.

Other campus areas include the Koret Recreation Center, which occupies most of the block between Turk Boulevard, Stanyan Street, McAllister Street, and Parker Avenue; the University of San Francisco School of Law, on Fulton Street between Shrader and Cole Streets; 2350 Turk Boulevard, just east of Lone Mountain; and 281 Masonic Avenue, at the corner of Turk Boulevard and Masonic Avenue.

Between Upper and Lower Campus is a residential area called the University Terrace. The area is bounded by Masonic, Golden Gate, and Parker Avenues and Turk Boulevard. The neighborhood comprises low-rise residential buildings, the majority of which are single-family homes.

USF is located close to San Francisco's iconic Golden Gate Park. The Lower Campus is three blocks north of the Panhandle and one block east of the main Golden Gate Park block. Angelo J. Rossi Playground, located three short blocks west of the Upper Campus, provides additional recreational facilities to the USF and neighboring communities.

USF is centrally located in San Francisco and has good access to three significant cross-city thoroughfares: Masonic Avenue; Fulton Street; and Geary Boulevard. The campus is well served by public transit, which connects it to the City and region. Fulton Street and Geary Boulevard are major transit corridors, and six MUNI lines run within one block of campus. There is also a Golden Gate Transit route on Geary Boulevard.

### 101 HOWARD STREET

The University recently acquired the historic Folger Coffee Building at 101 Howard Street in downtown San Francisco. The building is listed on the National Register of Historic Places, and has easy access to freeways, the Bay Bridge, and public transportation. USF has relocated select programs from the Hilltop Campus to the 101 Howard Street building. These are primarily graduate level School of Management (SOM) programs.

### THE PRESIDIO

The Presidio location has accommodated graduate students pursuing Masters of Science degrees in Financial Analysis, Risk Management, and Investor Relations. These programs will move as a result of the 101 Howard Street acquisition. Four graduate programs from the School of Nursing and Health Professions are scheduled to move from the Hilltop to the Presidio campus in the summer of 2013.

The School of Nursing and Health Professions also rents hotel space, currently from the Villa Florence Hotel, for its Executive Leadership Doctor of Nursing Practice, an executive level program that meets every 2-4 months.

USF students are also placed at sites around the City for assignments required to fulfill degree requirements, such as placements at schools, hospitals, local non-profits, businesses, and government entities.


FIGURE 2: EXISTING HILLTOP CAMPUS MAP

## LEGEND

- ·—·– USF Hilltop Campus Boundary
1. Lone Mountain Pacific Wing
2. Lone Mountain Main Building
3. Lone Mountain North
4. Studio Theater
5. Rossi Wing/Administration
6. Loyola House
7. Loyola Village
8. Underhill Building
9. USF Presentation Theater
10. 2350 Turk Boulevard
11. 281 Masonic
12. Koret Center
13. Negoesco Field
14. Mission House
15. Fromm Hall
16. Gleeson Library
17. Gleeson Plaza
18. Welch Field
19. Kendrick Hall
20. Dorraine Zief Law Library
21. Kalmanovitz Hall
22. Harney Science Center
23. John Lo Schiavo, S.J. Center for Science and Innovation
24. Cowell Hall
25. University Center
26. McLaren Conference Center
27. Tarantino Plaza
28. Malloy Hall
29. Fulton House
30. Phelan Hall
31. Memorial Gymnasium
32. Gillson Hall
33. Hayes-Healy Hall
34. Ulrich Field & Benedetti Diamond

## PROPERTY OWNED AND LEASED BY USF

The following listing of property owned or leased by the University throughout the city is organized by location. It details building name, block and lot number, gross square feet (gsf) of floor area, number of floors, number of classrooms, number of beds, primary use, and ownership status.

TABLE 1: PROPERTY OWNED AND LEASED BY USF

| BUILDING NAME | BLOCK # / LOT # | FLOOR AREA | # FLOORS | # CLASS-ROOMS | # BEDS* | PRIMARY USE | OWNERSHIP |
|---|---|---|---|---|---|---|---|
| **LOWER CAMPUS** | | | | | | | |
| Cowell Hall<br>*2395 Golden Gate Ave.* | 1145<br>3 | 46,224 | 4 | 17 | – | Academic | Owned |
| Fromm Hall<br>*650 Parker Ave.* | 1145<br>3 | 68,063 | 5 | 5 | 192 | Academic, Residential, & Conference | Owned |
| Fulton House<br>*1982 Fulton St* | 1173<br>18 | 5,200 | 3 | – | 12 | Residential | Owned |
| Gleeson Library and Geschke Learning Center<br>*2495 Golden Gate Ave.* | 1145<br>3 | 73,184 | 4 | 1 | – | Academic | Owned |
| Gillson Hall<br>*2325 Golden Gate Ave.* | 1145<br>3 | 121,122 | 8 | – | 368 | Residential | Owned |
| Harney Science Center<br>*2445 Golden Gate Ave.* | 1145<br>3 | 103,739 | 5 | 20 | – | Academic | Owned |
| Hayes-Healy Hall<br>*2305 Golden Gate Ave.* | 1145<br>3 | 79,350 | 10 | – | 376 | Residential | Owned |
| Hayes - Garage<br>*Golden Gate Ave.* | 1145<br>3 | 47,633 | 4 | – | – | Parking | Owned |
| John Lo Schiavo Center for Science and Innovation<br>*2455 Golden Gate Ave.* | 1145<br>3 | 58,000 | 5 | 17** | – | Academic | Owned |
| Kalmanovitz Hall<br>*2130 Fulton St.* | 1145<br>3 | 98,888 | 4 | 23 | – | Academic | Owned |
| Kendrick Hall<br>*2195/2199 Fulton St.* | 1190<br>1 | 107,741 | 3 | 7 | – | Academic | Owned |
| Koret - Garage<br>*501 Parker Ave.* | 1144<br>1 | 74,525 | 2 | – | – | Parking | Owned |
| Koret Health<br>222 Stanyan St. | 1144<br>1B | 124,553 | 3 | 2 | – | Parking, Academic & Recreation | Owned |
| Malloy Hall<br>*2345 Golden Gate Ave.* | 1145<br>3 | 55,230 | 4 | 6 | – | Academic | Owned |
| McLaren Hall<br>*2345 Golden Gate Ave.* | 1145<br>3 | 21,148 | 3 | – | – | Academic | Owned |

| BUILDING NAME | BLOCK # / LOT # | FLOOR AREA | # FLOORS | # CLASS-ROOMS | # BEDS* | PRIMARY USE | OWNERSHIP |
|---|---|---|---|---|---|---|---|
| LOWER CAMPUS (CONT) | | | | | | | |
| Memorial Gymnasium<br>*2335 Golden Gate Ave.* | 1145<br>3 | 77,252 | 2 | – | – | Athletic | Owned |
| Mission House<br>*284 Stanyan St.* | 1144<br>1A | 1577 | 3 | – | – | TBD | Owned |
| Phelan Hall and McLaren Center<br>*2345 Golden Gate Ave.* | 1145<br>3 | 119,655 | 8 | – | 509 | Mixed Use | Owned |
| University Center<br>*2375 Golden Gate Ave.* | 1145<br>3 | 95,800 | 5 | – | – | Student Life | Owned |
| Zief Law Library<br>*2101 Fulton St.* | 1190<br>1 | 67,014 | 3 | – | – | Academic | Owned |
| UPPER CAMPUS (ALSO REFERRED TO AS LONE MOUNTAIN) | | | | | | | |
| 281 Masonic Avenue | 1107<br>4 | 27,779 | 3 | 5 | – | Academic | Leased |
| 2350 Turk Blvd. | 1107<br>6 | 65,095 | 3 | 16 | – | Academic | Owned |
| Underhill<br>*2400 Turk Blvd.* | 1107<br>008 | 8,000 | 1 | 3 | – | Academic | Owned |
| Lone Mountain Main<br>*2800 Turk Blvd.* | 1107<br>008 | 134,485 | 3/4 | 31 | 52 | Mixed Use | Owned |
| Lone Mountain North<br>*330 Parker Ave.* | 1107<br>008 | 88,326 | 8 | – | 269 | Mixed Use | Owned |
| Lone Mountain Rossi<br>*2800 Turk Blvd.* | 1107<br>008 | 23,788 | 4 | 1 | – | Administrative | Owned |
| Loyola House<br>*2600 Turk Blvd.* | 1107<br>008 | 30,892 | 4 | – | – | Jesuit Residence | Owned |
| Loyola Village<br>*301-401 Anza St.* | 1107<br>009-144 | 166,770 | 4 | – | 338 | Residential | Owned |
| Maintenance and Storage Facilities<br>(*various locations*) | – | 2485 | 1 | – | – | Maintenance | Owned |

| BUILDING NAME | BLOCK # / LOT # | FLOOR AREA | # FLOORS | # CLASS-ROOMS | # BEDS* | PRIMARY USE | OWNERSHIP |
|---|---|---|---|---|---|---|---|
| OTHER SAN FRANCISCO LOCATIONS (ACADEMIC/OPERATIONS) | | | | | | | |
| 101 Howard Street | 3740 001 | 90,088*** | 5 | 6 | – | Academic | Owned |
| Pedro Arrupe *490 6th Ave.* | 1539 2 | 22,409 | 4 | – | 97 | Residential | Leased |
| Presidio Building *920 Mason St.* | 1300 001 | 8,000 | 1 | 3 | – | Academic | Leased |
| 1855 Mission Street | 3548 035 | 13,000 | 2 | – | – | Facilities | Leased |

* Source: Residence Life, January 2012 / Number includes students and staff/faculty (75 total) beds. Number of beds in each residence hall may vary slightly from one term to another.
** These classrooms are scheduled to be brought online in the 2013-14 academic year.
*** Number indicates rentable square footage. In 2012 USF occupied approximately 25,000 SF of the 101 Howard Street building and now occupies an additional 13,230 SF in 2013.

### RESIDENTIAL PROPERTIES

The following residential properties are owned by USF and rented to USF faculty and staff at market rate. None are rented by students. The University has no plans to change this practice.

TABLE 2: RESIDENTIAL PROPERTIES

| PROPERTY LOCATION | BLOCK # | LOT# |
|---|---|---|
| 22 Chabot Terrace | 1147 | 15 |
| 25 & 27 Chabot Terrace | 1146 | 2 |
| 28 Chabot Terrace | 1147 | 14 |
| 34 Chabot Terrace* | 1147 | 013 |
| 35 Chabot Terrace | 1146 | 4 |
| 47 Chabot Terrace | 1146 | 6 |
| 52 Chabot Terrace* | 1147 | 010 |
| 53 Chabot Terrace | 1146 | 7 |
| 239 & 241 Masonic Avenue | 1109 | 3C |
| 59 & 61 Roselyn Terrace | 1148 | 8 |
| 186 Stanyan Street | 1138 | 13 |
| 2745 & 2747 Turk Boulevard | 1147 | 16 |

* Properties subject to an option to repurchase by the University

## FACILITIES CONDITION

Although the buildings on the Hilltop Campus are attractive, many do have ongoing and deferred maintenance requirements. Forty-four percent of the building space in use is over fifty years old. By 2010, the asset reinvestment backlog, including infrastructure improvements, modernization, and repair, totaled $174.6 million.

## NORTHERN AND SOUTHERN CALIFORNIA USF LOCATIONS

In addition to its locations in San Francisco, USF offers courses at five centers in Pleasanton, Sacramento, San Jose, Santa Rosa, and the Los Angeles area. These sites allow USF to provide education to students who are not able or do not wish to attend classes in San Francisco. Many students are supporting families, working full-time, or financially unable to move or commute to San Francisco. Degree programs at these locations generally serve graduate students and students working to complete their bachelor's degrees after some years away from school. USF's locations outside San Francisco have classrrom facilities, study spaces, and permanent staff on site. Most also have library facilities.

USF states on its website:

"We know… that offering strong academic programs designed to allow our students to balance the many demands placed on them is not enough. We recognize we need to offer programs in locations and at times that are convenient, and we need to ensure that our students, and the faculty who teach them, are supported with appropriate academic and administrative services. We believe one of the best ways to meet these needs is through our full service centers located throughout [California]."[6]

These campuses not only increase USF's ability to provide access to a high quality education to students in a range of life stages, but they also represent an opportunity for USF's growth and expansion beyond the Hilltop location.

This Institutional Master Plan, prepared specifically for the City and County of San Francisco, considers USF's various San Francisco locations, but focuses on the Hilltop Campus.


FIGURE 3: USF BRANCH CAMPUSES IN NORTHERN AND SOUTHERN CALIFORNIA

[6] http://www.usfca.edu/regions/

In 1863, the University of San Francisco was located at the south side of Market Street, between Fourth and Fifth streets.
Source: Legacy & Promise, 150 Years of Jesuit Education at the University of San Francisco, 2005

## HISTORY OF USF

### THE EARLY YEARS

Established by the Jesuit Fathers in October 1855, USF was the City of San Francisco's first institution of higher education. This original college, known as Saint Ignatius Academy, opened its doors as a "Jesuit college for the youth of the city." The University's first home was on the south side of Market Street between Fourth and Fifth Streets.

In 1859, the State of California issued a charter with the title "Saint Ignatius College," which empowered the College to confer degrees. In 1862, the College constructed a new building on the same site. The first Bachelor of Arts degree was conferred in June 1863.

The College moved in 1880 to a new building on Van Ness Avenue near the Civic Center, the current site of the Louise M. Davies Symphony Hall. Twenty-six years later, the 1906 San Francisco fire and earthquake destroyed the institution and all its laboratories, libraries, and art treasures. The College was relocated to temporary quarters at Hayes and Shrader Streets within the year.

Development of the University's current site began with the purchase of the Ignatian Heights property at Fulton Street and Parker Avenue in 1909. In 1914, Saint Ignatius Church was dedicated, followed in 1921 by an adjacent faculty residence. Six years later, the academic functions of the College were moved to what is now known as Kalmanovitz Hall.

Upon the occasion of its Diamond Jubilee in 1930, and at the request of civic, professional, and industrial leaders of San Francisco, Saint Ignatius College became the University of San Francisco.

## THE COLLEGE OF ARTS AND SCIENCES

The Department of Letters, Science, and Philosophy officially became the College of Arts and Sciences in 1926 to reflect the changes taking place within the College, including an increase in the number of elective courses offered to students. In 1927, to accommodate the growing student population, the Liberal Arts building, (Campion Hall, now Kalmanovitz Hall) was completed and dedicated and the entire University was moved to its present location.

The College is now the largest academic unit at USF, with a September 2011 enrollment headcount of 3,820 undergraduate and 830 graduate students. Also in 2010 Jennifer Turpin, Dean of the College since 2003, was named USF's provost, the first woman to occupy that position in the history of the University.

## SCHOOL OF LAW

The USF School of Law was established in 1912, with classes held in the Grant Building on Market Street. Matthew I. Sullivan, who later became Chief Justice of the California Supreme Court, was the School's first dean. In 1917, the School moved its classes to the building on Hayes and Shrader Streets, the temporary quarters for the University following the earthquake and fire of 1906. The School of Law relocated to the current USF campus in 1927. The School now occupies Kendrick Hall, built in 1962, expanded in 1982, and renovated and rededicated in 2004; and the Dorraine Zief Law Library, opened in Fall 2000.

## SCHOOL OF MANAGEMENT

The School of Management comprises the former Colleges of Business and Professional Studies.

The business program was founded in 1924 as a four-year evening certificate program. The Bachelor of Science degree was first awarded in 1935. In 1947, the College of Business Administration became a separate academic division. In 1974, its name was changed to McLaren College of Business, and the program was moved to the McLaren Center. In 1990 the name of the school was changed to the McLaren School of Business; and in 1999 to the School of Business and Management.

The College of Professional Studies was founded in 1975. It offered an innovative selection of undergraduate degrees in the evenings and on weekends, mostly to working adults who had undertaken some college work but had not completed a degree. In 1983, Michael O'Neill, former dean of the USF School of Education, developed a master's degree in nonprofit administration in the College of Professional Studies, one of the nation's first master's degrees in the nonprofit field.

The University of San Francisco created the School of Business and Professional Studies by merging the School of Business and Management with the College of Professional Studies in June 2009. The School of Business and Professional Studies was renamed the School of Management in June 2011, retaining the names McLaren School of Management for undergraduates, and Masagung Graduate School of Management for the graduate program.

USF Zief Law Library

### SCHOOL OF EDUCATION

In 1948, the University established the Department of Education. From its inception, and through the 1950s and 1960s, the Department had a highly regarded teacher preparation program and several master's degree programs. In 1972 the Board of Trustees expanded the Department to become the School of Education, and in 1975 the first doctoral students were admitted to study for the newly approved Doctor of Education degree. Currently, the School enjoys a well-established reputation as a leading School of Education dedicated to meeting the needs of professional educators through academic programs, research, and other services.

### SCHOOL OF NURSING AND HEALTH PROFESSIONS

A nursing department at USF was founded in the 1940s as a cooperative effort with the Sisters of Mercy. The School of Nursing was formed in 1954 and accredited by the National League for Nursing when the first class graduated in 1958. Classes were held in Harney Science Center, with administrative and faculty offices at St. Mary's Hospital, until Cowell Hall was built in 1969. The School began offering a Master of Science program in Nursing in the fall of 1984. The School has been continuously accredited since 1954, receiving its most recent affirmation from the Commission on Collegiate Nursing Education (CCNE) and Doctor of Nursing Practice (DNP) in October 2008. In 2011, the School of Nursing broadened its scope to offer the Master of Public Health degree, and was renamed the School of Nursing and Health Professions.

## Existing Hilltop Campus Analysis

### CAMPUS CHARACTER

The Hilltop Campus, which occupies fifty-two acres, encompasses spaces with a wide variety of character. The Upper Campus, situated on the top of Lone Mountain, was designed in a traditional campus form, with wide lawns and trees spread out along Turk Boulevard, framing an impressive and welcoming array of buildings built in a neo-traditional southern European style. The north side of Upper Campus is steeply sloped towards Anza Street, and is invisible from the south side of the hill. The buildings in this area are more modern. The Lone Mountain dorm is a mid-century modernist building, while Loyola Village is built in a modern Santa Fe style. The buildings on Upper Campus are typically three to four stories tall, though the Lone Mountain dormitory building rises eight stories. While the building is tall, it is not imposing because it is visually sited against the north side of Lone Mountain.

Arranged along a central pedestrian spine, the buildings on the Lower Campus are constructed in a range of architectural styles in keeping with the eras in which they were built. Saint Ignatius Catholic Church, at the corner of Parker Avenue and Fulton Street, was the first building constructed on the block occupied by Lower Campus. Though the church is not owned by the University, it is nevertheless a defining feature of the campus. The church was built in 1914 in an eclectic 'Jesuit Baroque'[7] style. The first University buildings, like Campion Hall, were constructed adjacent to the church in a complementary traditional style. Subsequent buildings were built in restrained contemporary styles.

[7] http://www.stignatiussf.org/a/docent.htm

The spires of Saint Ignatius and the tower on Lone Mountain distinguish the Hilltop Campus and are visible across much of the City.

Campus open space also contributes to the University's character and identity, creating some of the most memorable sites on campus, an amenity for the University community and neighborhood residents alike. The soccer field and baseball diamond, on opposite ends of the campus, provide space for active recreation, while Welch Field, Gleeson Plaza, Tarantino Plaza, and the landscape at Lone Mountain offer opportunities for passive recreation and socializing. In the intensely built urban environment of the neighborhood and campus, these spaces create a sense of visual openness and spaciousness.

Topography is a defining feature of the campus. Lone Mountain, the highest point on Upper Campus, is approximately one hundred-fifty feet higher than Lower Campus, while grades on both campuses slope over eighty feet from west to east. This varied topography creates excellent opportunities for dramatic siting of buildings; however, the landforms can present challenges for pedestrian and vehicular circulation.

The local micro-climate sometimes limits outdoor gathering and activities because of cold wind and fog, although sunny days are frequent.

Strengths of the existing campus form include:

- The Upper Campus has a dramatic sense of arrival, approach, beautiful grounds, and striking views.
- Upper Campus architecture is traditional and stylistically coherent.
- The Lower Campus core forms an attractive pedestrian mall surrounded by welcoming buildings.
- Welch Field serves as a traditional quad-like open space, surrounded by modern and traditional architecture.

Concerns about aspects of the existing campus form are:

- Lower Campus buildings face towards the campus center rather than outward toward the neighboring community.
- In some areas edge conditions are dominated by parking, service, and traffic concerns.
- Visitors cannot easily see into the Lower Campus core from the street.
- Wayfinding is unclear.
- Visitor services and information are limited.

Most freshmen live in dormitories located on the east side of the Lower Campus. Loyola Village, an apartment building located on Anza Street on the north side of campus, is restricted to junior, senior, and graduate student residents. Some faculty and staff also live in Loyola Village. The Jesuit community is housed in Loyola House, on Upper Campus.

Student life on campus is focused around University Center, the building that serves as USF's student union. It houses the University's main dining hall, the bookstore, student affairs offices, and study and meeting spaces. A second dining facility, the Wolf and Kettle, is located in the Lone Mountain building on Upper Campus. Other auxiliary food service facilities are located at the School of Law and the School of Education.

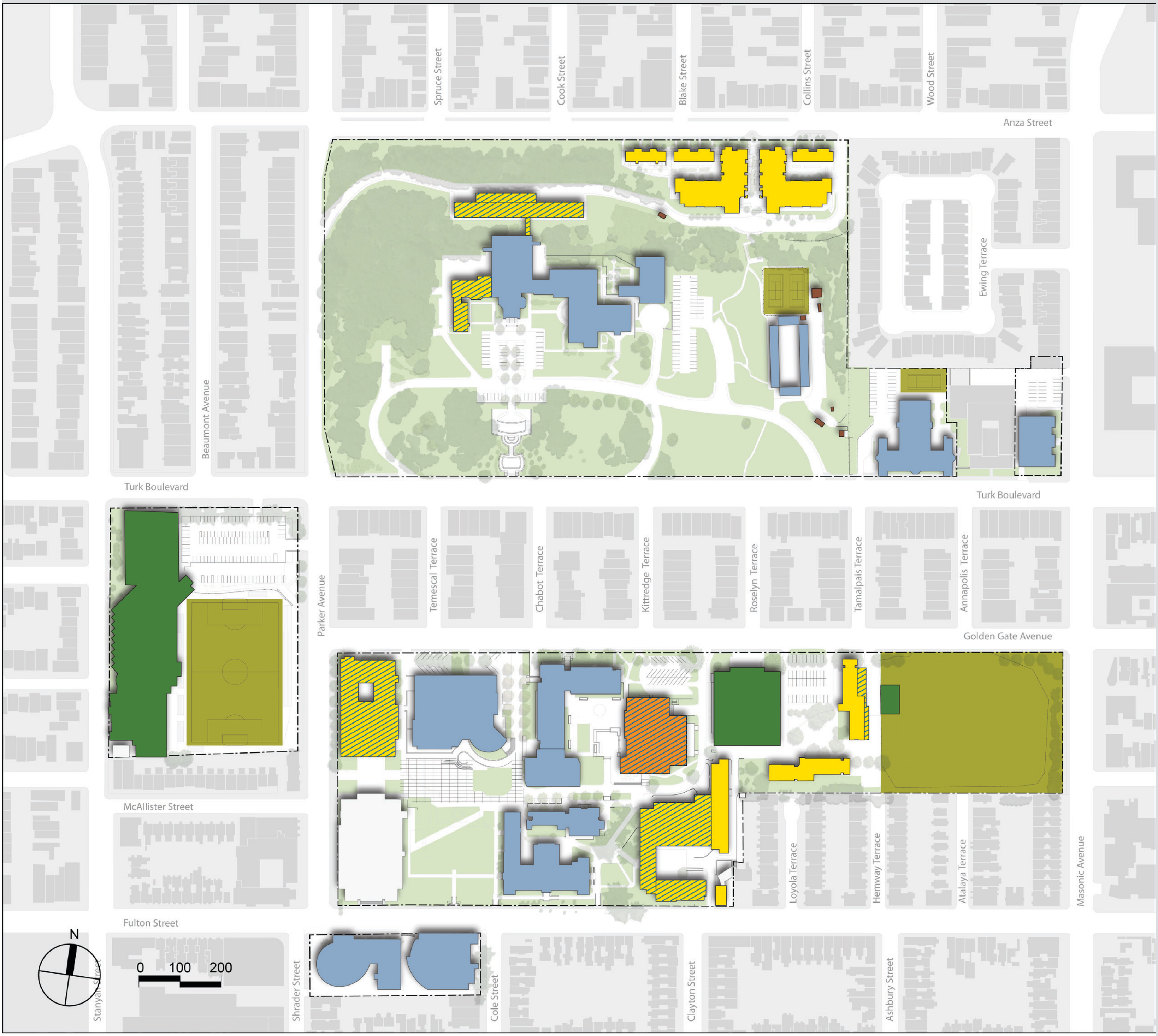



FIGURE 4: EXISTING BUILDING USE

## LEGEND

- USF Hilltop Campus Boundary
- Academic & Administration
- Residential
- Recreation & Athletics
- Storage and Maintenance
- Field/Court
- Mixed Use Residential Academic/Administration
- Mixed Use Student Life and Academic/Administration

## NEIGHBORHOOD CHARACTER

The USF campus is distinctive in its residential neighborhood. It is an attractive, contained urban campus characterized by many beautiful buildings, expansive open spaces, and relatively unbroken campus edges. USF is surrounded largely by low-rise single and multi-family dwellings; the University Terrace neighborhood lies between the Upper Campus and the Lower Campus. The Panhandle, Francisco Heights, West of Lone Mountain, Laurel Heights, and Ewing Terrace residential neighborhoods surround the Hilltop Campus. Non-USF institutional buildings adjacent to the Hilltop Campus are larger in scale than nearby residential buildings and provide a varied urban context. These buildings include: the Blood Center of the Pacific, at 270 Masonic Avenue; The Sisters of the Presentation, at 2340 Turk Boulevard; the Carmelite Monastery of Cristo Rey, at 721 Parker Avenue; and Saint Mary's Medical Center, at 450 Stanyan Street.

Institutional uses and commercial areas in the neighborhood not immediately abutting the campus also represent variations in activity level and building scale in the surrounding urban fabric. A mixed-use neighborhood center, including a grocery store, cafes, bars, and restaurants, is located at the corner of Masonic Avenue and Fulton Street. The highest intensity commercial use is located on Geary Boulevard, north of Upper Campus. Geary Boulevard is a major east-west thoroughfare with a mix of local and destination retailers and services. The Golden Gate Park Panhandle and Golden Gate Park itself, major open space in San Francisco, are about four blocks south and west of the Hilltop Campus.

## ZONING

The zoning of the campus and surrounding neighborhoods reflects the predominantly residential character of the area. The entire campus and most blocks immediately adjacent fall in the RH-1, RH-2 and RH-3 zones. These are residential, house-character zones, allowing from one- to three-family dwelling units on a parcel. The neighborhood also contains a few areas of RM-1 zoning, which allows low-density mixed-use. Most of the campus is in the RH-2 zone. This zoning allows post-secondary educational uses such as USF as an approved conditional use. The School of Law falls in the RH-3 zone. The housing between the Upper and Lower Campus is zoned RH-2, apart from a small area on Parker Avenue that is RM-1 (residential, mixed: houses and apartments district, low density: 1 unit per eight hundred square feet).

Two building height and bulk districts govern development of the campus. The Lower Campus is in the 80-D district. In this district, there is a building height limit of 80 feet. For the first 40 feet in height, there is no bulk restriction. Past this pedestal allowance, where buildings rise above 40 feet, building lengths cannot exceed 110 feet, and building diagonal dimensions cannot exceed 140 feet.

The Upper Campus is in the 40-X district. In this district, building heights are limited to 40 feet. There are no bulk restrictions in the 40-X district.[8]

[8] City of San Francisco Planning Code, Article 2: Section 201, and Article 2.5: Section 270, http://www.amlegal.com/nxt/gateway.dll/California/planning/planningcode?f=templates$fn=default.htm$3.0$vid=amlegal:sanfrancisco_ca.


FIGURE 5: USF NEIGHBORHOOD CONTEXT

LEGEND

USF Hilltop Campus Boundary

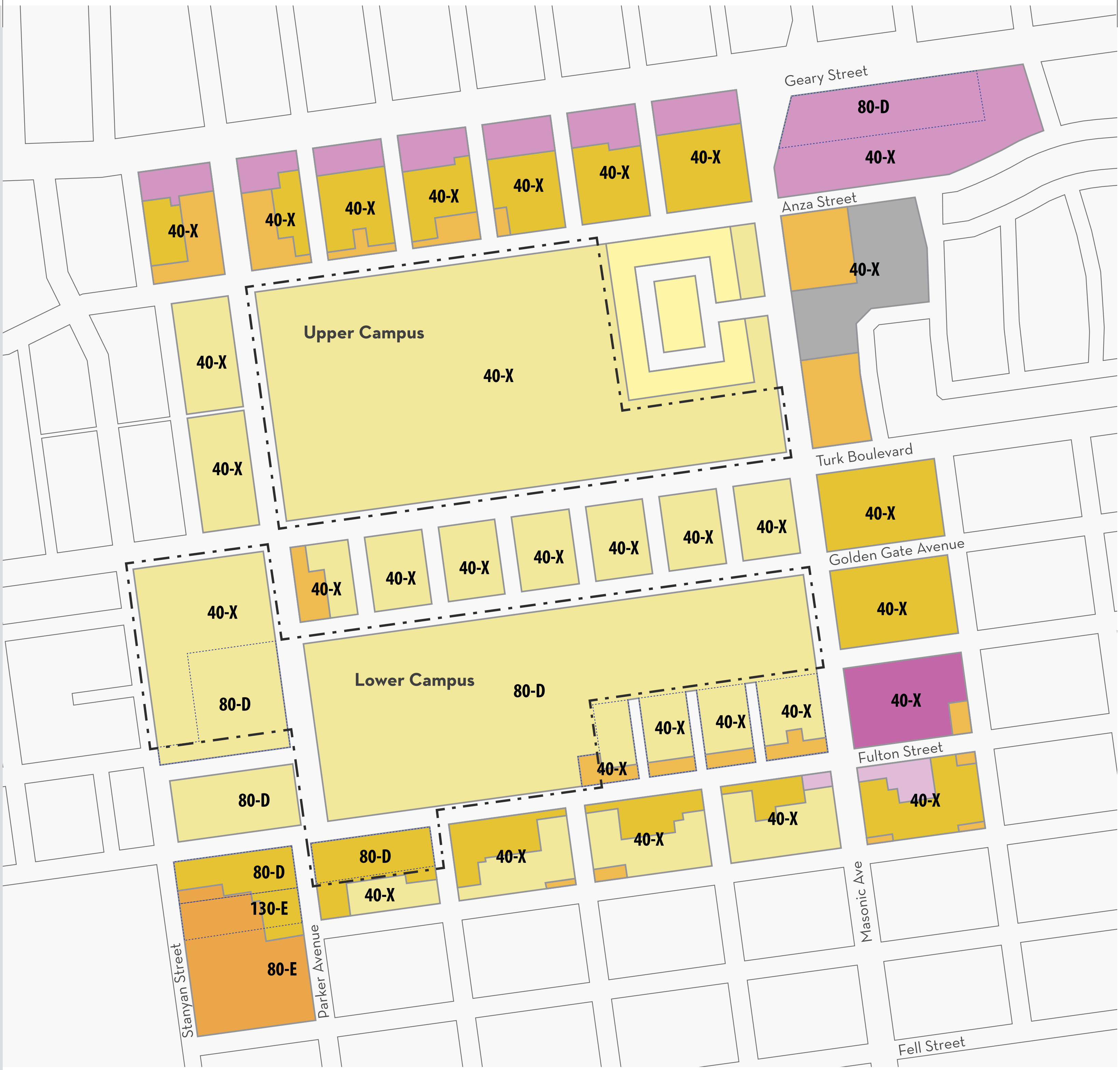



FIGURE 6: ZONING

## LEGEND

- RH-1 One Unit Per Lot
- RH-2 Two Unit Per Lot, Minor Secondary Unit
- RH-3 Three Unit Per Lot
- RM-1 Low Density (1 Unit per 800 sf)
- RM-2 Moderate Density (1 Unit per 600 sf)
- NC-1 Cluster (1 Commercial Story)
- NC-3 Small Scale (2 Commercial Stories)
- NC-S Shopping Center (2 Commercial Stories)
- Public
- 40-X Height and Bulk District
- -·-·- USF Hilltop Campus

## PEDESTRIAN CIRCULATION

The pedestrian experience at USF reflects the incremental development process through which the campus evolved. Because the Hilltop Campus comprises two separate sites within the urban fabric of San Francisco, the pedestrian experience is an eclectic blend of traditional campus pedestrian-oriented spaces, utilitarian pathways, and urban conditions. The following points outline the primary deficiencies of the pedestrian experience:

- Pedestrian routes lack strong hierarchy, such that pedestrians travel on dispersed routes through adjacent neighborhoods.
- There are areas of significant vehicular and pedestrian conflicts where campus edges meet City streets. This condition is exacerbated by the limited number of crosswalks and signals on Turk Boulevard and Golden Gate Avenue.
- Pedestrians walk in roadways on Upper Campus and in the University Terrace neighborhood.
- Transit locations are not well coordinated with pedestrian routes.
- Streets and campus drives are not well aligned, leading to poor visibility and dangerous diagonal street crossings in some areas.

The pedestrian experience will be unified and enhanced as part of the Master Plan.

## VEHICULAR CIRCULATION

The drivers who arrive at USF include visitors, faculty, staff, service providers, and students. Visitors arrive at USF in need of direction, and stay only a short while. Faculty, like students, often come to campus for only part of a day. Staff generally arrive at USF in the morning and stay all day. Many full-time students arrive at USF on transit or by foot or bicycle, while part-time and evening students may live farther away and are more likely to drive.

There are no public vehicular roadways on the Lower Campus. The Upper Campus has two private drives: the main drive off Turk Boulevard and a drive behind the Loyola Village apartments near Anza Street.

## VISITOR ARRIVAL

Visitors arriving at the campus face several challenges. The University's main address is 2130 Fulton Street; however, there are no visitor facilities at this location. This is the address of Welch Hall, the original building on campus, which was demolished and replaced by Welch Field. The Lower Campus information booth was on Golden Gate Avenue but has been moved to a temporary location on the top level of the Hayes-Healy parking garage.

Visitors to Upper Campus often arrive from the east on Turk Boulevard. They must drive past most of the campus and ascend a long driveway at the west edge of campus to reach the visitor booth, where they are given information and directed to parking.

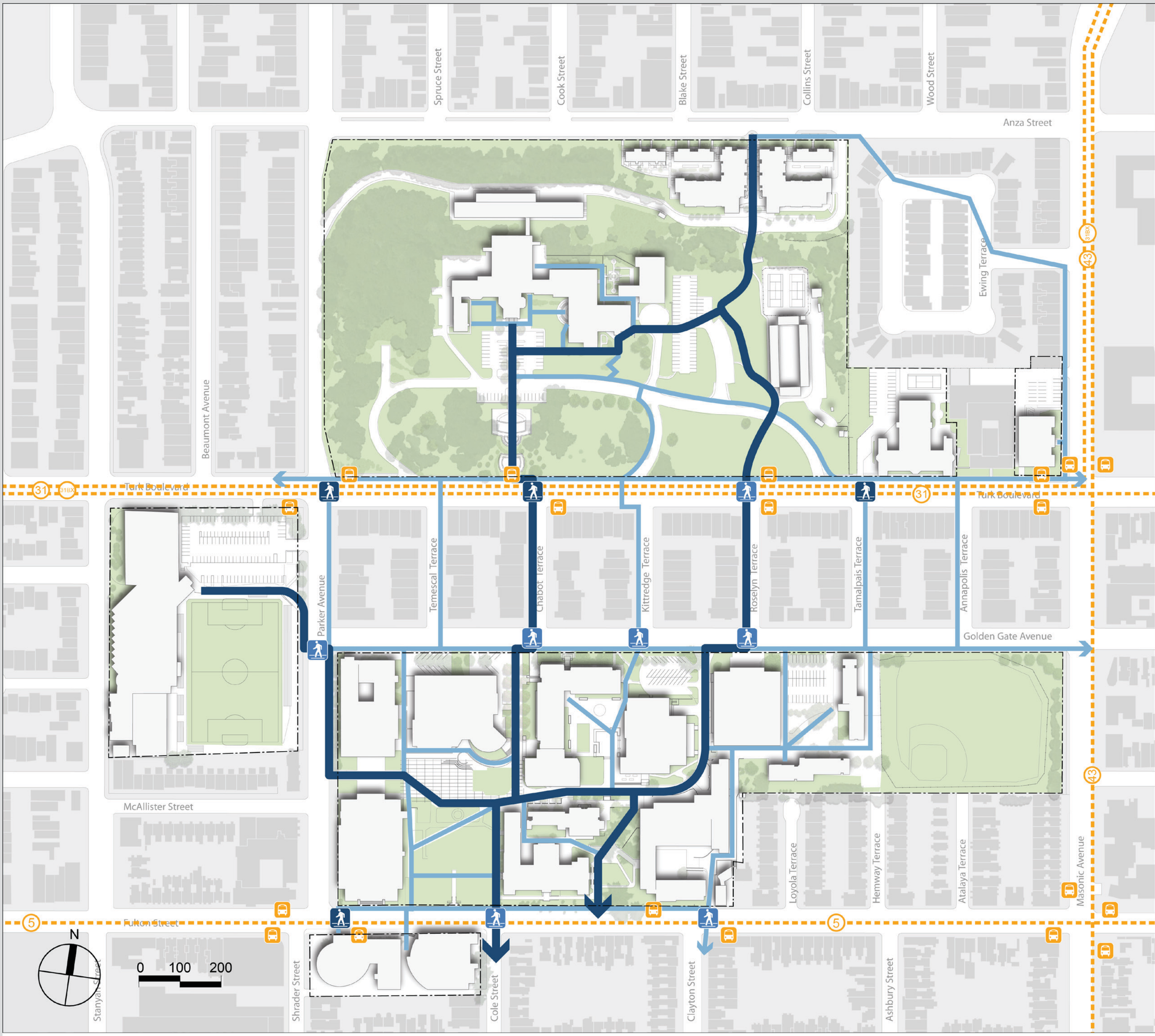



FIGURE 7: EXISTING PEDESTRIAN CIRCULATION

## LEGEND

- USF Hilltop Campus Boundary
- Primary Pedestrian Route
- Secondary Pedestrian Route
- Muni Line
- Muni Stop
- Signaled Crosswalk
- Non-Signaled Crosswalk


FIGURE 8: EXISTING VEHICULAR CIRCULATION

## LEGEND

- USF Hilltop Campus Boundary
- Primary Vehicular Route
- Secondary Vehicular Route
- Service Only Route
- Service Access Point
- Structured Parking
- Surface Parking
- Primary Arrival Point
- Secondary Arrival Point

## WAYFINDING

USF is integrated into the urban fabric of San Francisco and needs a cohesive sign family to define the campus edge and help visitors navigate the site. Visitors who come to campus via all modes of transportation rely on wayfinding and directional signage.

There are currently too few directional signs on campus, and the existing signs have been provided ad hoc over time and lack a strong unified identity.

The following four issues are pervasive:

- Lack of a cohesive sign family.
- Absence of wayfinding signs where they are needed.
- Illegibility, or signs at an incorrect scale for the audience.
- Sign clutter, including signs mounted at varying heights, multiple signs placed on a single pole, repetitive signs in an area, and signs on a single pole facing multiple directions.

These issues combine to dilute the effectiveness of existing signs.


Multiple signs for various audiences on a single pole


Conflicting messages

Three examples illustrate these issues:

The pedestrian directional near the main entrance of the Lone Mountain building is located at a key decision point, but the information is not fully accessible. The map located high on the sign is difficult to read, especially for people in wheelchairs. The directional messages that coordinate with the map are helpful but no additional directional signs are located on Lone Mountain to help visitors find their destinations.

The historic entrance on Fulton Street at Welch Field is an example of sign illegibility. The text height is too small to be read by a visitor in a car, but the location of the text is not ideal for pedestrians.

On Turk Boulevard, the visitor vehicular entry sign is located on the wall next to the road leading towards Upper Campus. The USF identity is situated facing visitors traveling east by car on Turk Boulevard; however, a vehicle may not legally make a left turn here. This sign should be oriented to face visitors coming west-bound on Turk Boulevard.

The Master Plan presents signage and wayfinding guidelines to eliminate sign clutter and provide signage consistency. The letter height and design for each sign in the Master Plan document has been carefully chosen to accommodate user needs.

## MOBILITY

The current transportation and circulation conditions in the vicinity of the University of San Francisco can be described in terms of the existing roadway network, transit network and service, pedestrian conditions,


Pedestrian directional


Entry point lacks identity


USF identity on Fulton Street


USF identity on Turk Boulevard

bicycle conditions, parking supply and occupancy, and transportation demand management measures currently in place. A comprehensive transportation analysis, including a review of existing and future transportation conditions, is provided in the Appendix. Much of the data about existing transportation conditions is based on responses from USF faculty, staff, and students on a transportation survey conducted in 2010.

### MODE SHARE

USF currently has a total Hilltop Campus population of approximately 10,900 people, including faculty, staff, and students. Based on a survey of USF faculty, staff and students, over two-thirds of the USF community do not drive to campus and arrive instead by foot, bicycle, public transit, or carpool. The current drive-alone rate of 31% is low when compared to other large institutions in San Francisco and represents a substantial decline in drive-alone rate identified the 2004 IMP. In fact, the drive-alone rate to campus has declined 24% since transportation surveys conducted in 1991 through a combination of increased transportation demand management and increased on-campus housing options for students.

### VEHICULAR ACCESS

Several key local and regional streets provide access to the USF campus. Complete roadway classification definitions, which are defined by the Transportation Element of the San Francisco General Plan, are contained in the Transportation Study in the Appendix.

#### *Regional Access*

Regional access is provided by two main highways:

- **Highway 101 (US-101)** provides regional access to the site from the north and south. US-101 serves San Francisco and the Peninsula, the South Bay, and extends north via the Golden Gate Bridge to the North Bay. To the south, I-80 merges with US-101, connecting San Francisco to the East Bay via the San Francisco-Oakland Bay Bridge. I-80 provides primary access to the East Bay communities of Oakland and Berkeley, as well as to other major freeways in the East Bay (I-580 and I-880).
- **State Route Highway 1 (SR 1)** provides regional access from the Peninsula and South Bay to Marin County and the North Bay. Junipero Serra Boulevard, 19th Avenue and Park Presidio Boulevard are designated as SR 1 between I-280 and US-101. Access to USF from SR 1 occurs via Fulton Street or Turk Boulevard (via Balboa Avenue).

#### *Local Access*

Access to USF is provided by the following arterial roadways:

- **Masonic Avenue** is a north-south arterial with three lanes in each direction. As one of the flattest north-south routes in the area, it is attractive to pedestrians and bicyclists. Masonic Avenue is one of the only through streets that run north-south between Geary Boulevard and Fell Street in this part of San Francisco.
- **Geary Boulevard** is an east-west arterial that runs one block north of the Upper Campus. Geary Boulevard has three lanes in each direction and is designated as a Transit Important Street (Primary Transit Street) and a Neighborhood Pedestrian Street (Neighborhood Commercial Street).
- **Turk Boulevard** is an east-west arterial with two westbound traffic lanes, one eastbound traffic lane, discontinuous bicycle lanes, and on-street parking.
- **Fulton Street** is an east-west arterial that runs from the Great Highway to Franklin Street. Near USF it has two lanes and on-street parking in each direction. The roadway is designated as a Secondary Transit Street.
- **Stanyan Street** is a north-south arterial that has one lane in each direction with on-street parking on both sides. Stanyan Street connects neighborhoods south of Golden Gate Park to Geary Boulevard. Aside from Masonic Avenue, Stanyan is the only street in the area providing vehicle access both north of Geary Boulevard and south of Fell Street.

Local streets that provide direct access from these arterials include Parker Avenue, Anza Street, O'Farrell Street, and Golden Gate Avenue.

## PARKING CONDITIONS

### *On-Campus Parking*

USF currently has seven parking lots and three parking garages on campus. Cars may also park on campus along the Lone Mountain drives. The total on-campus parking supply is 860 spaces. Of these, 710 are unassigned regular-use spaces, while the remaining 150 are designated for specific uses.

The transportation survey showed that 45% of those who drive to campus park in campus lots. The daily occupancy of those lots was surveyed on a typical school day and was found to be on average 56%. The peak occupancy hour was 11 AM to 12 PM when 93% of the regular parking spaces were occupied. During this time the majority of on campus parking lots/garages are at capacity. One exception is the School of Education Parking Lot, in which only 16 of its 32 regular parking spaces, or 50%, are occupied. The Koret Parking Lot lower level did not reach above a 79% occupancy rate, demonstrating that some on-campus parking spaces remained available throughout the day.

### *On-Street Parking*

The transportation survey showed that 55% of USF faculty, staff and students who drive, park off campus. The residential streets surrounding USF were surveyed to determine the typical on-street parking occupancy rate. The area surveyed covers the streets within roughly one-half mile of campus, or about two blocks from each edge of the Campus, and includes a total of 3,670 on street parking spaces. Most of the on-street parking spaces in this parking study area fall within the City's "BB" or "L" residential parking permit areas, which typically restrict vehicles without a "BB" or "L" parking permit from parking in one space for more than two hours between 8 AM and 6 PM. On-street parking spaces adjacent to USF's campus along Anza Street, Parker Street, and Golden Gate Boulevard do not have residential parking permit restrictions.

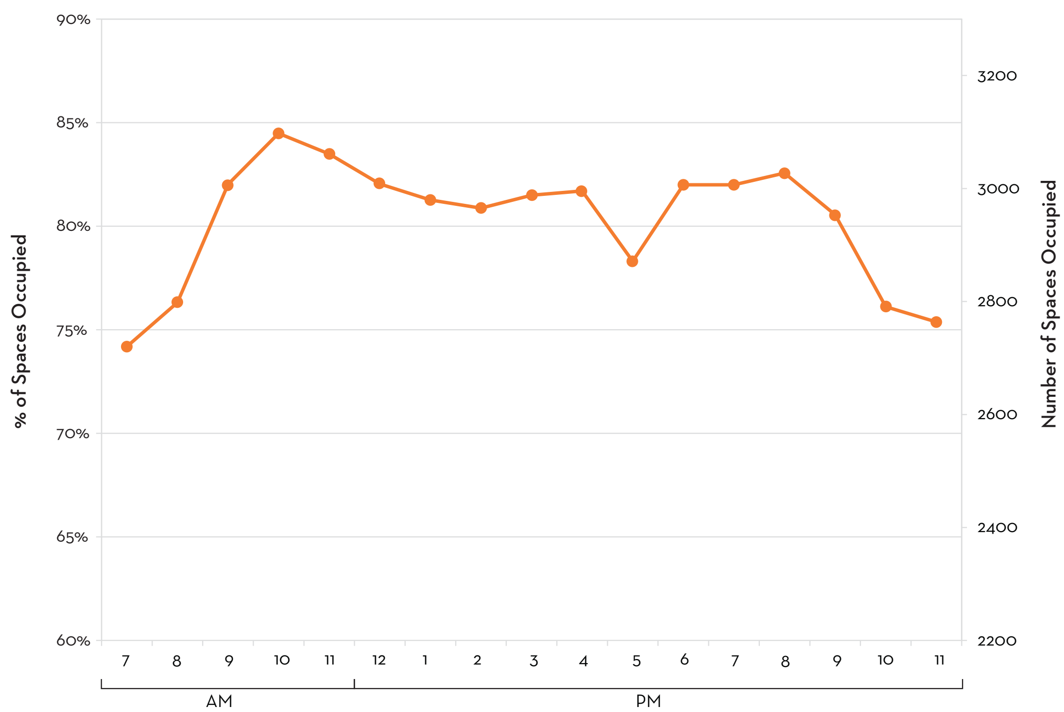



FIGURE 9: ON-STREET PARKING OCCUPANCY

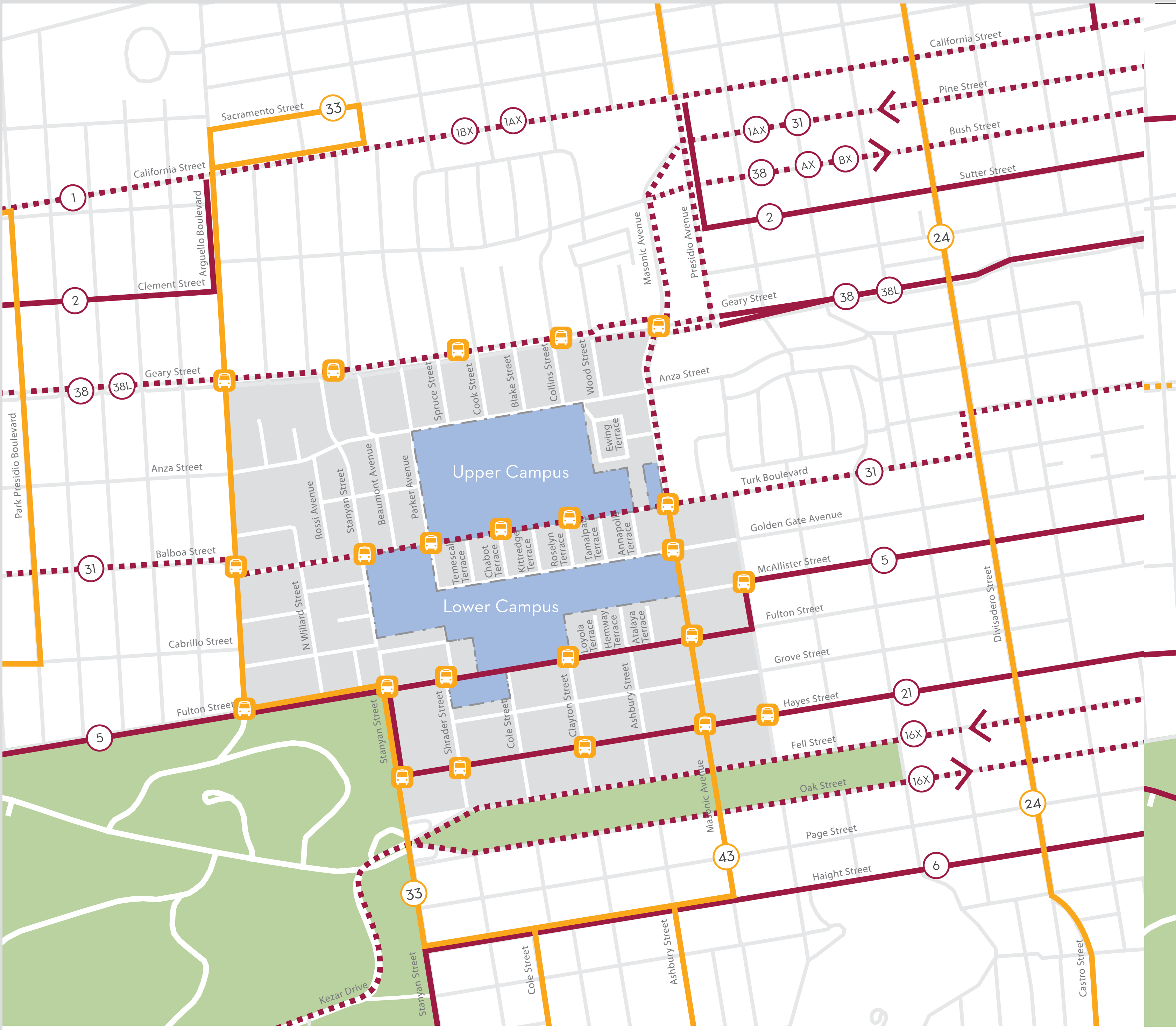



FIGURE 10: CURRENT TRANSIT ROUTES

## LEGEND

- USF Hilltop Campus Boundary
- USF Hilltop Campus
- Area of Study
- Cross Town Service
- To and From Downtown
- Express Service
- Direction of Travel
- Bus Stops

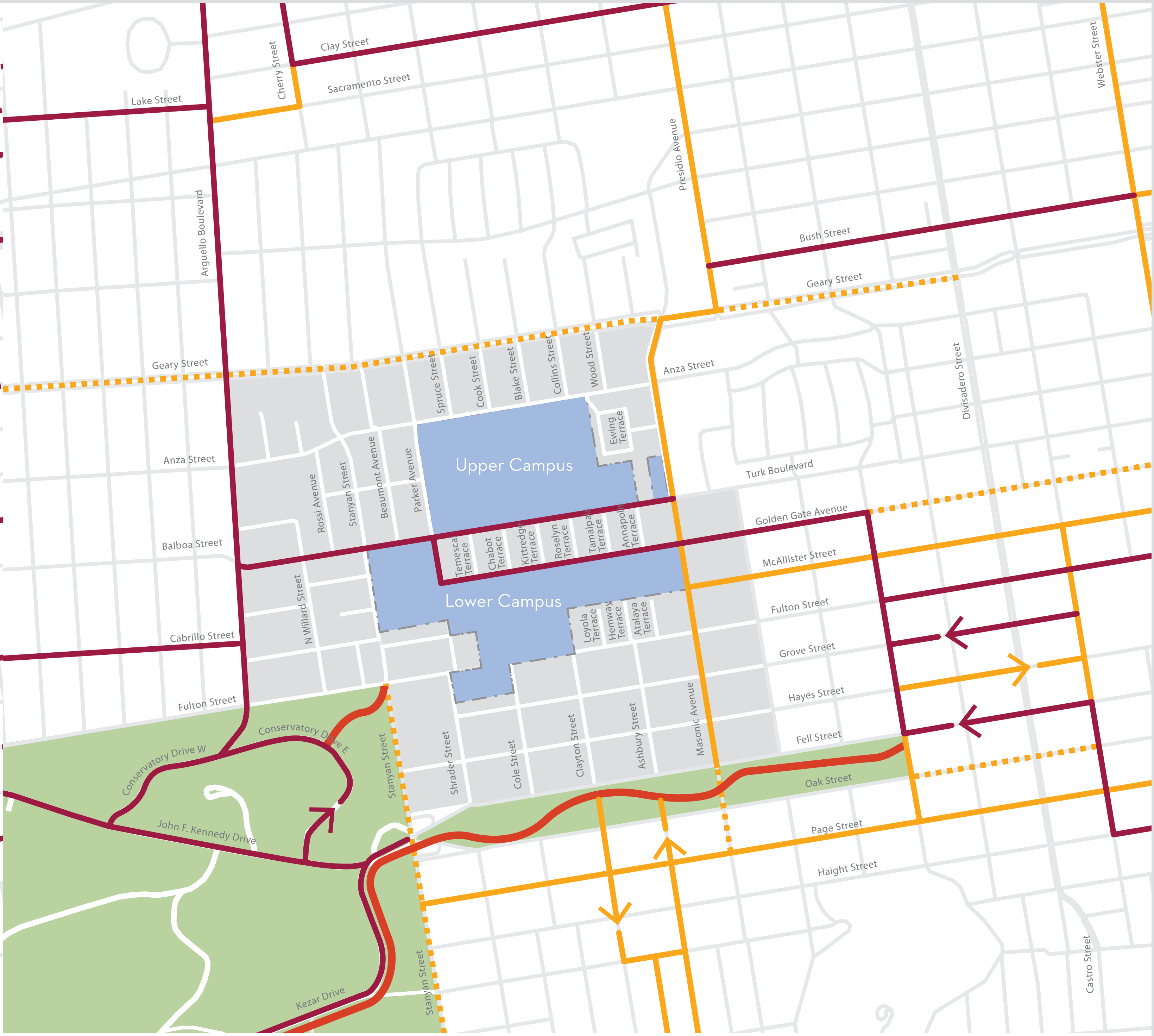



FIGURE 11: BICYCLE FACILITIES

## LEGEND

- USF Hilltop Campus Boundary
- USF Hilltop Campus
- Area of Study
- Class I Bike Path
- Class II Bike Lane
- Class III Bike Route
- Proposed Bike Plan
- Direction of Travel

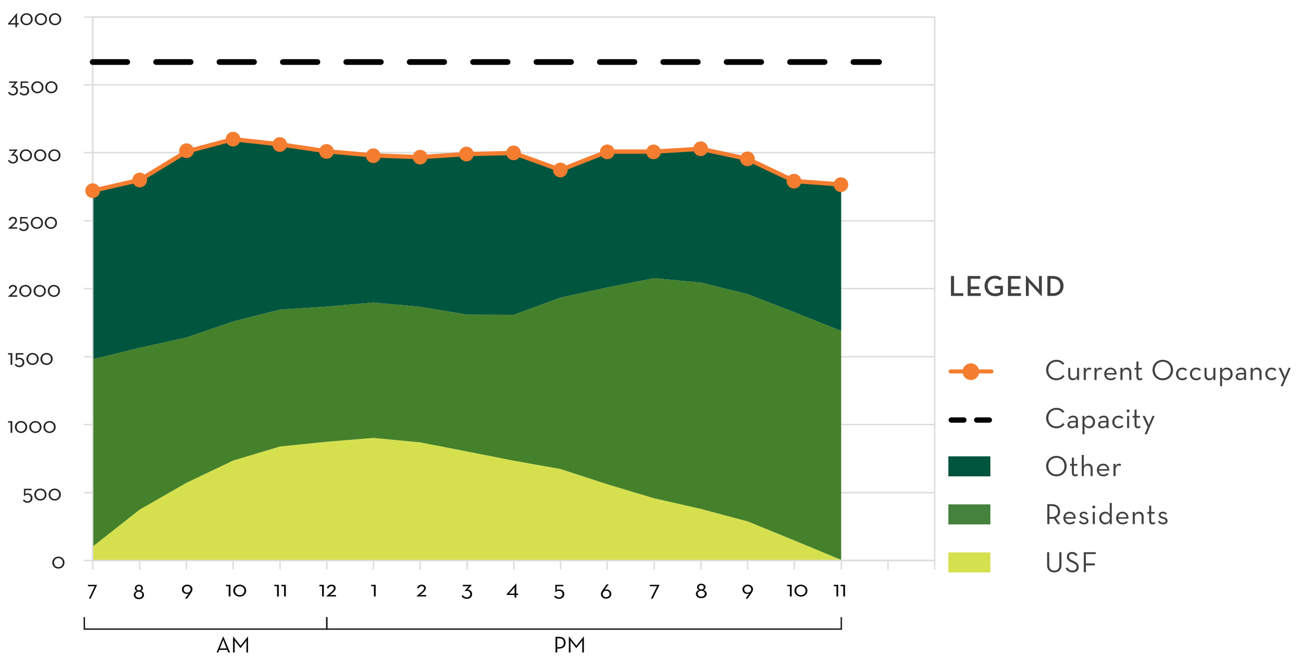



FIGURE 12: ON-STREET PARKING DEMAND, OCCUPANCY AND CAPACITY

The On-Street Parking Occupancy graph (Figure 9) shows the on-street occupancy rate by time of day between 7 AM and 11 PM. Overall, the average daily parking occupancy rate between 7 AM and 11 PM was 80%; a peak occupancy rate of 83% at 10am. After midnight and before 7 AM, parking occupancy is generally below 75%. Parking near the campus – the area bounded by Parker, Anza, Masonic, and Fulton – was most occupied throughout the day, but did not exceed 95% occupancy. The residential areas to the north and west of campus generally had parking occupancy under 80% (and often under 75%); the area to the south of campus had a parking occupancy between 82% and 93%, and a higher occupancy at night. Detailed parking occupancy data is provided in the Transportation Study in the Appendix. This on-street parking data, which was collected in the same area as for the 2004 IMP, is consistent with the occupancy rates observed in 2003

The On-Street Parking Demand, Occupancy & Capacity graph (Figure 12) shows that USF faculty, staff, and students occupy approximately 15% of overall parking spaces, throughout the day. This on-street USF occupancy rate was based on the estimated number of USF-faculty, staff and students who responded that they drive to campus and park on the adjacent streets, and by applying the time-of-day factors to reflect that not all faculty, staff and students are on campus at one time and that USF faculty, staff and students arrive to and depart from campus at various times throughout the day. The peak arrival time to campus is from 8 AM to 10 AM while the peak departure time from campus is from 5 PM to 7 PM. The number of on-street spaces occupied by USF faculty, staff and students peaks during the middle of the day, when approximately 25% of on-street spaces in the study area are occupied by USF-related vehicles, and decreases into the evening, as USF students and staff leave campus. As noted above, more parking is generally available later in the evening compared to the middle of the day.

US Census data, City of San Francisco residential parking permit data, and professional judgment was used to estimate the use of on-street parking by non-USF vehicles. Based on residential parking permit data and US Census data, residents occupy approximately 35% of overall spaces and 44% of occupied spaces, on average, throughout the day. Resident use of on-street parking is generally higher in the evening, when residents who drive to work return home. Other uses, such as local retail, office, and medical uses, occupy 30% of overall spaces and 38% of occupied spaces, on average, throughout the day.

Based on the data from campus transportation survey and analysis described above, 1,670 USF-related vehicles are expected to park on or near campus during the mid-day peak hour. The occupancy study for on-street parking within one-half mile of the campus indicates that approximately 600 on-street parking spaces are available within the study area during the peak hour and more spaces are available at other times of day.

It should be noted that USF faculty, staff and students who have addresses within one of the residential parking permit zones near the campus are eligible to purchase and use a residential parking permit sticker on their vehicle.

### TRANSIT NETWORK

Primary public transit access to the USF Hilltop Campus is provided by San Francisco Municipal Railway (Muni) bus service (Figure 10). Generally, a reasonable walking distance for transit access is a half mile or less. Muni routes within half a mile of USF are shown in the Transit Routes diagram.

The North Bay, East Bay, Peninsula, and South Bay are accessible via connections to Muni. The regional service providers are:

- Golden Gate Transit – North Bay
- Bay Area Rapid Transit (BART) – East Bay and the Peninsula
- Alameda County (AC) Transit – East Bay
- Samtrans/Caltrain – South Bay and the Peninsula

### BICYCLE FACILITIES

Bicycle routes consist of bicycle lanes, trails, and paths. The bicycle routes designated by the San Francisco 2009 Bike Plan are shown in the Bicycle Facilities diagram (Figure 11). Bicycle facilities also include on-site bicycle parking for cyclists. Showers are available in the Koret Recreation Center for full-time staff, faculty, and students. USF has approximately 160 on-site bicycle parking spaces for employees and visitors; these spaces are located at eleven locations throughout campus.

### LOADING FACILITIES

Loading takes place at seven locations on the Lower Campus, at two locations on the Upper Campus, and at one location at the Koret Center. Operations at these docks are explained in detail in the transportation report in the Appendix.

### EXISTING TRANSPORTATION DEMAND MANAGEMENT PROGRAM

USF has had a transportation demand management (TDM) program since 1980, when it obtained a Conditional Use (CU) permit from the City to expand the campus to include the Kendrick Law School building located on Fulton Street. Under the CU, the City Planning Commission stipulated that the University should continue to implement Transportation Demand Management. Since 1980 USF has made numerous changes and additions to its TDM program. USF's current TDM program is described inTable 3.

The Master Plan will address the aesthetics of loading facilities along Golden Gate Avenue.

TABLE 3: EXISTING TRANSPORTATION DEMAND MANAGEMENT PROGRAM

| STRATEGY | DESCRIPTION |
|---|---|
| TDM Coordinator | The USF Manager of Parking and Transportation coordinates the TDM program. |
| Rideshare | Social networking based ridesharing service. USF community (faculty, staff and students) who opt into the service can look up rides or offer rides based on specific origin and destination points. |
| Carshare | USF community can sign up for a discounted membership and have access to Zipcars and City Car Share vehicles on campus. |
| Transit Subsidy | The Transit Pass Subsidy Program is available to all full-time faculty and staff that do not have a University parking permit. |
| SF Muni Class Pass | Students receive a sticker to attach to their ID, which provides unlimited rides on SF Muni. |
| Bicycle Facilities | Bicycle racks provided throughout campus. Showers for full-time faculty, staff, and students located in the Koret fitness center. |
| Guaranteed Trip Home | The Guaranteed Trip Home Program is available within San Francisco to faculty and staff who either carpool or take public transit to work. |
| Parking Permits | To park on campus, the USF community must purchase parking permits. |
| Reserved Carpool Parking | Parking spaces on campus are reserved for carpools. |
| ADA Shuttle Service | Shuttle around campus for USF community members registered with the Disability Services office. |
| Night Safety Shuttle Program | Free nighttime shuttle is provided by request to the USF community. |
| Safety Escort Service | Uniformed Public Safety officers escort service is provided to the USF community by request. |
| Telecommuting and Flexible Working Hours | Employees may apply for flexible work hours and/or telecommuting. |

Source: Fehr & Peers, 2011

## LANDSCAPE STRUCTURE

USF's campus landscape is a unique environment within the densely developed surrounding neighborhoods. Its assortment of formal and informal spaces offers the campus community and the neighborhood visual and physical enjoyment of a variety of green space and outdoor recreation areas.

The Hilltop Campus contains many mature trees and landscaped areas. Like much of western San Francisco, Lone Mountain and the surrounding area were originally sand dunes, covered with dune grasses and low scrub. By the early twentieth century, much of the area was developed with large cemeteries, which were removed by the 1930s. All of the USF landscape conditions are the result of campus development since that period, with native and non-native vegetation that form a range of open spaces.

The woodland hillsides of Lone Mountain appear to be the most "natural" landscape setting at USF, although the tree cover, mostly Monterey Pine and Monterey Cypress, as well as bay trees and eucalyptus, replaced the sand dune conditions only since the 1930s. The tree cover forms a prominent visual feature seen from Turk Boulevard, Parker Avenue, and Anza Street, and in views from more distant locations in San Francisco.

Some of the landscape issues to be addressed in the Master Plan include:

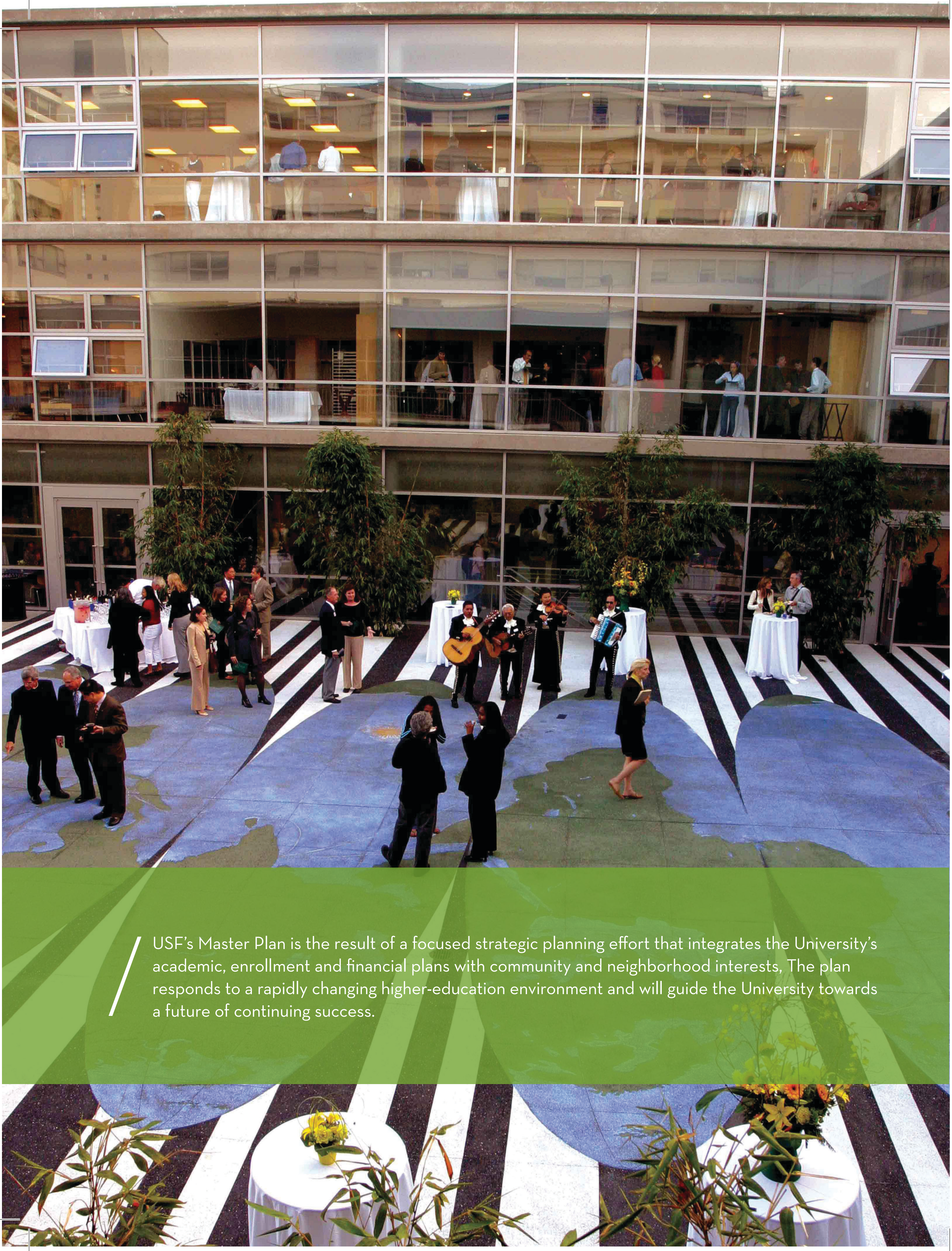
- Lack of landscape structure that supports the educational mission and campus functions.
- Lack of cohesion or unifying principle. Some areas on the campus are treated at a campus scale, while others are detailed at a more residential scale.
- An aging tree canopy across the campus.
- An understory and shrub planting layer that needs to be refurbished.
- Lack of aesthetic appeal to pedestrian walks that were formerly campus roads.
- An inconsistent landscape quality on the edges of campus, with a lack of visual appeal in some areas.

An aging tree canopy and outdated understory on Upper Campus.

Overgrown shrub planting needs trimming or replacement.

Lack of usable outdoor space affiliated with residential life.

# 2/ Campus Master Plan



USF's Master Plan is the result of a focused strategic planning effort that integrates the University's academic, enrollment and financial plans with community and neighborhood interests, The plan responds to a rapidly changing higher-education environment and will guide the University towards a future of continuing success.

# / Campus Master Plan

This Institutional Master Plan is the result of a focused strategic planning effort that integrates the university's academic, enrollment and financial plans with community and neighborhood interests. The plan responds to a rapidly changing higher-education environment, which has shaped the University's strategies for enrollment, academic program delivery, finance, and facility improvements. It also reflects almost two years of close collaboration with University stakeholders and neighbors.

## Purpose of the Plan

This University of San Francisco Institutional Master Plan is a comprehensive physical development and land use plan that will guide future facility and site improvements on campus from 2012 through 2022. In addition, this plan satisfies Section 304.5(b) of the San Francisco Planning Code, which requires educational institutions to prepare and file with the Planning Department an Institutional Master Plan (IMP) every ten years, with updates every two years. The purpose of the IMP is to inform City officials and the public of an institution's future plans and the impact of those plans. More specifically, an IMP is intended:

1. "To provide notice and information to the Planning Commission, community and neighborhood organizations, other public and private agencies and the general public as to the plans of each affected institution at an early stage, and to give an opportunity for early and meaningful involvement of these groups in such plans prior to substantial investment in property acquisition or building design by the institution;
2. To enable the institution to make modifications to its Master Plan in response to comments made in public hearings prior to its more detailed planning and prior to any request for authorization by the City of new development proposed in the Master Plan; and
3. To provide the Planning Commission, community and neighborhood organizations, other public and private agencies, the general public, and other institutions with information that may help guide their decisions with regard to use of, and investment in, land in the vicinity of the institution, provision of public services, and particularly the planning of similar institutions in order to insure that costly duplication of facilities does not occur."[1]

[1] San Francisco Planning Code § 304.5(a), 2007 http://www.amlegal.com/nxt/gateway.dll/California/planning/planningcode?f=templates$fn=default.htm$3.0$vid=amlegal:sanfrancisco_ca$sync=1.

USF submitted its last IMP in 2004 and has since submitted updates, including the most recent in June 2010. The 2004 IMP proposed a variety of projects to support academic and administrative uses as well as to enhance the student experience. Most of the ten projects proposed in 2004 have been completed, notably the renovation of the Lone Mountain Chapel for additional office space, the renovation of Campion, now Kalmanovitz, Hall, improvements to War Memorial Gym, and the in-fill of the Fromm Courtyard to create new classrooms.

The proposed science building, now named the John Lo Schiavo SJ Center for Science and Innovation, is scheduled to open in Fall 2013.

The 2012 IMP outlines USF's vision for academic affairs and student life and provides a comprehensive strategy for the maintenance and development of the grounds and facilities of the Hilltop Campus, through the year 2022. The campus landscape and buildings will continue to facilitate the delivery of a high quality, holistic, and engaging educational experience for students. Initiatives in the plan also affirm USF as a university deeply rooted in the City of San Francisco, enhance USF's reputation, and support USF's financial sustainability.

The plan includes an assessment of current conditions, identifies facility needs, and recommends projects that will meet those needs.

## Planning Process

This Master Plan is the result of a collaborative process involving the University, residents of adjacent neighborhoods, the City of San Francisco, and numerous specialists in the planning, urban design, landscape architecture, environmental preservation, sustainability, and impact mitigation fields.

Early in the master planning process, the University articulated five strategic goals to guide development of the campus and to assist in evaluating campus development scenarios. These goals remain the foundation of this Master Plan. They are:

- **To further USF's mission**, with emphasis on the University's Jesuit Catholic tradition, student diversity, a global perspective, a location in the City of San Francisco, and a tradition of academic excellence.
- **To maintain and increase academic quality** through strategies that include engaged learning, outstanding and desirable programs, high-quality educational facilities, low student-to-faculty ratios, and an increase in courses taught by full-time faculty.
- **To provide a student experience that contributes to holistic student development,** including educating the mind, body, and spirit; fostering a living-learning campus; reinforcing a sense of community; and providing strong wellness, recreation, and athletics programs.
- **To maintain the University's financial health and stability** while providing the resources necessary to support USF's mission.
- **To increase safety around the campus and promote mutual understanding with USF's neighbors** through strategies that address traffic and parking, pedestrian flows, student behavior, noise, and the physical quality of the campus.

Toward achieving these goals, the Master Plan articulates a strategy for enrollment that builds on the existing distributed campus structure. This structure consists of the Hilltop Campus, other sites in San Francisco, and branch locations throughout the Bay area and Southern California. Priority projects to support the visions for academic and student life are identified in the plan, along with a physical framework for campus improvements for the next ten years and beyond. Each of these elements of the Master Plan is described in this chapter.

The IMP process was led internally by USF's Master Plan Working Committee:

- Jennifer E. Turpin, Provost
- Elizabeth Johnson, Vice Provost and Dean, Academic and Enrollment Services
- Peter Novak, Vice Provost, Student Life

- Michael London, Assistant Vice President, Facilities Management
- Elizabeth Miles, Master Plan Manager

The Working Committee reported to and conferred with USF governing bodies, including the President's Cabinet and the Board of Trustees. USF faculty, staff and students were also engaged in meetings that focused on traffic and pedestrian safety, and the general development of the Master Plan.

The consultants engaged in the Master Plan were:

- Sasaki Associates, Master Planning, Landscape Architecture
- Fehr & Peers Transportation Consultants, Traffic Calming, Transportation Demand Management, Traffic Impact Analysis
- Atkins North America, Environmental Impact Analysis
- Charles M. Salter Associates, Acoustics

As part of the approval process for the development of a new Center for Science and Innovation, USF agreed with the University Terrace Association (UTA) to submit an IMP by June 2012, two years earlier than required. The UTA neighborhood lies between the two largest segments of the Hilltop Campus. USF has also engaged surrounding neighborhood associations, including the Ewing Terrace Neighborhood Association and the Francisco Heights Neighborhood Association. In the course of this planning effort the University has held over seventy community meetings, including walking tours of the campus neighborhood and a meeting series that addressed issues of concern to USF neighbors. These issues included transportation, traffic calming, acoustics, student behavior, and the neighborhood impact of USF activities.

Peter Novak, Vice Provost for Student Life, talking with University Terrace Association President, Mira Ringler.


Jennifer E. Turpin, Provost, led the development of USF's Institutional Master Plan.

The primary community concerns raised by the neighborhoods prior to and throughout the planning process, which USF is addressing through this IMP and related work, were as follows:

- University growth and its effect on quality of neighborhood life
- Pedestrian safety
- Traffic and University-related parking on neighborhood streets
- Student behavior
- Students and staff passing through the neighborhood
- Noise at outdoor fields
- Noise and disruption from service and delivery vehicles
- Impacts from one-time USF events and ongoing programs that draw outside attendance
- Quality of the physical environment, particularly at the neighborhood edge

## Plan Drivers

### MEETING OUR MISSION AND STAYING COMPETITIVE

The higher-education system in the U.S. has seen dramatic changes over the last decade, and more significant changes are expected in the years ahead. Tuition has risen significantly across the industry in response to decreased government funding, higher fixed costs, and the recent and ongoing economic downturn. At the same time, demand for higher education is rising, particularly among students who are less able to afford college. As state colleges and universities in California raise tuition, more and more of those students are applying to and attending private institutions like USF.

The market changes in higher-education increase competition among colleges and universities for the most talented students. This competition applies pressure to increase financial aid and programmatic and facilities expenditures. In addition, students expect higher levels of personal and facility support, and they require new and innovative academic programs in response to new technologies and economic conditions.

USF is committed to continuing to provide excellent educational experiences to a diverse student body in the context of this challenging higher-education market. To do so, it must continually optimize its programs, facilities, and operations.

Students increasingly demand coursework focused on service and social justice, as well as targeted professional graduate programs. National and state government administrations are promoting an increase in global awareness in higher education. USF's educational model is naturally well-suited to respond to these trends, with programs to educate nurses, teaches, and those in science, technology, and math professions, including an increasing number of graduate programs. USF has a strong commitment to global awareness and multicultural understanding, which it promotes through targeted academic programs, on-campus programming, study away programs, and international student enrollment on campus.

### MAINTAINING FINANCIAL VIABILITY

USF must maintain its fiscal equilibrium by balancing a market-restricted revenue stream with ever-increasing expenses. On the revenue side, the University is 85% tuition-dependent. Endowment income provides only 2% of operating revenue. State and federal governments have reduced funding for financial aid and research grants. Nationwide, universities have been raising tuition in response to these conditions for several years; however, the educational marketplace and economic constraints restrict significant tuition increases, and future increases will be well below historic levels.

Despite its limited opportunities for increasing revenue, USF is facing ever-expanding costs for salaries, benefits, and operations. The following cost areas in particular are growing at rates significantly beyond current revenue growth:

- Utilities
- Health care and other insurance
- Need-based financial aid
- Technology
- Disaster planning and preparation
- Collective bargaining (six units)
- Service contracts and supplies

The following are areas of ongoing expenditure growth:

- Debt service for capital projects
- New faculty lines and academic programs
- Maintenance, including deferred maintenance

USF recognizes that it must optimize the efficiency of its operations as well as manage its revenue streams, particularly tuition income, to respond to these financial challenges. The University has developed a strategy to gain economic stability by distributing that growth throughout its program locations.

### INVESTING IN FACILITIES

Campus facilities are a significant factor in student and faculty recruitment and retention. They provide the physical platform for student life and learning as well as influencing visitor impressions and experiences. USF must invest in its facilities to ensure that they are not only modern and attractive, but also meet or exceed the peer standard, particularly in housing and learning facilities. Aware that its housing types, mix, condition, and availability do not currently compare favorably with those at peer institutions, the University plans to improve its offerings. The USF physical plant has a significant need for maintenance and refurbishment, as noted in Chapter 1. Efficient building function and use, aesthetic appeal, and occupant health and safety require ongoing care, improvement, and modernization of facilities. Ongoing care for and updating of facilities ensures ongoing building function and aesthetic appeal, as well as the health and safety of occupants. To avoid maintaining and operating unused or underutilized space, USF also continues to monitor scheduling and programmatic space needs.

## Vision for Academic Development

The University of San Francisco is a nationally ranked university whose unique academic programs, holistic approach to education, and connections to the City of San Francisco generate significant demand for admission from prospective students. To further the vision articulated in USF's strategic plan – USF 2028 – the University plans to implement four major academic programming strategies over the next five to ten years:

- The School of Nursing has recently become the School of Nursing and Health Professions. This new school offers programs for a range of health professionals, including a Master of Public Health. Additional programs are currently under consideration by USF's President's Commission on Health Professions Education.
- USF will improve access to science and technology programs by refining and expanding its science, technology, and math programs.
- USF will expand and integrate its arts programs to promote interdisciplinary collaboration. This will be done by co-locating its programs in visual, performing, and allied arts, along with media arts and creative writing.
- USF will increase global diversity on campus by increasing the proportion of international students it enrolls.

# Vision for Student Life

## EDUCATING THE WHOLE STUDENT

The University of San Francisco is an academic and social community grounded in Jesuit principles of inquiry and service. It provides a holistic education and offers students a wide range of non-academic activities. USF has made the integration of academic support and student life a high priority, and is planning new living-learning communities in new residential buildings that will surround students with curious and academically engaged peers.

USF has reorganized dispersed student support services into a Center for Academic and Student Achievement (CASA). This center is the nexus of support for students and combines all types of advising on campus, including academic, personal, and disciplinary. It represents USF's belief that students' personal and academic needs should be supported holistically. The CASA will enable more efficient and integrated delivery of services to students, and will create a system that calls for greater accountability from students including their conduct in the community. Advisors become aware of all areas in which a student needs support or is failing, and will be positioned to practice intrusive advising if a student is in need but not asking for help. The Center is coordinated by the Division of Student Life and is housed in the recently renovated 3rd floor of the University Center.


USF's vision for student life is an integral part of the IMP.

## ATHLETICS

The University of San Francisco has a long tradition of excellence in intercollegiate athletics. The Dons have won 12 NCAA National Championships, and for more than 100 years, student-athletes have competed with pride. As the University builds on these winning traditions, athletics has the unique ability to unify the USF community – alumni, current students, parents, faculty & staff, and friends – in an exciting, spirited, and family-oriented environment.

The athletic department maintains a vision that is guided and driven by Four Pillars of Success:

1. Excel in the Classroom
2. Win at the Highest Levels of Competition
3. Engage in the Community
4. Become Leaders in the World

By following these guiding principles, athletics can lead the way in strengthening a collective sense of school spirit, while building on USF's proud and storied history.

USF athletic teams compete and train in three facilities on the Hilltop Campus: War Memorial Gymnasium, Negoesco Soccer Field, and Benedetti Diamond at Ulrich Field. War Memorial Gymnasium is the home court for USF men's and women's basketball and women's volleyball teams. The building also houses locker rooms, training quarters, strength and conditioning facilities and administrative offices that support all teams. The men's and women's soccer teams train and compete at Negoesco Field and baseball practices and competes at Benedetti Diamond. The athletic facilities are antiquated and space is inefficiently distributed, which results in both a competitive disadvantage for some teams and inefficient facilities for support services and administration. USF plans to redesign existing spaces as well as modestly expand the footprint of some facilities in order to optimize available square footage and improve circulation.

## LIVING-LEARNING COMMUNITIES

Residing in a living-learning community is an experience in community submersion in a particular subject matter. In a living-learning community, students, faculty, and staff who are interested in a topic or subject area live, study, work, and investigate their topic together. It is a residential experience designed to educate the whole person by integrating housing, dining, break-out and meeting areas, faculty and Jesuit-in-residence apartments, classrooms, study space, computer labs, fitness facilities, and music practice rooms. Study and living are completely integrated. While students who are part of living-learning communities learn a great deal about a given topic, they are also part of the larger community and take classes across the institution.

Compared to traditional students, students in living-learning communities:

- Reach higher levels of academic achievement.
- Express more commitment to civic engagement.
- Apply better critical-thinking skills.
- Make a smoother transition to college during their first year and have a lower drop-out rate
- Have fewer behavioral problems, including behaviors related to alcohol.
- Feel more strongly supported academically and socially.[9]

Faculty and staff in living-learning communities similarly have the opportunity to explore a subject matter they are passionate about, or to learn deeply about a new subject. Live-in communities promote collaboration among all groups, and give faculty and staff the opportunity to mentor students to a degree that is not possible in other settings.

For universities, living-learning communities put into practice the belief that academics and social life are inextricable and can be mutually reinforcing.

USF currently has five living-learning communities:

- St. Ignatius Institute
- Erasmus Community
- Esther Madríz Diversity Scholars
- Global Residential Community
- Martín-Baró Scholars Community[10]

The University plans to establish more living-learning programs. Ideally, communities will comprise approximately forty-eight students and two or more faculty and staff, though community sizes may vary. USF's ability to develop additional living-learning communities is limited by the current housing stock, as most residence halls do not currently contain dining, meeting, study, or classroom space; and there is limited opportunity to retrofit these facilities to this model.

As USF develops new housing, it will be designed to accommodate living-learning communities so that a higher percentage of students can participate in these programs.

[9] National Symposium on Student Retention, Milwaukee 2007

[10] http://www.usfca.edu/centers/living-learning/

## HOUSING

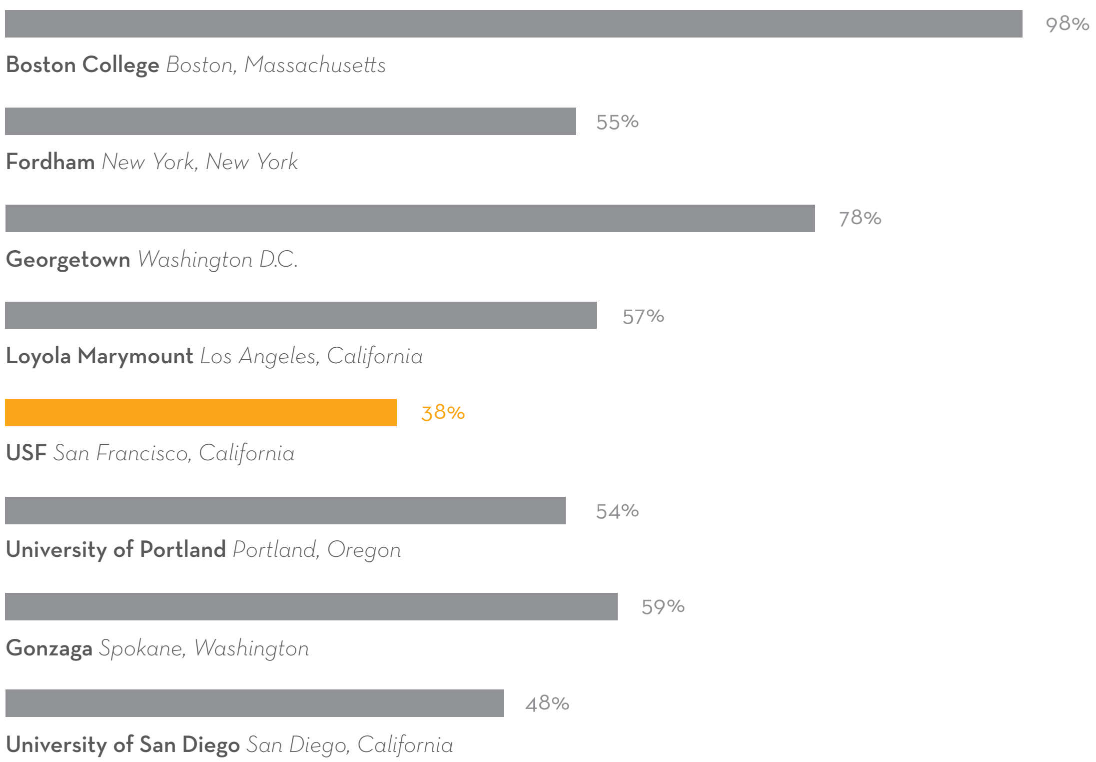
Living on campus, particularly in the early years of an undergraduate's career, is a vital part of a student's educational experience and transition to adulthood. Providing students with a holistic educational experience is part of USF's mission, driving USF to provide on-campus housing for a significant proportion of students.

In Fall 2011, USF provided 2,045 beds of student housing on the Hilltop Campus, plus another 93 student beds off campus at Pedro Arrupe Hall, 490 6th Avenue. Together these facilities accommodate 38% of the undergraduate student population. Most of the University's residence halls were built in the 1960s and consist mainly of small double or triple dorm rooms along double-loaded corridors in mid-rise buildings. Shared community and student-life spaces, such as lounges, informal study areas, and entertainment venues, are now common amenities at competitor institutions but are in short supply at USF.

USF's quality and mix of housing is not competitive with many public and private institutions. Unlike USF, these institutions offer the range of housing types needed to support a contemporary, progressive student housing model, in which students gain more independence and personal space over time. Peer institutions, those that share similar educational philosophies and attract similar students, have been making significant investments in new housing over the last decade, and typically accommodate at least 50% of their undergraduates on campus (Figure 13).

USF plans to develop new student housing that will accommodate a higher percentage of students on campus, provide a range of housing options, and improve its competitive position.

FIGURE 13: STUDENT HOUSING AT USF PEER INSTITUTIONS




Source: US News, World Report, and USF Data, 2011.

# Distributed Campus and Enrollment Model

## STRATEGY

Growth in tuition revenues has traditionally supported USF's academic mission, sustained its financial health, and provided the means for the University to remain competitive in the higher-education marketplace. The University recognizes that growth on the Hilltop Campus cannot continue at historic rates, given the University's limited land and facility resources, and the impact of growth on the neighborhoods surrounding the campus.

To address this challenge, the University has developed a comprehensive strategy to mitigate enrollment growth on the Hilltop Campus through a distributed campus model (Figure 14) that will consist of the following initiatives:

- Limiting enrollment growth on the Hilltop Campus to less than 1% annually.
- Relocating some programs from the Hilltop Campus to other University sites in San Francisco.
- Channeling program growth to the University's branch locations in the San Francisco Bay Area and Southern California.
- Further developing online, hybrid, and study away programs, which do not require students to attend all of their classes on campus.

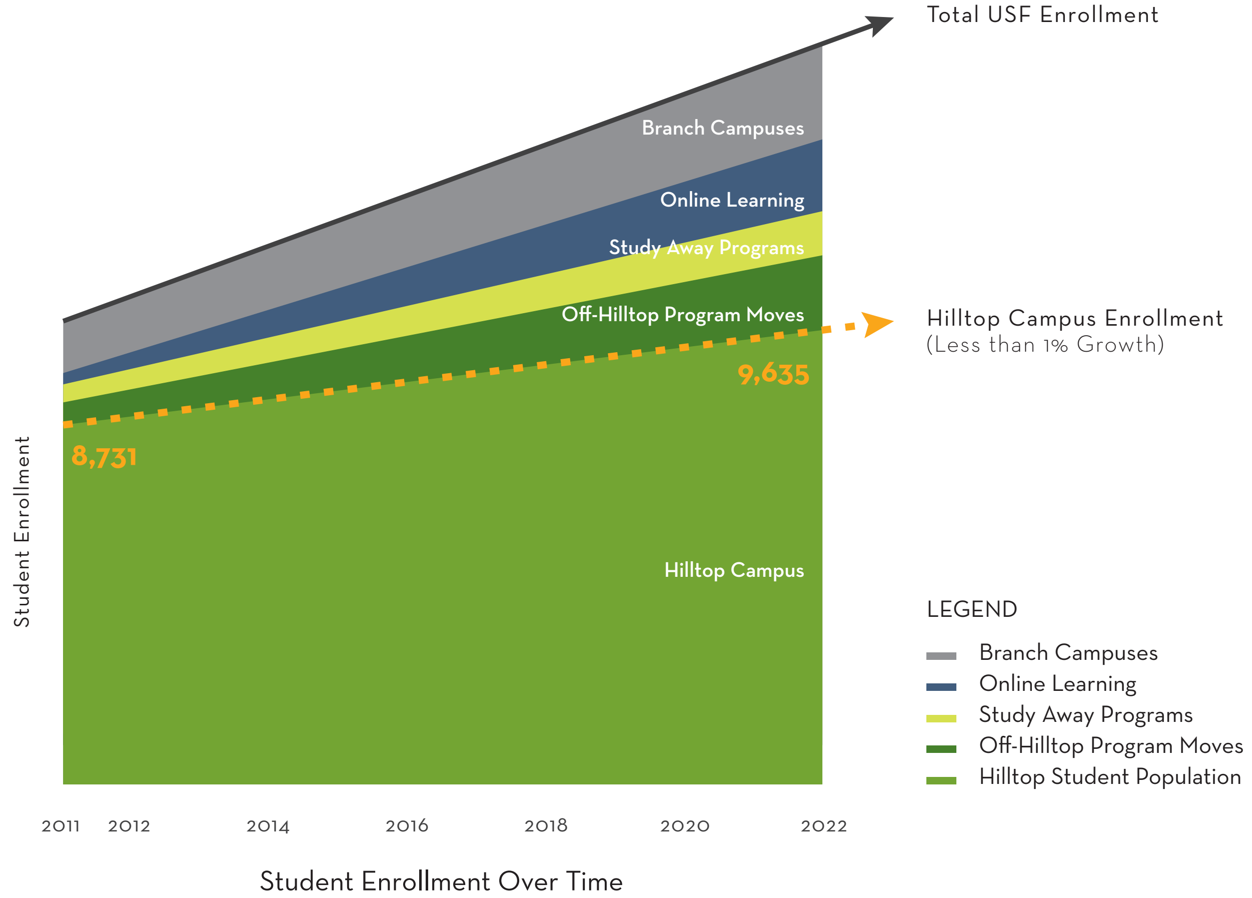



FIGURE 14: DISTRIBUTED CAMPUS PLAN

The University will limit enrollment growth on the Hilltop Campus to less than 1% annually on average, over the ten-year IMP planning period. The relocation of programs from the Hilltop Campus to other locations in San Francisco and the USF centers outside of San Francisco along with the development of online, hybrid and study-away programs provide an opportunity for additional revenue from non-traditional, previously untapped markets. Revenue growth in these new markets will help offset the diminished revenue stream resulting from growing Hilltop enrollment at a slower than historical rate.

## PROGRAM RELOCATION CRITERIA

The University has established the following criteria for assessing potential program moves from the Hilltop Campus:

### NON-ACADEMIC OPERATIONS:

- The unit can effectively and efficiently operate independently in an off-campus location.
- There are appropriate uses for the vacated space.


101 Howard Street is located at the corner of Howard and Spear streets in Downtown San Francisco.

### ACADEMIC OPERATIONS:

- The program can effectively and efficiently operate independently in an off-campus location.
- Students in the program are not required to take courses from another USF school or college, or live in University housing on the Hilltop Campus.

### OTHER FACTORS

- Moving to a new location would raise the visibility and profile of the University.
- The new location offers opportunities for program growth not available at the Hilltop Campus.
- Facilities could be significantly improved in the near term by relocating.
- The selected program will benefit in its new location by effectively turning the City itself into a classroom or laboratory for learning.

## USF LOCATIONS IN SAN FRANCISCO

As described in Chapter 1, USF delivers programs from two sites beyond the Hilltop Campus in San Francisco: the Presidio and 101 Howard Street. The following is an overview of the strategy for these two sites.

### PRESIDIO

The University will continue to lease space at the Presidio to accommodate academic programs over the IMP planning period. Until recently the University has offered School of Management graduate programs at the Presidio. These programs have been moved to the facility at 101 Howard Street. Graduate programs in other departments such as select nursing programs will be moved from the Hilltop Campus to the Presidio to further distribute programs away from the Hilltop.

### 101 HOWARD STREET

The University has relocated School of Management graduate programs from the Hilltop Campus to the 101 Howard Street facility. The relocation of these programs to the facility will further University goals to become more visible and more tightly woven into the fabric of the City, and will facilitate access to current business and civic partners while creating opportunities for potential new partnerships.

Approximately 25,000 square feet of the building became available for USF use in 2012. Now USF is occupying an additional 13,231 square feet on the third and 4th floors as classrooms and office space. Minor classroom renovations have been completed to accommodate relocated functions. Some renovations for other moves may be needed within the time horizon of this IMP, but the specific nature of these other renovations is currently unknown.

### USF LOCATIONS OUTSIDE SAN FRANCISCO

USF currently delivers programs from leased facilities at five locations outside the City of San Francisco: in Pleasanton, Sacramento, San Jose, Santa Rosa, and the Los Angeles area. Further development of programs at the branch locations is central to USF's strategy to mitigate enrollment growth at the Hilltop Campus. While the University is currently working on the overall program delivery strategy for these branch locations, it has established a goal to double enrollment in its programs at its San Jose, Sacramento, and East Bay campuses over the next ten years. In December 2012, USF filled a new position, the Vice Provost for Branch Campuses, to manage the growth and development of both the University's branch campuses and online programs.

### ONLINE AND HYBRID PROGRAMS

USF is currently developing online and hybrid educational delivery capabilities that will allow students to complete portions of their coursework without coming to campus. Online programs will focus on professional graduate programming, and will expand educational access while generating revenue for USF.

The approach to online and hybrid programs will be gradual. USF expects that it will enroll 300 to 500 (headcount) online students within the next five years and could potentially serve as many as 2,000 to 3,000 students by 2022.

### STUDY AWAY PROGRAMS

Study away programs provide students with personally and academically enriching experiences. USF endorses both domestic and international study away experiences. In the 2010-2011 academic year, 290 USF students participated in semester-long study away programs. USF anticipates that this number will increase to approximately 800 students per semester, or 1,600 per year over the IMP planning period.

## Hilltop Campus Enrollment

The University is projecting that enrollment growth on the Hilltop Campus will grow at an average rate of less than 1% annually over the ten-year IMP planning period. Given a Fall 2011 enrollment of 8,731 headcount students on the Hilltop Campus, this growth factor predicts estimated enrollments of 9,213 in 2017 and 9,635 in 2022. It is important to note that the enrollment projections are averages and that actual enrollments for any particular year are likely to fluctuate as programs are relocated from the Hilltop Campus, and as online programs are implemented. The relocation of programs to the University's new facilities at 101 Howard Street and the Presidio create a mechanism that will help slow the historical growth on the Hilltop Campus through 2022.

USF anticipates that faculty and staff populations for the planning period will increase in proportion to enrollment growth (see Table 4). The balance of the enrollment growth planned to meet education demand, the University's mission-related goals, and financial needs will occur at off-Hilltop USF centers, and through growth in online, hybrid, and study away programs.

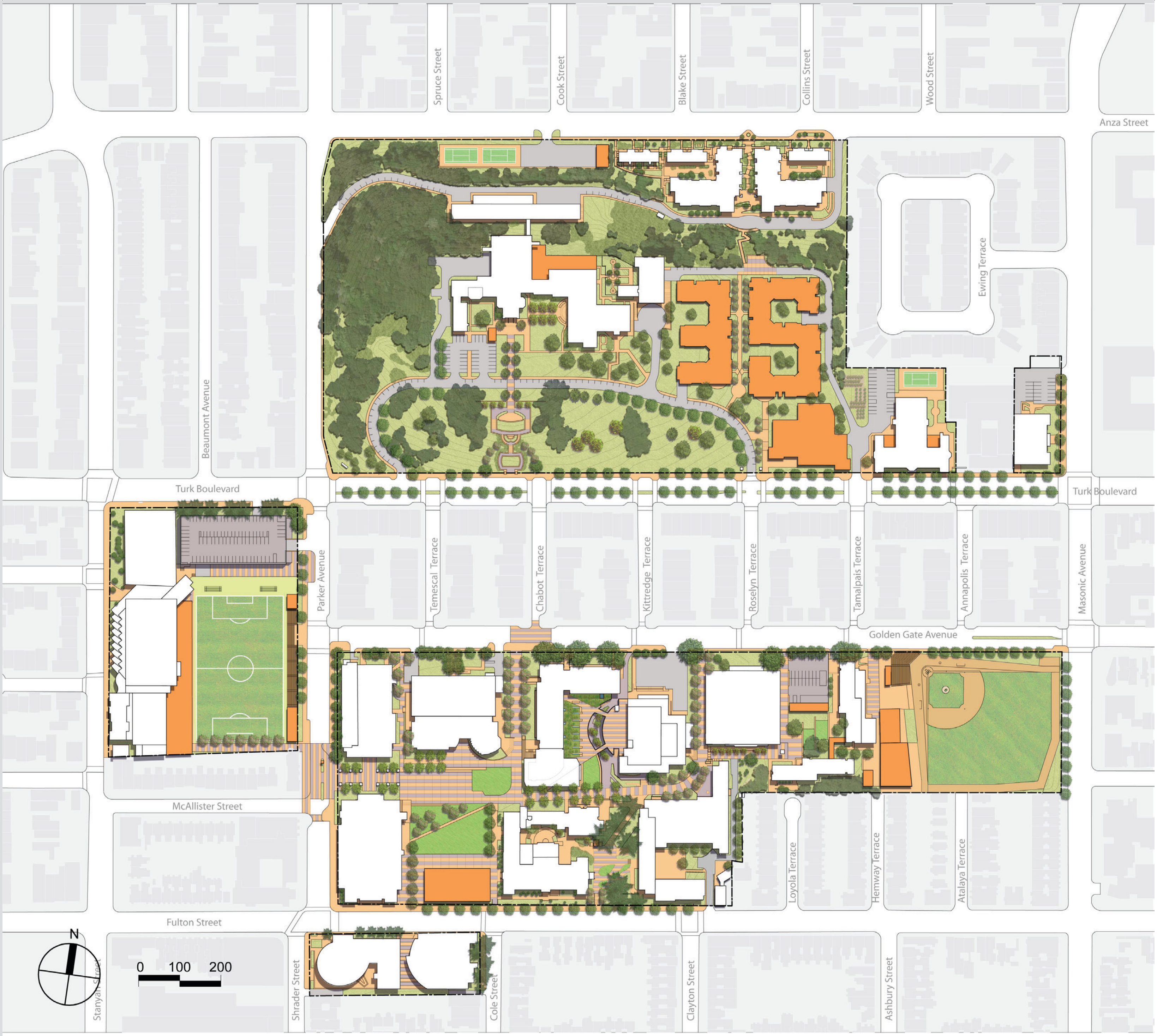



FIGURE 15: ILLUSTRATIVE MASTER PLAN FOR THE HILLTOP CAMPUS

## LEGEND

- USF Hilltop Campus Boundary
- Existing Buildings
- Proposed Buildings

TABLE 4: USF PROJECTED STUDENT, FACULTY, AND STAFF HEADCOUNT — HILLTOP CAMPUS

| | FALL 2011* | FALL 2017 PROJECTED | FALL 2022 PROJECTED |
|---|---|---|---|
| | POPULATION | POPULATION | POPULATION |
| Resident Students | 2,082 | 2,717** | 2,717 |
| Non-Resident Students | 6,649 | 6,496 | 6,918 |
| **Total Students** | 8,731 | 9,213 | 9,635 |
| Faculty Headcount | 992 | 1,047 | 1,095 |
| Staff Headcount | 1,178 | 1,243 | 1,300 |
| **Total Faculty & Staff** | 2,170^ | 2,290 | 2,395 |
| **Total Population** | 10,901 | 11,503 | 12,030 |

* Based on USF 2011 Enrollment Census (does not include the Fromm Institute)
** Assumes a 635 bed increase by 2017
^ Faculty and staff headcount at 9/28/11

Note: In Fall 2012, Hilltop Campus enrollment was 8,601. Total USF enrollment, including branch campuses, was 10,017.

## Hilltop Campus Master Plan

This Institutional Master Plan articulates strategies for academics, student life, and accommodating planned growth in enrollment within a distributed campus structure. The following sections of the plan focus primarily on the physical development and maintenance of the University's Hilltop Campus. They address goals for the development of the campus, facility needs, potential development sites, capital projects, transportation and access, open space and landscape, and pedestrian circulation and wayfinding.

The key elements of the Hilltop Campus physical master plan are:

- Accommodation of enrollment growth of less than 1% annually on average, over the next ten years.
- Enhancement of the image and identity of the University through the physical environment, with strategic building, landscape, and wayfinding improvements.
- Retention and accommodation of a mix of building uses on the Upper and Lower Campuses.
- Creation of a stronger visitor arrival experience and a safe, cohesive, and user-friendly pedestrian environment.

### POTENTIAL DEVELOPMENT SITES

Given the dramatic topography of the Hilltop Campus, land that can easily accommodate future development is limited. An assessment of potential development sites identified opportunities in the following areas within the next five to ten years:

- Upper Campus, eastern area between Loyola House, Loyola Village, the east property boundary, and Turk Boulevard
- Welch Field, adjacent to Fulton Street
- Negoesco Field site

Smaller sites for building renovations or additions have been identified as well, and are described on the following pages under Master Plan Projects. Additional sites may be developed in the future, but will be reserved for potential use after the ten-year planning period. These include Ulrich Field and the area to the west of the Lone Mountain complex on the Upper Campus. Sites which have prior development on their area are deemed to be more preferable for future development than previously disturbed sites.

### FACILITY NEEDS FOR THE HILLTOP CAMPUS

In 2010 USF engaged Sightlines, a facilities-management consultancy, to evaluate the University's classroom utilization rates. Sightlines found that the average classroom utilization rate, or percentage of classrooms that are in use at any given time, is 94%. The national institutional space planning guidelines recommend a target classroom utilization rate of 65%. USF's 94% utilization is an indication of a possible shortage of classroom supply. Although classroom utilization rate is high, position utilization is 60%, indicating that the size and distribution of classrooms may need adjustment.

A further analysis of USF's broader space needs reveals that to accommodate planned annual enrollment growth, and to enable the University to offer new cutting-edge academic programs to meet the needs of future students, the University will need approximately 60,000 to 75,000 gross square feet (gsf) of academic and support space, including new classrooms, practicum and computational space, faculty and staff offices, and study space, in new facilities.

USF houses the least number of undergraduates in its residence halls of any of its peers. At the same time, those dormitories operate at full capacity. To facilitate the transition to living-learning spaces as well as increase the percentage of undergraduates housed on the Hilltop Campus, USF will build 635 new student housing bedrooms on the Hilltop Campus.

USF generally plans to limit its development within the current footprint of the Hilltop Campus. The University occasionally is presented with acquisition opportunities and evaluates each opportunity on a case by case basis. The acquisition of 101 Howard is an example of such an opportunity where the features of the property supported and enhanced the mission and strategic direction of the University.

## Master Plan Projects

The University has translated the needs for facility growth and renewal for the Hilltop Campus into the description of capital projects and campus improvements on the following pages. The projects are organized by priority need within five- and ten-year periods, and include new construction, building renovations and upgrades, as well as site improvements. It is possible that circumstances in the future may obviate the need for certain of these projects.

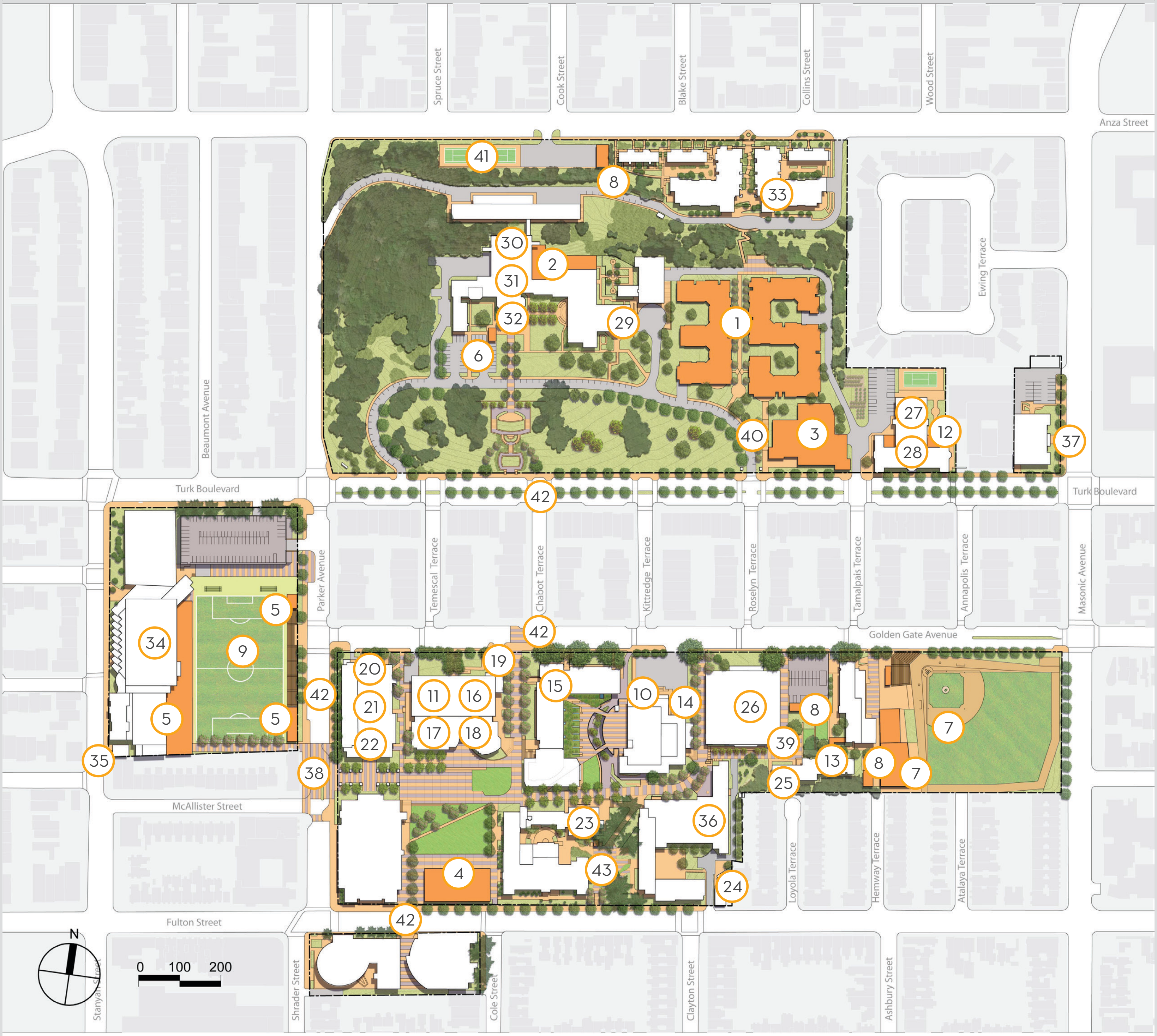



FIGURE 16: POTENTIAL PROJECTS, 2012 – 2022

## LEGEND

- USF Hilltop Campus Boundary
- Existing Buildings
- Proposed Buildings

## POTENTIAL HILLTOP CAMPUS PROJECTS, 2012–2022

### NEW CONSTRUCTION

1. Upper Campus Student Residence Hall and Parking
2. Upper Campus Dining Commons
3. Upper Campus Academic Building
4. Welch Field Academic Building
5. Mixed-Use Buildings at Negoesco Field
6. Visitor Center on Lone Mountain
7. Ulrich Field Intercollegiate Baseball Facility Improvements
8. Grounds Storage and Maintenance Facilities
9. Parking Under Negoesco Field

### BUILDING RENOVATIONS / UPGRADE

10. University Center and Harney Science Loading Facility
11. Gleeson Library Roof Space Enclosure
12. 2350 Turk Boulevard Courtyard Infill
13. Hayes-Healy/Gillson Common Area Front Desk
14. University Center Terrace Infill
15. Existing Harney Science Renovation
16. Library Learning Commons and Entrance Renovation
17. Gleeson Rare Book Room Vault Renovation
18. Gleeson First Floor Renovation (Current Disability Services Offices)
19. Cogeneration Plant Technology Upgrade
20. Fromm Hall X-Arts Renovation
21. St. Ignatius Parish Meeting Space and Office Renovation, Including Courtyard Infill (Fromm Hall)
22. Fromm Hall Lounge Renovation
23. Cowell Hall Learning and Writing Center Refurbishment
24. Fulton House Student Housing Renovation (1982 Fulton Street)
25. Hayes-Healy/Gillson Lounge, Bathroom and Sleeping Room Renovation
26. War Memorial Gym New West Entrance and Interior Renovation
27. 2350 Turk Boulevard Renovation
28. Presentation Theater Refurbishment
29. Lone Mountain Stacks Renovation
30. Lone Mountain Main Lower Level ADA Upgrade
31. Lone Mountain Main Mechanical, Electrical, and Plumbing Upgrade
32. Lone Mountain Main Window Replacement
33. Loyola Village Renovation for Student Lounge Space and Exterior Refurbishment
34. Koret Interiors Refurbishment
35. Mission House Renovation (284 Stanyan Street)
36. Phelan Ground Floor Renovation
37. 281 Masonic Classroom Renovation

### SITE IMPROVEMENTS

38. Parker Street Visitor Arrival Area
39. Hayes-Healy/Gillson Forecourt
40. Lone Mountain Drive Realignment
41. Replacement Tennis Courts
42. Streetscape Improvements on Golden Gate, Turk, Parker, Fulton
43. Bicycle Storage Facility

Open space improvements throughout campus including enhanced campus arrival, pedestrian gateways, new plantings, paving material upgrades, screening of service/parking areas, wayfinding signs, and installation of public art

## FIVE-YEAR PROJECTS

### NEW CONSTRUCTION

#### *Upper Campus Student Residence Hall and Parking*

This project is intended to address a portion of the University's need for student housing. The project consists of 635 new bedrooms of housing to be developed on the east side of the Upper Campus, on the site of the Underhill building and its surrounding area. The approximately 300,000 gsf facility will be designed to accommodate living-learning programs, and will include student life, academic, study, and meeting spaces. The residential complex will be sited on a slope that leads up to the Lone Mountain building, and will be four stories high over a 160-car parking garage.

#### *Upper Campus Dining Commons*

A potential renovation of the current Wolf & Kettle café to accommodate all the residents of the Upper Campus, including the proposed new Residence Hall, as well as other students, faculty and staff, reducing the need for travel to the Lower Campus for dining services.

#### *Upper Campus Academic Building*

This new academic building is expected to bring together the University's arts programs and facilitate interdisciplinary program delivery and exploration. The building will be located on the east side of the Upper Campus, just uphill from Turk Boulevard. This building will be approximately 60,000 to 75,000 gsf, and three stories in height.

#### *Mixed-Use Buildings at Negoesco Field*

ROTC and selected intercollegiate athletic programs will be accommodated in a new building at Negoesco Field. The new facilities will provide offices, classrooms, locker rooms, and athletic support facilities. A third smaller building at the field will provide bathroom and vending facilities for fans and players.

#### *Visitor Center on Lone Mountain*

The Lone Mountain Visitor Center is an important component of the University's effort to improve the look and spirit of the campus by presenting a cohesive visitor experience. Currently, the campus has no clearly defined entrance nor is there a welcoming starting point for visitors to begin their visit at the University. The Visitor Center at Lone Mountain will provide that entry point.

Future mixed-use development on Upper Campus.

*Ulrich Field Intercollegiate Baseball Facility Improvements*

New facilities will reorient the field, moving home plate to the northwest corner, and lowering the playing surface 6-8 feet below the current level to improve drainage and mitigate noise. The existing natural turf will be converted to artificial turf. The current batting cage will be placed underground. Ancillary services will be located in surrounding structures.

*Grounds Storage and Maintenance Facilities*

The Grounds facility currently located in Memorial Gym, lower level, is inadequate. The University plans to relocate this program to a site adjacent to the Hayes-Healy garage. The facility will be a 2,000 gsf enclosed structure for the storage of landscape equipment and supplies, and will contain a small office for the grounds foreman. An ancillary facility to service Lone Mountain will be located on Anza Street, to the west of Loyola Village. That facility will include a 1,600 gsf equipment maintenance and storage building, and a 3,000 square foot open-air yard.

*Parking Under Negoesco Field*

There is the potential to build a parking structure beneath the Negoesco Field. The parking structure would raise the field to approximately street level along Parker Avenue. The structure would contain approximately two hundred fifty to three hundred parking spaces in a single level beneath the field.

BUILDING RENOVATIONS OR UPGRADES

*University Center and Harney Science Loading Facility*

USF intends to consolidate a large portion of its Lower Campus loading facilities to a site north of the University Center, formerly a combination driveway, loading area, and parking lot. This site is currently being used as a staging area for the construction of the Center for Science and Innovation. On completion of that construction, USF will transition the space into a loading facility and will temporarily consolidate University vehicles at this location, thereby opening up parking at other facilities. This facility will help to alleviate delivery vehicle stacking on Golden Gate Avenue, and will also reduce pedestrian-vehicle conflicts by separating the current functions. A sound barrier wall along Golden Gate Avenue will mitigate the visual and noise impacts on neighbors.

*Hayes-Healy/Gillson Common Area Front Desk*

This project involves a consolidation of the entry and access to the Hayes-Healy and Gillson dormitories. It will be located in the forecourt between the two buildings and provide secure access to the dorms. The new entry will release space on the first floors of the two buildings to be used as lounge and residence rooms.

*Existing Harney Science Renovation*

The mechanical, electrical and plumbing systems of the Harney Science building are outdated and in significant need of capital improvements. Most of the building's interior has not been modernized since the facility was built in 1965. After the CSI project construction is completed, seventeen labs and classrooms in the existing Harney Science Building will be decommissioned. The remainder of the building may also be renovated.

*Gleeson Rare Book Room Vault Renovation*

USF maintains a collection of rare and valuable books and periodicals. The current rare book room in Gleeson Library is inadequate for proper climate and fire protection, storage, and display. The University plans to upgrade the facility with appropriate fire, climate control, security systems, and lighting.

*Gleeson First Floor Renovation (Current Disability Services Offices)*

USF plans to reconfigure the existing Disability Services offices, after a future relocation of this function.

*St. Ignatius Parish Meeting Space and Office Renovation, Including Courtyard Infill (Fromm Hall)*

The St. Ignatius Parish desires to consolidate its office space to eliminate trailers currently located north of the Parish church. At the same time, the Parish plans to develop Parish meeting and gathering space, including music rooms and other support functions. This project will require renovating the north and west sides of the first floor of Fromm Hall, including the infill of the north courtyard and the possible addition of a second floor expansion over the courtyard and lower gathering space.

*Fromm Hall Lounge Renovation*

Currently there are no student lounges on the residential floors in Fromm Hall. Student lounges provide neutral study space in close proximity to student sleeping rooms. This project will renovate rooms that are currently sleeping rooms into lounge space. In addition, in order to accommodate the anticipated St. Ignatius Parish office project, the current general lounge on the first floor of Fromm Hall will be reconfigured and right-sized.

*Cowell Hall Learning and Writing Center Refurbishment*

When the learning and writing center and related functions are relocated into Gleeson Library contiguous to the planned Gleeson Technology Center, the vacated space will be repurposed and modernized into what will likely be general inventory classrooms or seminar space.

*Fulton House Student Housing Renovation (1982 Fulton Street)*

Fulton House currently houses up to twelve students. The facility requires renovation and modernization.

*War Memorial Gym New West Entrance and Interior Renovation*

The main entrance will be moved to the west side of War Memorial Gym, in the campus interior, allowing easier access for the campus community and relieving the impact of crowds on Golden Gate Avenue. The current main entrance on Golden Gate will be converted to emergency exits only. Interior renovations will optimize the available space and provide offices, meeting rooms, locker rooms, and improved fan amenities.

*Presentation Theater Refurbishment*

The Presentation Theater provides one of the few large gathering spaces on campus with its 477-seat capacity. Because of the age of the facility, the seating, north exits, dressing rooms, and electrical systems all require upgrade and modernization.

*Lone Mountain Main Lower Level ADA Upgrade*

The Lone Mountain Main lower levels are not currently ADA accessible, and require modernization. This project will address the accessibility issues, and revitalize space which has not been renovated in over thirty years.

*Lone Mountain Main Mechanical, Electrical, And Plumbing Upgrade*

The existing heating and piping system in the Lone Mountain Main building routinely leaks, causing property damage. The system requires replacement with a modern, energy efficient system that will provide reliable service.

*Lone Mountain Main Window Replacement*

The existing Lone Mountain Main windows have single-pane glazing that allows significant wind and water penetration. This project would upgrade the windows and improve energy performance and weather protection.

*Koret Interiors Refurbishment*

A significant amount of the interior space in Koret Recreation Center has not been refurbished since the original construction of the facility in 1989. Spaces such as Swig Pavilion require floor and wall treatment replacement, and other areas within the building require significant refurbishment and program optimization.

*Mission House Renovation (284 Stanyan Street)*

Mission House is a nineteenth century structure that was used as an office for a significant period of time well before USF acquired the property from Saint Ignatius High School in 2010. It requires significant life safety upgrades before it can be used for any University purpose. This project will involve the design and implementation of needed structural and architectural upgrades.

*Phelan Ground Floor Renovation*

The University plans to renovate its ground floor space. At this time, the precise use is undefined however it is likely to be designated as academic space.

#### SITE IMPROVEMENTS

*Parker Street Visitor Arrival Area*

To complement the proposed Lone Mountain Visitor Center, the University proposes to create a Visitor Arrival area on Parker Street between St. Ignatius Church and Fromm Hall. The entry, with broad views of the campus central green, will provide a clearly defined arrival point for the Lower Campus and reduce confusion for drivers and pedestrians arriving at the campus.

*Hayes-Healy/Gillson Forecourt*

The area between Gillson and Hayes-Healy dormitories is currently occupied by trailers providing temporary office space for Intercollegiate Athletics' coaches and staff. The University proposes to reconfigure that space to provide a more welcoming and aesthetic landscaped entry space for the freshman residential halls once the trailers are removed. The improvements would also conceal the proposed landscape maintenance building.

*Lone Mountain Drive Realignment*

The University proposes to realign Lone Mountain Drive so that the eastern outlet aligns with the City grid, increasing safety for pedestrians and vehicles. The direction of traffic flow will be reversed from one-way west to east to one-way east to west, allowing a more logical entrance from Turk Boulevard. This realignment is proposed in the context of the overall University Terrace Traffic Calming plan.

*Streetscape Improvements*

The University is considering general streetscape improvements along Golden Gate Avenue, Parker Avenue, Turk Boulevard, and Fulton Street. The improvements will include improved property-edge landscaping. Changes to the streetscape will be developed to complement traffic calming measures.

*Bicycle Storage Facility*

USF's Transportation Demand Management Plan includes a proposed secure and covered bicycle storage facility. The likely location would be in the area between Kalmanovitz and Malloy Halls.

*Other Open Space Improvements*

Open space improvements are planned throughout the campus, and will include enhanced visitor arrival, pedestrian gateways, new plantings, paving material upgrades, screening of service and parking areas, wayfinding signs, and installation of public art.

### TEN-YEAR PROJECTS

#### NEW CONSTRUCTION

*Welch Field Academic Building*

This 39,000 gsf building will accommodate current and future space needs; a specific academic program has not yet been identified. The building will be sited on the edge of Welch Field at Fulton Street, creating a quadrangle framed by St. Ignatius Church, Kalmanovitz Hall, and the Gleeson Library/Geschke Learning Center. The site of the original USF residential building, this new building will bridge the grade change from Fulton Street to the field and will replace the existing stark retaining wall to create a more welcoming University presence along the street.

#### BUILDING RENOVATIONS OR UPGRADES

*Gleeson Library Roof Space Enclosure*

The University is considering enclosing the roof space of Gleeson Library. This would create approximately 20,000 gsf of usable space. The project would add a light-gauge structure approximately fifteen feet high that would mostly not be visible to surrounding properties.

Potential academic building on Welch Field and new visitor arrival location on Parker Street

### *2350 Turk Boulevard Courtyard Infill*

Infilling approximately 1,700 gsf of currently under-utilized space in the courtyards at 2350 Turk Boulevard could provide much needed classroom and study space.

### *University Center Terrace Infill*

Enclosing the unused terraces at the University Center would provide between 10,000 and 20,000 gsf of office and activity space.

### *Library Learning Commons and Entrance Renovation*

The University plans a renovation of the Gleeson Library to create a learning commons, which would integrate library functions with information technology and other student study and support functions.

### *Cogeneration Plant Technology Upgrade*

The USF cogeneration facility is approximately twenty years old and requires significant technology upgrades to operate more efficiently. This project will involve the expansion of the current cogeneration facility into an underground facility to accommodate newer turbine technology that runs more efficiently with state of the art emissions technology, and with less noise and vibration than the current reciprocating engine technology. The expansion could be located either under the current parking lot to the north, or in the Harney loading dock ramp area to the east.

### *Fromm Hall X-Arts Renovation*

When the planned academic buildings are completed, it is likely that X-Arts will be moved into the new space, creating the opportunity to repurpose the vacated space for classrooms and offices.

*Hayes-Healy/Gillson Lounge, Bathroom and Sleeping Room Renovation*

In both Hayes-Healy and Gillson residential facilities, lounge reconfigurations are required to accommodate student needs for both quiet and group study. In addition, although the bathrooms were partially renovated within the past ten years, the remaining areas such as sink and toilet rooms now require modernization.

*2350 Turk Boulevard Renovation*

When the planned academic space is added, space moves will likely require the renovation of 2350 Turk Boulevard to accommodate classroom and office reconfigurations.

*Lone Mountain Stacks Renovation*

The Lone Mountain Main stacks, which served as the main library for the San Francisco College for Women, are no longer required as a library support facility. The space will be renovated as staff support space.

*Loyola Village Renovation For Student Lounge Space and Exterior Refurbishment*

Loyola Village is a housing facility for USF students. Originally designed as a residential condominium, the building requires upgrades to meet the needs of students. In particular, reprogramming space to provide study and social areas for students is required. The exterior of Loyola Village requires significant restoration and waterproofing upgrades.

*281 Masonic Classroom Renovation*

The University intends to renovate the existing space it currently leases at 281 Masonic Avenue to right size current program usage.

*Replacement Tennis Courts*

The construction of a residence hall on the Underhill site will displace the tennis courts that currently occupy the site. USF proposes to install two tennis courts on Anza Street, just east of Parker Avenue.

## Alternatives to the University's Proposed IMP

The IMP Working Committee analyzed various campus development scenarios through five strategic filters: meeting the University's mission, insuring academic rigor, insuring financial health and viability, insuring an enriching student experience, and mitigating neighborhood impacts.

The Working Committee examined a no growth scenario and concluded that the absence of growth would impose significant financial constraints that would drastically suppress the University's ability to develop much needed new academic programs that serve the City and other populations. This, in turn, would undermine the University's academic core mission, particularly its dedication to reaching underserved populations.

A scenario that contemplates no additional physical development would result in increased crowding in classrooms, labs, and student facilities. The increased crowding would impact the quality of both the educational and campus experience. This scenario would also result in a decreasing percentage of students housed on campus that would, in turn, cause increased housing pressure in the City. This would also increase the number of commuting students causing increased congestion in nearby neighborhoods. Finally, without new facilities, USF's ability to attract quality faculty and students would be diminished, undermining the University's academic rigor and financial health.

The IMP Working Committee concluded that a distributed campus and enrollment model that includes a less than 1% growth in Hilltop enrollment, as described earlier in this chapter, provided the optimal strategy to meet key strategic goals. The plan diverts growth away from the Hilltop while developing alternative revenue streams; it provides for new academic space to accommodate already crowded and outdated academic facilities, it modernizes and optimizes the use of current facilities, and it provides modern housing facilities that benefit the student population while also reducing transportation impacts on surrounding neighborhoods.

### ALTERNATIVE CAMPUS CONFIGURATION

In developing the proposed IMP, other building configurations were considered, but it was determined that the proposed configuration is most suitable in terms of both feasibility and sustainability. On the Lower Campus, it was decided, given current University needs and educational trends, potential construction costs and other factors, the sites described herein represent the best possible options. On the Upper Campus, the proposed development sites to the east of Loyola House are preferred because they are already in-use sites, occupied by the collection of deteriorated Underhill buildings, the adjacent parking lot, and the existing eastern exit drive. It was also determined that new buildings on these sites would create a desired connection between the Lone Mountain complex and the academic buildings fronting Turk Boulevard. They also serve as an opportunity to strengthen the north-south connection from Lower Campus to Loyola Village.

During the planning process, the open land on the west side of Lone Mountain was also considered for development, but it was determined that this area should be reserved as a potential long-term development site, beyond the time frame of this IMP.

## Conditional Use Analysis

Planning Code Section 209.3 requires conditional use authorization for post secondary educational institutional uses in the RH-2 zoning district.

The following is a preliminary evaluation of whether the proposed projects discussed above, which are still conceptual, may or may not require conditional use authorization. Further discussion with the Planning Department will be required once additional details are known. Thus, this preliminarily evaluation is for informational purposes only.

### PROJECTS THAT ARE EXPECTED TO REQUIRE CONDITIONAL USE AUTHORIZATION

Subject to confirmation from the Zoning Administrator, it is expected that conditional use authorization would be required for the following proposed projects, which are more particularly described above.

- Upper Campus Student Residence Hall and Parking
- Upper Campus Dining Commons
- Upper Campus Academic Building
- Welch Field Academic Building
- Mixed-Use Buildings at Negoesco Field
- Parking Under Negoesco Field
- Mission House Renovation (284 Stanyan Street)
- Fulton House Student Housing Renovation (1982 Fulton Street)

### PROJECTS THAT MAY OR MAY NOT REQUIRE CONDITIONAL USE AUTHORIZATION

The following proposed projects, which are more particularly described above, may or may not require conditional use authorization. That determination will ultimately be made by the Zoning Administrator.

- Visitor Center on Lone Mountain
- Ulrich Field Intercollegiate Baseball Facility Improvements
- Grounds Storage and Maintenance Facilities
- Fromm Hall St. Ignatius Parish Meeting Space and Office Renovation
- Gleeson Library Roof Space Enclosure
- University Center Terrace Infill
- 2350 Turk Boulevard Courtyard Infill
- Cogeneration Plant Technology Upgrade
- University Center and Harney Science Loading Facility
- Presentation Theater Refurbishment

### PROJECTS THAT ARE NOT EXPECTED TO REQUIRE CONDITIONAL USE AUTHORIZATION

It is expected that conditional use authorization would not be required for the following proposed projects, which are more particularly described above. However, that determination will ultimately be made by the Zoning Administrator.

- Hayes-Healy/Gillson Common Area Front Desk
- Existing Harney Science Renovation (modernization and right sizing)
- Rare Book Room Vault Renovation
- Gleeson First Floor Renovation
- Fromm Hall Lounge Renovation
- Cowell Hall Learning and Writing Center Refurbishment
- War Memorial Gym New West Entrance and Interior Renovation
- Lone Mountain Main Lower Level ADA Upgrade
- Lone Mountain Main Mechanical, Electrical and Plumbing Upgrade
- Lone Mountain Main Window Replacement
- Koret Interiors Refurbishment
- Phelan Ground Floor Renovation
- Parker Street Visitor Arrival Area
- Hayes-Healy/Gillson Forecourt (proposed green entry space)
- Replacement Tennis Courts
- Lone Mountain Drive Realignment
- Streetscape Improvements
- Bicycle Storage Facility
- Open Space Improvements
- 2350 Turk Boulevard Renovation
- Fromm Hall X-Arts Renovation
- Library Learning Commons and Entrance Renovation
- Lone Mountain Stacks Renovation
- Loyola Village Renovation for Student Lounge Space and Exterior Refurbishment
- Hayes-Healy/Gillson Lounge, Bathroom and Sleeping Room Renovation
- 281 Masonic Classroom Renovation (conversion of office space to classroom space)

## Changes Since the 2010 IMP Update

1. Parking
    - Under CSI site permit #201008068321, prior to the start of site demolition for the John Lo Schiavo, S.J. Center for Science and Innovation, the University relocated the four parking spaces that would be lost by the end of construction, as requested by the City, to Lone Mountain, per the approved plans.
2. Pedestrian Circulation
    - The University has installed decorative pavers on internal service drives on the Lower Campus.
    - In July 2012, the University moved the fence and planted eleven trees on the southern edge of Golden Gate between Masonic and Tamalpais.
3. Vehicular Circulation Changes
    - There have been no changes to vehicular circulation on campus since the 2010 IMP update.
4. Athletic Facility Changes
    - Acoustic panels were installed in the baseball batting cage at Ulrich Field.
    - New audio systems were installed at Negoesco & Ulrich Fields.
    - The following improvements have been completed at War Memorial Gym:
        - Paint and carpet at the entry and lobby space on the main level.
        - Court floor, lighting, and seating upgrades.
        - Electronic message boards.
    - Hagan Gym at Koret Center has been renovated with new windows, flooring, athletic fixtures, lighting and a scoreboard.

- The soccer field turf has been replaced (replacement in kind).

5. Landscape Changes
   - A new plaza was created in front of the Gleeson campus library, which included the installation of decorative pavers, sculpture, and landscaping.
   - Sections of the southern slope of Lone Mountain were replanted with native plants.
6. Facility Changes
   - Construction of the John Lo Schiavo Center for Science & Innovation (site permit #201008068321) has been substantially completed. The building is scheduled to open for the fall semester 2013. The 58,000 square foot building contains 17 classrooms and teaching labs.
   - Upgrades have been completed at the University Center, including renovation of the 3rd floor, an interior remodel of floors 1, 4, and 5, a kitchen equipment replacement on floor 2, patio enclosure on the 1st floor, renovation of the 2nd & 3rd floor restrooms, and an upgrade to the faculty lounge.
   - Phase I and II of the Phelan Hall renovation has been completed, including a plumbing replacement bathroom renovation, installation of student lounges on each floor, renovation of resident minister apartments, installation of energy efficient windows, voluntary seismic work, exterior paint, and relocation of the student entry.
   - At Kalmanovitz Hall, the amphitheater was completed and the Olivia Portal was installed.
   - Construction of a new nursing skills lab was completed at 2350 Turk Boulevard.
   - The Geschke Atrium roof was repaired.
   - The boilers have been replaced at Phelan Hall and the University Center.
   - Two boilers have been replaced in the Cogeneration plant.
   - The second phase of the steam line replacement was completed at Koret Center (called 007, under permit # 20100611722/M212487).
   - The ramp at the entrance to Student Disability Services was replaced (under permit #201106279011).
   - An ADA ramp was installed at Cowell classroom entrance (under permit #201106279010).
   - Zief Law Library was reconfigured to accommodate technology upgrades.
   - USF will apply for a permit to demolish the Underhill Building and replace it with temporary buildings.
   - The McLaren entrance has been completed.
   - USF will apply for a permit to add three classrooms in the lower level of Phelan Hall.
   - USF will build three classrooms and some office space on the third floor of 101 Howard.

## Landscape and Open Space Framework

The USF campus contains many mature trees and areas that are beautifully landscaped. As a result, the Master Plan focuses on strategic improvements and ongoing management of existing landscape elements, rather than comprehensive redesign. These improvements will enhance the image and identity of the campus, improve the overall campus experience, and enhance pedestrian safety.

The Master Plan establishes several landscape zones, which reflect existing areas with a common function, geography, character and design. The landscape zones are:

- Civic
- Gateways
- Interstitial landscapes
- Courtyards and plazas
- Gardens
- Streetscapes
- Woodland hillside
- Edges and buffers

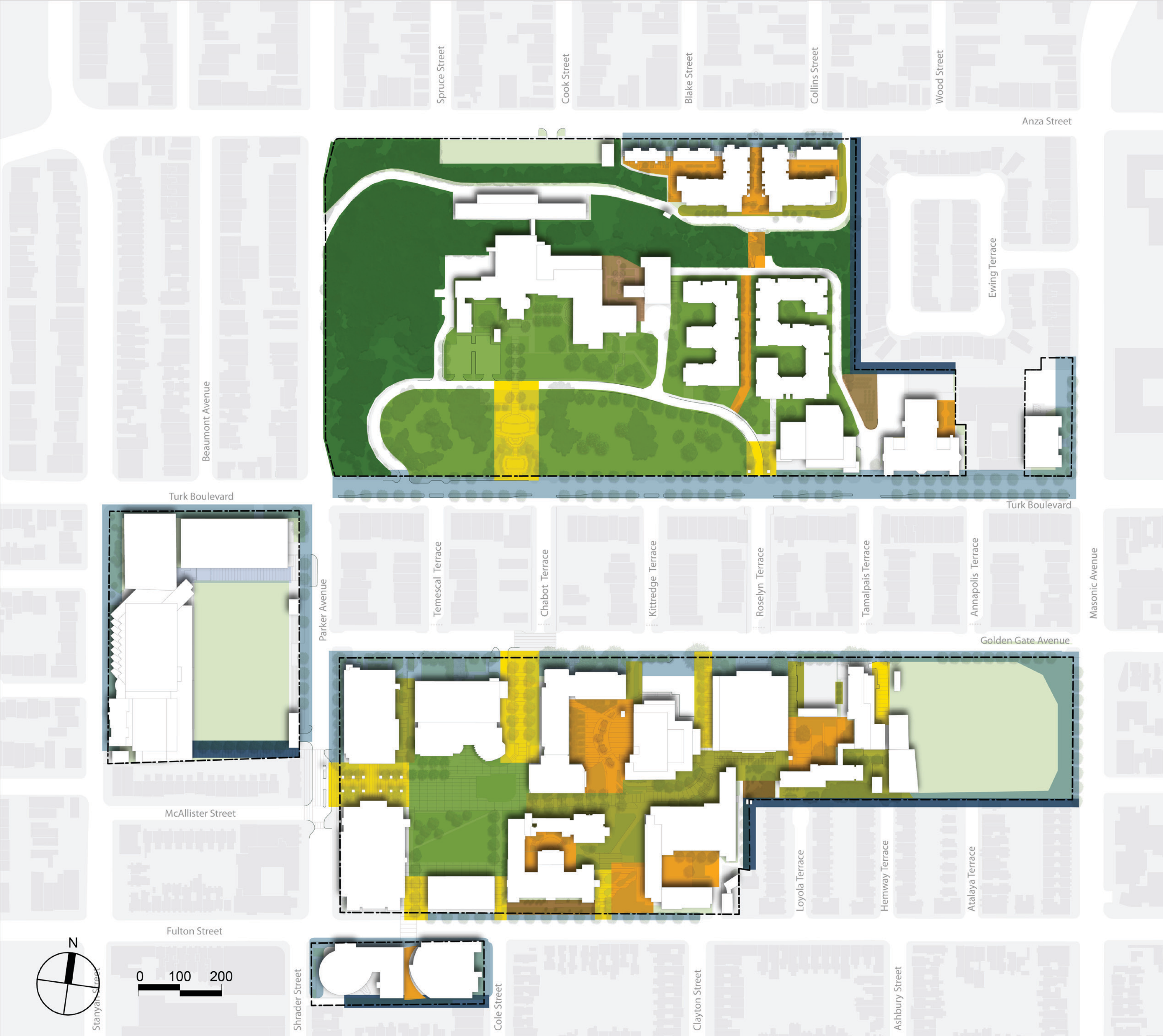



FIGURE 17: PROPOSED LANDSCAPE AND OPEN SPACE FRAMEWORK

## LEGEND

- USF Hilltop Campus Boundary
- Buffered Edge
- Streetscape
- Civic Zone
- Gateway
- Plaza
- Garden
- Woodland Hillside
- Interstitial Landscape

The following sections describe the various zones. USF has landscape guidelines which contain detailed strategies for the improvement, maintenance and management of each landscape zone.

## CIVIC

Civic zones are the grand public spaces of the campus. They provide an organizing structure to the campus, tie different areas together, and establish the identity of the University. They have lasting symbolic value. The two civic zones on the campus are Welch Field and the south slope of Lone Mountain fronting Turk Boulevard.

### *Objective and Guidelines*

The objective for the civic zones is to protect and rehabilitate these historic landscapes. The design of civic spaces should be enduring, classical, understated and dignified. They should have an elegant, iconic simplicity that make them symbols of the University. Civic landscapes should be primarily pedestrian spaces. Recommendations for achieving these objectives include:

- Protect the mature tree canopy, establish replacement plantings to retain and enhance the scenic beauty of these historic areas, and enhance species diversity for the educational and ecological benefit of the campus.
- Replace palm trees along Upper Campus drive with a consistent canopy tree species to create a unified presence along this signature arrival into campus.
- Maintain turf as the primary ground cover to promote informal social gatherings, recreation, and historic characteristics.
- Restore overgrown foundation plantings with new, consistent materials compatible with the style and scale of the architecture.

## GATEWAYS

Gateways are signature areas that mark the vehicular and pedestrian entrances to the campus. They contribute to the image and identity of the campus for passers-by. At the Upper Campus, a new vehicular gateway will be created with a realigned entrance drive from Turk Boulevard west of the School of Education building, to align with the City street grid. The drive will lead to a visitor arrival area in front of the Lone Mountain Main building. The existing staircase and garden that lead from Turk Boulevard to the Lone Mountain Main building are iconic elements that form the pedestrian gateway to the Upper Campus.

On the Lower Campus, the plan includes enhanced gateways along Golden Gate Avenue between the Gleeson Library and the Harney Science Center and between the University Center and Memorial Gymnasium. A new gateway is planned at Parker Avenue as part of a Lower Campus point of visitor arrival. A new pedestrian gateway will lead from the Parker Avenue entrance to Welch Field through a corridor framed by St. Ignatius Church and Fromm Hall. Another gateway will improve views and access into Welch Field from Fulton Street.

The lawn on Upper Campus represents a civic zone to be maintained.

Campus gateways should be enhanced to create a welcoming sense of arrival.

Interstitial landscapes on campus are important transitional spaces and should enhance the pedestrian experience.

The two campus monument signs are also located within gateway areas at the edges of campus (at Parker Avenue and Turk Boulevard and at Golden Gate Avenue and Masonic Avenue).

### *Objective and Guidelines*

The objective for the gateway landscapes is to evoke a welcoming sense to the public. General recommendations include:

- Create visual unity and human scale through a consistent palette of materials, lighting, and signage.
- Form consistent, evergreen backdrops for campus monument signs.
- Integrate seasonal color through the use of annuals and perennials.

## INTERSTITIAL LANDSCAPES

Interstitial landscapes are the spaces between two or more defined landscape areas, and typically accommodate pedestrian circulation, as well as service and emergency vehicles. These transitional "pass-through" spaces connect to the surrounding City street grid through the campus gateways. Given their circulation function, they are often defined by wide areas of pavement. The landscapes surrounding interstitial spaces consist largely of canopy trees and foundation plantings.

### *Objective and Guidelines*

Interstitial spaces should be designed to balance the functional demands of service and parking with the needs of pedestrians for safe, orderly and attractive paths of movement. General recommendations include:

- Create a hierarchy for pathway systems.
- Where desirable, identify gateway locations through the use of landscape features, plant material, lighting, and signage.
- Create visual unity and human scale through a consistent palette of materials, lighting, and signage.
- Plant consistent rows of trees along pathways to unify the canopy, form, color, and texture.
- Employ walls and planting to screen utility areas and soften massive building walls.

## COURTYARDS AND PLAZAS

Courtyards are spaces framed by campus buildings. They are relatively small, inviting spaces with rich, diverse, human-scaled landscapes. Plazas are similar to courtyards in their scale and function, but are typically not framed by buildings on all sides.

The principal courtyards and plazas on the USF campus are:

- The area between Kalmanovitz and Cowell Hall and between Kalmanovitz Hall and Malloy Hall
- Gleeson Plaza
- The space between Malloy Hall and the McLaren Conference Center
- The new Center for Science Innovation plaza
- The area framed by Hayes-Healy and Gillson Halls
- The Loyola Village courtyards

New courtyards are also planned within the Upper Campus residence hall complex.

*Objective and Guidelines*

The overall objective is to allow courtyards and plazas to express a human scale and have a direct programmatic and qualitative relationship with their surrounding buildings. They should be enjoyable, comfortable spaces to inhabit.

General recommendations include:

- Design each courtyard space to have a consistent landscape theme. The themes for each courtyard should be different, responding to its unique setting and adding variety to the campus landscape.
- Provide rich, comfortable materials to provoke social gathering, studying, and contemplation.
- Incorporate water and art into the landscape.

### GARDENS

The campus contains a number of garden landscapes that contribute to USF's unique identity. The gardens include:

- The area south of Memorial Gym, which provides a tranquil setting within the urban context of the campus.
- The native plantings along the south façade of Kalmanovitz Hall, which express the unique qualities of Northern California landscapes.
- The community garden on the east side of Lone Mountain, which provides students an opportunity to grow and cultivate seasonal food.
- The Rossi Courtyard within the Jesuit community residence, which is a well-manicured space that has the qualities of a residential garden (not open to the public).

*Objective and Guidelines*

The overall objective is to protect and maintain these special garden spaces on campus.

### STREETSCAPES

Streetscapes are the public face of the University and contribute to the image of the campus within the broader community. Within the time frame of the plan, USF intends to take steps to improve the Turk Boulevard, Golden Gate Avenue, Parker Avenue, and Fulton Street steetscapes.

*Objective and Guidelines*

The overall objective is to design campus streetscapes as attractive public spaces that fulfill their functional requirements and contribute to a positive experience of the campus. General recommendations include:

- Develop a street environment that can be maintained given pedestrian and vehicular volumes.
- Create visual unity through a consistent palette of materials, color, and signage.
- Continue the tree planting program to replace lost trees or those that should be removed to minimize the safety risks during future storms.
- Create safe, clear, and attractive pedestrian crossings at appropriate locations.

### WOODLAND HILLSIDE

A prominent feature of the Upper Campus landscape, the large woodland slopes on the west, north, and east sides of Lone Mountain are defined by large groves of pine and cypress trees with an understory of eucalyptus and bay trees. These areas provide multiple ecological benefits to the urban environment, including soil stabilization, water resources protection, carbon storage, habitat enhancement, and microclimate and air quality improvement.

The woodland hillside on Lone Mountain should be managed to maintain its ecological and aesthetic value.

*Objective and Guidelines*

The overall objective is to recognize and protect existing woodland hillside areas as ecological and aesthetic assets to the campus. General recommendations include:

- Manage existing woodlands to remove/control invasive species and maintain biodiversity and health.
- Replant with appropriate species whenever an existing tree falls or is removed for safety reasons.
- Removal of trees to preserve significant views of historic buildings on the hill or City landmarks (Golden Gate Bridge) should be managed to prevent overexposing large areas of the wood-land floor.
- Exposed ground areas should be planted with native ground covers / grasses.
- Minimize development and human impacts within existing woodlands.

### EDGES/BUFFER

Some edges of the campus are close to adjacent residential properties. These perimeter conditions require a buffer between the campus and these properties to prevent unwanted pedestrian traffic and preserve visual privacy. The University will create or enhance a visual screen or buffer for these residential properties.

*Objective and Guidelines*

The overall objective is to provide a visual screen, or buffer, for the adjacent residential properties. General recommendations for achieving this objective include:

- Plant consistent evergreen trees and understory materials for each location.
- Maintain understory shrubs to a 6-8 foot hedge for adequate screening purposes.
- If necessary, install an opaque fence at select locations on University property to screen campus operations.

## Visitor and Vehicular Arrival

The Master Plan will enhance the visitor arrival experience through new gateways, visitor amenities, and wayfinding improvements. Improved signage will direct visitors to new arrival area for both the Upper and Lower Campuses. The primary campus arrival area will be located on Upper Campus near the entrance to the Lone Mountain Main building, and will consist of a new visitor center and parking area. Access to the visitor center will be provided via a realigned entrance drive from Turk Boulevard west of the School of Education building, with vehicles entering on the east side of the drive. The secondary interior drive loop will be removed.

A secondary arrival point will be introduced on Lower Campus on Parker Avenue between Fulton Street and Golden Gate Avenue, providing a visitor booth and pull-out area. Visitor parking will be accommodated in the Koret Center parking area.

All other campus entrances will be improved for visitors arriving by transit, bicycle, or foot. Pedestrian signs will assist in navigating the campus.


FIGURE 18: PROPOSED VISITOR ARRIVAL AND VEHICULAR CIRCULATION

## LEGEND

- USF Hilltop Campus Boundary
- Primary Vehicular Route
- Secondary Vehicular Route
- Service Only Route
- Service Access Point
- Structured Parking
- Surface Parking
- Primary Arrival Point
- Secondary Arrival Point

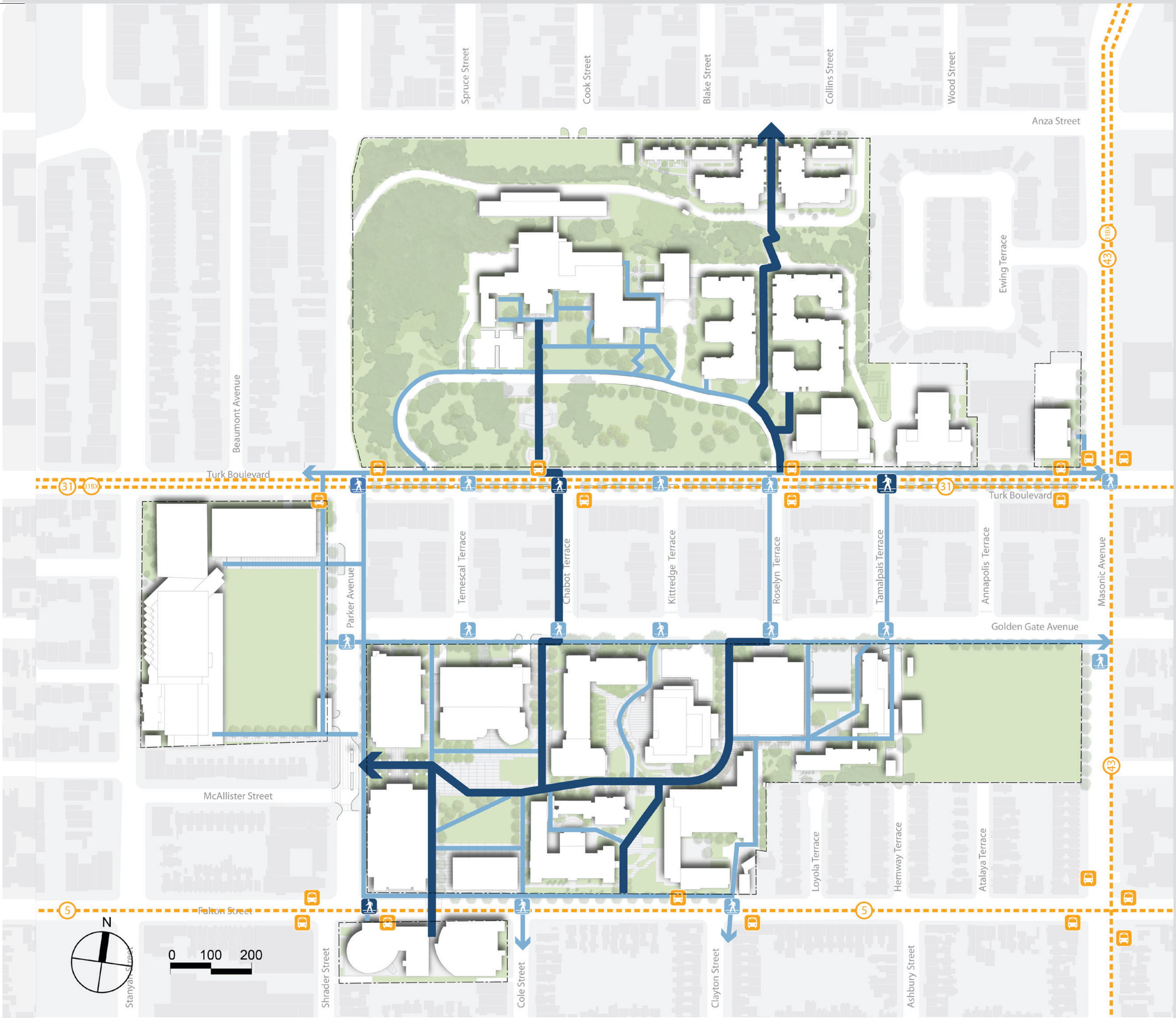



FIGURE 19: PROPOSED PEDESTRIAN CIRCULATION

## LEGEND

- USF Hilltop Campus Boundary
- Primary Pedestrian Route
- Secondary Pedestrian Route
- Muni Line
- Muni Stop
- Signaled Crosswalk
- Non-Signaled Crosswalk

## Pedestrian Circulation

Pedestrian circulation will be clarified and concentrated on a network of major and secondary pedestrian routes on both the Upper and Lower Campuses. On the Upper Campus, the primary pedestrian routes include the existing Lone Mountain Spanish Steps and pathway from Turk Boulevard to the Lone Mountain Main building entrance, and a planned new connection from the planned gateway entrance on Turk Boulevard through to Loyola Village. The existing east-west pathway from the Lone Mountain Main entrance to the Underhill site will be extended to the new Upper Campus residence hall. A secondary pedestrian route connects Lone Mountain East, Loyola House, the new Upper Campus residence hall, and the Turk Boulevard frontage.

Major pedestrian routes on the Lower Campus include the existing central east-west pedestrian corridor from the Parker Avenue gateway to the baseball field, the existing pathway from Fulton Street to the library along the west edge of Welch Field, and the pathway from Golden Gate Avenue to the central east-west corridor. Additional secondary pedestrian routes along Golden Gate Avenue and through the Lower Campus create greater permeability throughout the Lower Campus.

Pedestrian crossings of Turk Boulevard, Golden Gate Avenue, Fulton Street, and Parker Avenue will be better defined to improve pedestrian safety as part of the IMP's traffic calming plan. New non-signaled crosswalks should be introduced at the intersection of Parker Avenue and McAllister Street and at the intersections of Golden Gate Avenue and Chabot and Tamalpais Terraces.

## Mobility Management

### TRAFFIC CALMING PLAN AND PEDESTRIAN SAFETY

Traffic calming seeks to reduce vehicle speeds, improve safety, and enhance quality of life. Measures to achieve these goals are typically focused on engineering solutions that oblige drivers to slow down or take an alternate route, though enforcement and education can also modify traffic movement. When carefully planned and designed, traffic calming initiatives also improve neighborhood character. Many traffic calming measures create more space for pedestrian movement, neighborhood activities and landscape features. Multiple studies have shown that slower moving and/or less vehicular traffic lead to safer and more connected neighborhoods and increased long-term property values.

In San Francisco, the climate for improving pedestrian and bicyclist safety and reducing the impacts of traffic on neighborhood streets is particularly strong. The City has recently adopted the Better Streets Plan to guide decision-making on street improvements across City agencies, including the Municipal Transportation Agency (SFMTA), Planning Department, Public Works, and the County Transportation Authority. The Better Streets Plan provides guidelines and design recommendations to create street designs that are appropriate for the people who use them and for the adjacent neighborhood. Goals of the Better Streets Plan include safe streets that support diverse public life, promote human use and comfort, and create convenient connections.

USF and the University Terrace Association initiated a traffic calming study to identify potential traffic and transportation safety improvements in the University Terrace neighborhood in June 2010 as part of the University's planning efforts. Residents of University Terrace and members of the USF community had expressed concern about safety in the neighborhood, primarily caused by driver behavior and pedestrian activity, particularly in the University Terrace neighborhood, which is located between the Upper and Lower Campuses and is bound by

Turk Boulevard on the north, Golden Gate Avenue on the south, Parker Avenue on the west and Masonic Avenue on the east.

The transportation conditions and specific traffic issues and opportunities in the study area were evaluated by Fehr & Peers, transportation planners and engineers, and Urban Design +, a design, planning and sustainability firm. They were tasked with identifying stakeholder concerns; reviewing applicable City policies; and collecting traffic data, including speeds, volumes, and collision information.

In order to develop a clear understanding of the vehicular and pedestrian issues effecting University Terrace and the USF campus, the project team conducted a wide analysis that focused on issues that affect circulation, safety and livability in four main zones: the University Terrace neighborhood, along Turk Boulevard, Golden Gate Avenue, and the USF campus. The analysis included a walking tour of the neighborhood with University Terrace Association and USF representatives, site observation on multiple occasions, traffic data collection, review of overview materials provided by UTA members, and a survey of neighbor and USF communities.

To understand the concerns and details about the issues in the project area, a comprehensive community outreach process was employed. This entailed approximately twenty meetings involving the University, University Terrace Association, students, and the City of San Francisco. The goal of the meetings was to identify and prioritize community concerns in the study area and discuss potential traffic calming measures to alleviate concerns.

In addition to the neighborhood meetings, a survey was distributed to University Terrace residents as well as USF faculty, staff and students. The purpose of this survey was to assist in identifying community concerns in the study area. This data was considered in conjunction with inputs from the neighborhood meetings among members of the University and UTA. The survey included questions about transportation patterns, safety concerns, travel behavior and challenges to accessing campus and residences, among others. Survey questions can be found in the Appendix. A total of 1,076 respondents provided input on the survey.

The traffic calming study also included a robust data collection effort, including vehicle traffic counts, speed surveys, pedestrian and bicyclist counts, parking analysis, and collision data, within the University Terrace neighborhood. General site observations and data collected supporting resident and consultant observations throughout the study area are available in the Transportation and Traffic Calming Study in the Appendix.

## SITE ANALYSIS SUMMARY

This study identified a series of issues in five general categories:

**Parking management in the UT neighborhood**
Parking in the UT neighborhood is impacted by members of the public, including the USF community, parking throughout the UT. These impacts include lack of parking for visitors, high traffic volumes created by people looking for parking, unsafe driving maneuvers including mid-block U-turns and inattentive and high speed turns, and blocking of residents' driveways.

**Traffic management in the UT neighborhood**
The residential parking permit area in University Terrace (i.e., "BB") has a 2-hour time limit for non-residents which leads to regular turnover of the parking spaces. This space turnover ensures that if one looks long enough, odds are eventually a space will be found. The corollary to this turnover is that it creates traffic throughout the University Terrace streets as vehicles circulate looking for parking.

**Pedestrian volumes in the UT neighborhood**
Throughout the day, members of the USF community walk back and forth between the Upper and Lower Campuses. The resulting pedestrian volumes are significant. As the sidewalks in the University Terrace neighborhood were not designed for such volumes and are generally narrow and often obstructed, many people walk in the street, creating a potentially hazardous condition given the traffic volumes and frequently observed unsafe driving maneuvers.

**Pedestrian safety on Golden Gate Avenue and Turk Boulevard**

The high volume of pedestrians moving between the two USF campuses is evident on both Golden Gate and Turk and is impacted by dangerous conditions on each. On Turk, crossing signal timing at the signalized crosswalks is too short for the distance and volumes (22 seconds at Chabot Terrace); the medians are insufficient for safe refuge; the grade and sun angles impede sight distances on the street and for drivers making turns to/from the street; the downhill eastbound grade and unnecessarily wide street encourage speeding; the sidewalks at the bus stops are narrow; the bike lanes are not continuous; and distracted pedestrians jaywalk at both the intersections and mid-block (contributing are Upper Campus paths that are not aligned to the crosswalks). On Golden Gate, the street is unnecessarily wide (which encourages unsafe driving maneuvers such as mid-block U-turns); there are no signalized intersections; there is a high volume of pedestrians crossing in all directions; the bike lanes are not continuous; and the downhill grade encourages high vehicular speeds (including bikes and skateboards).

**Vehicular impacts on USF campus edges**

The edges of each of the campuses are inordinately impacted by vehicles. These impacts include parking, driveways, service vehicles, and the traffic volumes on both Golden Gate and Turk. Parking and services, which dominate the campus edges, create obstacles for pedestrians and cyclists. These issues challenge the university to provide safe, efficient operations and maintain a curb appeal within the community.

There is a broad menu of traffic calming devices that can effectively address some of the traffic issues identified as a result of the data collection and public outreach in University Terrace. These could be as simple as revised lane striping or more prominent crosswalk markings for the directional guidance of cars, bicycles and pedestrians; reducing speed and volume through various narrowing and volume devices; bulbouts that narrow the travel lane at intersections and create shorter crossing distance for pedestrians; and "road diets," which reduce the number of automobile travel lanes to benefit transportation modes (e.g. bike lanes, wider sidewalks.) or alternative uses (e.g. parklets, stormwater management). One of the more effective tools of traffic calming is full or partial-street closures that restrict the quantity and sometimes the type of travel on a given right-of-way.

The study team developed four alternative traffic calming scenarios. Each alternative is a combination of possibilities from an overall menu of ideas—the alternatives are organized around general themes, but many of the components can be recombined to generate other scenarios. A full description of the alternatives may be found in the Appendix. Regardless of the methods implemented, the ultimate evaluation of effectiveness is how well the measures meet the needs of street users and residents and provide consistency with community values and City policy. Potential traffic calming measures were identified and combined to form four alternatives for the communities to evaluate through a series of public and campus meetings. Neighborhood residents and other stakeholders evaluated the alternatives, selected the measures that were most effective to meet the project goals, and developed a preferred alternative.

Recognizing that no one idea will solve neighborhood and USF traffic issues, the community combined elements of the four alternatives to develop a comprehensive plan that results in changes to address existing traffic behavior and retains appropriate access to University Terrace and USF. A successful solution will be a comprehensive solution that both mitigates the identified issues and creates a safer and more welcoming community. The Preferred Plan, which represents a combination of elements from all four initial scenarios, is described here. Each of the ideas presented in the USF Traffic Calming Plan is based on these City-endorsed ideas in the Better Street Plan, providing a clear framework for City approval of the preferred plan.

## PREFERRED PLAN

The Preferred Plan, which is acceptable to the UTA and USF, combines components of each of the four draft alternatives to create a plan focused on a safe and welcoming university and residential neighborhood. This Preferred Plan, "A Great Neighborhood" includes a number of key concepts such as restricting the turning movements on Turk Boulevard to prevent cut-through traffic; pedestrian crosswalk enhancements along Turk Boulevard; bus stop improvements; gateway treatments; and the reframing of the streets in the University Terrace neighborhood and adjacent to USF.

To create a welcoming, high quality university and residential neighborhood, the preferred alternative includes a planted median and road diet along Turk Street and gateway treatments at both Parker and near Masonic on Golden Gate Avenue. Each of the Terrace streets would have a partial closure at the southern end to restrict vehicles from entering Terrace streets from Golden Gate Avenue.

The combination of a median restricting certain turning movements on Turk Boulevard and the partial closures of the Terraces would maintain access for residents while discouraging vehicles from circulating through the Terrace streets looking for parking. Combined with managed parking restrictions – including the reduced time limit on BB parking – this plan would significantly decrease the amount of vehicular traffic on University Terrace streets and create a neighborhood-oriented environment for the community and safer environment for pedestrians.

On Golden Gate Avenue, bulbouts at crosswalks and gateway treatments at Parker and Annapolis will highlight and create clear entries into the neighborhood. There would also be an enlarged and enhanced crosswalk at Chabot Street that would align with the pedestrian path within the Lower Campus. This crosswalk would create an inviting and continuous pedestrian connection between the Lower Campus and Upper Campus along Chabot Terrace. Each of the Terraces would have at least one marked crosswalk with bulbouts shortening the distance required to cross Golden Gate. There would also be a large planted island in the center of Golden Gate, just east of Annapolis Terrace. This island would act as both a traffic calming and gateway feature into the neighborhood.

Enhancements on Parker Street will create safer conditions for the campus community, enhance connections to the Koret Center and soccer field, and create a more attractive campus entry and edge. Curb extensions into the intersection of Parker and Golden Gate would create a much smaller intersection than what exists today. Planted areas between curb ramps could help channel pedestrians into the crosswalks at the intersection.

This Preferred Plan is comprehensive concept for improvements in the University Terrace and USF district, one that can both address parking and traffic safety issues and create a more welcoming environment for residents and members of the University Terrace and USF community. This preferred plan, as voted on by the University Terrace, will guide the development of the future design of streetscape improvements in the neighborhood.

## TRANSPORTATION DEMAND MANAGEMENT

The purpose and goals of the Transportation Demand Management (TDM) plan is to reduce USF community generated vehicle trips from traveling to and from campus. By extension the plan would improve pedestrian safety, reduce vehicle emissions, and improve neighborhood quality of life.

### EXISTING TDM PROGRAM

This section contains an evaluation of the existing TDM program at the University and identifies strategies for program enhancement. The objective of the evaluation was to gain knowledge about the existing TDM program; identify barriers that may be preventing the USF community from taking advantage of program benefits; identify opportunities for promoting TDM incentives; and consider new TDM initiatives at USF.

The evaluation included a review of existing transportation options on and near campus; a survey of students, faculty, and staff regarding the feasibility of future TDM options; and an analysis of parking supply and demand on and near campus.

### *Shuttle Service*

From 2001 to 2006 USF, in cooperation with St. Mary's Hospital, provided a BART shuttle from campus. The service ran Monday through Friday throughout the year except holidays, and service was provided approximately every half hour. USF identification was required for purchase of shuttle tickets. This shuttle service was discontinued in 2006 because of cost and ridership concerns. USF currently operates a night safety shuttle in the immediate vicinity of campus.

In the online survey, when asked, "Why do you typically drive alone to campus?", 41% of drivers stated that they have no reasonable transit option, 7% stated that transit does not run late enough and 4% stated that they do not know which transit route to take. When asked, "If you currently drive alone to campus, what would encourage you to use an alternative to driving alone?," 37% of drivers responded a shuttle connecting USF to BART, 19% stated a shuttle connecting USF to another location, 15% responded a shuttle connecting USF to Caltrain and 10% stated an extended area of coverage for the night safety shuttle.

### *Parking Pricing*

According to the online survey, nearly half of those who drive to USF pay nothing to park. However when asked if they would still drive to campus if the cost of driving increased, 8% said they would stop driving if prices increased by 25%, 41% said they would stop driving if prices increased by 50%, and 45% said they would stop driving if prices increased by 100%.

### *Carpool Parking*

Twenty-five designated carpool parking spaces are available on campus, located at the Koret parking lot upper level. These spaces are reserved for carpool users before 10 AM and are open to all users after 10 AM. Currently, carpool parking permits are available only to faculty and staff. In 2010-11, 132 such parking permits were sold. However, during the morning hours the 25 carpool spaces in the Koret Parking lot were below 50% occupancy. While reserved parking is valuable, reserved parking in only one location or for only one user group may not be the best way to serve the needs of all campus users.

Parking on USF campus

### *Ridesharing*

USF has a private ridesharing network available through Zimride. Through this program, USF faculty, staff and students can find and share rides within the USF community. While allowing faculty, staff and students to find others commuting to the same location is beneficial, many additional potential rideshare matches exist if those outside the immediate USF community are included in the match pool. Even within the USF community, the online transportation survey results demonstrate further potential to encourage additional ridesharing. Among drivers, 28% indicated that they drive alone because they do not have anyone with whom to share rides.

### *Marketing Efforts*

The campus survey considered whether faculty, staff , and students are aware of various TDM program components in place on campus, including guaranteed ride home, flex hours and telecommuting, carpool parking, ridesharing, and the safety escort. Only 21% of faculty and staff are aware of the guaranteed ride home program. When asked, "What are your main reasons for driving alone to campus?," among faculty and staff who currently drive alone to campus, 24% stated "Need to get home in case of emergency" as one of their main reasons.

Only 24% of faculty and staff know about the potential to telecommute or work flex work hours. Finally, only 36% of faculty and staff know that reserved carpool parking is available; 44% of faculty staff and students are aware of the Zimride ridesharing program; and 47% are aware of the USF safety escort service.

### *Unmitigated Parking Demand Forecast*

The average daily occupancy of on-campus parking lots on the USF campus is 56%, with a peak occupancy rate of 93% from 11 AM – 12 PM. The Appendix summarizes an analysis of parking supply and demand given the current campus population and expected campus growth, along with planned reduced on-street parking options. This analysis is based on information provided by the University, the survey responses, and observations from Fehr & Peers' parking occupancy study. These numbers represent the expected, unmitigated demand for parking in ten years.

## PROPOSED TDM PROGRAM

Based on the analysis of current TDM practices presented above and overarching goals of the IMP, the goals of the TDM plan are:

- Reduce future parking demand by 13% by 2022
- Identify strategies to operate the TDM program on a cost-neutral basis
- Meet the needs of the University while fulfilling the City of San Francisco's requirements and minimizing impact to the surrounding neighborhood
- Implement a continuous monitoring system to track progress of the TDM measures and adjust the program as necessary every two years to achieve the required parking demand reduction

The University has identified fourteen strategies to augment the campus TDM program currently in place. These TDM strategies reflect:

- Needed trip reductions to match parking availability with campus growth
- Empirical literature on TDM efficacy
- Campus user survey responses regarding interest/ feasibility of candidate strategies

Based on the target peak hour parking demand reduction of 13%, the strategies discussed further below have been recommended for implementation to expand the current campus TDM Program.

### *Shuttle System*

If supported by further analysis, USF may choose to implement a shuttle system to offer first/last mile connections from BART, Caltrain, and potentially other locations within SF with high demand for shuttle service. Implementing the following additional strategies will support the success of the shuttle program:

- Offer a "NextShuttle" app for smart phones that allows students/faculty to monitor shuttle routes.
- Conduct consistent outreach to ensure the USF community is aware of and use this service
- Conduct periodic monitoring to ensure the shuttle routes, service times, and headways are most efficient for the community.

### *Transit Subsidy (beyond Muni FastPass) for Students*

If supported by further analysis, USF may expand the general transit subsidy program (which is currently available only to faculty/staff) to cover students. The University will consider the impact of extending the flexible subsidy to students (who currently are only provided a Muni Fast Pass) for use with Bay Area Rapid Transit (BART), Caltrain, Golden Gate Transit, or other transit systems.

TABLE 5: PROPOSED TDM STRATEGY

| CATEGORY | STRATEGY | % PEAK PARKING DEMAND REDUCTION ESTIMATE |
|---|---|---|
| **Shuttle / Transit** | Shuttle System | 4 – 6% |
| | Transit Subsidy (beyond Muni FastPass) for Students | 3 -4% |
| | Increase Prices of On-Campus Parking Permits (to help fund shuttle system) | 1 – 2% |
| | Comprehensive Marketing Efforts | 1 – 2% |
| Parking | On Street Time Restrictions | Less than 1% |
| | Expanded Preferential Parking Spaces for Carpools | Less than 1% |
| Other | Bicycle Sharing | Less than 1% |
| | Additional Bicycle Racks | Less than 1% |
| | Secure and Covered Bicycle Cages or Lockers | Less than 1% |
| | Discounts with Local Bicycle Shops | Less than 1% |
| | Enhanced Transportation Website | Less than 1% |
| | Commute Buddy Program | Less than 1% |
| | Expand Zipcar and City Car Share Presence on Campus | Less than 1% |
| | Expand Ridesharing Program | 1 – 2% |
| TOTAL ESTIMATED PEAK PARKING DEMAND REDUCTION | | 10 – 15% |

Source: Fehr & Peers, 2011

### *Increase Prices of On-Campus Parking Permits (to help fund shuttle system)*

In December 2011, the University established a campus task force to begin an analysis of parking policies and procedures. Included in this process will be the analysis of increasing the price for all types of permits. Resulting funds could help offset costs of the shuttle system or transit subsidy.

### *Comprehensive Marketing Efforts*

The University recognizes that marketing and information sharing is critical to the success of TDM strategies. The University will provide information sharing and marketing to promote commute trip reduction strategies including informational material and events. This may include: fairs, pamphlets, working with departments and student groups, holding drawings, participating in bike-to-work days, clean air days, and other marketing efforts.

## PARKING

### *Expanded Preferential Parking Spaces for Carpools*

The University may provide additional carpool parking spaces at major parking lots around campus. After 10 AM carpool spaces will be opened to general use to ensure efficient use of spaces.

## OTHER STRATEGIES

### *Bicycle Sharing*

The University may seek to implement a bicycle sharing program, including investigating the City's interest in USF hosting a pilot program. The initial concept under consideration is to allow the USF community access to free or inexpensive bicycles to use for mid-day trips to and from campus or to other campus locations.

### *Additional Bicycle Racks*

The University will increase the capacity and convenience of bicycle racks. Additional bicycle racks will be provided in areas with high demand.

### *Secure and Covered Bicycle Cages or Lockers*

USF will investigate the potential indoor bicycle cages or similar secure, covered storage.

### *Discounts with Local Bicycle Shops*

The University will support student and faculty efforts to establish discounted bicycle rental rates (hourly, daily, and by the semester) at local bicycle shops. Discounts on bike purchases and maintenance may also be offered.

### *Enhanced Transportation Website*

The University's existing transportation website will include information and/or links to transit agencies, walking maps, bicycle maps, commute trip planners, bike parking maps, videos or demos on safe bicycling, advocacy groups, and other useful commute information.

The website enhancements could include:

- Indicating carpool spaces on the campus parking map
- Consolidating the various transportation and parking websites to one location
- Featuring discounted carpool permit information
- Promoting the telecommuting/flex hours option for employees
- Promoting the free Muni pass for students
- Providing cyclists information on existing bicycle resources, maps, routes, and a link to the USF web portal: USFpedals

### *Commute Buddy Program*

The University may implement a Commute Buddy program to match experienced transit and bike commuters with new alternative transportation commuters. Experienced commuters would volunteer time to assist new commuters in planning their transit and bicycle routes, how to make connections, tips on parking, suggestions on bicycle gear, and guidance on reading transit schedules.

### *Expand Presence of Zipcar and City Car Share*

The University will analyze the potential to provide additional car share vehicles at various locations throughout campus. The University currently has located Zipcar spots at the Loyola lot and on the upper deck of the Koret lot to encourage ride-sharing and help decrease the reliance on automobile among Koret patrons.

### *Expand Ridesharing Program*

The University will make efforts toward expanding the current ridesharing program (Zimride) to include other universities in San Francisco

## IMPLEMENTATION

To further develop the TDM Program, several next steps are needed to ensure proper implementation of a TDM program that meets the needs of the USF community and the goals of the IMP. These steps are outlined below:

- **Analysis of Program Elements**
  Conduct a detailed analysis of the TDM Program elements described above. This will include analysis and determination of the following items:
    - Shuttle route and shuttle stop locations
    - Optimal shuttle route frequencies and periods of operation
    - Implementation plan for transit subsidy expansion
    - Pricing plan for parking permits
    - Locations for bicycle racks and lockers
    - Identification of marketing efforts
    - Other items to fine tune each TDM program element
- **Funding and Implementation Plan**
  Conduct a cost analysis and funding plan for the TDM program. For each TDM strategy, identify potential funding sources, determine the implementation lead, and create a timeline for implementation.
- **On-Campus Parking Usage Optimization**
  The supply and demand analysis presented in this TDM Program assumes that on-campus parking can be better allocated via pass and lot assignments. Campus parking is currently used sub-optimally, with select lots oversubscribed while others have significant vacancies even at peak times. If this cannot be reconciled efficiently, more stringent TDM measures may be required.


FIGURE 20: WAYFINDING SIGNAGE FAMILY (WORK IN PROGRESS)

- **On-Campus TDM Coordinator and Website**
  USF will consider designating an individual to monitor the TDM plan effectiveness, provide information regarding available transportation alternatives through a website, and coordinate with City agencies.
- **Monitoring of Transportation Demand**
  The University will monitor transportation measures and programs on an annual basis to determine the success of the programs and to make decisions about the allocation of resources or changes in the services that may be needed to better address the needs of the University. The monitoring program will determine the success of the TDM Program by tracking key metrics and comparing to the existing conditions as documented in this study. These metrics include:
  - Drive-alone rates
  - Parking occupancy
  - Transit ridership

## Wayfinding System

USF is currently developing a comprehensive wayfinding strategy for the campus. The strategy will establish locations for vehicular and pedestrian signs at major decision points, based on the site analysis and circulation described in Chapter 1. These signs will be designed to reinforce recommended paths of travel, enhance campus identity, strengthen campus entrances, and improve the overall visitor experience.

The campus signs will employ a common design vernacular including color, typography, shape, and materials. The sign family will consist of both vehicular and pedestrian signs. Vehicular signs will be sufficiently large to be read within three to five seconds at speeds over twenty-five miles per hour. These signs will include monuments, parking lot and garage identities, shuttle stops, and USF regulatory signs.

Pedestrian signs will be smaller and designed to strengthen the experience of pedestrians as they navigate the campus. These signs will include gateways, pedestrian directional signs, pedestrian maps, building identifications (free standing and building-mounted), and accessible pathway signs.


Trailblazer

Vehicular Directional

Retrofitted Monument

# 3/ Engagement & Impact

The University of San Francisco is committed to being an active partner for positive change in its neighborhood, and to engaging neighbors in dialogue on university plans that will have an impact on the neighborhood.

# / Engagement & Impact

This chapter describes USF's current impact on its neighborhood and the city at large, the projected impact of implementing the Master Plan, and the mitigation measures the University has taken and will take to reduce potentially negative impact. It also describes the conformity of the Master Plan to the General Plan of the City and County of San Francisco, per the San Francisco Planning Code sec. 304.5(c)(3).

## Campus Programs and Community Engagement

USF is a comprehensive university, which offers a full range of academic and extra-curricular programs and is actively involved in the academic life and culture of San Francisco and the world. As part of this engagement, USF often opens its events to the general public. These events include lectures, conferences, theatrical productions, and athletic competitions and camps. In addition to events, USF neighbors and the public are also welcome to enjoy many of the facilities at the University, including open space, dining services, and recreational facilities.

### KORET HEALTH AND RECREATION CENTER

The Koret Health and Recreation Center provides a recreational and fitness environment for the campus community as well as over 12,000 community members (residents of the area bounded by California, Haight & Lyon Streets and 3rd Avenue are provided membership at a discounted rate). About 620 community members visit Koret daily. Koret membership includes access to a comprehensive fitness facility, fitness and wellness programs, outdoor recreation programs, and aquatics programs. Koret offers several programs that provide important community benefits such as CPR training and water safety training to children from local elementary schools.

### INTERCOLLEGIATE ATHLETICS

USF's NCAA Division I Department of Intercollegiate Athletics hosts athletic competitions throughout the school year. Eight of the Department's fourteen sports hold home contests on the Hilltop Campus (men's & women's soccer, men's & women's basketball, baseball and women's volleyball). Competitions are held at Negoesco Field (soccer, seating capacity 1,900), War Memorial Gym (basketball & volleyball, 4,170), and Benedetti Diamond (450). Each sport hosts between 10 and 22 competitions per season, depending on NCAA requirements. Average paid attendance at USF's athletic events is 556 paid patrons/game, ranging from an average of 119 at baseball to 1,586 at men's basketball.

### THACHER GALLERY

A public art crossroads in the University of San Francisco's main library, the Mary and Carter Thacher Gallery is a forum where creativity, scholarship, and community converge. Each year the Thacher Gallery presents exhibitions that probe community and aesthetic issues, provide multicultural and interfaith dialogue, and showcase the urban Jesuit university's commitment to social justice.

Along with its exhibition calendar, the Thacher Gallery presents free public programs to increase art appreciation and cross-disciplinary discussions on campus and in the community. These programs include artist lectures and panels, craft seminars, gallery publications, and guided tours. Exhibitions often complement University curricula across the disciplines, while the facility serves as a professional training ground for students interested in art and arts management. In 2007, the University opened a Rooftop Sculpture Terrace on the 3rd floor of Kalmanovitz Hall to serve as a venue for rotating outdoor exhibitions.

### THE VISITING WRITERS SERIES

The MFA in Writing program presents a series of free literary readings and discussions called "Lone Mountain Readings" that are open to the public.

### PERFORMING ARTS PROGRAMS

Performing Arts and Community Exchange (PACE) is an example of a course that introduces students to the theoretical and practical understanding of the field of community arts.

The course's Service Learning component includes working at a designated community site. In the Fall of 2011 students are working with inmates incarcerated in San Francisco Jail #9.

Another example of community engaged performance is the Dance Generators, an intergenerational performance company comprised of USF students and senior adults from the Bay Area.

Lastly, the Performing Arts and Social Justice major at USF engages the San Francisco community through several programs, including work with trans-gender Latina immigrants in community-theater in the Mission district, and with the Hunters Point neighborhood.

### FROMM INSTITUTE

The Fromm Institute for Life Long Learning is a separate legal entity that was established in 1976 as a community resource for retired adults over 50 years of age. Considered to be a premiere program in the "learning in retirement" field of higher education, Fromm continues to serve as a model for lifelong learning programs. Fromm classes are held Monday through Thursday in three separate eight-week sessions per year at Fromm Hall. On average, there are approximately 450-500 Fromm attendees and 22 faculty members during any given session. The total Fromm enrollment has remained steady since 2003, at about 1200 people.
Fromm attendees are not included in the enrollment numbers for USF.

## Neighborhood Dialogue

The University of San Francisco is committed to an active and productive dialogue with its neighbors on the University's plans and potential impact on the neighborhood. Throughout the IMP planning process, USF has actively engaged with neighbors, including members of the University Terrace Association (UTA), Ewing Terrace Association, and Francisco Heights Neighborhood Association. Since August 2010 USF has held approximately seventy meetings with community members on issues related to the IMP development, traffic calming and pedestrian safety, noise, student behavior, and other neighborhood concerns. A list of meetings is included in Appendix 4.

Meetings with the community are ongoing and will continue after the IMP is submitted to the City of San Francisco. For neighbors unable to attend particular meetings, USF has issued periodic planning update emails, as well as created a webpage[11] where neighbors can download updates and other planning materials.

[11] http://www.usfca.edu/neighborhood_news/

## Hilltop Campus Neighborhood Impact

Early meetings with neighbors established a number of primary neighbor concerns regarding the impact of the University on the neighborhood. The primary concerns are:

- Enrollment growth and its effect on quality of life
- Pedestrian safety
- Traffic on neighborhood streets
- University-related parking on neighborhood streets
- Student behavior
- Students and staff passing through the neighborhood
- Noise at outdoor fields
- Noise and disruption from service and delivery vehicles and construction
- Impact from one-time USF events and ongoing programs that draw outside attendance
- Quality of the physical environment, particularly at the University's neighborhood edge

USF is addressing each of these concerns in the Master Plan and through new policies for management of ongoing University functions. Measures taken or planned to address each concern are described below.

### ENROLLMENT

USF is planning to limit its population growth on the Hilltop Campus to less than 1% per year on average. The distributed campus plan will provide new opportunities for growth at branch campuses and online. The measures described below are intended to offset the impact of the limited growth that will occur on the Hilltop Campus.

### PEDESTRIAN SAFETY AND TRAFFIC ON NEIGHBORHOOD STREETS

While USF does not control public streets or crossings, it is working with the neighborhood and the City to improve pedestrian safety and traffic congestion around campus. USF, in agreement with the University Terrace Association, retained Fehr + Peers, traffic consultants, to conduct a comprehensive study and propose a plan to mitigate pedestrian, traffic, and parking concerns. USF has also provided $1.2 million to fund street and pedestrian improvements.

The proposed plan addresses traffic calming issues in conjunction with pedestrian safety issues. Plans for proposed streetscape improvements may be found in the Master Plan section, Chapter 2. A summary transportation impact study (TIS) may be found later in this chapter. Complete transportation impact, traffic calming and Transportation Demand Management studies may be found in the Appendices.

### UNIVERSITY RELATED PARKING ON NEIGHBORHOOD STREETS

The University commissioned Fehr & Peers to conduct a full analysis of parking conditions on campus and within a one-half mile radius of the campus. Existing parking conditions are described in the Planning Context Chapter 1. The Master Plan identifies potential locations for structured parking to replace parking spaces that are displaced by new facilities and to support the incremental enrollment growth over the next ten years. Approximately 160 spaces could be accommodated under the residence hall on Upper Campus and approximately 250 spaces could be accommodated on the Negoesco Field site (with the field functions accommodated on a roof over the parking deck). In addition, the University continues to provide incentives to staff, faculty, and students in order to reduce parking demand. The number of parking spaces needed in the future will be determined as the TDM program is implemented and resulting reduction in automobile trips to campus is measured.

## STUDENT BEHAVIOR

The USF campus is surrounded by several established residential neighborhoods. The University is committed to nurturing a strong and mutually respectful relationship with its neighbors, and has adopted a number of policies and procedures to that end.

All USF students are required to abide by the University's Student Conduct Code and are subject to disciplinary action if found in violation of the Code. The Student Conduct Code is divided into three categories that reinforce the commitment to creating an ethic of care amongst our student body: Respect for Self, Respect for Others and Respect for the Community. Behaviors that are governed by the Student Conduct Code include:

- Conduct that endangers the physical or psychological well-being of any person
- Destruction, damage, or misuse of University property or the property of any other person or group
- Violation of any University standard, policy or procedure
- Conduct in which a student is detained, cited, arrested or otherwise charged with violations of local, state or federal laws [12]

Additionally, USF has a comprehensive set of strategies and programs designed to educate and guide student development. The programs are frequently examined, redesigned, and augmented. The proactive measures that USF takes to promote the development of students include:

- **Orientation activities**
  Activities on the first day of student orientation include small group interactions that inform students about respect for the greater community that surrounds USF.
- **A community relations policy**
  USF is one of the few institutions of higher education that has enacted a specific community relations policy (in 2006) for its students, which states that, "The University encourages its students to behave as exemplary citizens when present in the surrounding neighborhoods and to demonstrate respect and concern for all members of the local community." The Community Relations Policy is promoted via an online education program for students.
- **Community relations staff position**
  USF has created a new position—Assistant Director of Student Conduct, Rights and Responsibilities/Community Relations—whose responsibility is to educate students about the neighborhood and their relationship with neighbors.
- **Student conduct oversight**
  The Director of the Office of Student Conduct Rights and Responsibilities reports to the Assistant Vice Provost for Student Life. Eight full-time and eight part-time staff are trained in student conduct procedures (in addition to the new position cited above). Faculty and staff serve on the University Conduct Board and the Appeals Board. In addition to Public Safety Officers, seven staff members are on call every night to respond to student-related issues.
- **Neighbors and student life meetings**
  SF has engaged with its neighbors through regular meetings to discuss new initiatives to improve student behavior in the community.
- **Health promotion, education, and monitoring**
  USF offers a range of programs designed to educate students on general and college-age-specific health and behavior issues. Every full-time faculty and staff member is given an information folder that outlines how to report and manage distressing student behavior. The University also provides counseling services.
- **Cooperation with the San Francisco Police Department (SFPD)**
  The University works with the SFPD to collaboratively address student behavior issues.

[12] University of San Francisco Student Conduct Code, http://www.usfca.edu/fogcutter/studentconduct/

# Your Ticket to the City

We're neighbors so Let's Be Friends!

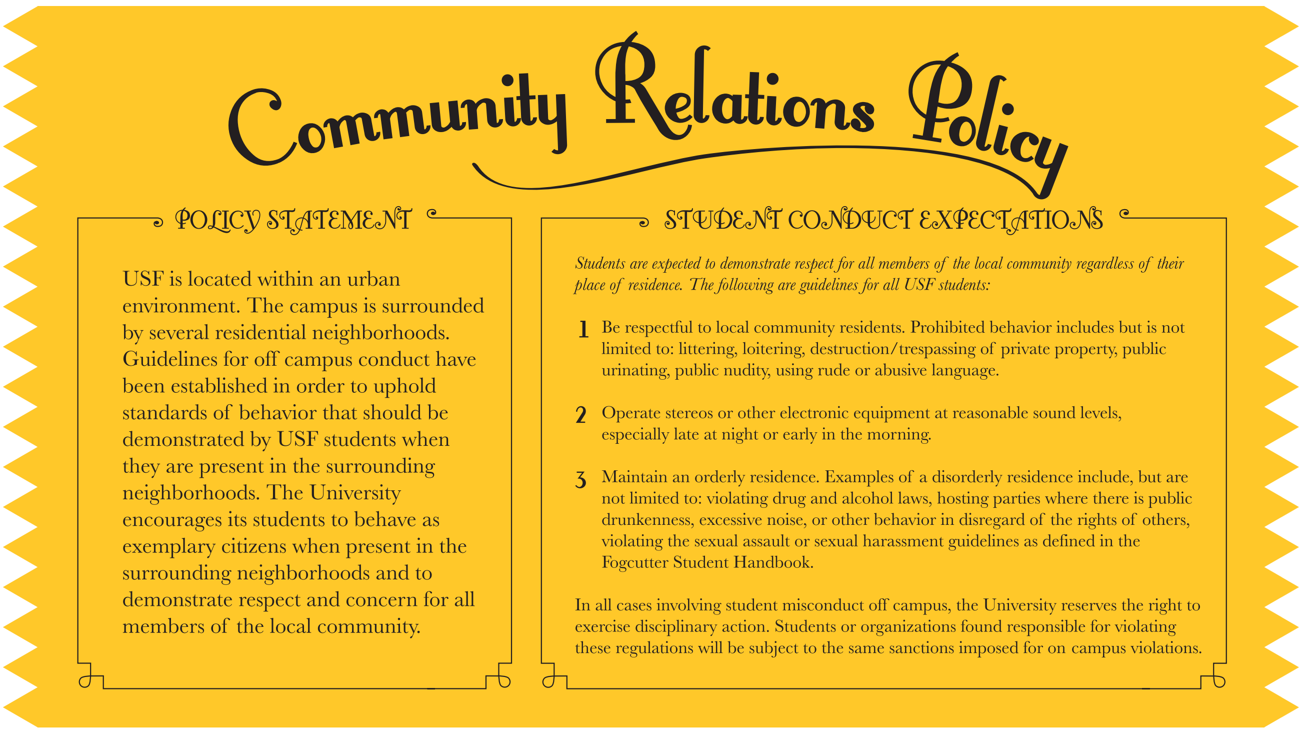
WITH THIS TICKET COMES GREAT RESPONSIBILITY

Don't trade your golden ticket for a parking ticket. Read signs and be respectful of neighbors' driveways.

Remember: Just because you are awake does not mean that your neighbors are awake.

Respect our neighborhoods, this includes our neighbors' driveways, sidewalks, and stoops.

Have fun, be safe and be respectful!



# Community Relations Policy

## POLICY STATEMENT

USF is located within an urban environment. The campus is surrounded by several residential neighborhoods. Guidelines for off campus conduct have been established in order to uphold standards of behavior that should be demonstrated by USF students when they are present in the surrounding neighborhoods. The University encourages its students to behave as exemplary citizens when present in the surrounding neighborhoods and to demonstrate respect and concern for all members of the local community.

## STUDENT CONDUCT EXPECTATIONS

*Students are expected to demonstrate respect for all members of the local community regardless of their place of residence. The following are guidelines for all USF students:*

1. Be respectful to local community residents. Prohibited behavior includes but is not limited to: littering, loitering, destruction/trespassing of private property, public urinating, public nudity, using rude or abusive language.
2. Operate stereos or other electronic equipment at reasonable sound levels, especially late at night or early in the morning.
3. Maintain an orderly residence. Examples of a disorderly residence include, but are not limited to: violating drug and alcohol laws, hosting parties where there is public drunkenness, excessive noise, or other behavior in disregard of the rights of others, violating the sexual assault or sexual harassment guidelines as defined in the Fogcutter Student Handbook.

In all cases involving student misconduct off campus, the University reserves the right to exercise disciplinary action. Students or organizations found responsible for violating these regulations will be subject to the same sanctions imposed for on campus violations.

Golden Ticket, distributed to all USF Students when they receive Muni passes.

## STUDENTS AND STAFF PASSING THROUGH THE NEIGHBORHOOD

The University recognizes that students, faculty, and staff passing through nearby neighborhoods may sometimes be disruptive to neighbors. Further, it is not possible to prevent literally all conduct related annoyances. USF is addressing these concerns in several ways. In addition to the enhanced programs to raise student awareness of campus neighbors, the increased parking restrictions on University Terrace streets proposed in the Traffic Calming Plan are expected to result in a reduced volume of USF students, staff and faculty looking for parking and walking along University Terrace streets. In addition, pedestrian traffic between Upper and Lower Campuses is expected to be decreased by the new dining facility, academic building, and residence halls planned for the Upper Campus. These new facilities will allow the University to fully meet many student and staff needs on campus and reduce traffic between Upper Campus and Lower Campus. Finally, in 2012 USF instituted a trash pick-up program, the Neighborhood Clean Up Crew, whereby students collect trash in the USF environs. During the academic year, up to six students work up to eighty hours per week in this effort.


"Welcome to the Neighborhood" poster distributed by Student Housing and Residential Education in 2010

## NOISE AT OUTDOOR FIELDS

The University engaged sound consultant Charles Salter to analyze noise levels coming from USF's sports fields. The complete report is in the Appendices. In response to neighbors' specific concerns, the University installed new sound systems for the baseball and soccer fields based on the results of the study. USF has also installed acoustic buffering in the batting cage to reduce noise. The public address system shift for the soccer field has resulted in a reduction of neighborhood noise by an average of eight decibels, a noticeable difference. The noise of a passing car is approximately ten decibels louder than the noise produced by a game. The sound buffering in the batting cage was determined to reduce sound coming from the baseball field to pre-batting cage levels.

## NOISE AND DISRUPTION FROM SERVICE AND DELIVERY VEHICLES AND CONSTRUCTION

In 2010, USF hired a full-time logistics coordinator to manage service and delivery vehicles that service USF. USF has established a delivery schedule for all deliveries to the University Center loading docks. This schedule restricts truck deliveries to the hours between 7 am and 4 pm on weekdays and between 9am and 4 pm on weekends. The coordinator can monitor all loading areas with a camera system. USF plans to consolidate loading activities to the extent possible at a redesigned loading area between University Center and the Harney Science Center. This loading area will be acoustically and visually screened from the neighborhood.

In order to address concerns about the construction of the Center for Science and Innovation building, USF worked closely with the neighborhood and the construction contractor to establish a plan for construction that minimizes impact on the neighborhood.

This plan provides a template to apply to future capital projects that might impact surrounding neighbors.

Mitigation measures may include:

- Truck staging that minimizes engine noise in the neighborhood and restricts the number of trucks that can idle on Golden Gate Avenue
- Noise baffling barriers
- A dust management plan
- Prohibition of construction personnel from parking in the neighborhood
- Designated lunch and work break areas that discourage workers from wandering around the neighborhood
- Limited construction hours

### NEW CONSTRUCTION

According to the Environmental Protection Element of the San Francisco General Plan, noise levels of 60 dBA Ldn or below are considered acceptable for residential areas; noise levels of 65 dB Ldn are acceptable for educational or other noise-sensitive uses. The policies in the General Plan call for including noise-reducing features for new construction with uses that would be exposed to the noise levels of 60 dBA Ldn or 65 dBA Ldn, respectively.

New construction that could occur under the IMP, such as the residences at the Underhill site, or academic space, will include building features that will reduce interior noise to acceptable levels for such uses, as required by local and state codes. Development with the IMP will not expose occupants of such uses to unacceptable noise levels.

## IMPACT FROM ONE-TIME USF EVENTS AND ONGOING PROGRAMS THAT DRAW OUTSIDE ATTENDANCE

The University's commitment to the Ignatian tradition of education in an urban setting is supported by its rigorous engagement in the cultural, intellectual and economic life of the community at-large. USF offers a variety of campus programs and events to help achieve its mission to distinguish itself as a diverse, socially responsible learning community. Ranging from academic symposia to public lectures, the breadth of the offerings contribute to the vitality of both the University and the City.

Given the University's location in the City, USF's commitment to a vital intellectual community is paired with its commitment to reasonably manage the impacts some events may have on the University's neighbors. USF is working to minimize the impacts of these events by implementing policies and practices that limit noise and disruption through these measures:

- The University encourages visitors to park in USF facilities, including for athletic events.
- The University has taken steps to manage events logistics including identifying specific bus routes to and from campus and directing them to remote parking after drop off and before pickup.
- To the extent reasonably possible, concerts are held inside, with the largest events not to exceed the capacity of the venue.
- The recently acquired Folger Building at 101 Howard contains exceptional event space. Its location next to key transit hubs as well as being near the heart of downtown provides opportunities for the University to re-direct events better suited to that location, such as alumni gatherings and selected professional and graduate school symposia. USF also intends to optimize the use of the Presidio for events drawing outside attendance.

The University has historically decentralized the management of events on the Hilltop Campus. While most events are scheduled through the Events Management and Guest Services (Events) office, use of the campus by the Fromm Institute and for athletics and recreational purposes is managed outside of the Events office.

In the case of events managed by the Events office, a new records system tracks attendance. Over the course of this master planning process, the Events office has been reorganized and the University has implemented a policy prioritizing USF-affiliated programs over non-affiliated programs during the school year.

## QUALITY OF THE PHYSICAL ENVIRONMENT

### OPEN SPACE AND LANDSCAPE SETTING

The Hilltop Campus Master Plan will protect campus vegetation as ecological and aesthetic assets, through the following elements:

- All new development is sited below the Lone Mountain building, and on land that is already developed or cleared. The tree canopy will be preserved as much as possible.
- Where the canopy is altered, USF will plant trees and other plantings around buildings in order to maximize impressions of open space.
- USF will continue to implement the tree succession plan to manage the health and character of USF's wooded areas.
- The University's landscape guidelines propose to maintain and enhance landscaped open space around and within the Hilltop Campus, improve the aesthetic appeal of the campus edges, and provide visual screening from residential properties at select locations. Additional detail is available in Chapter 2.

The IMP will not have an adverse effect on open space or native vegetation.

### NEIGHBORHOOD CHARACTER

Neighborhood character is defined herein as the physical setting of type, scale, age, style, and size of buildings, street configurations, open space and landscape patterns, and the mix of land-uses experienced at the pedestrian level. Those patterns occur block-by-block, as well as longer-range views and connections among neighborhoods.

Major projects, such as the Upper Campus residence hall, dining commons, and academic buildings will continue institutional uses and will be designed in compliance with City zoning requirements. Other projects such as site improvements, upgrades of plazas and forecourts, and building maintenance and renovations will affect only internal campus conditions. IMP changes related to traffic calming, landscape guidelines, and visitor arrival features will protect or improve neighborhood character. For the above reasons, the IMP will not have an adverse effect on neighborhood character.

### EFFECTS ON AIR QUALITY

The Bay Area Air Quality Management District (BAAQMD) has established thresholds for projects requiring its review for potential air quality impact. Those thresholds are based on the minimum-size project which the BAAQMD considers capable of generating emissions with the potential to exceed the thresholds of 80 pounds per day for reactive organic gases (ROG), nitrogen oxides (NOx), and particulate matter with a diameter of less than 10 microns (PM10). The BAAQMD considers residential projects greater than 510 apartment units, office projects greater than 280,000 square feet, and retail development greater than 87,000 square feet. The determination of whether any projects in this plan will require BAAQMD renew will be made during each project's design process.

The BAAQMD also considers any projects that would generate more than 2,000 vehicle trips per day as candidates for potentially significant vehicular emissions. IMP growth is estimated to generate 600 new vehicle trips per day. Hence, the traffic increase and trips generated by the IMP growth will not have the potential to exceed the BAAQMD thresholds of significance for criteria pollutants. Therefore, impact from traffic emissions are not expected to be significant.

## Transportation Impact Summary

The Transportation Impact Study evaluates the IMP's potential impacts on traffic, transit, bicyclists, pedestrians, loading, and construction activities consistent with the City and County of San Francisco Transportation Impacts Analysis Guidelines (SF Guidelines) (October 2002). The evaluation provides the data to determine the level of significance of transportation effects according to the standards required by the City of San Francisco (i.e., significant or less-than-significant). Additional detail on the methodology and assumptions used for the transportation impact analysis is provided in the Transportation Study in the Appendix.

The critical step in evaluating future transportation conditions is identifying the number of new "trips" that would be generated by population growth on the Upper and Lower Campus. The trips included in the analysis are trips coming to campus and leaving campus, not trips that occur between different buildings on the campus during the day. For example, a student riding his bike to campus in the morning, walking to and from three classes during the day and biking home in the evening would be counted as two daily bicycle trips.

Travel demand characteristics and forecasts for the USF campus are based on the projected number of students and employees, as well as travel survey responses by faculty, staff, and students. Overall, the daily new trips generated by the IMP are estimated to be approximately 1700 across all modes of travel by 2022. This total includes approximately 200 new AM peak-hour trips and 200 new PM peak-hour trips. Of the 1700 daily new trips, about 600 would be by vehicles, with 80 new vehicle trips in both the AM and PM peak hours. For other modes of travel, approximately 500 of the 1700 daily new trips would be by transit and 600 of the 1700 would be by foot or bicycle.

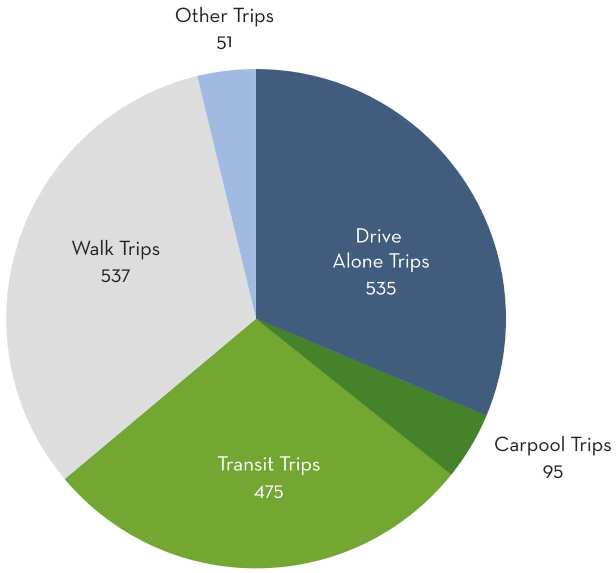



FIGURE 21: ESTIMATED DAILY NET NEW TRIPS TO/FROM HILLTOP CAMPUS
Source: Fehr & Peers

### TRAFFIC

Traffic operations at 16 study intersections along key corridors (i.e., Fulton, Turk, Masonic, Golden Gate, Parker, Geary, Stanyan, Arguello) located near the Hilltop Campus were evaluated under Existing, Existing Plus Project, Baseline (2012), Near-Term (2022) Cumulative, and Cumulative (2035) Conditions. Changes to traffic as a result of the partial closures on the University Terrace streets, bike lane modifications on Turk Boulevard and Golden Gate Avenue, and ancillary pedestrian improvements were assumed to be in place resulting in some traffic changing routes around the campus. Traffic circulating for parking on these streets was assumed to park in on-campus garages and other on-street parking areas.

Traffic conditions under future year conditions were based on expected traffic growth in the area forecasted in the San Francisco travel demand model. Based on the forecasted traffic growth in the area, some intersections are expected to operate at unacceptable levels of service according to City intersection operation standards. The IMP would add approximately 75 to 200 vehicle trips to the surrounding roadways during the weekday AM and

PM peak hours, nevertheless, the IMP's contribution to traffic at intersections operating at unacceptable levels would be minimal based on City significance thresholds. Thus, the IMP is expected to have a less-than-significant traffic impact under all scenarios at all 16 intersections through 2022.

The traffic analysis assumes that the mode split and travel patterns to and from the Hilltop Campus are the same in future years; however, USF has identified a comprehensive transportation demand management (TDM) strategy that would encourage non-auto travel to and from campus. To be conservative, the traffic analysis does not quantify to what level the future enhanced TDM program would reduce overall automobile traffic to the campus; however, implementation of the enhancements to the TDM program would reduce the IMP's contribution to traffic operations .

### TRAFFIC NOISE

Existing noise levels on major streets around the Hilltop Campus are typical of conditions in San Francisco, with traffic generating noise in the 55 to 65 dBA Ldn range on Golden Gate Avenue, Turk Boulevard, and Fulton Street. Charles M. Salter Associates, Inc., prepared acoustic studies for USF related to neighborhood noise conditions due to athletic field activities and public-address systems. The studies included short-term measurement of ambient noise levels on nearby streets. The Salter study reported spot measurements of 50 to 64 dBA on Golden Gate Avenue, and 50 to 55 dBA on Turk Boulevard, consistent with typical ambient noise in San Francisco.

In general, a doubling of traffic volume on a roadway could cause a noise increase of 3 dB, which would be a perceptible change in noise conditions for persons near the roadway. The traffic impact study showed that no streets in the Hilltop Campus vicinity will experience a doubling of traffic volumes, from cumulative or USF-related traffic. Therefore, the IMP will not have an adverse effect on traffic-related noise conditions.

## TRANSIT

Transit operations for the transit routes operating within ¼ mile of the Hilltop Campus were analyzed under Existing, Existing Plus Project, Baseline (2012), Near-Term (2022) Cumulative, and Cumulative (2035) Conditions, including the 33 Stanyan, 43 Masonic, 5 Fulton, 21 Hayes, 31/31BX Balboa, and 38/38L Geary bus routes. Future transit ridership for the routes was estimated using the expected transit ridership growth forecast in the San Francisco travel demand model. The additional 40 new transit riders generated by the IMP during both the AM and PM peak hours would be distributed across several lines. Transit, which is analyzed using directional screenlines, would continue to operate within San Francisco Municipal Transportation Agency's (SFMTA) capacity utilization standards; therefore, the IMP would have a less-than-significant impact on transit. This analysis does not factor in the implementation of USF's transportation demand management program, which includes strategies promoting the use of transit.

## BICYCLISTS

The IMP would increase the number of bicyclists traveling to the Hilltop Campus. To accommodate the increase in bicyclists and reduce the effect of new vehicle trips, the IMP includes street modifications to Turk Boulevard and Golden Gate Avenue that would improve bicyclist safety on the campus (as well as for those bicyclists traveling through the campus). These modifications are detailed in the IMP's traffic calming element. In overview, bicycle traffic would be diverted onto Golden Gate Avenue, which currently has bicycle lanes. Golden Gate Avenue would receive additional traffic calming treatments to convert the segment between Masonic Avenue and Parker Avenue into a bicycle-priority street. These improvements would be consistent with the San Francisco Better Streets Plan and Bicycle Plan.

The existing facilities and the proposed bicycle improvements, including those on Masonic Avenue, would be able to accommodate the new cyclists. Since the IMP would not interfere with an existing or proposed bicycle facility and the existing facilities could generally accommodate additional bicyclists, the IMP is expected to have a less-than-significant impact on bicyclists. Furthermore, the proposed elements of the Traffic Calming Plan would improve bicycling conditions compared to the existing conditions and would address potential impacts associated with the general increase in vehicles traveling to and from the campus through the day.

The IMP also includes several new facilities on the Hilltop Campus. At the time of construction, these facilities would need to accommodate bicycle parking based on the City's Planning Code. The design of these parking areas would be reviewed when USF seeks building permits; therefore, no impacts to bicycle parking were identified. USF is committed to providing bicycle parking consistent with demand and provides access to Koret Center locker rooms to students, faculty and staff who bike to campus.

## PEDESTRIANS

The IMP would increase the number of people walking to the Hilltop Campus. To accommodate the increase in pedestrians, the IMP includes a traffic calming plan which would improve pedestrian safety around the campus (as well as for others walking through the campus). The proposed designs would pay particular attention to the pedestrian crossings on both Golden Gate and Turk. These improvements would be consistent with the San Francisco Better Streets Plan.

The existing facilities, as well as the proposed enhancements on campus and Masonic Avenue, would be able to accommodate the new pedestrians, and the IMP is expected to have a less-than-significant impact on pedestrians. Generally, the Traffic Calming Plan of the IMP would improve conditions for pedestrians walking near the Upper and Lower Campuses.

## LOADING

The campus currently has 11 loading locations spread throughout the campus, including six with access from Golden Gate Avenue. To the extent that the loading demand is not accommodated on-site, and could not be accommodated within existing or new on-street loading zones, double-parking, illegal use of sidewalks and other public space is likely to occur, with associated disruptions and impacts to traffic and transit operations and bicyclists and pedestrians. These disruptions are usually short in duration and occur when trucks enter and exit loading areas. However, USF has implemented several measures to manage and improve loading issues including creating a Traffic Coordinator position in 2010 to manage campus deliveries and to address disruptions and impacts. The University limits the hours of use of its loading docks to Monday through Friday, 7 AM – 4 PM and Saturday & Sunday 9 AM – 4 PM. No specific loading impacts were identified.

## CONSTRUCTION

Temporary construction impacts are specific to individual development projects, and include impacts related to temporary roadway and sidewalk closures, relocation of bus stops, effects on roadway circulation due to construction vehicles, and parking demand associated with construction workers. The IMP envisions development sites may affect the transportation network along Fulton Street, next to St. Ignatius; Parker Avenue, between McAllister and Turk; Golden Gate Avenue, west of Masonic; Turk Avenue, between Tamalpais Terrace and Roselyn Terrace; and Anza Street, east of Parker Avenue.

Construction activities that affect street rights-of-way are typically regulated through permits and construction requirements to ensure acceptable levels of traffic and transit flow during the period of traffic disruptions. Construction best management practices are typically required to be in place to ensure the safety of construction workers, motorists, bicyclists, and pedestrians throughout the construction period. No construction impacts were identified.

## MITIGATION AND IMPROVEMENT MEASURES

The IMP is not expected to result in any significant impacts to the surrounding transportation network; therefore, no improvement measures were identified to address these issues. Traffic calming measures are suggested to address neighborhood concerns. Any individual project on the campus would be subject to additional review by the City to ensure that potential issues with bicycle parking, loading, and construction are addressed in the future design. As noted, USF will be implementing a more comprehensive TDM strategy to address increasing travel demand to and from the campus. The University has implemented a loading management plan and construction management plan to minimize loading and construction impacts to adjacent streets.

## PARKING ANALYSIS

Parking supply and demand is generally of interest to both residents and the USF community and was reviewed as part of the Transportation Study prepared for the IMP. For information about how San Francisco defines parking impacts, refer to the Transportation Study in the Appendix.

As mentioned earlier, USF currently owns and operates seven parking lots and three parking garages on the Hilltop Campus, providing a total parking supply of 860 spaces. Most on-campus parking requires students, faculty, and staff to purchase parking permits. Parking on campus is generally fully occupied throughout the day, except for select lots on the campus that have available capacity. Based on the 2010 travel survey, 55% of those who drive to campus park in on-street parking spaces around the campus; 45% park in on-campus lots and garages.

Due to the existing parking demand and on-street parking restrictions in the neighborhood, parking near the Upper Campus and Lower Campus is generally occupied during the work day. The parking spaces contained within study area bounded generally by Arguello, Geary, Masonic, and Fell are approximately 85% occupied at the peak time of day, suggesting that there is some available supply to absorb additional on-street parking. Parking much closer to the campus is more occupied; however, it typically does not meet or exceed being 100% occupied. After about 6 PM and before 7am, parking occupancy generally decreases throughout the parking study area.

The on-street parking spaces on streets adjacent to campus require a residential parking permit (either "BB" or "L"); however, vehicles without a residential permit sticker are permitted to park freely for up to two hours. Based on the 2010 USF travel survey, USF-affiliates were estimated to occupy approximately 15% of on-street parking supply during the whole day and approximately 25% of spaces during the peak hour of the day.

Based on the travel surveys and on-campus parking garage surveys, USF has an existing parking demand for about 1,670 parking spaces. As population on the Hilltop Campus grows, parking demand would increase by approximately 225 spaces without enhancements to the existing TDM plan. To accommodate the increase in parking demand, USF would restructure its on-campus parking permit system to better allocate parking permits into under-occupied parking lots and implement a more comprehensive TDM plan to reduce overall parking demand. The TDM plan's goal is to reduce parking demand by 13% over the ten year period defined by the IMP (2012 -2022). Depending on the effectiveness of the TDM plan, upon implementation, the University may potentially construct parking under the new academic building on the Upper Campus or Negoesco Field.

Recognizing that some parking will continue to occur on streets around the campus even with the enhanced TDM plan, USF would implement the Traffic Calming Plan to reduce the impact of vehicles circling neighborhood blocks looking for on-street parking. During the peak hour of the day, there are approximately 620 unoccupied on-street parking spaces in the parking study area around the campus. Assuming that approximately 45% of the future USF parking demand (i.e., approximately 100 vehicles) is met using on-street parking spaces, then the parking study area would continue to have available parking. The turn restrictions on the Terrace streets included in the Traffic Calming plan would discourage vehicles from circulating through each street looking for parking in an area where availability is most constrained.

Additionally, USF is supportive of the efforts of the University Terrace neighborhood to change the time limit restrictions on BB permitted streets. As proposed, time limits would be reduced from two-hours to one-hour for non-BB permitted vehicles.

## Impact Beyond the Hilltop Campus

USF's current relationship to the City and surrounding communities and businesses is generally described in Chapter 1. USF is the City's fifteenth largest employer, over 1,000 employees live in the City, and the University has been shown to have a substantial positive impact on the economy of San Francisco. The distributed campus plan proposed in this plan is designed to provide for University financial viability over time and will ensure USF's continued contribution to the City's economy and culture.

The Presidio location currently accommodates graduate programs previously located on the Hilltop Campus. USF does not anticipate a change in use at this facility and, therefore, is not expected to have a significant impact on the Presidio surroundings.

The University's purchase of the Folger Coffee Building at 101 Howard Street represents a significant step in implementing the distributed campus plan, allowing USF to limit its Hilltop Campus growth to less than 1 percent. 101 Howard Street is currently 56 percent tenant occupied. The majority of the space that USF has occupied was previously occupied by the Wharton School of Business. The transition from Wharton to USF programming does not represent a change in use. All programs at this location will be self-contained and it is not anticipated that students will need to travel to the Hilltop Campus. USF does not provide student parking at 101 Howard Street. The building is easily accessible by public transportation and is close to the TransBay terminal.

For the above reasons, USF's use of the 101 Howard Street facility is expected to make no significant impact on the contiguous neighborhood or on the City.

## IMP Consistency with City of San Francisco Plans

The planned development projects in this IMP are consistent with the objectives and policies of the City's Downtown Plan, Better Streets Plan, and San Francisco General Plan.

### DOWNTOWN PLAN

The University's recently acquired building at 101 Howard Street is included in the Downtown Plan area.

In August, 2011, USF purchased the historic Folger Coffee Building at 101 Howard Street, in the heart of downtown San Francisco. This building is listed on the National Register of Historic Places and located within walking distance of the Fourth and Market Streets location where USF first opened its doors in 1855. Its purchase marks a return to the University's roots in downtown San Francisco.

Fifty-six percent of the building is currently occupied by tenants other than USF. The space that USF occupies was vacated by the Wharton School of Business; thus, occupancy by USF programs has not materially changed the use of the building.

The University's presence at 101 Howard Street supports the Downtown Plan, which encourages economic activity and vibrancy in downtown San Francisco.

### BETTER STREETS PLAN

The design of the streetscape and pedestrian realm in San Francisco is governed by the San Francisco Better Streets Plan. The Better Streets Plan includes recommended design guidelines for different street typologies, including arterials, local residential streets, and intersections. Safety and livability along City streets are primary concerns and the need for vehicle circulation is typically considered secondary to these issues on local roadways. Some streets are considered important to multiple modes, and the Better Streets Plan recommends strategies to balance transportation needs across modes. The recommendations of the Better Streets Plan are codified in Objective 18 of the General Plan's Transportation Element.

USF's traffic calming plan, created jointly with our neighbors of the University Terrace Association (UTA), proposes improvements to two arterials – Turk Boulevard and Golden Gate Avenue. These improvements are meant to make these streets more accommodating to adjacent institutional and residential land uses.

The design planned for Turk Boulevard maintains transit and vehicle circulation and improves the pedestrian realm. The plan includes a planted median and sidewalk landscaping to buffer pedestrians and the surrounding land uses from vehicle traffic.

Golden Gate Avenue is considered an arterial street within the San Francisco network; however, it terminates at Parker Avenue, and its design is generally not consistent with the adjacent land uses or the level of pedestrian and bicycle traffic on the street. USF and UTA propose to convert the portion of Golden Gate Avenue adjacent to the campus into a "complete street." The design would be consistent with the surrounding land uses and would improve pedestrian and bicyclist safety.

To prevent traffic intrusion on the streets between Turk Boulevard and Golden Gate Avenue, the plan proposes that the six one-block-long streets in the University Terrace neighborhood be closed to automobiles entering at the south end.

All street improvements would include elements identified as recommended improvements in the Better Streets Plan. USF submitted the proposed UTA/USF Traffic Calming Plan to the SFMTA in June 2012 to initiate its review and implementation. That original plan is included in Appendix E of the Technical Appendix to this report. Since that time, SFMTA has returned comments and suggestions that have changed some aspects of the plan's design. Because of the iterative process of both internal and public review of the plan, it is expected that the final implementation will diverge slightly from the descriptions herein. Any proposed street plans would be reviewed the SFMTA and DPW, the agencies responsible for implementing the Better Streets Plan and street construction.

## GENERAL PLAN OF SAN FRANCISCO

The proposed IMP supports numerous objectives and policies in the San Francisco General Plan,[13] including the city's eight Priority Policies as outlined below.

### CITY OF SAN FRANCISCO PRIORITY POLICIES

1. **That existing neighborhood-serving retail uses be preserved and enhanced and future opportunities for resident employment in and ownership of such businesses enhanced**
   USF students, faculty, and staff patronize neighborhood-serving retail frequently, both in the immediate Hilltop Campus environs as well as downtown near the 101 Howard Street facilities. A survey of USF student expenditures in 2011 found that students spend $30 million per year in groceries, eating and drinking establishments, personal services, and other retail in San Francisco.[14]
2. **That existing housing and neighborhood character be conserved and protected in order to preserve the cultural and economic diversity of our neighborhoods**
   The USF campus is distinctive in the city, which contributes significantly to USF's distinct neighborhood character. This Institutional Master Plan includes a number of measures intended to enhance campus and neighborhood character, including traffic calming, landscape guidelines, and visitor arrival features.

---

[13] San Francisco General Plan, City of San Francisco Resolution No. 14149, adopted on 6-27-1996, http://www.sf-planning.org/ftp/General_Plan/index.htm.

[14] University of San Francisco Economic Impacts, October 2012, BAE Urban Economics

3. **That the City's supply of affordable housing be preserved and enhanced**
The 635 residential units planned on the Upper Campus will divert student demand for publically available existing housing in the city and will be developed in keeping with neighborhood character. USF has no plans to convert any existing affordable housing in the city to student housing, as defined by Sec. 317(b)(1) of the San Francisco Planning Code: Loss of Dwelling Units through Merger, Conversion, and Demolition.

4. **That commuter traffic not impede Muni transit services or overburden our streets or neighborhood parking**
As part of this IMP, USF is enhancing its transportation demand management program as well as proposing a traffic calming plan. Both programs are intended to reduce traffic and parking impacts in the immediate area. USF is working with neighborhood groups to develop additional strategies to reduce student drive alone rates.

5. **That a diverse economic base be maintained by protecting our industrial and service sectors from displacement due to commercial office development, and that future opportunities for resident employment and ownership in these sectors be enhanced**
There are no commercial office development plans proposed in this IMP, therefore no displacement of industrial or service sector jobs would occur. Given the projected growth in USF staff contained in this plan, proportional growth in service sector jobs at USF can be expected.

6. **That the City achieve the greatest possible preparedness to protect against injury and the loss of life in an earthquake**
USF has established a program that positions the University to provide emergency services to the University community and neighborhood residents in the event of a disaster such as an earthquake. As part of this program, Koret Center is a designated emergency community shelter through an MOU with the San Francisco Department of Emergency Management (SF-DEM), and the Koret Center pool serves as emergency water supply; emergency aid supplies are stored on campus in coordination with the San Francisco Police Department; and selected School of Nursing and Health Professions students are trained as EMTs.

7. **That landmarks and historic buildings be preserved**
This IMP insures the preservation of historic landmarks on campus such as the Lone Mountain building and St Ignatius Church. Proposed new buildings are sited in a manner that preserves views to campus landmarks from adjacent roadways and neighboring properties. For example, the open lawn and iconic steps in front of Lone Mountain buildings are preserved. Plans for landscape maintenance and improvement around these buildings and throughout the USF campus are included in the IMP as well.

8. **That our parks and open space and their access to sunlight and vistas be protected from development**
This IMP proposes preservation of the majority of the iconic Lone Mountain open lawn and Spanish Steps as well as the east-west open-space spine on the Lower Campus. In addition, the area between Hayes/Healy & Gillson Residence Halls is proposed to be enhanced as an open space courtyard or forecourt, with the removal of temporary trailers and additional landscaping. Potential new buildings proposed in this plan will be designed to protect visual and sunlight access to the campus' open spaces.

More detail on ways that the USF Institutional Master Plan supports the San Francisco General Plan is included on the following pages.

| General Plan of San Francisco: **HOUSING** | |
|---|---|
| Objective | Policy |
| **Objective 1**: Identify and make available for development adequate sites to meet the City's housing needs, especially permanently affordable housing. | **Policy 1.9**: Require new commercial developments and higher educational institutions to meet the housing demand they generate, particularly the need for affordable housing for lower income workers and students.<br>**Policy 1.10**: Support new housing projects, especially affordable housing, where households can easily rely on public transportation, walking and bicycling for the majority of daily trips. |

USF plans to develop additional housing units on its Upper Campus. This development will reduce the University's demand for publicly available housing, thereby doing a small part to reduce the generally high housing demand in the City. All University housing will be developed in keeping with neighborhood character. All USF housing is and will continue to be easily accessible by public transit.

| General Plan of San Francisco: **COMMERCE AND INDUSTRY** | |
|---|---|
| Objective | Policy |
| **Objective 2**: Maintain and enhance a sound and diverse economic base and fiscal structure for the city. | **Policy 2.1**: Seek to retain existing commercial and industrial activity and to attract new such activity to the city. |
| **Objective 3**: Provide expanded employment opportunities for city residents, particularly the unemployed and economically disadvantaged. | **Policy 3.3**: Emphasize job training and retraining programs that will impart skills necessary for participation in the San Francisco labor market. |

Over 1,000 USF employees live in the City, as do the majority of students. In Fiscal Year 2011-2012, USF generated substantial economic impact on both the San Francisco and larger regional economy. USF is responsible for directly employing approximately 2,000 faculty and staff in San Francisco, making it the 15th largest employer in the City. Operating and capital expenditures by the University, along with student and faculty/staff spending, totals an estimated $111M in San Francisco. These economic activities in turn, ripple through the local economy, ultimately generating over $323M in economic impacts in San Francisco.

Approximately 62 percent of students are employed. 46 percent of students work in San Francisco.

In addition, USF also provides the opportunity for cell phone providers to install facilities that enhance a sound and diverse economic base within the City.

## CELL ANTENNAE INSTALLATIONS

The University has agreements with several wireless service providers that allow them to install and maintain panel antennae at specified locations on campus. The selected sites are installed in accordance with the procedures established by the San Francisco Planning Commission as provided by the FCC. Such locations for wireless facilities support the community's needs for adequate wireless coverage for communication and public safety as well as improving and expanding the quality of service.

Existing sites:

- Kendrick Hall, 2199 Fulton Street: nine panel antennae and one base transceiver station located on the roof.
- Lone Mountain, Rossi Wing, 2800 Turk Boulevard: sixteen panel antennae and one base transceiver station located on the roof (to be decommissioned by December 2013).
- 2350 Turk Boulevard: two panel antennae, and one base transceiver station located on the roof.

Another provider is proposing to install two wireless communication facilities on the USF campus: Site #1: Gleeson Library, 2495 Golden Gate Avenue and Site #2: School of Education building at 2350 Turk Boulevard. The proposed sites are unmanned facilities consisting of the installation of nine panel antennae on each building.

| General Plan of San Francisco: **RECREATION AND OPEN SPACE** | |
|---|---|
| Objective | Policy |
| **Objective 2:** Develop and maintain a diversified and balanced citywide system of high quality public open space. | **Policy 2.9:** Maintain and expand the urban forest. |

USF's campus is private property. However, the University allows public access to many of the open spaces on campus, and these spaces serve as significant neighborhood amenities. USF has established a tree management plan to facilitate the maintenance and renewal of the extensive population of mature trees on campus.

USF also allows some public use of its recreation facilities, including the Koret Center.

| General Plan of San Francisco: **TRANSPORTATION** | |
|---|---|
| **Objective** | **Policy** |
| **Objective 1**: Meet the needs of all residents and visitors for safe, convenient and inexpensive travel within San Francisco and between the city and other parts of the region while maintaining the high quality living environment of the Bay Area. | **Policy 1.1**: Involve citizens in planning and developing transportation facilities and services, and in further defining objectives and policies as they relate to district plans and specific projects.<br><br>**Policy 1.2**: Ensure the safety and comfort of pedestrians throughout the city.<br><br>**Policy 1.3**: Give priority to public transit and other alternatives to the private automobile as the means of meeting San Francisco's transportation needs, particularly those of commuters.<br><br>**Policy 1.6**: Ensure choices among modes of travel and accommodate each mode when and where it is most appropriate. |

USF prepared this IMP after receiving substantial input from the University community and the surrounding neighborhood. The traffic calming plan, circulation improvements, and transportation demand management plan included as part of this IMP are designed to improve pedestrian and bicyclist safety on the streets adjacent to the campus and to promote alternative modes of access for faculty, staff, and students.

| General Plan of San Francisco: **TRANSPORTATION (CONT.)** | |
|---|---|
| **Objective** | **Policy** |
| **Objective 2**: Use the transportation system as a means for guiding development and improving the environment. | **Policy 2.1**: Use rapid transit and other transportation improvements in the city and region as the catalyst for desirable development, and coordinate new facilities with public and private development.<br><br>**Policy 2.2**: Reduce pollution, noise and energy consumption.<br><br>**Policy 2.4**: Organize the transportation system to reinforce community identity, improve linkages among interrelated activities and provide focus for community activities.<br><br>**Policy 2.5**: Provide incentives for the use of transit, carpools, vanpools, walking and bicycling and reduce the need for new or expanded automobile and automobile parking facilities. |

The transportation improvements envisioned as part of the USF IMP are meant to better integrate the University into the surrounding residential neighborhoods, reduce congestion and noise caused by private vehicles, and create a unified identity for USF's facilities on its Upper and Lower Campuses. These include converting Golden Gate Avenue into a limited access street, adding a landscaped median to Turk Boulevard, and installing enhanced crosswalks and bulbouts at designated intersections.

| General Plan of San Francisco: **TRANSPORTATION (CONT.)** | |
|---|---|
| **Objective** | **Policy** |
| **Objective 12**: Develop and implement programs in the public and private sectors, which will support congestion management and air quality objectives, maintain mobility and enhance business vitality at minimum cost. | **Policy 12.1**: Develop and implement strategies which provide incentives for individuals to use public transit, ridesharing, bicycling and walking to the best advantage, thereby reducing the number of single occupant auto trips.<br><br>**Policy 12.3**: Implement private and public sector TDM programs which support each other and explore opportunities for private-public responsibility in program implementation. |

USF will continue developing its comprehensive transportation demand management strategy as part of the IMP. The University's TDM plan identifies and prioritizes methods to address increasing travel demand. The Plan will include programs that encourage public transit, ridesharing, bicycling, and walking, thereby reducing the number of single-occupant auto trips.

| General Plan of San Francisco: **TRANSPORTATION (CONT.)** | |
|---|---|
| **Objective** | **Policy** |
| **Objective 15**: Encourage alternatives to the automobile and reduced traffic levels on residential streets that suffer from excessive traffic through the management of transportation systems and facilities. | **Policy 15.1**: Discourage excessive automobile traffic on residential streets by incorporating traffic-calming treatments.<br><br>**Policy 15.2**: Consider partial closure of certain residential streets to automobile traffic where the nature and level of automobile traffic impairs livability and safety, provided that there is an abundance of alternative routes such that the closure will not create undue congestion on parallel streets. |

In collaboration with its neighbors, USF has developed a traffic calming plan for Golden Gate Avenue, Turk Boulevard, Parker Avenue, and the University Terrace streets. The plan identifies improvements designed to discourage excessive traffic on these streets, including restricting vehicle access to the University Terrace. The streetscape plans address pedestrian safety, vehicles circulating for parking, and issues affecting the University's residential neighbors' quality of life. The University has provided $1.2 million to fund traffic calming measures.

| General Plan of San Francisco: **TRANSPORTATION (CONT.)** | |
|---|---|
| **Objective** | **Policy** |
| **Objective 16**: Develop and implement programs that will efficiently manage the supply of parking at employment centers throughout the city so as to discourage single-occupant ridership and encourage ridesharing, transit and other alternatives to the single-occupant automobile. | **Policy 16.1**: Reduce parking demand through the provision of comprehensive information that encourages the use of alternative modes of transportation.<br>**Policy 16.3**: Reduce parking demand through the provision of incentives for the use of carpools and vanpools at new and existing parking facilities throughout the City.<br>**Policy 16.4**: Manage parking demand through appropriate pricing policies including the use of premium rates near employment centers well-served by transit, walking and bicycling, and progressive rate structures to encourage turnover and the efficient use of parking. |

USF has developed a parking management strategy as part of its TDM plan. This strategy includes incentives to reduce the number of people who drive to campus, encourages carpooling for those who need to drive, and offers commuter checks as incentives to use public transportation. The University is also re-evaluating its parking pricing structure.

| General Plan of San Francisco: **TRANSPORTATION (CONT.)** | |
|---|---|
| **Objective** | **Policy** |
| **Objective 18**: Establish a street hierarchy system in which the function and design of each street are consistent with the character and use of adjacent land. | **Policy 18.1**: Wherever feasible, divert through automobile and commercial traffic from residential neighborhoods onto major and secondary arterials, and limit major arterials to non-residential streets wherever possible.<br>**Policy 18.2**: Design streets for a level of traffic that serves, but will not cause a detrimental impact on adjacent land uses, nor eliminate the efficient and safe movement of transit vehicles and bicycles.<br>**Policy 18.4**: Discourage high-speed through traffic on local streets in residential areas through traffic "calming" measures that are designed not to disrupt transit service or bicycle movement. |

The traffic calming plan included in this IMP identifies improvements to divert through traffic from the University Terrace streets while allowing pedestrian movement. The plan also discourages high-speed through traffic on Golden Gate Avenue, Turk Boulevard, and Parker Avenue while allowing the safe movement of transit vehicles and bicycles.

| General Plan of San Francisco: **TRANSPORTATION (CONT.)** | |
|---|---|
| Objective | Policy |
| **Objective 23**: Improve the city's pedestrian circulation system to provide for efficient, pleasant, and safe movement. | **Policy 23.2**: Widen sidewalks where intensive commercial, recreational, or institutional activity is present, sidewalks are congested, where sidewalks are less than adequately wide to provide appropriate pedestrian amenities, or where residential densities are high.<br>**Policy 23.3**: Maintain a strong presumption against reducing sidewalk widths, eliminating crosswalks and forcing indirect crossings to accommodate automobile traffic.<br>**Policy 23.5**: Establish and enforce a set of sidewalk zones that provides guidance for the location of all pedestrian and streetscape elements, maintains sufficient unobstructed width for passage of people, strollers and wheelchairs, consolidates raised elements in distinct areas to activate the pedestrian environment, and allows sufficient access to buildings, vehicles, and streetscape amenities.<br>**Policy 23.6**: Ensure convenient and safe pedestrian crossings by minimizing the distance pedestrians must walk to cross a street. |

This IMP includes pedestrian circulation improvements that promote safe movement through the establishment of primary and secondary pedestrian corridors on campus. These pedestrian corridors are coordinated with the streetscape plans for Turk Boulevard and Golden Gate Avenue. Wherever possible, pedestrian circulation is separated from areas intended for vehicular access.

| General Plan of San Francisco: **TRANSPORTATION (CONT.)** | |
|---|---|
| Objective | Policy |
| **Objective 24**: Improve the ambience of the pedestrian environment. | **Policy 24.1**: Preserve existing historic features such as streetlights and encourage the incorporation of such historic elements in all future streetscape projects.<br>**Policy 24.2**: Maintain and expand the planting of street trees and the infrastructure to support them.<br>**Policy 24.3**: Install pedestrian-serving street furniture where appropriate.<br>**Policy 24.4**: Preserve pedestrian-oriented building frontages.<br>**Policy 24.5**: Where consistent with transportation needs, transform streets and alleys into neighborhood-serving open spaces or "living streets" by adding pocket parks in sidewalks or medians, especially in neighborhoods deficient in open space. |

The proposed improvements to Turk Boulevard and Golden Gate Avenue include new street trees and pedestrian amenities designed to make these streets more attractive and distinctive. Pedestrian pathways on campus will be enhanced as well.

| General Plan of San Francisco: **TRANSPORTATION (CONT.)** | |
|---|---|
| Objective | Policy |
| **Objective 27**: Ensure that bicycles can be used safely and conveniently as a primary means of transportation, as well as for recreational purposes. | **Policy 27.1**: Expand and improve access for bicycles on city streets and develop a well-marked, comprehensive system of bike routes in San Francisco.<br>**Policy 27.5**: Make available bicycle route and commuter information and encourage increased use of bicycle transportation. |
| **Objective 28**: Provide secure and convenient parking facilities for bicycles. | **Policy 28.1**: Provide secure bicycle parking in new governmental, commercial, and residential developments.<br>**Policy 28.3**: Provide parking facilities which are safe, secure, and convenient. |

The streetscape plan for Golden Gate Avenue is to make this street a neighborhood greenway that provides a safe and convenient place to ride a bicycle. Golden Gate Avenue is also a part of the citywide bicycle network, and so the improvements to the street will benefit the entire bicycling community within San Francisco. In addition to street infrastructure, the IMP includes potential new parking and support facilities for bicycles.

| General Plan of San Francisco: **TRANSPORTATION (CONT.)** | |
|---|---|
| Objective | Policy |
| **Objective 30**: Ensure that the provision of new or enlarged parking facilities does not adversely affect the livability and desirability of the city and its various neighborhoods. | **Policy 30.1**: Assure that new or enlarged parking facilities meet need, locational and design criteria.<br>**Policy 30.3**: Maximize the efficient use of land devoted to parking by consolidating adjacent surface lots and garages into a parking structure, possibly containing residential, commercial or other uses. |
| **Objective 33**: Contain and lessen the traffic and parking impact of institutions on surrounding residential areas. | **Policy 33.1**: Limit the provision of long-term automobile parking facilities at institutions and encourage such institutions to regulate existing facilities to assure use by short-term clients and visitors.<br>**Policy 33.2**: Protect residential neighborhoods from the parking impact of nearby traffic generators. |

The IMP identifies potential locations for parking facilities on campus to meet long-term parking needs. However, these facilities would be planned and coordinated with the University's TDM program, which is meant to reduce reliance on vehicle travel to and from campus. In addition, the Traffic Calming Plan, jointly developed with the UTA, contains provisions to reduce USF's parking impact in the neighborhood.

| General Plan of San Francisco: **URBAN DESIGN** | |
|---|---|
| **Objective** | **Policy** |
| **Objective 1**: Emphasis of the characteristic pattern which gives to the city and its neighborhoods an image, a sense of purpose, and a means of orientation. | **Policy 1.1**: Recognize and protect major views in the city, with particular attention to those of open space and water.<br>**Policy 1.4**: Protect and promote large-scale landscaping and open space that define districts and topography.<br>**Policy 1.3**: Recognize that buildings, when seen together, produce a total effect that characterizes the city and its districts.<br>**Policy 1.6**: Make centers of activity more prominent through design of street features and by other means. |

The Lone Mountain building on USF's Upper Campus is a landmark that is visible from miles around. It is characterized by a tall, ornate tower, traditional architecture, and a number of mature trees that encircle the buildings at the top of the hill. The following measures are included in the master plan to ensure that Upper Campus remains a City icon.

- All development is sited below the iconic Lone Mountain building, primarily on space that is already developed or cleared. The tree canopy will be preserved as much as possible.
- Where the canopy is altered, USF will plant trees and other landscaping around buildings in order to maximize impressions of open space.
- Visual screening vegetation will be planted along the boundary of residential property abutting new development.
- A tree succession plan is in place to manage the health and character of USF's wooded areas.
- The iconic open lawn, the Spanish Steps, and the loop drive form an appealing entrance to the Upper Campus that will be further enhanced. The two eastern drive exit branches will be consolidated and the loop drive will be aligned with the City street grid.

Saint Ignatius Church, located on the same block as USF's Lower Campus, is another iconic City landmark. USF maintains appropriate landscaping around the church, and will not construct buildings that compete with or diminish the church as a landmark.

All development along Turk Boulevard will be in keeping with the scale of existing buildings on Turk Boulevard and will reinforce the definition of the Upper Campus central lawn. All new architecture will be in keeping with the scale of campus buildings.

Streetscape improvements along Turk Boulevard, Golden Gate Avenue, Parker Avenue, and Fulton Street will also increase the attractiveness of spaces adjacent to the University, and serve to mark the University as a center of activity.

| General Plan of San Francisco: **URBAN DESIGN (CONT.)** | |
|---|---|
| Objective | Policy |
| **Objective 4**: Improvement of the neighborhood environment to increase personal safety, comfort, pride and opportunity | **Policy 4.1**: Protect residential areas from the noise, pollution and physical danger of excessive traffic.<br>**Policy 4.12**: Install, promote and maintain landscaping in public and private areas. |

As described above, USF's traffic calming plan is intended to protect residential areas from the impact of excessive traffic. USF also plans to enhance the Lower Campus through landscape improvements and maintenance. Streetscapes will be improved with new plantings, consolidated loading and parking facilities, and enhanced visitor entrances.

| General Plan of San Francisco: **ENVIRONMENTAL PROTECTION** | |
|---|---|
| Objective | Policy |
| **Objective 1**: Achieve a proper balance among the conservation, utilization, and development of San Francisco's natural resources. | **Policy 1.4**: Assure that all new development meets strict environmental quality standards and recognizes human needs.<br>**Policy 4.12**: Install, promote and maintain landscaping in public and private areas. |

The University is committed to meeting LEED standards with all new buildings. USF's renovation of its facility at the Presidio achieved LEED Silver certification, and efforts are underway to achieve LEED designation for the new Center for Science and Innovation under construction.

In addition to buildings, the University has implemented several sustainable practices in the management of the campus landscape. Water conservation and runoff mitigation measures have been undertaken and many site plantings are being replaced with native species.

| General Plan of San Francisco: **ENVIRONMENTAL PROTECTION (CONT.)** | |
|---|---|
| Objective | Policy |
| **Objective 2**: Implement broad and effective management of natural resources. | **Policy 2.3**: Provide environmental education programs to increase public understanding and appreciation of our natural surroundings. |

USF places high value on sustainability. As such, the University has taken many steps across all disciplines and facets of campus life toward building a sustainable campus community.

As a signatory of the American College and University President's Climate Commitment, the University is developing a strategy to strengthen its commitment to sustainability on both the operational and academic fronts. The University has established a Climate Action Committee with representation from students, faculty, and staff to map out this process. The university has also submitted its greenhouse gas inventory to ACUPCC.

Since 2008, the University has achieved an 8% reduction in greenhouse gas emissions. Several major infrastructural improvements support the reduction of the campus carbon footprint. A 1.5 megawatt cogeneration facility provides a significant percentage (60%) of electrical power to the Lower Campus. Waste heat energy from the generator motor is captured and used to create steam that provides heat to most campus buildings. This electricity production is augmented by the 0.5 megawatts generated by rooftop photovoltaic arrays on Kalmanovitz, Cowell, Gleeson Library, University Center and the Koret Health and Recreation Center. High-efficiency fluorescent lighting was recently installed in all campus buildings. Further energy use reductions are being achieved through the installation of computer-controlled energy management systems in almost half the campus buildings.

The University's efforts as both a sustainability leader and educator have been recognized by several independent organizations. Among these, USF was ranked 56th in the Sierra Club Magazine's 2011 "Coolest Schools" survey which rates American colleges and universities according to their environmental practices, green initiatives and caliber of sustainability-oriented education.

In support of the educational mission, USF offers more than 40 courses at the undergraduate and graduate levels that integrate concepts of sustainability into the curriculum. In the College of Arts and Sciences, USF's largest school, there are several sustainability-related degree programs, including a very successful MS in Environmental Management; and more programs are currently being developed, including an MA in Urban Sustainability. There are also two new opportunities for students to explore sustainability concepts related to the growing and production of food and sustainable living — a new course organized around the campus organic garden project, and a new minor in Urban Agriculture that started in Fall 2012.

To ensure continual promotion of sustainability-based initiatives in the curriculum, Dean Marcelo Camperi has recently created a College Sustainability Task Force. Initial efforts of this group will focus on establishing the proposed Center for Sustainability and Social Justice.

Incoming students are introduced to the concepts of sustainability at orientation, and USF has engaged student participation in environmental programs. Students may also opt for immersion in a living-learning community program focused on a defined sustainability curriculum.

| General Plan of San Francisco: **ENVIRONMENTAL PROTECTION (CONT.)** | |
|---|---|
| Objective | Policy |
| **Objective 4**: Assure that the ambient air of San Francisco and the bay region is clean, provides maximum visibility, and meets air quality standards. | **Policy 4.2**: Encourage the development and use of urban mass transportation systems in accordance with the objectives and policies of the Transportation Element. |
| **Objective 9**: Reduce transportation-related noise. | **Policy 9.2**: Impose traffic restrictions to reduce transportation noise. |

USF has developed a detailed TDM strategy that explicitly promotes the use of public transportation systems and aims to decrease the number of drivers arriving at the campus.

Together with its neighbors, the University is committed to reducing neighborhood transportation noise where feasible. It has implemented a detailed neighborhood impact mitigation strategy for the construction of the Center for Science and Innovation building. This strategy includes noise buffering and remote vehicle staging and is intended as a model for future projects.

The University is currently establishing and enforcing restrictions on delivery times. The master plan includes development of a primary delivery area located off Golden Gate Avenue, buffered from the neighborhood by sound walls.

| General Plan of San Francisco: **ARTS** | |
|---|---|
| Objective | Policy |
| **Objective II-3**: Promote arts education programs that reflect the cultural diversity of San Francisco. | **Policy II-3.1**: Encourage arts education offerings in the community and the schools to include art and artists from many cultures. |

In addition to arts programs and degrees offered as part of the curriculum, the University offers a wide range of events and exhibitions that support the arts. Several noteworthy offerings are described in the Campus Programs and Community Engagement section of this chapter, including the Thacher Gallery, the Visiting Writer Series, and the broad range of performing arts programs.

In addition, USF has installed several campus art exhibits that promote campus aesthetics as well as education. One recent example is the 16th century armillary sphere which is a reproduction of the same instrument located in the Beijing Ancient Observatory in China.


EMERGENCY

# Appendices


John Lo Schiavo, S.J.
CENTER FOR SCIENCE
AND INNOVATION

# / Appendices

1. Transportation Impact Study

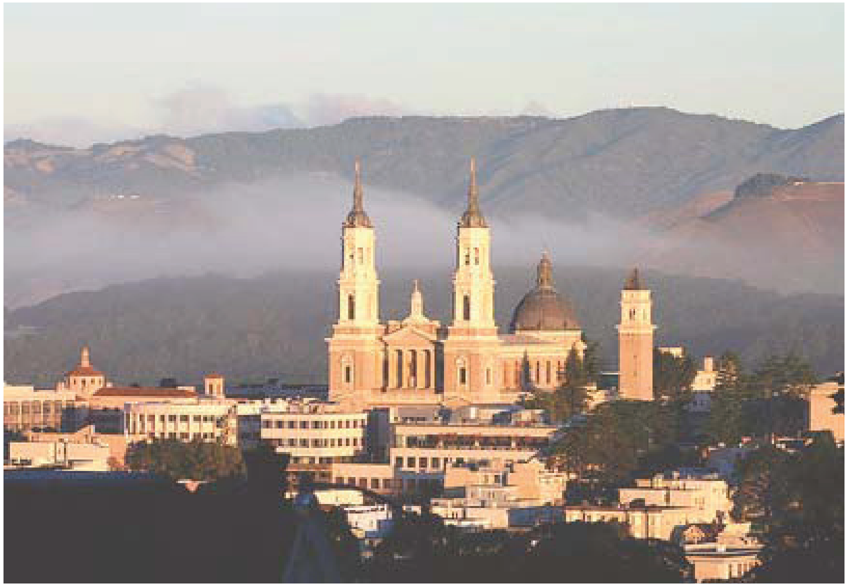
2. Sound Study

3. Prior Conditional Use Authorizations

4. USF 2028 Planning Document

5. List of Community Meetings

# Transportation Study for the University of San Francisco Institutional Master Plan




Prepared for:

UNIVERSITY OF SAN FRANCISCO

Prepared by:

FEHR & PEERS
332 Pine Street, Floor 4
San Francisco, CA 94104

March 2012

**Appendix 1**

# Transportation Study for the University of San Francisco Institutional Master Plan

Prepared for:

UNIVERSITY OF SAN FRANCISCO
CHANGE THE WORLD FROM HERE

Prepared by:

FEHR PEERS

March 2012

Documentation and technical analysis prepared by:

Fehr & Peers

332 Pine Street, 4th Floor

San Francisco, California  94104

415.348.0300

# TABLE OF CONTENTS

**APPENDICES**

## LIST OF FIGURES

## LIST OF TABLES

# EXECUTIVE SUMMARY

This report presents the results of the transportation impact study (TIS) for the Institutional Master Plan (IMP) for the University of San Francisco's (USF) Hilltop Campus. The IMP presents a multi-phased strategy for the use and development of the USF campus over the next ten years. Although USF plans to develop selected programs at specific properties around San Francisco, the transportation impact analysis examined only the Hilltop Campus and associated growth there. In addition, the transportation impact analysis examines the impacts associated with the proposed traffic calming and streetscape changes to Turk Boulevard and Golden Gate Avenue between Masonic Avenue and Parker Avenue.

The USF Hilltop Campus is located in the north-central portion of San Francisco and is bounded generally by Anza Street to the north, Masonic Avenue to the east, Fulton Street to the south, and Stanyan Street to the west. The Hilltop Campus includes USF's Lone Mountain and Lower Campuses.

## 1.1 BRIEF PROJECT DESCRIPTION

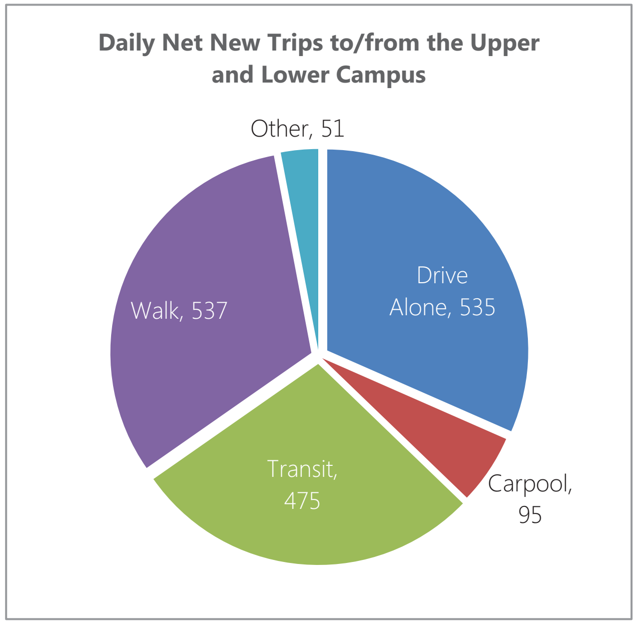
The USF IMP consists of three major elements affecting transportation – the Campus population growth projections; the Traffic Calming Plan for Turk Boulevard and Golden Gate Avenue; and the Transportation Demand Management Strategy.

<u>Campus Population Growth</u> – Over the next ten years, USF expects to grow at an average rate of 0.9% per year, or less than 100 new students, faculty, and staff each year. This is the maximum growth expected at the University's Hilltop campus.

<u>Traffic Calming Plan</u> – Turk Boulevard and Golden Gate Avenue would be reconstructed between Masonic Avenue and Parker Avenue. A continuous median, with breaks at Chabot, Roselyn and Tamalpais, would be constructed along Turk Boulevard. The street cross section would also accommodate continuous bicycle lanes from Parker to Masonic. Golden Gate Avenue would be constructed as a pedestrian- and bicycle-priority street. Partial closures at the south end of the University Terrace Streets would limit vehicle access from Golden Gate Avenue to those streets. Gateway treatments would be added at the Masonic Avenue/Golden Gate Avenue and Parker Avenue/Golden Gate Avenue intersections. All street changes would be designed according to the San Francisco Better Streets Plan recommendations.

<u>Transportation Demand Management Strategy</u> – The University currently has a transportation demand management plan. This plan would be expanded as the campus population grows during the duration of the ten year IMP. The plan is designed to increase alternative mode access to campus and reduce parking demand generated by USF students, faculty and staff.

## 1.2 NET NEW TRAVEL DEMAND




The critical step in evaluating future transportation conditions is identifying the number of new "trips" that would be generated by population growth on the Upper and Lower Campus. The trips included in the analysis are trips coming to campus and leaving campus, not trips that occur between different buildings on the Campus during the day. For example, a student riding his bike to campus in the morning, walking to and from three classes during the day and biking home in the evening would be counted as two daily bicycle trips.

Travel demand characteristics and forecasts for the USF campus are based on the projected number of students and employees, as well as travel survey responses by faculty, staff, and students.

Overall, the daily new trips generated by the IMP are estimated to be approximately 1,700 across all modes of travel by 2022. This total includes approximately 200 new AM peak-hour trips and 200 new PM peak-hour trips. Of the 1,700 daily new trips, about 600 would by vehicles, with 80 new vehicle trips in both the AM and PM peak hours. For other modes of travel, approximately 500 of the 1,700 daily new trips would be by transit and 600 of the 1,700 would be by foot or bicycle.

## 1.3 TRANSPORTATION IMPACTS

The Transportation Impact Study evaluates the IMP's potential impacts on traffic, transit, bicyclists, pedestrians, loading, and construction activities consistent with the City and County of San Francisco Transportation Impacts Analysis Guidelines (SF Guidelines) (October 2002). Additional detail on the methodology and assumptions used for the transportation impact analysis, as well as the City of San Francisco significance criteria for identifying the significance (i.e., significant or less-than-significant) of certain impacts, is provided in the main body of this report.

### *Traffic*

Traffic operations at 16 study intersections along key corridors (i.e., Fulton, Turk, Masonic, Golden Gate, Parker, Geary, Stanyan, Arguello) located near the Hilltop Campus were evaluated under Existing, Existing Plus Project, Baseline (2012), Near-Term (2022) Cumulative, and Cumulative (2035) Conditions. Changes to traffic as a result of the partial closures on the University Terrace streets, bike lane modifications on Turk Boulevard and Golden Gate Avenue, and pedestrian improvements were assumed to be in place, resulting in some traffic changing routes around the campus. Traffic circulating for parking on these streets was assumed to park in on-campus garages and other on-street parking areas.

Traffic conditions under future year conditions were based on expected traffic growth in the area forecasted in the San Francisco travel demand model. Based on the forecasted traffic growth in the area, some intersections are expected to operate at unacceptable levels of service according to City intersection operation standards. The IMP would add approximately 75 to 200 vehicle trips to the surrounding roadways during the weekday AM and PM peak hours, some of which would pass through intersections these intersections; however, the IMP's contribution to traffic at intersections operating unacceptable would be minimal based on City significance thresholds. Thus, the IMP is expected to have a ***less-than-significant*** traffic impact under all scenarios at all 16 intersections through 2022.

The traffic analysis assumes that the mode split and travel patterns to and from the Hilltop Campus are the same in future years; however, USF has identified a comprehensive transportation demand management (TDM) strategy that would encourage non-auto travel to and from Campus. To be conservative, the traffic analysis does not quantify to what level the future enhanced TDM program would reduce overall automobile traffic to the Campus; however, implementation of the enhancements to the TDM program would reduce the IMP's contribution to unacceptable traffic operations.

While the study shows less-than-significant impacts through 2022, one intersection (Masonic Avenue/Turk Boulevard) would reach unacceptable operations without additional mitigations by 2035. The addition of an eastbound right turn pocket would improve operations to a ***less-than-significant*** level.

***Transit***

Transit operations for the transit routes operating within ¼ mile of the Hilltop Campus were analyzed under Existing, Existing Plus Project, Baseline (2012), Near-Term (2022) Cumulative, and Cumulative (2035) Conditions, including the 33 Stanyan, 43 Masonic, 5 Fulton, 21 Hayes, 31/31BX Balboa, and 38/38L Geary bus routes. Future transit ridership for the routes was estimated using the expected transit ridership growth forecast in the San Francisco travel demand model. The additional 40 new transit riders generated by the IMP during both the AM and PM peak hours would be distributed across several lines. Transit, which is analyzed using directional screenlines would continue to operate within San Francisco Municipal Transportation Agency's (SFMTA) capacity utilization standards. Therefore, the IMP would have a ***less-than-significant*** impact on transit.

***Bicyclists***

The IMP would increase the number of bicyclists traveling to the Hilltop Campus. To accommodate the increase in bicyclists, the IMP traffic calming plan includes street modifications to Turk Boulevard and Golden Gate Avenue that would improve bicyclist safety on the Campus (as well as for those bicyclists traveling through the Campus). These modifications are detailed in the IMP's traffic calming element. In overview, bicycle lanes on Turk Boulevard would be made continuous, and Golden Gate Avenue would receive additional traffic calming treatments to address pedestrian and bicyclist safety. These improvements would be consistent with the San Francisco Better Streets Plan and Bicycle Plan.

The existing facilities and the proposed bicycle improvements, including those on Masonic Avenue, would be able to accommodate the new cyclists. Since the IMP would improve an existing bicycle facility and the existing facilities could generally accommodate additional bicyclists, the IMP is expected to have a ***less-than-significant*** impact on bicyclists. Furthermore, the proposed elements of the Traffic Calming Plan would improve bicycling conditions compared to the existing conditions and would address potential impacts associated with the general increase in vehicles traveling to and from the Campus through the day.

The IMP also includes several new facilities on the Hilltop Campus. At the time of construction, these facilities would need to accommodate bicycle parking based on the City's Planning Code. The design of these parking areas would be reviewed when USF seeks building permits; therefore, no impacts to bicycle parking were identified. USF is committed to providing bicycle parking consistent with demand and provides access to Koret Center locker rooms to those who bike to campus.

***Pedestrians***

The IMP would increase the number of people walking to the Hilltop Campus. To accommodate the increase in pedestrians, the IMP traffic calming plan would improve pedestrian safety on the Campus (as well as for others walking through the Campus). The proposed designs would pay particular attention to the pedestrian crossings on both Golden Gate and Turk. These improvements would be consistent with the San Francisco Better Streets Plan. The existing facilities, as well as the proposed enhancements on Turk and Golden Gate, would be able to accommodate the new pedestrians, and the IMP is expected to have a ***less-than-significant*** impact on pedestrians. Generally, the Traffic Calming Plan of the IMP would improve conditions for pedestrians walking near the Upper and Lower Campuses.

***Loading***

Assessments of loading impacts are specific to individual projects, and include the ability of the new development to accommodate the projected delivery and service vehicle demand generated by the new uses.

The Campus currently has 11 loading locations spread throughout the campus, including six with access from Golden Gate Avenue. To the extent that the loading demand is not accommodated on-site, and could not be accommodated within existing or new on-street loading zones, double-parking, illegal use of sidewalks and other public space is likely to occur, with associated disruptions and impacts to traffic and transit operations and bicyclists and pedestrians. These disruptions are usually short in duration and occur when trucks enter and exit loading areas. However, USF has implemented several measures to manage and improve loading issues including creating a Traffic Coordinator position in 2010 to manage campus deliveries and to address disruptions and impacts. The University limits the hours of use of its loading docks to Monday through Friday, 7 am - 4 pm and Saturday & Sunday 9 am - 4 pm. No specific loading impacts were identified.

***Construction***

Temporary construction impacts are specific to individual development projects, and include impacts related to temporary roadway and sidewalk closures, relocation of bus stops, effects on roadway circulation due to construction vehicles, and parking demand associated with construction workers. The IMP envisions development sites may affect the transportation network along Fulton Street, next to St. Ignatius; Parker Avenue, between McAllister and Turk; Golden Gate Avenue, west of Masonic; Turk Boulevard, between Tamalpais Terrace and Roselyn Terrace; and Anza Street, east of Parker Avenue. Construction activities that affect street right-of way are typically regulated through permits and construction requirements to ensure acceptable levels of traffic and transit flow during the period of traffic disruptions. Construction best management practices are typically required to be in place to ensure the safety of construction workers, motorists, bicyclists, and pedestrians throughout the construction period. No construction impacts were identified.

## 1.4 PARKING ANALYSIS

The City of San Francisco does not consider parking to be a part of the physical environment, since the availability of parking spaces (or lack thereof) is not a permanent physical conditions and changes over time (both throughout the day and week and as people change their travel mode and patterns). However, parking supply and demand is generally of interest to both residents and the USF community and was reviewed as part of the Transportation Study prepared for the IMP.

USF currently owns and operates seven parking lots and three parking garages on the Hilltop Campus, providing a total parking supply of 860 spaces. Most on-campus parking requires students, faculty, and staff to purchase parking permits. Parking on-campus is generally fully occupied throughout the day, except for select lots on the Campus that have available capacity. Based on the 2010 travel survey, 55 percent of those who drive to campus park in on-street parking spaces around the campus; 45 percent park in on-campus lots and garages.

Due to the existing parking demand and on-street parking restrictions in the neighborhood, parking demand near the Upper Campus and Lower Campus is generally occupied during the work day. The parking spaces contained within study area bounded generally by Arguello, Geary, Masonic, and Fell are approximately 85 percent occupied at the peak time of day, suggesting that there is some available supply to absorb additional on-street parking. Parking much closer to the Campus is more occupied; however, it typically does not meet or exceed being 100 percent occupied. After about 6 PM and before 7am, parking occupancy generally decreases throughout the parking study area.

The on-street parking spaces on streets adjacent to campus require a residential parking permit (either "BB" or "L"); however, vehicles without a residential permit sticker are permitted to park freely for up to two hours. Based on the 2010 USF travel survey, USF-faculty, staff, and studentss were estimated to occupy approximately 15 percent of on-street parking supply during the whole day and approximately 25 percent of spaces during the peak hour of the day.

Based on the travel surveys and on-campus parking garage surveys, USF has an existing parking demand for about 1,670 parking spaces. As population on the Hilltop Campus grows, parking demand would increase by approximately 225 spaces without enhancements to the existing TDM plan. To accommodate the increase in parking demand, USF would restructure its on-campus parking permit system to better allocate parking permits into under-occupied parking lots and implement a more comprehensive TDM plan to reduce overall parking demand. The TDM plan's goal is to reduce parking demand by 13 percent.

Recognizing that some parking will continue to occur on streets around the Campus even with the enhanced TDM plan, USF would implement the Traffic Calming Plan to reduce the impact of vehicles circling neighborhood blocks looking for on-street parking. During the peak hour of the day, there are approximately 620 unoccupied on-street parking spaces in the parking study area around the Campus. Assuming that approximately 45 percent of the future USF parking demand (i.e., approximately 100 vehicles) is met using on-street parking spaces, then the parking study area would continue to have available parking. The turn restrictions on the Terrace streets included in the Traffic Calming plan would discourage vehicles from circulating through each street looking for parking in an area where availability is most constrained.

Additionally, USF is working the University Terrace neighborhood to change the time limit restrictions on BB permitted streets. As proposed, time limits would be reduced from two-hours to one-hour for non-BB permitted vehicles.

## 1.5 MITIGATION AND IMPROVEMENT MEASURES

The IMP is not expected to result in any significant impacts to the surrounding transportation network; therefore, no improvement measures were identified. Any individual project on the Campus would be subject to additional review by the City to ensure that potential issues with bicycle parking, loading, and construction are addressed in the future design. As noted, USF will be implementing a more comprehensive TDM strategy to address increasing travel demand to and from the campus. The University has implemented a loading management plan and construction management plan to minimize loading and construction impacts to adjacent streets.

# CHAPTER 1. INTRODUCTION

This report describes the existing transportation conditions and provides a transportation impact analysis conducted for the University of San Francisco ("USF") Campus in the City and County of San Francisco, California, as part of the USF Institutional Master Plan ("IMP"). USF has developed a comprehensive strategy to mitigate enrollment growth on the USF Hilltop Campus (both the Upper and Lower Campus) through a distributed campus model as well as a set of capital building projects and campus improvements.

Consistent with the City and County of San Francisco Transportation Impacts Analysis Guidelines ("SF Guidelines") (October 2002), this transportation impact analysis evaluates the project's potential impacts on traffic conditions, transit operations, parking operations, bicycle conditions, pedestrian conditions, loading operations, and construction activities. This chapter summarizes the key attributes of the project relating to transportation conditions, outlines the report structure, and describes the methodology used for analysis.

## 1.1 PROJECT SITE

The Hilltop Campus is located in the north-central portion of San Francisco and is bounded generally by Anza Street to the north, Masonic Avenue to the east, Fulton Street to the south, and Stanyan Street to the west. The Hilltop Campus includes USF's Upper and Lower Campuses. The Upper Campus is generally the portion of the Campus located north of Turk Boulevard; the Lower Campus the the remaining portions of the Campus south of Golden Gate Avenue and west of Parker Avenue. The study area used in this analysis is generally bounded by Arguello Boulevard in the west, Geary Boulevard in the north, Central Avenue in the east, and Fell Street in the south. **Figure 1.1** shows the location of the project site and streets within the project study area. **Figure 1.2** illustrate the conceptual IMP development plan. **Figure 1.3** illustrates the conceptual traffic calming plan.

## 1.2 PROJECT DESCRIPTION

The USF IMP consists of three major elements affecting transportation – the Campus population projections; the Traffic Calming Plan for Turk Boulevard and Golden Gate Avenue; and the Transportation Demand Management Strategy. This section describes each of the project elements, which are included in this impact analysis.

### *1.2.1 Campus Population Projections*

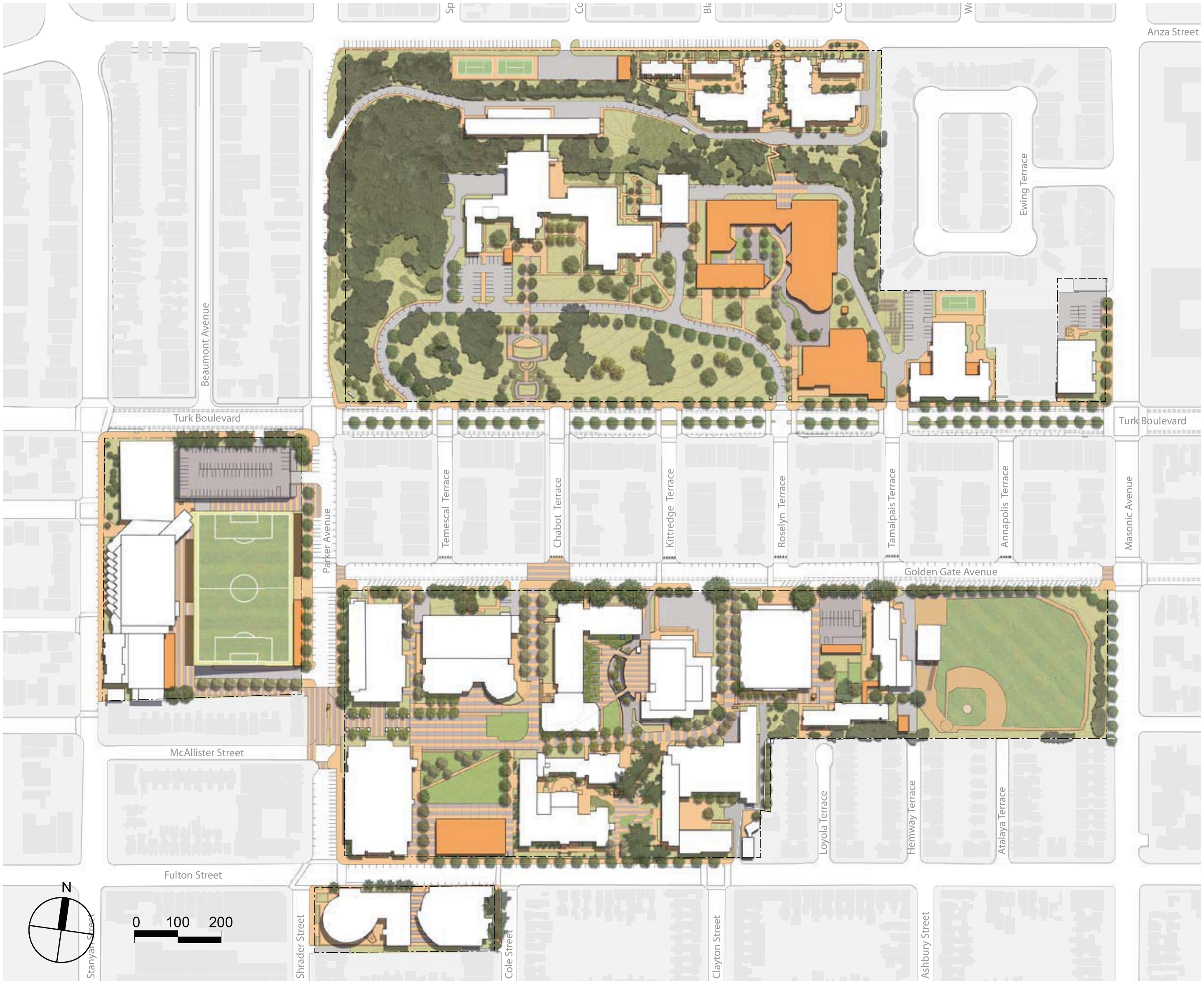
As of the Fall 2011 semester, USF has approximately 8,730 enrolled undergraduate and graduate students. The Campus has approximately 10,900 people on it after including faculty and staff. USF is projecting Hilltop enrollment to grow by an average of 0.9 percent annually over the next ten years (i.e., the length of this IMP). Given the current enrollment, the projected 0.9 percent annual growth factor would yield a future population of approximately 8,810 enrolled students in 2012 and 9,635 enrolled students in 2022. Including commensurate growth in faculty and staff, campus population is projected to increase from approximately 10,900 in 2011 to approximately 12,030 in 2022. The estimated on-campus population and enrollment projections would be used as basis to develop projects identified in the IMP and to analyze the associated impacts of the projects. **Table 1.1** summarizes the proposed population increases at the Hilltop Campus.


Project Location and Study Area

Figure 1.1

FEHR PEERS

SF11-0547




Source: Sasaki Associates

N
Not to Scale

# Illustrative Plan

Figure 1.2

FEHR PEERS

SF11-0547

| TABLE 1.1: PROJECTED STUDENT, FACULTY, AND STAFF POPULATION AT HILLTOP CAMPUS | | | | |
|---|---|---|---|---|
| **Population Group** | **Population** | | | |
| | **Fall 2011[1]** | **Fall 2012 Projected** | **Fall 2022 Projected** | **Percent Increase 2011-2022** |
| Resident Student | 2,082 | 2,082 | 2,732 | 31% |
| Non-Resident Student | 6,649 | 6,728 | 6,903 | 4% |
| Total Student | 8,731 | 8,810 | 9,635 | 10% |
| Faculty | 992 | 1,001 | 1,095 | 10% |
| Staff | 1,178 | 1,189 | 1,300 | 10% |
| Total Population | 10,901 | 10,999 | 12,030 | 10% |

Notes:
1. Based on USF 2011 Enrollment Census.

Source: Sasaki, 2011

Recognizing that accommodating all enrollment at the Hilltop Campus will not be feasible, USF in developing a "distributed campus model" that consists of creating growth opportunities by other means, either through new delivery mechanisms such as online programs or by locating academic program at other sites away from the Hilltop campus. The details of these plans are still in development and so this analysis conservatively examines the growth at the Hilltop campus only.

USF has translated the facility needs for growth into a list of five-year and ten-year capital projects and campus improvements for the USF Campus. The projects being considered include a new residence facility with 350 beds and approximately 60,000 to 75,000 gross square feet of academic and support space.

### *1.2.2 Traffic Calming Plan*


Image 1. Example of a Partial Closure (Source: Payton Chung)

The USF Traffic Calming Plan is a transportation system management strategy designed to better accommodate the existing and future transportation needs of the University and the University Terrace residents, the residential neighborhood located between the Upper and Lower Campuses. The Plan addresses vehicle circulation and pedestrian access between the upper and lower portions of the Hilltop Campus (i.e., Temescal, Chabot, Kittredge, Roselyn, Tamalpais, and Annapolis Terraces) and along Golden Gate Avenue and Turk Boulevard between Masonic and Parker Avenues. The Plan also addresses concerns with circulating vehicles whose drivers are looking for parking. Further description of the Traffic Calming Plan study process and recommendations is included in **Appendix E**. All street changes would be designed according to the San Francisco Better Streets Plan. An initial conceptual traffic calming plan, as shown in **Figure 1.3**, was developed in partnership with the University Terrace neighborhood residents and a preferred plan was developed.

The following improvements would be made to Turk Boulevard between Masonic and Parker:

1. A continuous median with full breaks at signalized intersections (i.e., Chabot and Tamalpais) would be constructed.
2. The bicycle lanes between Parker Avenue and Masonic Avenue would be in both directions.
3. A left-turn pocket would be provided at Roseyln Terrace to allow vehicles to access the Upper Campus; however, through access to Roselyn would be prohibited through a median barrier.
4. One westbound travel lane would be removed to accommodate bike lanes and the median.

The following improvements would be made to Golden Gate Avenue between Masonic and Parker:

1. Golden Gate Avenue would be constructed as a pedestrian- and bicycle-priority street; however, vehicles would be permitted.
2. Partial closures at the south end of the University Terrace Streets would limit vehicle access onto those streets from Golden Gate Avenue.
3. Gateway treatments would be added at or near the Masonic Avenue and Parker Avenue.

In addition to the improvements in the Traffic Calming Plan, the IMP includes an enhanced crosswalk to facilitate pedestrian movement from the Koret Center to the Lower Campus. As shown in **Figure 1.2**, the IMP proposes enhancing the existing crosswalks at the intersection of Parker Avenue and McAllister Street. A new crosswalk would be added on the north leg of the intersection of Parker Avenue and McAllister Street and extend 100 feet to the north. The crosswalk would be marked with decorative pavement to create a "visitors' arrival area" entrance to the Campus. The crosswalk would also connect the Koret Center to the rest of the lower campus. USF also proposes to enhance the pedestrian crossings along Fulton Street between Parker Street and Loyola Terrace. Enhancements could include, but are not limited to, new crosswalk striping, paving materials, midblock crosswalks, or corner curb extensions. Any pedestrian enhancements would need to be reviewed and approved by the SFMTA and undergo additional design review. Crosswalks at Masonic Avenue would be improved as part of the city-led Masonic Avenue streetscape project.


Not to Scale

FEHR & PEERS

SF10-0518 USF Traffic Calming\Graphics

PREFERRED TRAFFIC CALMING PLAN

FIGURE 1.3

### *1.2.3 Transportation Demand Management Plan*

This section contains an evaluation of the existing Transportation Demand Management (TDM) program at the University, and identifies strategies for program expansion. The following were objectives of the evaluation:

- gain knowledge about the existing TDM program;
- identify barriers that may be preventing USF students, faculty, and staff from taking advantage of program benefits;
- identify opportunities for promoting TDM incentives; and
- consider new TDM initiatives at USF.

The evaluation included a review of existing transportation options on and near campus; a survey of campus students, faculty, and staff regarding the feasibility of future TDM options; and an analysis of parking supply and demand on and near campus (parking discussed in **Chapter 6**).

This section provides a brief background on the existing TDM strategies at USF and related online survey responses; it then focuses on the parking and TDM strategies recommended to accommodate planned traffic calming projects and University population growth.

<u>Existing Program</u>

*Shuttle Service*

From 2001 to 2006 USF, in cooperation with St. Mary's Hospital, provided a BART shuttle from campus. The service ran Monday through Friday throughout the year except holidays, and service was provided approximately every half hour. USF identification was required for purchase of shuttle tickets. This shuttle service was discontinued in 2006 because of cost and ridership concerns. USF currently operates a night safety shuttle in the immediate vicinity of campus.

In the online survey, when asked, "Why do you typically drive alone to campus?", 41% of drivers stated that they have no reasonable transit option, 7% stated that transit does not run late enough and 4% stated that they do not know which transit route to take. When asked, "If you currently drive alone to campus, what would encourage you to use an alternative to driving alone?," 37% of drivers responded a shuttle connecting USF to BART; 19% stated a shuttle connecting USF to another location; 15% responded a shuttle connecting USF to Caltrain; and 10% stated an extended area of coverage for the night safety shuttle.

*Parking Pricing*

According to the online survey, nearly half of those who drive to USF pay nothing to park. However when asked if they would still drive to campus if the cost of driving increased, 8% said they would stop driving if prices increased by 2 5%, 41% said they would stop driving if prices increased by 50%, and 45% said they would stop driving if prices increased by 100%.

*Carpool Parking*

Twenty-five designated carpool parking spaces are available on campus, located at the Koret parking lot upper level. These spaces are reserved for carpool users before 10 am and are open to all users after 10 am. Currently, carpool parking permits are available only to faculty and staff. In 2010-11, 132 such parking permits were sold. However, during the morning hours the 25 carpool spaces in the Koret Parking lot were below 50% occupancy. While reserved parking is valuable, reserved parking in only one location or for only one user group may not be the best way to serve the needs of all campus users.

*Ridesharing*

USF has a private ridesharing network available through Zimride. Through this program, USF faculty, staff, and students can find and share rides within the USF community. While allowing USF faculty, staff, and students to find others commuting to the same location is beneficial, many additional potential rideshare matches exist if those outside the immediate USF community are included in the match pool. Even within the USF community, the online transportation survey results demonstrate further potential to encourage additional ridesharing. Among drivers, 28% indicated that they drive alone because they do not have anyone with whom to share rides.

*Marketing Efforts*

The campus survey considered whether faculty, staff, and students are aware of various TDM program components in place on campus, including guaranteed ride home, flex hours and telecommuting, carpool parking, ridesharing, and the safety escort. Only 21% of faculty and staff are aware of the guaranteed ride home program. When asked, “What are your main reasons for driving alone to campus?,” among faculty and staff who currently drive alone to campus, 24% stated “Need to get home in case of emergency” as one of their main reasons.

Only 24% of faculty and staff know about the potential to telecommute or work flex work hours. Finally, only 36% of faculty and staff know that reserved carpool parking is available; 44% of faculty staff and students are aware of the Zimride ridesharing program; and 47% are aware of the USF safety escort service.

Parking Demand Forecast

Based on field surveys, the average daily occupancy of on campus parking lots on the USF campus is 56 percent, with a peak occupancy rate of 93 percent from 11AM to 12PM. **Table 1.2** summarizes an analysis of parking supply and demand given the existing campus population and expected changes (campus growth and reduced on street parking options). Analysis inputs are based on information provided by the University, survey responses, and/or field observations. These numbers represent the expected, unmitigated demand for parking in ten years. Accordingly, this analysis establishes the peak hour parking demand reduction target at 13% (232 parking spaces) for the Transportation Demand Management program.

| TABLE 1.2: UNMITIGATED PARKING DEMAND AND SUPPLY ANALYSIS | | |
|---|---|---|
| **Metric** | **Detail** | **Source / Notes** |
| **Population** | | |
| 2011 USF Hilltop Campus population | 10,901 | USF |
| Annual growth | 0.9% | USF |
| Years projected | 10 | USF |
| Projected population | 12,030 | USF |
| **On-Campus Parking** | | |
| Total regular use on-campus spaces | 710 | Data Collection, 2011 |
| Peak occupancy rate | 93% | Data Collection, 2011 |
| Peak occupied on-campus spaces | 658 | regular use space * peak occupancy rate |
| Peak parking rate | 0.06 | peak occupied on-campus spaces / campus population |
| Future displaced on-campus spaces | 92 | removal of 5 spaces at Fromm, 10 on ramp, 77 at Loyola |
| Projected peak occupied on-campus spaces | 726 | peak parking rate * projected population |
| Projected parking deficit | 108 | projected peak occupied on campus spaces - (regular on-campus spaces - future displaced spaces)<br>Note: this assumes optimal allocation of permits |
| **Off-Campus Parking** | | |
| Total off-campus parking spaces | 3,669 | Data Collection, 2011 |
| Peak occupancy rate | 84% | Data Collection, 2011 |
| % of off-campus spaces used by USF | 25% | online survey results, US Census American Community Survey residential statistics, and SFMTA RPP issuance – 902 spaces at noon (peak) / 3,670 = 25% |
| Off-campus spaces used by USF | 902 | total off-campus parking spaces * % used by USF |
| Off-campus spaces not used by USF | 2,180 | total off-campus spaces * peak occupancy - spaces used by USF |
| Peak parking rate of faculty, staff, and students | 0.08 | off-campus spaces used by USF / campus population |
| Projected peak occupied off-campus spaces | 995 | peak parking rate per USF * projected population |
| Spaces to be removed on Masonic | 153 | Masonic Avenue Streetscape Plan |
| Spaces to be removed from traffic calming | 20 | Traffic Calming Study |
| Future total off-campus parking spaces | 3,496 | total off-campus spaces - Masonic - Traffic Calming |
| Future allowable off-campus peak occupancy | 87% | estimated allowable peak parking occupancy rate |
| Future available parking spaces | 3,052 | future total off-campus spaces * allowable peak rate |
| Future available parking spaces to USF | 872 | future available spaces - spaces not used by USF |
| Projected off-campus parking deficit | 123 | project peak spaces by USF - future available spaces to USF |
| **Total** | | |
| Projected Total Parking Deficit | 232 | projected on-campus + off-campus parking deficit |
| % of USF currently driving to campus at peak | 14.3% | sum(peak occupied on-campus spaces + peak occupied off-campus spaces)/campus population |
| Projected # of driving to campus | 1,722 | % of USF driving to campus at peak * projected population |
| Projected necessary % demand reduction | 13% | projected parking deficit / project # of USF faculty, staff, and students driving to campus |

Source: Fehr & Peers, 2011

TDM Goals

The purpose and goals of the TDM plan is to reduce USF community generated vehicle trips from traveling to and from campus. By extension the plan would improve pedestrian safety, reduce vehicle emissions, and improve neighborhood quality of life. Based on the parking analysis and overarching goals of the Master Plan, the goals of the TDM plan are:

- Reduce future parking demand by 13% by 2022
- Identify strategies to operate the TDM program on a cost-neutral basis
- Meet the needs of the University while fulfilling the City of San Francisco's requirements and minimizing impact to the surrounding neighborhood
- Implement a continuous monitoring system to track progress of the TDM measures and adjust the program as necessary every two years to achieve the required parking demand reduction

The University has identified fourteen strategies to augment the campus TDM program currently in place. These TDM strategies reflect:

- Needed trip reductions to match parking availability with campus growth
- Empirical literature on TDM efficacy
- Campus user survey responses regarding interest/feasibility of candidate strategies

Based on the target peak hour parking demand reduction of 13% the strategies in **Table 1.3** and discussed further below have been recommended for implementation to expand the current campus TDM Program.

**TABLE 1.3: TDM PROGRAM**

| Category | Strategy | % Peak Parking Demand Reduction Estimate |
|---|---|---|
| Shuttle/Transit | Shuttle System | 4 – 6% |
| | Transit Subsidy (beyond Muni FastPass) for Students | 3 – 4% |
| | Increase Prices of On Campus Parking Permits (to help fund shuttle system) | 1 – 2% |
| | Comprehensive Marketing Efforts | 1 – 2% |
| Parking | On Street Time Restrictions | Less than 1% |
| | Expanded Preferential Parking Spaces for Carpools | Less than 1% |
| Other | Bicycle Sharing | Less than 1% |
| | Additional Bicycle Racks | Less than 1% |
| | Secure and Covered Bicycle Cages or Lockers | Less than 1% |
| | Discounts with Local Bicycle Shops | Less than 1% |
| | Enhanced Transportation Website | Less than 1% |
| | Commute Buddy Program | Less than 1% |
| | Expand Zipcar and City Car Share | Less than 1% |
| | Expand Ridesharing Program | 1 – 2% |
| | **Total Estimated Peak Parking Demand Reduction** | **10 – 15%** |

Fehr & Peers, 2011.

TDM Enhancements

**Shuttle System:** If supported by further analysis, USF may choose to implement a shuttle system to offer first/last mile connections from BART, Caltrain, and potentially other locations within SF with high demand for shuttle service. Implementing the following additional strategies will support the success of the shuttle program:

- Offer a "NextShuttle" app for smart phones that allows students/faculty to monitor shuttle routes.
- Conduct consistent outreach to ensure the USF community is aware of and utilize this service
- Conduct periodic monitoring to ensure the shuttle routes, service times, and headways are most efficient for the community.

**Transit Subsidy (beyond Muni FastPass) for Students:** If supported by further analysis, USF may expand the general transit subsidy program (which is currently available only to faculty/staff) to cover students. The University will consider the impact of extending the flexible subsidy to students (who currently are only provided a Muni Fast Pass) for use with Bay Area Rapid Transit (BART), Caltrain, Golden Gate Transit, or other transit systems.

**Increase Prices of On Campus Parking Permits (to help fund shuttle system):** In December 2011, the University established a campus task force to begin an analysis of parking policies and procedures. Included in this process will be the analysis of increasing the price for all types of permits (including 2 and 3 person carpools). Resulting funds could help offset costs of the shuttle system or transit subsidy.

**Comprehensive Marketing Efforts:** The University recognizes that marketing and information sharing is critical to the success of TDM strategies. The University will provide information sharing and marketing to promote commute trip reduction strategies including informational material and events. This may include: fairs, pamphlets, working with departments and student groups, holding drawings, participating in bike-to-work days, clean air days, and other marketing efforts.

**Expanded Preferential Parking Spaces for Carpools:** The University may provide additional carpool parking spaces at major parking lots around campus. After 10AM carpool spaces will be opened to general use to ensure efficient use of spaces.

**Expanded Preferential Parking Spaces for Carpools:** Provide additional carpool parking spaces at major parking lots around campus. After 10AM carpool spaces would be opened to general use to ensure efficient use of spaces.

**Bicycle Sharing:** The University may seek to implement a bicycle sharing program, including investigating the City's interest in USF hosting a pilot program. The initial concept under consideration is to allow the USF community access to free or inexpensive bicycles to use for mid-day trips to and from campus or to other campus locations. If bicycle demand to and from major transit hubs is reasonably high, the program could have designated pods off-campus.

**Additional Bicycle Racks:** The University will increase the capacity and convenience of bicycle racks including in the vicinity of the Koret Center. Additional bicycle racks will be provided in areas with high demand.

**Secure and Covered Bicycle Cages or Lockers:** USF will investigate the potential for indoor bicycle cages or similar secure, covered storage.

**Discounts with Local Bicycle Shops:** The University will support student and faculty efforts to establish discounted bicycle rental rates (hourly, daily, and by the semester) at local bicycle shops. Discounts on bike purchases and maintenance may also be offered.

**Enhanced Transportation Website:** The University's existing transportation website will include information and/or links to transit agencies, walking maps, bicycle maps, commute trip planners, bike parking maps, videos or demos on safe bicycling, advocacy groups, and other useful commute information. The website enhancements would include:

- Indicating carpool spaces on the campus parking map
- Consolidating the various transportation and parking websites to one location
- Featuring discounted carpool permit information
- Promoting the telecommuting/flex hours option for employees
- Promoting the free Muni pass for students
- Providing cyclists information on existing bicycle resources, maps, routes, and a link to the USF web portal: USFpedals

**Commute Buddy Program:** The University may implement a Commute Buddy program to match experienced transit and bike commuters with new alternative transportation commuters. Experienced commuters would volunteer time to assist new commuters in planning their transit and bicycle routes, how to make connections, tips on parking, suggestions on bicycle gear, and guidance on reading transit schedules.

**Expand Presence of Zipcar and City Car Share:** The University will analyze the potential to provide additional car share vehicles at various locations throughout campus. The University currently has located Zipcar spots at the Loyola lot and on the upper deck of the Koret lot to encourage ride-sharing and help decrease the reliance on automobile among Koret patrons.

**Expand Ridesharing Program:** The University will make efforts toward expanding the current ridesharing program (Zimride) to include other universities in San Francisco.

## TDM Implementation

To further develop the TDM Program, several next steps are needed to ensure proper implementation of a TDM program that meets the needs of the USF community and the goals of the IMP. These steps are outlined below:

- **Analysis of Program Elements.** Conduct a detailed analysis of the TDM Program elements described above. This will include analysis and determination of the following items:
  - Shuttle route and shuttle stop locations
  - Optimal shuttle route frequencies and periods of operation
  - Implementation plan for transit subsidy expansion
  - Pricing plan for parking permits
  - Locations for bicycle racks and lockers
  - Identification of marketing efforts
  - Other items to fine tune each TDM program element
- **Funding and Implementation Plan.** Conduct a cost analysis and funding plan for the TDM program. For each TDM strategy, identify potential funding sources, determine the implementation lead, and create a timeline for implementation.
- **On-Campus Parking Usage Optimization**. The supply and demand analysis presented in this TDM Program assumes that on campus parking can be better allocated via pass and lot assignments. Campus parking is currently used sub-optimally, with select lots oversubscribed while others have significant vacancies even at peak times. If this cannot be reconciled efficiently, more stringent TDM measures may be required.
- **On-Campus Transportation Coordinator and Website.** USF will consider designating an individual to monitor the TDM plan effectiveness, provide information regarding available transportation alternatives through a website, and coordinate with City agencies.
- **Monitoring of Transportation Demand**. The University will monitor transportation measures and programs on an annual basis to determine the success of the programs and to make decisions about the allocation of resources or changes in the services that may be needed to better address the needs of the University. The monitoring program will determine the success of the TDM Program by tracking key metrics and comparing to the existing conditions as documented in this study. These metrics include: (1) Drive-alone rates; (2) Parking occupancy; and (3) Transit ridership

## 1.3 REPORT ORGANIZATION

The remainder of this report is divided into the following chapters:

**Chapter 2 – Existing Conditions** describes the operating conditions of the existing transportation network in the project vicinity, including the surrounding roadway network, weekday AM and PM peak hour traffic volumes, and intersection operations at 16 study intersections. Additionally, this section describes the public transit network, bicycle facilities, pedestrian facilities, existing loading operations, and emergency service activity and access.

**Chapter 3 – Travel Demand Analysis** includes the IMP's trip generation, trip distribution, mode split, and trip assignment forecasts, as well as parking demand.

**Chapter 4 – Transportation Impact Analysis** describes the anticipated operating conditions of the transportation network with and without the IMP. Chapter 4 discusses the transportation network under the following six scenarios:

> **Existing Plus Project Conditions** describes the anticipated operating conditions of the transportation network with the addition of the IMP projects to accommodate USF-projected growth over the ten-year period. Operations of the transportation network after the addition of the travel demand from the project are described, including the project's impacts on study intersections, parking, loading, transit, bicycle, emergency vehicle and pedestrian facilities. Potential impacts of the project construction on the transportation network are also discussed.
>
> **Baseline No Project Conditions** describes the anticipated operating conditions of the transportation network in Year 2012, including the expected growth between existing conditions and 2012 assuming no new development at the Campus site. Vehicle operations at each of the study intersections are described for Baseline Conditions. Transit operations are also analyzed.
>
> **Baseline Plus Project Conditions** describes the anticipated operating conditions of the transportation network under Baseline Conditions assuming full operation of the Master Plan projects to accommodate USF-projected growth over the ten-year IMP planning period. Operations of the transportation network after the addition of the travel demand from the project are described, including the project's impacts on study intersections, parking, loading, transit, bicycle, emergency vehicle and pedestrian facilities. Potential impacts of the project construction on the transportation network are also discussed.
>
> **Year 2022 Cumulative No Project Conditions** describes the anticipated operating conditions of the transportation network in Year 2022 including the expected growth between existing conditions and 2022, assuming no development at USF. Vehicle operations at each of the study intersections are described for 2022 Cumulative Conditions. Transit operations are also analyzed.
>
> **Year 2022 Cumulative Plus Project Conditions** describes the anticipated operating conditions of the transportation network in Year 2022 Cumulative Conditions assuming full buildout and operation of the ten-year Master Plan projects. Operations of the transportation network after the addition of the travel demand from the project are described, including the project's impacts on study intersections, parking, loading, transit, bicycle, emergency vehicle and pedestrian facilities.
>
> **Year 2035 Cumulative No Project Conditions** describes the anticipated operating conditions of the transportation network in Year 2035, per City requirements, including the expected growth between existing conditions and 2035, assuming no development at USF. Vehicle operations at

each of the study intersections are described for 2035 Cumulative Conditions. Transit operations are also analyzed.

**Year 2035 Cumulative Plus Project Conditions** describes the anticipated operating conditions of the transportation network in Year 2035 Cumulative Conditions assuming full buildout and operation of the ten-year Master Plan projects. No further development beyond the ten-year Master Plan projects is assumed to occur by year 2035. Operations of the transportation network after the addition of the travel demand from the project are described, including the project's impacts on study intersections, parking, loading, transit, bicycle, emergency vehicle and pedestrian facilities.

**Chapter 5 – Transportation Mitigation and Improvement Measures** describes the proposed mitigation measures identified to reduce potentially significant transportation impacts created by the IMP, if applicable. In addition, improvement measures are provided in cases where project impacts are less-than-significant, but measures to improve circulation or project access may be beneficial.

**Chapter 6 – Parking Conditions** describes the results of a survey of existing supply and occupancy of on-street and off-street parking facilities. Existing on- and off-street parking conditions were examined in the parking study area. Existing and forecasted parking demand was calculated based on information provided by the University, survey responses, and observations from the parking survey.

[This page intentionally left blank.]

# CHAPTER 2. EXISTING CONDITIONS

The existing transportation and circulation conditions within the vicinity of the University of San Francisco can be described in terms of the existing roadway network, transit network and service, pedestrian conditions, bicycle conditions, parking supply and occupancy, and Transportation Demand Management measures currently in place.

## 2.1 PROJECT SETTING

The IMP for the USF Hilltop Campus is a multi-phased strategy for the development of the USF Hilltop campus over the next ten years. Although USF would accommodate new growth in other properties around San Francisco, growth would occur at the existing "main" Hilltop Campus at less than one percent per year. The Hilltop Campus is located in the north-central portion of San Francisco and is bounded generally by Anza Street to the north, Masonic Avenue to the east, Fulton Street to the south, and Stanyan Street to the west. The Hilltop Campus includes USF's Lone Mountain and Lower Campuses. The location of the Campus is shown on **Figure 1.1**.

### *2.1.1 Previous Studies*

USF submitted its last IMP in 2004 and followed it with several updates, including the most recent in June 2010. In addition to serving the needs of the University in planning for orderly development and change on the campus, the plan also satisfies Section 304.5(b) of the San Francisco Planning Code, which requires educational institutions to prepare and file with the San Francisco Planning Department an IMP every ten years, with updates every two years. The purpose of the IMP is to inform City officials and the public of an institution's future plans and the impacts of those plans. The University is not required by the City of San Francisco to complete another IMP until 2014; however, in an agreement with the University Terrace Association, the University consented to submit an IMP by 2012.

Based on a survey conducted of USF faculty, staff and students, nearly 70 percent of the USF community currently arrives to campus on foot, bicycle, skateboard, public transit or carpool. This represents a substantial decline in drive-alone rate from the 2004 IMP. While only a quarter (26%) of students typically drive to campus, just over half (52%) of faculty/staff typically drive alone.

## 2.2 VEHICULAR ACCESS

This section describes the local and regional roadway system in the vicinity of USF. Roadway classifications are defined according to the Transportation Element of the *San Francisco General Plan*. Local access roadway descriptions also indicate the corresponding roadway designation and direction, number of travel lanes, and number of parking or bicycle lanes, where present.

### *2.2.1 Regional Access*

**Highway 101 (US 101)** provides regional access to the site from the north and south. US-101 serves San Francisco and the Peninsula, the South Bay, and extends north via the Golden Gate Bridge to the North Bay. To the south, I-80 merges with US 101, connecting San Francisco to the East Bay via the San Francisco-Oakland Bay Bridge. I-80 provides primary access to the East Bay communities of Oakland and Berkeley, as well as to other major freeways in the East Bay (I-580 and I-880). After crossing the Golden Gate Bridge, drivers from the north would likely merge onto State Route 1 (SR 1) or turn onto Divisadero Street to access USF. Drivers from the south would likely use the Central Freeway off-ramp at Octavia Boulevard to travel to the Hilltop Campus.

**State Route Highway 1 (SR 1)** provides regional access from the Peninsula and South Bay to Marin County and the North Bay. Junipero Serra Boulevard, 19th Avenue and Park Presidio Boulevard are designated as SR 1 between I-280 and US 101. Drivers from SR 1 would most likely use Fulton Street or Turk Boulevard (via Balboa Avenue) to access to USF.

### *2.2.2 Local Access*

Local access to USF is provided by the following roadways:

**Masonic Avenue** is a north-south arterial with three lanes in each direction**.** As one of the flattest north-south routes in the area, it is attractive to bicyclists and pedestrians. Masonic Avenue is one of the only through streets that run north-south between Geary Boulevard and Fell Street in this part of San Francisco.

**Geary Boulevard** is an east-west arterial that runs one block north of the Campus. Geary Boulevard has three lanes in each direction and is designated as a Transit Important Street (Primary Transit Street) and a Neighborhood Pedestrian Street (neighborhood commercial street).

**Turk Boulevard** is an east-west arterial with two westbound traffic lanes, one eastbound traffic lane, discontinuous bicycle lanes and on-street parking. West of Arguello Boulevard, Turk Boulevard becomes Balboa Street through the Richmond District.

**Fulton Street** is an east-west arterial that runs from the Great Highway to Franklin Street. Near USF it has two lanes and on-street parking in each direction. The roadway is designated as a Secondary Transit Street.

**Stanyan Street** is a north-south arterial that has one lane in each direction with on-street parking on both sides. Stanyan Street connects neighborhoods south of Golden Gate Park to Geary Boulevard. Aside from Masonic Avenue, Stanyan is the only street in the area providing vehicle access both north of Geary Boulevard and south of Fell Street.

Local streets that provide direct access from these arterials to USF include Parker Avenue, Anza Street, O'Farrell Street and Golden Gate Avenue. These streets are generally one lane in each direction with on-street parking.

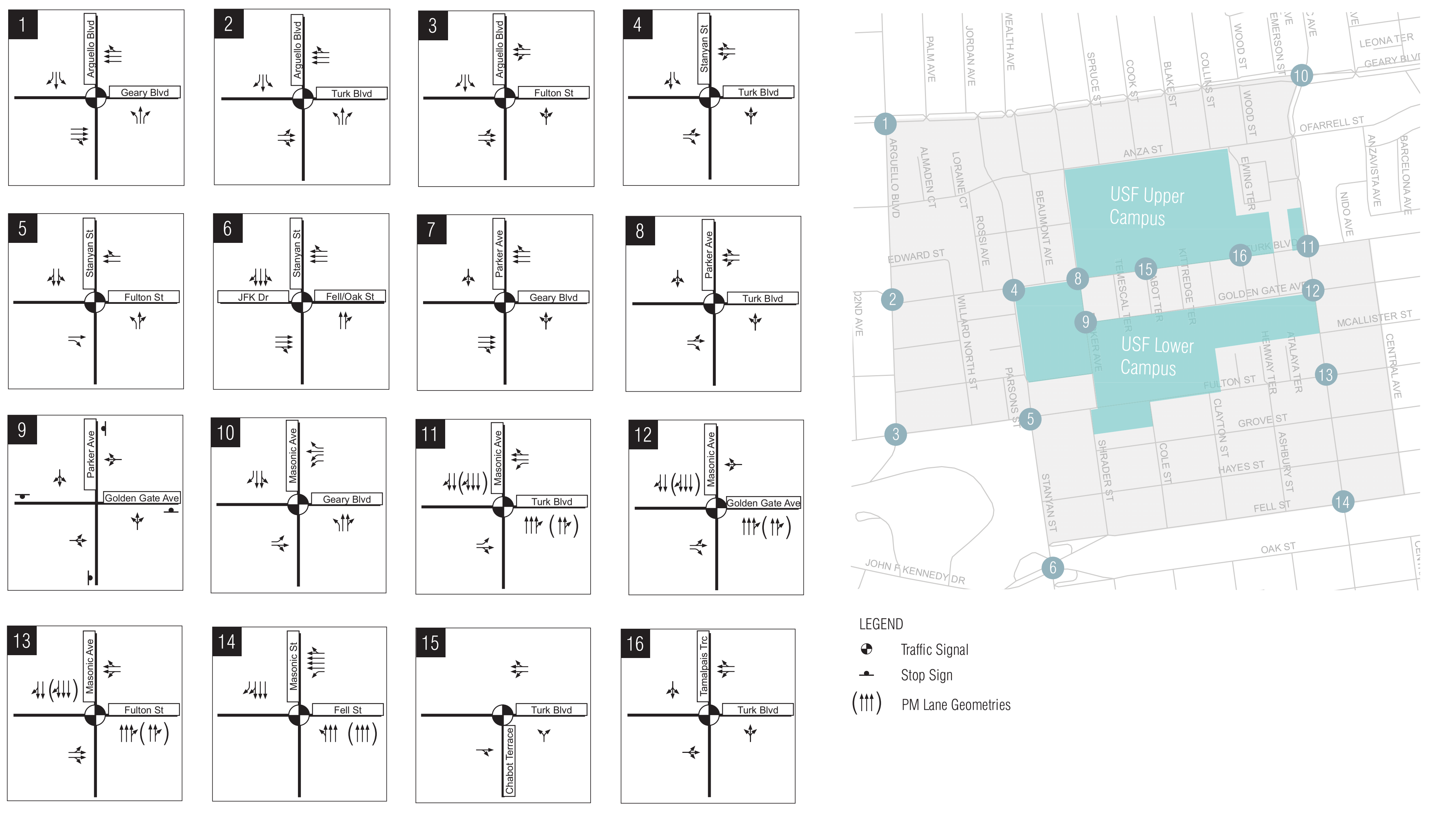
### *2.2.3 Intersection Operating Conditions*

Weekday peak hour intersection turning movement counts were compiled from AM and PM peak period data (7:00 to 9:00 AM and 4:00 to 6:00 PM) for the 16 study intersections. Existing lane configurations and traffic controls are shown on **Figure 2.1**. Traffic counts were conducted at each study intersection in 2011 and are shown in **Figure 2.2**.

1. 1. Arguello Boulevard / Geary Boulevard
2. 2. Arguello Boulevard / Turk Boulevard
3. 3. Arguello Boulevard / Fulton Street
4. 4. Stanyan Street / Turk Boulevard
5. 5. Stanyan Street / Fulton Street
6. 6. Stanyan Street / John F Kennedy Drive
7. 7. Parker Street / Geary Boulevard
8. 9. Parker Street / Golden Gate Avenue
9. 10. Masonic Avenue / Geary Boulevard
10. 11. Masonic Avenue / Turk Boulevard
11. 12. Masonic Avenue / Golden Gate Avenue
12. 13. Masonic Avenue / Fulton Street
13. 14. Masonic Avenue / Fell Street
14. 15. Turk Boulevard / Chabot Terrace
15. 16. Turk Boulevard / Tamalpais Terrace

Vehicle operations at intersections are typically described in terms of “Level of Service” (LOS).[2] LOS was calculated at each study intersection for the weekday AM and PM peak hour (see **Appendix C** for detailed level of service calculations). **Table 2.1** presents the resulting LOS and corresponding delay at each study intersection. Detailed LOS calculations are presented in **Appendix C** for existing weekday PM peak hour conditions.

[2] The study intersections were analyzed using the 2000 *Highway Capacity Manual* (HCM) methodology. LOS is a qualitative measure of the effect of several factors on traffic operating conditions including speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort, and convenience. Transportation planners and engineers generally measure LOS quantitatively in terms of vehicular delay and describe LOS using a scale that ranges from LOS A, which indicate free flow or excellent conditions with short delays, to LOS F, which indicates congested or overloaded conditions with long delays. LOS A through LOS D is considered excellent to satisfactory operating conditions, and LOS E represents “at-capacity”/undesirable operations. When traffic volumes exceed capacity, stop-and-go conditions result, and operations are designated as LOS F. In San Francisco, intersection LOS E and LOS F are considered unacceptable. **Appendix B** present definitions for signalized and unsignalized intersection level of service, respectively.



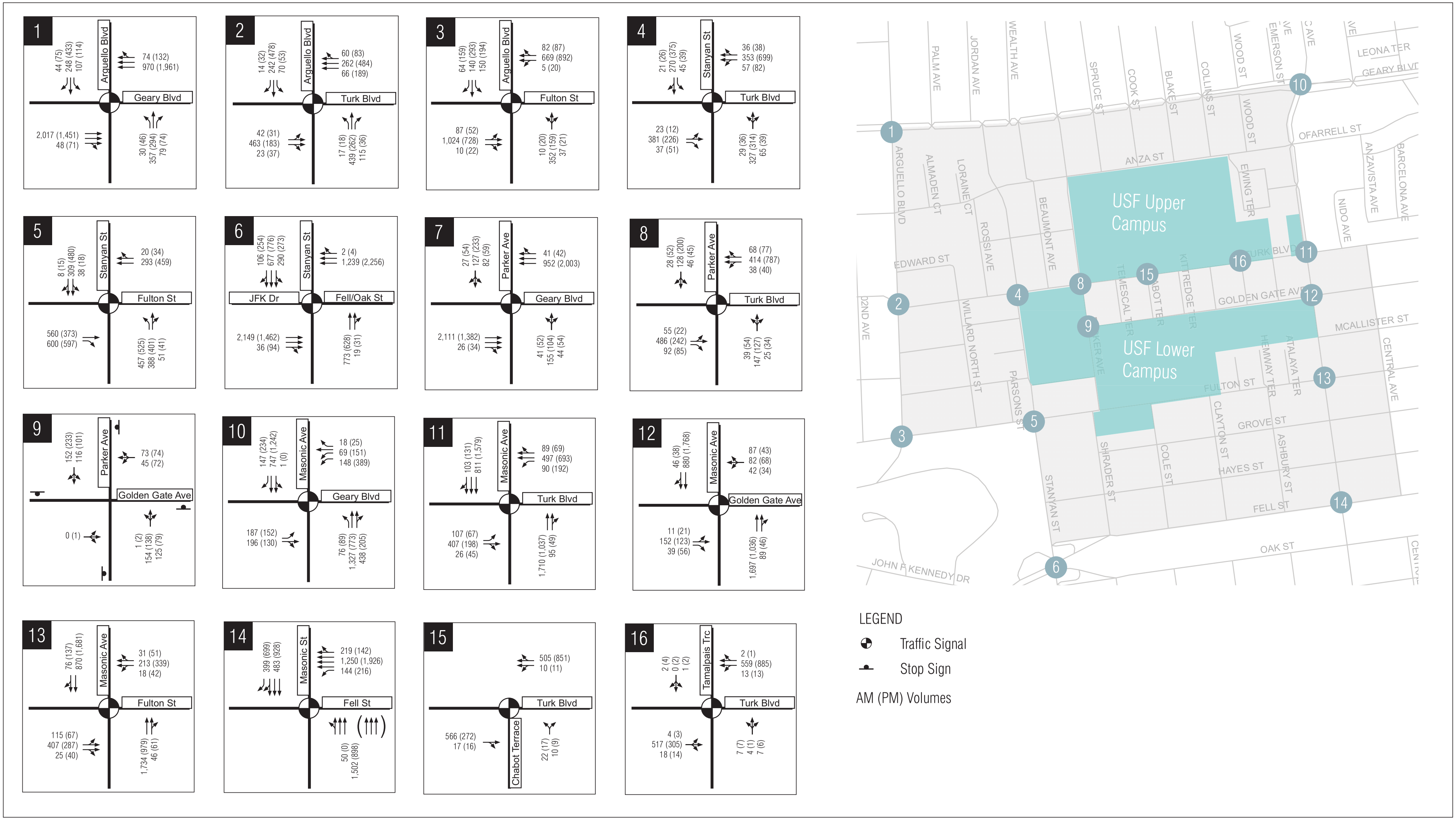

USF

Existing Intersection Lane Configurations and Controls

FIGURE 2.1

FEHR & PEERS

2011 Projects\SF11-0547 USF IMP\Graphics\Impact Analysis




USF

FEHR & PEERS

2011 Projects\SF11-0547 USF IMP\Graphics\Impact Analysis

Existing Conditions Peak Hour Turning Movement Volumes

FIGURE 2.2

| TABLE 2.1: INTERSECTION LEVEL OF SERVICE – EXISTING CONDITIONS | | | | | |
|---|---|---|---|---|---|
| **Intersection** | **Traffic Control**[1] | **Peak Hour** | **Delay**[2] | **LOS** | **V/C Ratio** |
| 1. Arguello Boulevard / Geary Boulevard | Signal | AM<br>PM | 19<br>20 | B<br>B | |
| 2. Arguello Boulevard / Turk Boulevard | Signal | AM<br>PM | 13<br>10 | B<br>B | |
| 3. Arguello Boulevard / Fulton Street | Signal | AM<br>PM | 18<br>15 | B<br>B | |
| 4. Stanyan Street / Turk Boulevard | Signal | AM<br>PM | 16<br>12 | B<br>B | |
| 5. Stanyan Street / Fulton Street | Signal | AM<br>PM | 46<br>**61** | D<br>**E** | --<br>**0.90** |
| 6. Stanyan Street / John F Kennedy Drive | Signal | AM<br>PM | **> 80**<br>**73** | **F**<br>**E** | **1.49**<br>**1.23** |
| 7. Parker Street / Geary Boulevard | Signal | AM<br>PM | 16<br>16 | B<br>B | |
| 8. Parker Street / Turk Boulevard | Signal | AM<br>PM | 14<br>15 | B<br>B | |
| 9. Parker Street / Golden Gate Avenue | AWS | AM<br>PM | 12 (SB)<br>12 (SB) | B<br>B | |
| 10. Masonic Avenue / Geary Boulevard | Signal | AM<br>PM | **> 80**<br>**> 80** | **F**<br>**F** | **1.19**<br>**1.00** |
| 11. Masonic Avenue / Turk Boulevard | Signal | AM<br>PM | 17<br>21 | B<br>C | |
| 12. Masonic Avenue / Golden Gate Avenue | Signal | AM<br>PM | < 10<br>< 10 | A<br>A | |
| 13. Masonic Avenue / Fulton Street | Signal | AM<br>PM | 16<br>12 | B<br>B | |
| 14. Masonic Avenue / Fell Street | Signal | AM<br>PM | 20<br>24 | C<br>C | |
| 15. Turk Boulevard / Chabot Terrace | Signal | AM<br>PM | < 10<br>< 10 | A<br>A | |
| 16. Turk Boulevard / Tamalpais Terrace | Signal | AM<br>PM | < 10<br>11 | A<br>B | |

Notes: **Bold** = unacceptable operations
1. AWS = All-Way Stop-Controlled intersection;
2. Average Delay shown as seconds per vehicle.

Source: Fehr & Peers, 2011

## 2.3 TRANSIT NETWORK

Primary public transit access to the Campus is provided by San Francisco Municipal Railway (Muni) bus service. The North Bay, East Bay, Peninsula and South Bay are public transit accessible via connections to Golden Gate Transit, Bay Area Rapid Transit (BART), Alameda-Contra Costa Transit (AC Transit) and ferries, Caltrain and/or SamTrans. **Figure 2.3** presents the Muni routes in the vicinity of the project site. This section presents Muni service near the project site first, followed by a discussion of regional transit providers that operate within San Francisco.

### *2.3.1 Local Transit*

Primary public transit access to the USF site is provided by San Francisco Municipal Railway (Muni) bus service. Generally a reasonable walking distance for transit access is approximately ½ mile.

**43 Masonic** – This north-south bus route connects the Marina District to Excelsior via the Presidio and Haight. Buses run every 10 minutes during the AM peak and every 10 minutes during the PM peak. The 43 Masonic has stops at Fulton, Golden Gate, and Turk.

**33 Stanyan** – This north-south bus route operates between the Presidio Heights/Laurel Heights and Mission District via the Haight and the Castro. Buses run every 15 minutes in the AM peak and every 15 minutes in the PM peak. The nearest stop to the campus is located on Fulton Street at Stanyan Street.

**31 Balboa** – This east-west bus service runs between the Inner Richmond and Financial District via Balboa and Turk Boulevards. Buses run every 7 minutes in the AM peak and PM peak periods. The 31 Balboa stops on Turk Boulevard at Parker, Chabot, Roselyn Terrace, and Masonic.

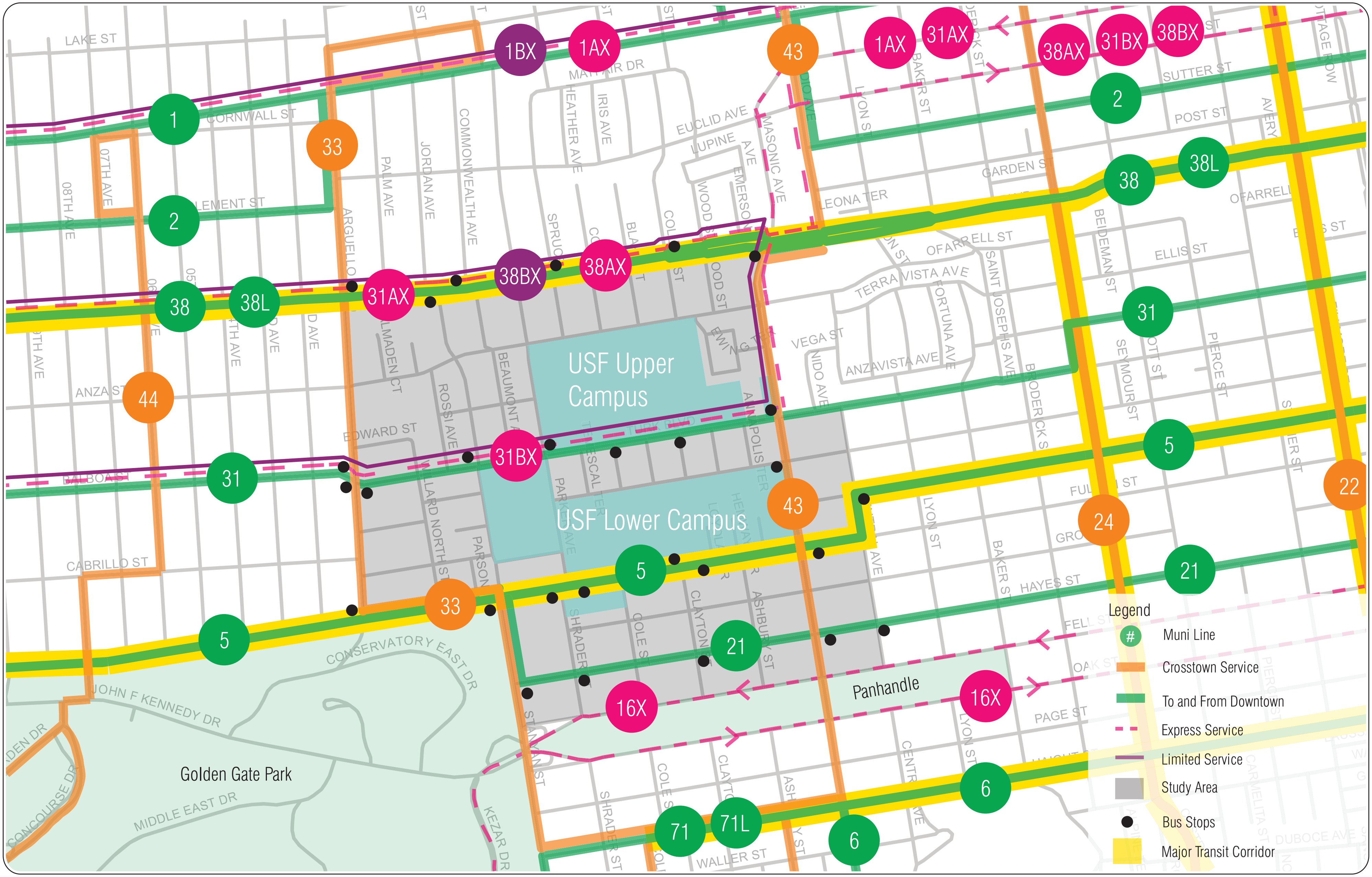
**31BX Balboa Express** – This east-west, weekday-only, express bus service operates between Downtown and the Inner Richmond via Balboa Street. In the morning, buses run inbound between Balboa Street/12$^{th}$ Avenue and Presidio Avenue/Geary Street before expressing to the Financial District (i.e. no stops until Montgomery Street). In the evening, buses run outbound with an initial stop in the Financial District (Pine Street/Davis Street) before expressing to the Richmond (i.e. no stops until Presidio Avenue/Geary Street, the line stops at Balboa Street/12$^{th}$ Avenue). Buses run every 10 minutes in the AM peak (inbound only) and every 15 minutes in the PM peak (outbound only). This bus stops at Masonic and Turk.

**21 Hayes** – This east-west bus service runs between the Inner Richmond and Financial District via Hayes Street. Buses run every 7 minutes in the AM peak and PM peak periods. The nearest stop to the Campus is located on Fulton Street at Shrader Street.

**38 Geary** – This east-west local route provides bus service between the Richmond District and Downtown primarily via Geary Boulevard, O'Farrell Street, and Market Street. Buses run every eight minutes in the AM peak and every six minutes in the PM peak.

**38L Geary Limited** – This east-west express route provides limited service between the Richmond District and Downtown primarily via Geary Boulevard, O'Farrell Street, and Market Street. Buses run every seven minutes in the AM peak and every five-seven minutes in the PM peak.

**24 Divisadero** – This north-south bus service connects Pacific Heights to Bayview via the Castro and Noe Valley. Buses run every 9 minutes in the AM peak and every 10 minutes in the PM peak.




FEHR PEERS

SF11-0547

Existing Public Transportation Network

Figure 2.3

The San Francisco Municipal Transportation Agency (SFMTA) and City of San Francisco Controller's Office are in the process of implementing the Transit Effectiveness Project (TEP), a review of the City's public transit system with recommendations designed to make Muni service more reliable, quicker and more frequent. The TEP proposals were approved by the SFMTA Board of Directors in October 2008. The TEP is expected to be implemented soon and several selected recommendations were enacted due to budget constraints. The TEP is currently undergoing environmental review. In general, the TEP recommendations would improve Muni transit service near the USF Campus.

### *2.3.2 Regional Transit*

The North Bay, East Bay, Peninsula and South Bay are public transit accessible via connections to Muni. The regional service providers are:

Golden Gate Transit

The Golden Gate Bridge, Highway, and Transportation District operates Golden Gate Transit (GGT) and provides bus and ferry service between the North Bay (Marin and Sonoma counties) and San Francisco. GGT operates 22 commuter bus routes, nine basic bus routes, and 16 ferry feeder bus routes into San Francisco. Basic bus routes operate at regular intervals of 15 to 90 minutes depending on time and day of week. Golden Gate Transit also operates ferry service between the Larkspur and Sausalito in the North Bay and the Ferry Building in San Francisco during the morning and evening commute periods. GGT Route 92 runs on Geary Boulevard near USF, with stops at Arguello Boulevard, Parker Avenue, and Masonic Avenue near the Campus.

Alameda-Contra Costa County Transit District (AC Transit)

AC Transit operates bus service in western Alameda and Contra Costa Counties, as well as routes to the City of San Francisco and San Mateo County. AC Transit operates 27 "Transbay" bus routes between the East Bay and the Transbay Terminal, located at First Street and Mission Street, near many major San Francisco Muni routes either at the terminal or on and near Market Street. Most Transbay service is provided only during commute periods, with headways between buses of approximately 15 to 20 minutes. AC Transit riders would transfer to Muni to access the Hilltop Campus.

San Mateo County Transit District (SamTrans)

SamTrans operates bus and rail service in San Mateo County, with select routes providing transit service outside of the County. SamTrans Routes DX, FX, KX, MX, NX, PX, RX, 292, and 397 serve Downtown San Francisco providing connections to San Mateo County destinations. In general, SamTrans service to downtown San Francisco operates along Mission Street to the Transbay Terminal at First Street and Mission Street. SamTrans riders would need to transfer to Muni to access the Hilltop Campus.

Bay Area Rapid Transit (BART)

BART provides regional commuter rail service between the East Bay (from Pittsburg/Bay Point, Richmond, Dublin/Pleasanton and Fremont) and San Francisco, and between San Mateo County and San Francisco, with operating hours between 4:00 AM and midnight. Within Downtown San Francisco, BART operates underground below Market Street, and proceeds south through the Mission District towards Daly City after Civic Center Station. During the weekday PM peak period, headways are generally 5 to 15 minute for each line. The most easily accessible BART station to the Campus would be Civic Center.

Peninsula Rail Corridor (Caltrain, operated by SamTrans)

Caltrain provides passenger rail service on the Peninsula between Downtown San Francisco and Downtown San Jose with stops at several communities in San Mateo County and Santa Clara County. Limited service is available to communities south of San Jose. Within San Francisco, Caltrain terminates at 4th/King Station in the South of Market neighborhood. Caltrain also has a station at 22nd Street in Potrero Hill. Both stations are accessible via Muni routes from the Campus. Caltrain service headways during the AM and PM peak periods are between 5 and 20 minutes, depending on the type of train (e.g., local, limited, or express "baby bullet").

### 2.3.3 Capacity Utilization by Direction

Transit riders typically have multiple transit options to reach the Campus and will choose their route based on several factors including reliability, headways, type of transit, comfort and convenience. If one transit line becomes overcrowded, transit riders may choose to take a parallel transit line with less crowding, even if it requires a longer walk to the transit stop. For example, some transit riders from the Richmond may prefer to take the 38 Geary, despite living closer to the 31 Balboa, because the 38 Geary has more frequent service. Whereas some transit users may prefer to take the 31 Balboa because the bus stops nearer to the Campus.

For the purposes of this study, the existing Muni lines serving the vicinity of the Campus were grouped into two corridors for which the capacity utilization was determined. These directional screenlines include the northbound, southbound, westbound, and eastbound lines serving the Campus. The Muni lines included in each group are:

- *North/South Lines*: 33 Stanyan, 43 Masonic
- *East/West Lines*: 5 Fulton, 21 Hayes, 31 Balboa, 31BX Balboa B Express, 38/38L Geary

**Table 2.2** presents the ridership, capacity, and capacity utilization at the Maximum Loading point (MLP) for the nearby north/south and east/west Muni lines during the weekday AM and PM peak hours. Both north-south and east-west transit lines typically have MLPs near the downtown. As shown in **Table 2.2**, all of the directional corridors operate with a capacity utilization of lower than 85 percent during both the AM and PM peak hours.

**TABLE 2.2: MUNI TRANSIT UTILIZATION – EXISTING CONDITIONS**

| Corridor Direction | Peak Hourly Ridership[1] | Hourly Capacity | Capacity Utilization |
|---|---|---|---|
| Northbound[2] | 471 (302) | 630 (630) | 75% (48%) |
| Southbound[2] | 193 (348) | 693 (630) | 28% (55%) |
| Eastbound[3] | 2,077 (1,540) | 3,631 (3,361) | 57% (46%) |
| Westbound[3] | 2,039 (2,141) | 3,141 (3,882) | 65% (55%) |

Notes:
1. Data presented as AM (PM)
2. 33 Stanyan, 43 Masonic
3. 5 Fulton, 21 Hayes, 31 Balboa, 31BX Balboa B Express, 38 Geary, 38L Geary Limited

Source: SF Muni 2008; Fehr & Peers, 2011

## 2.4 BICYCLE FACILITIES

Bicycle facilities and amenities consist of bicycle lanes, trails, and paths, as well as bike parking, bike lockers, and showers for cyclists. On-street bicycle facilities are grouped into three categories:

- *Class I* facilities consist of off-street bicycle paths and are generally shared with pedestrians. Class I facilities may be adjacent to an existing roadway, or may be entirely independent of existing vehicular facilities.

- *Class II* facilities consist of striped bicycle lanes on roadways. These facilities reserve a minimum of four to five feet of space for bicycle traffic.

- *Class III* facilities consist of designated and signed bicycle routes where bicyclists share the roadway with vehicles.

The recently adopted *San Francisco 2009 Bike Plan* ("Bike Plan") focuses on specific improvements to bicycle corridors within the City. The bicycle routes as designated by the Bike Plan are shown in **Figure 2.4**. In summary, the following on-street bicycle facilities are located near the USF Campus:

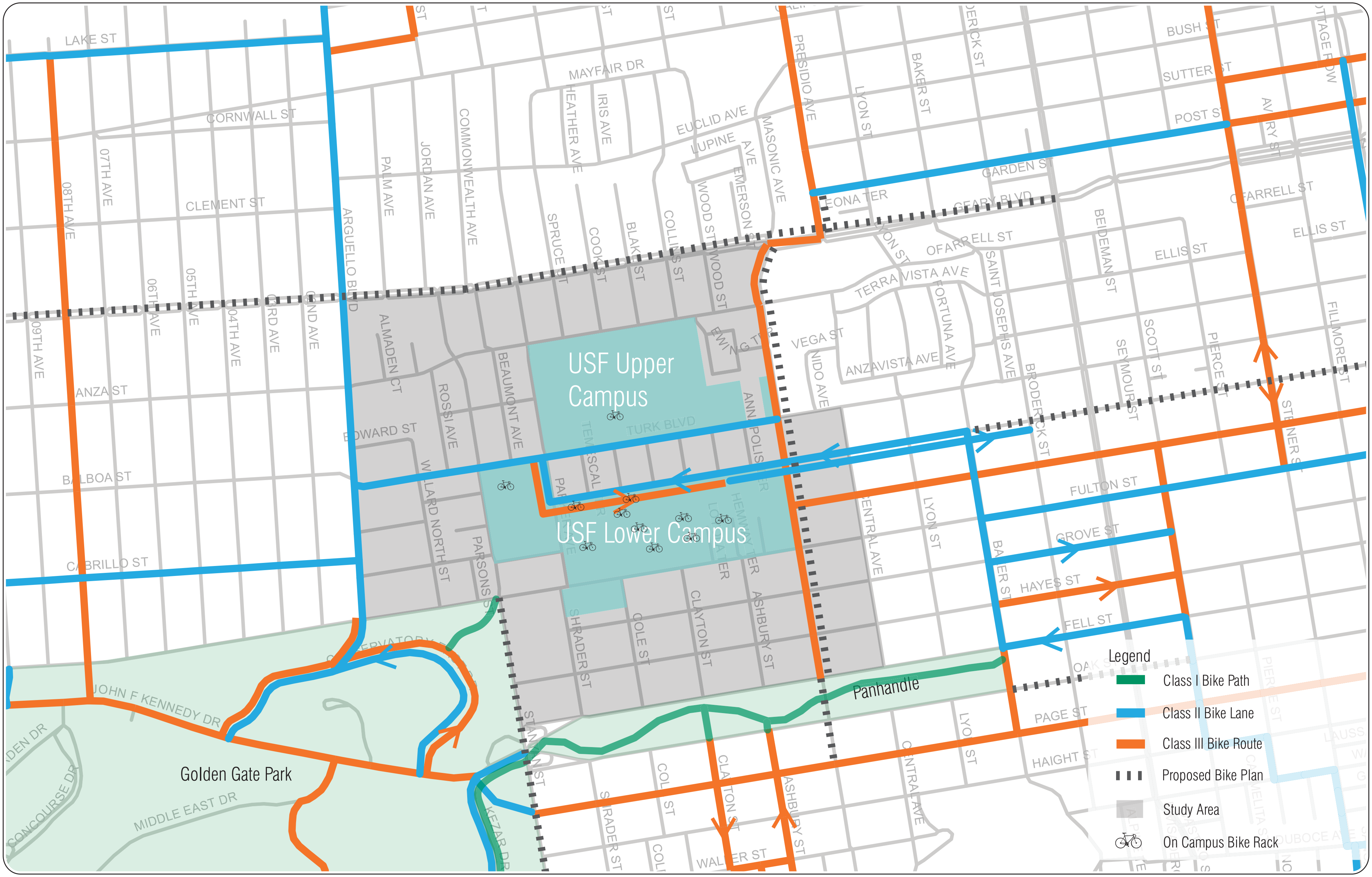
- Turk Boulevard, west of Masonic Avenue, Class II bicycle lanes in both directions;

- Golden Gate Avenue, between Baker Street and Shrader Street, a westbound Class II bicycle lane, between Annapolis Street and Broderick Street, an eastbound Class II bicycle lane, and between Shrader Street and Annapolis Street, a Class III bicycle route (signs and sharrows).

- Other bicycle facilities near the Lone Mountain and Lower Campus include bidirectional Class II bicycle lanes on Arguello Boulevard, a Class III bicycle route on Masonic Avenue, and a Class III bicycle route (signs and Sharrows) on McAllister Street.

The recently adopted Masonic Avenue Street Design study also identified future bicycle network changes along Masonic Avenue. A cycletrack would be added in both the northbound and southbound directions. This improvement would be implemented at the same time of a planned lane reduction and signal retiming of the Masonic corridor.

Bicycle facilities can also include on-site bicycle parking and locker rooms and showers for employees biking to work. The USF currently has 160 on-site bicycle parking spaces located throughout campus at 11 locations for employees and visitors.




Source: SFMTA, Masonic Avenue Street Redesign Study – Final Report, January and SFBike.org

## Existing and Proposed Bicycle Network

Figure 2.4

FEHR & PEERS

SF11-0547

## 2.5 PEDESTRIAN FACILITIES

This section describes the existing pedestrian environment around the campus. Pedestrian facilities include sidewalks, crosswalks, curb ramps, pedestrian call buttons at intersections, and mixed-use pathways. Pedestrian facilities and conditions were quantitatively analyzed.

The streets surrounding the Hilltop Campus generally have 10- to 15-foot sidewalks. All of the study intersections have crosswalks. The intersections of Arguello/Geary, Masonic/Turk and Golden Gate/Turk have high-visibility yellow school crosswalks because of nearby private elementary schools.

There are several uncontrolled crosswalks located across Turk Boulevard and Golden Gate Avenue adjacent to the Campus. The intersections of Turk Boulevard at Temescal Terrace, Kittredge Terrace, and Roselyn Terrace are unsignalized intersections with substantial student pedestrian volumes. Similarly, the intersections of these streets at Golden Gate are unsignalized. Along Fulton Street, there are crosswalks at the signalized intersections at Parker Street and Masonic Avenue. There are uncontrolled, marked crosswalks at Cole, Clayton, and Ashbury Streets.

Pedestrian counts were collected in 2011. During AM and PM, the intersection of Golden Gate Avenue at Parker Avenue had the most pedestrian traffic. The crosswalks at Turk Boulevard and Kittredge Terrace were used by the fewest number of pedestrians. Other intersections in the study area indicate heavy pedestrian use, as expected near a university. During mid-day, the highest number of crossing pedestrians occurs at the Golden Gate Avenue/Chabot Terrace intersection. Compared to the vehicle volumes at this intersection, there are nearly twice as many pedestrians as vehicles. All intersections had nearly twice as many pedestrians crossing during mid-day peak hour as during AM or PM peak hour.

Existing pedestrian access to the campus is shown in **Figure 2.5**. As shown, the existing north-south pedestrian routes on campus are along Chabot Terrace, Roselyn Terrace, and Cole Street. Golden Gate Avenue and Turk Boulevard are the major east-west pedestrian routes.

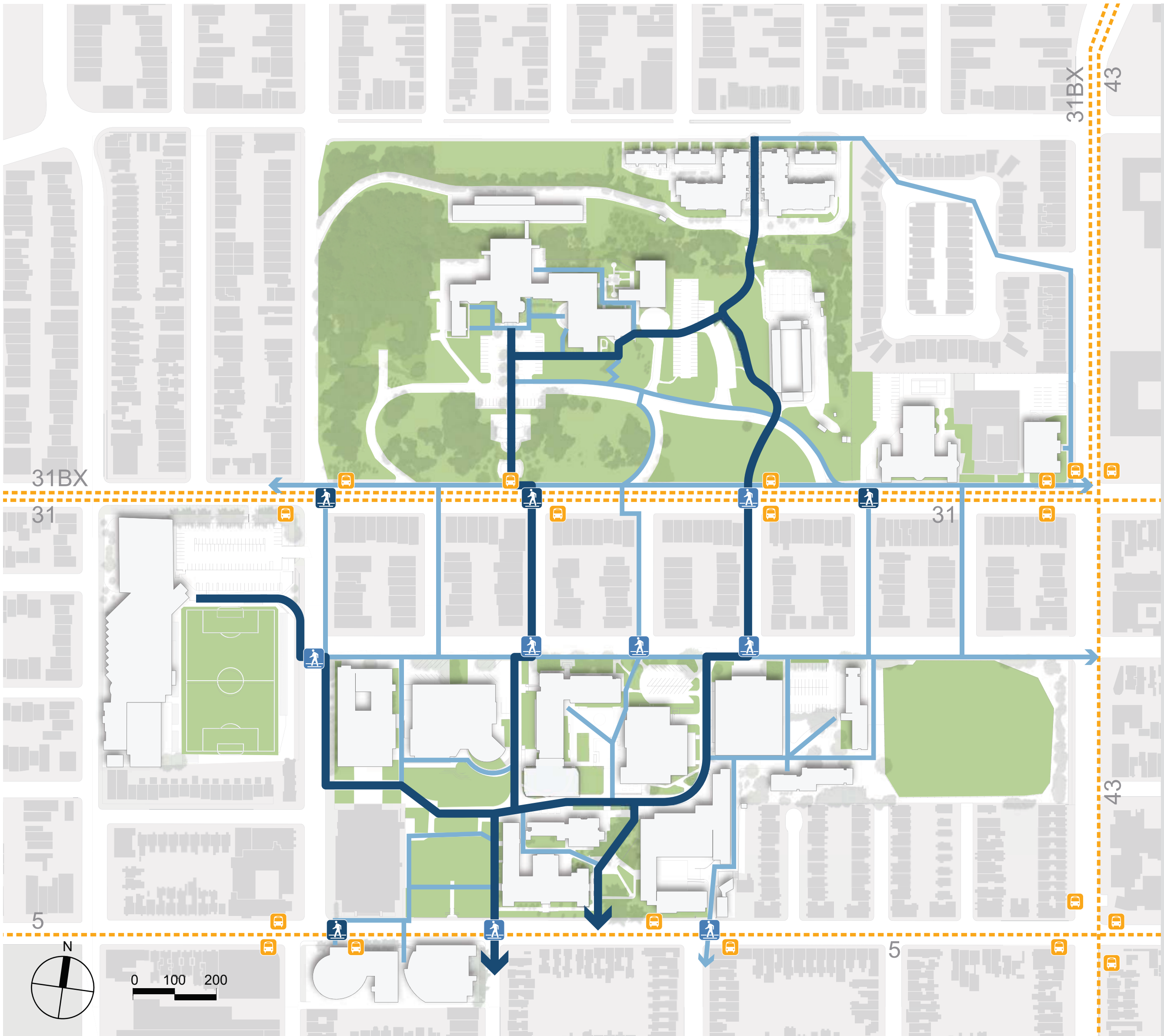



FIGURE 5: EXISTING PEDESTRIAN CIRCULATION

**LEGEND**

- Property Line
- Primary Pedestrian Route
- Secondary Pedestrian Route
- Muni Line
- Muni Stop
- Signaled Crosswalk
- Non-Signaled Crosswalk

Source: Sasaki Associates

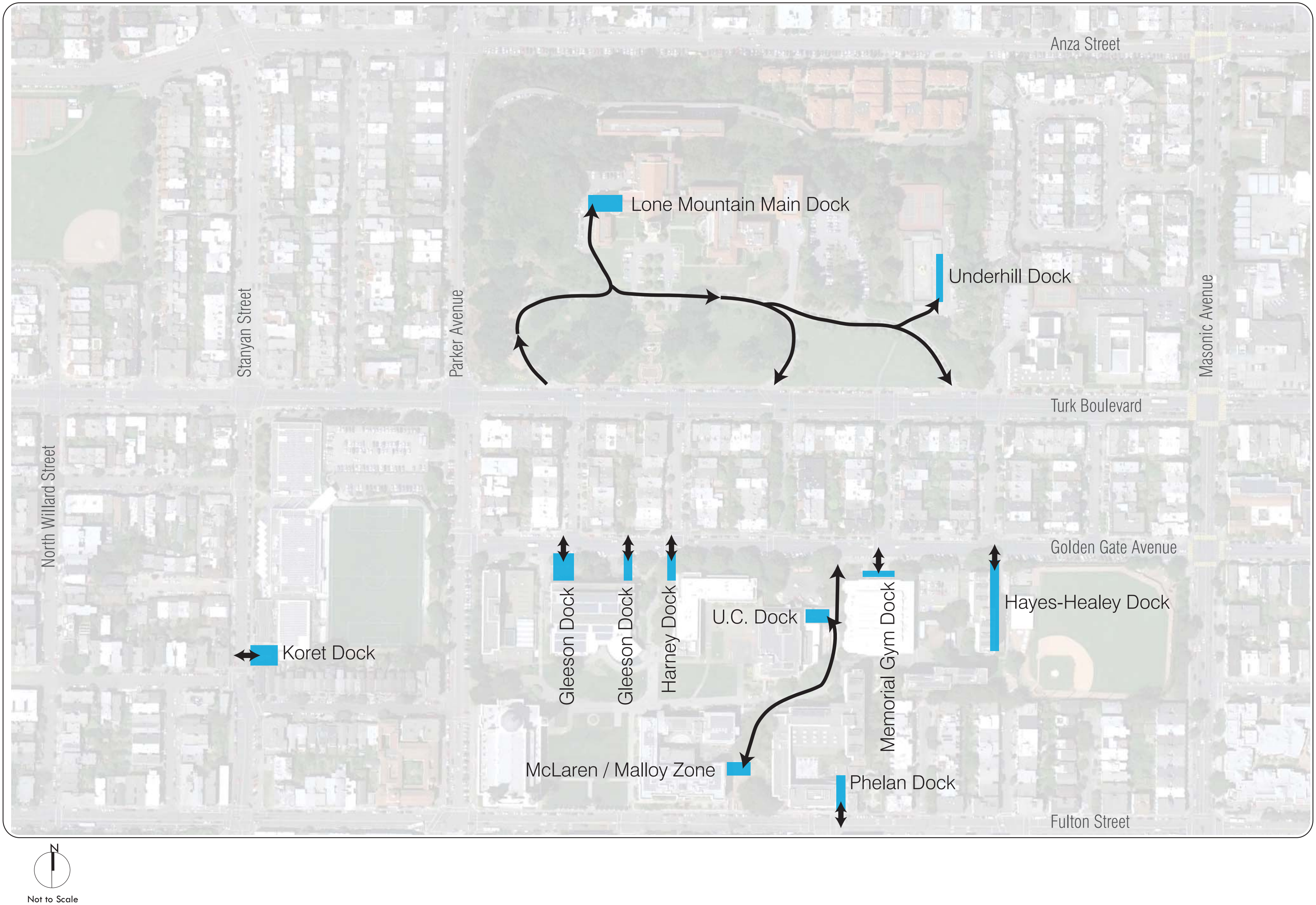
## 2.6 LOADING FACILITIES

There are seven locations where loading occurs on the Hilltop Campus. The loading facilities are shown in **Figure 2.6**. Regular and semi-regular deliveries occur for USF. **Table 2.3** provides a summary of the estimated number of deliveries, by dock, which occur on a regular basis. Double parking occurs on Golden Gate Avenue when loading spaces are occupied. Double parking also occurs on Parker Avenue due to St. Ignatius Church activities. USF has implemented several improvement measures to manage loading issues including creating a Traffic Coordinator position in 2010 to manage campus deliveries and to address disruptions and impacts. The University limits the hours of use of its loading docks to Monday through Friday, 7am to 4pm and Saturday & Sunday 9am to 4pm.

**TABLE 2.3: LOADING DOCK ACTIVITY**

| Dock | Daily | 3 – 4 times / week | < = 2 times / week |
|---|---|---|---|
| UC Dock | 11 | 4 | 12 |
| Phelan Dock | 3 | | |
| Hayes-Healey Dock | 7 | | 3 |
| Harney Dock | | | 2 |
| Gleeson Dock | | | 1 |
| Lone Mountain Main Dock | 1 | 4 | 2 |
| Lone Mountain North Dock | 1 | 1 | |
| McLaren / Malloy | | 2 | |
| Gilson Dock | 2 | | |
| Loyola Village | 2 | | |
| Underhill | 1 | 1 | |
| Koret | | | 2 |
| Memorial Gym | | 2 | 1 |

Source: USF, 2011.




Existing Loading Facilities

Figure 2.6

FEHR & PEERS

SF11-0547

## 2.7 EXISTING TDM PROGRAM

USF has had a transportation demand management program since 1980. Since then USF has made numerous changes and additions to its TDM program. **Table 2.4** provides a summary of USF's existing TDM strategies.

**TABLE 2.4: EXISTING TDM PROGRAM**

| Strategy | Description |
|---|---|
| TDM Coordinator | The USF Manager of Parking and Transportation coordinates the TDM program |
| Rideshare | Social networking based ridesharing service. USF community (faculty, staff and students) who opt into the service can look up rides or offer rides based on specific origin and destination points. |
| Carshare | USF community can sign up for a discounted membership and have access to Zipcars and City Car Share vehicles on Campus |
| Transit Subsidy | The Transit Pass Subsidy Program is available to all full-time faculty and staff that do not have a University parking permit. |
| SF Muni Class Pass | Students receive a sticker to attach to their ID, which provides unlimited free rides on SF Muni. This pass is provided to all students and is funded by a required fee that students pay. |
| Bicycle Facilities | Bicycle racks provided throughout campus. Showers located in the Koret fitness center. |
| Guaranteed Trip Home | The Guaranteed Trip Home Program is available to faculty and staff whom either carpool or take public transit to work. |
| Parking Permits | To park on campus, the USF community must purchase parking permits. |
| Reserved Carpool Parking | Parking spaces on campus are reserved for carpools. |
| ADA Shuttle Service | Shuttle around campus for USF community members with registered physical disability. |
| Night Safety Shuttle Program | Free nighttime shuttle is provided by request to the USF community. |
| Safety Escort Service | Uniformed public safety officers escort service is provided to the USF community by request. |
| Telecommuting and Flexible Working Hours | Employees may apply for flexible work hours and/or telecommuting. |

Fehr & Peers, 2011.

[This page intentionally left blank.]

# CHAPTER 3. TRAVEL DEMAND ANALYSIS

This chapter describes the vehicle, pedestrian, bicycle, and transit travel demand generated by the proposed development. The impact of new traffic associated with the IMP was estimated using a four-step process: (1) trip generation, (2) mode split, (3) trip distribution, and (4) trip assignment.

In the first step, the number of person trips generated by the project was estimated on a daily, AM and PM peak hour basis. Next, the person trips were assigned to different modes of travel. Then, the geographic distribution of the project-related traffic was predicted. Finally, project trips were assigned to specific streets and transit routes along the transportation network, based on the mode split developed in step two. The results of this four-step process are described in the following sections.

## 3.1 TRIP GENERATION

The critical step in evaluating future transportation conditions is identifying the number of new "trips" that would be generated by population growth on the Upper and Lower Campus. The trips included in the analysis are trips coming to campus and leaving campus, not trips that occur between different buildings on the Campus during the day. For example, a student riding his bike to campus in the morning, walking to and from three classes during the day and biking home in the evening would be counted as two daily bicycle trips.

Travel demand characteristics and forecasts for the USF campus are based on the projected number of students and employees, as well as travel survey responses by faculty, staff, and students. Forecasting the net new travel demand involves estimating the number of trips generated by the completion of the planned projects, less trips associated with the existing uses on-site.

### *3.1.1 Trip Generation Sources*

To forecast travel demand for the planned projects, two USF-specific data sources were obtained and processed, as described in the following session.

**USF Population Estimates** – On-campus enrollment estimates of 8,810 in 2012 and 9,635 in 2022 were obtained from the USF IMP and reflect the IMP's projection of limited enrollment growth over the next ten years. Campus population is projected to increase from 10,999 in 2012 to 12,030 in 2022. Population estimates were provided by USF.

**2011 Faculty, Staff, and Student Travel Surveys** – Survey questions included travel mode to campus, arrival and departure times, days per week traveling to campus. This online survey was conducted in April 2011.

### *3.1.2 Person Trip Generation*

Using daily population data for the USF campus, new person trips were developed for each population group. The population groups include the following:

**Students:** USF has a Fall 2011 on-campus enrollment of 8,731 headcount undergraduate and graduate students. Based on a predetermined annual growth factor of 0.9 percent over the ten-year Institutional Master Plan planning period, USF has estimated enrollments of 8,810 in base year 2012 and 9,635 in 2022. According to the online survey results, a USF student is on campus four days per week on average. Hence, based on the assumption that each student generates two person trips on four days per week, 1,320 new person trips by students are expected to be generated by this ten-year enrollment projection.

**Faculty:** According to USF, the number of faculty for the planning period is estimated to increase in proportion to enrollment growth. The number of faculty is therefore expected to increase from an estimate of 1,001 in 2012 to 1,095 in 2022. According to the online survey results, a USF faculty member is on campus an average of four days per week. Based on the assumption that each faculty member generates two person trips on four days per week, 150 new person trips by faculty are expected over the ten-year period.

**Staff:** Like faculty, USF estimates that the number of staff will increase in proportion to enrollment growth over the planning period. The number of staff is therefore expected to increase from an estimate of 1,189 in 2012 to 1,300 in 2022. According to the online survey results, a USF student is on-campus an average of five days per week. With the assumption of five days per week, 222 new person trips by staff are expected.

**TABLE 3.1: PERSON TRIP GENERATION BY POPULATION GROUP**

| Population Group | Population[1] | | Person Trips | | Difference | |
|---|---|---|---|---|---|---|
| | 2012 | 2022 | 2012 | 2022 | Person Trips | Percentage |
| **Daily** | | | | | | |
| Students | 8,810 | 9,635 | 14,096 | 15,416 | 1,320 | 9% |
| Faculty | 1,001 | 1,095 | 1,602 | 1,752 | 150 | 9% |
| Staff | 1,189 | 1,300 | 2,378 | 2,600 | 222 | 9% |
| Total | 10,999 | 12,030 | 18,076 | 19,768 | 1,692 | 9% |
| **AM Peak Hour (Inbound / Outbound)** | | | | | | |
| Students | | | 1,457 / 36 | 1,593 / 39 | 136 / 3 | 9% |
| Faculty | | | 162 / 3 | 177 / 3 | 15 / 0 | 9% |
| Staff | | | 632 / 0 | 690 / 0 | 59 / 0 | 9% |
| Total | | | 2,250 / 39 | 2,461 / 42 | 211 / 4 | 9% |
| **PM Peak Hour (Inbound / Outbound)** | | | | | | |
| Students | | | 316 / 1,098 | 345 / 1,201 | 30 / 103 | 9% |
| Faculty | | | 13 / 127 | 15 / 139 | 1 / 12 | 9% |
| Staff | | | 4 / 649 | 5 / 710 | 0 / 61 | 9% |
| Total | | | 333 / 1,874 | 365 / 2,050 | 31 / 175 | 9% |

Notes:
1. Projections for years 2012 and 2022 were provided by USF in the *USF Institutional Master Plan Summary*.

Source: Fehr & Peers, 2011

**Table 3.1** summarizes the total person trips generated by the IMP on a daily basis and during the AM and PM peak hours. Trip generation for AM and PM peak hours are estimated based on **Table 3.2**, which shows the proportions of daily person trips by population category that arrive (inbound) and depart (outbound) during the AM and PM peak hours. These percentages were derived from the online survey data. Assuming these peak hour arrival and departure rates, the USF Campus would generate about 1,692 new total daily person trips, 215 new total AM peak hour person trips, and 206 new total PM peak hour person trips.

| TABLE 3.2: PEAK HOUR INBOUND/OUTBOUND RATE BY POPULATION GROUP | | | | | | |
|---|---|---|---|---|---|---|
| Peak Hour | Students | | Faculty | | Staff | |
| | Arrival | Departure | Arrival | Departure | Arrival | Departure |
| AM | 21% | 1% | 20% | 0% | 53% | 0% |
| PM | 4% | 16% | 2% | 16% | 0% | 55% |

Notes:
1. Projections for years 2012 and 2022 were provided by USF in the *USF Institutional Master Plan Summary*.

Source: Fehr & Peers, 2011

### 3.2 MODE SPLIT

Mode split is the relative proportioning of project-generated trips to various travel modes. Modes include drive alone, carpooling, transit, and other modes. The percentages for each mode were based on online travel survey data collected by USF. The methodology assumes that the mode split percentages from the survey would be appropriate to represent the daily and AM and PM peak hours. For the purposes of this study, mode shifts between the baseline year conditions and future conditions are not expected. Potential transportation demand strategies could act as disincentives to driving by students, faculty and staff and may contribute to mode shifts under the future conditions, but are not reflected in demand generation of this study.

**Table 3.3** summarizes two sets of mode split percentages used for students and staff. **Table 3.3** also summarizes the person trips by mode for campus under project conditions. Once mode split for the campus is developed, the number of net new external vehicle trips is then calculated. Average vehicle occupancy of two is conservatively assumed to convert person carpool trips into vehicle trips. The IMP is expected to generate 582 new daily vehicles trips, 78 inbound and one outbound vehicle trips during the AM peak hour, and ten inbound and 76 outbound vehicle trips during the PM peak hour.

| TABLE 3.3: EXTERNAL PERSON TRIP GENERATION BY MODE OF TRAVEL AND POPULATION | | | | | | |
|---|---|---|---|---|---|---|
| **Population Group** | **Drive Alone** | **Carpool** | **Transit** | **Walk** | **Other** | **Total** |
| **Mode Split** | | | | | | |
| Students | 26% | 5% | 29% | 37% | 3% | 100% |
| Faculty | 61% | 5% | 23% | 6% | 5% | 100% |
| Staff | 42% | 10% | 24% | 20% | 4% | 100% |
| **Daily** | | | | | | |
| **Net New Person Trips** | | | | | | |
| Students | 349 | 66 | 388 | 483 | 34 | 1,320 |
| Faculty | 92 | 7 | 34 | 9 | 7 | 150 |
| Staff | 93 | 22 | 53 | 44 | 10 | 222 |
| Total | 535 | 95 | 475 | 537 | 51 | 1,692 |
| **Net New Vehicle Trips** | | | | | | |
| Students | 349 | 33 | | | | 382 |
| Faculty | 92 | 4 | | | | 96 |
| Staff | 93 | 11 | | | | 104 |
| Total | 535 | 48 | | | | 582 |
| **AM Peak Hour (Inbound / Outbound)** | | | | | | |
| **Net New Person Trips** | | | | | | |
| Students | 36 / 1 | 7 / 0 | 40 / 1 | 50 / 1 | 3 / 0 | 136 / 3 |
| Faculty | 9 / 0 | 1 / 0 | 3 / 0 | 1 / 0 | 1 / 0 | 15 / 0 |
| Staff | 25 / 0 | 6 / 0 | 14 / 0 | 12 / 0 | 3 / 0 | 59 / 0 |
| Total | 70 / 1 | 13 / 0 | 58 / 1 | 63 / 1 | 7 / 0 | 211 / 4 |
| **Net New Vehicle Trips** | | | | | | |
| Students | 36 / 1 | 3 / 0 | | | | 39 / 1 |
| Faculty | 9 / 0 | 0 / 0 | | | | 10 / 0 |
| Staff | 25 / 0 | 3 / 0 | | | | 28 / 0 |
| Total | 70 / 1 | 7 / 0 | | | | 77 / 1 |
| **PM Peak Hour (Inbound / Outbound)** | | | | | | |
| **Net New Person Trips** | | | | | | |
| Students | 8 / 27 | 1 / 5 | 9 / 30 | 11 / 38 | 1 / 3 | 30 / 103 |
| Faculty | 1 / 7 | 0 / 1 | 0 / 3 | 0 / 1 | 0 / 1 | 1 / 12 |
| Staff | 0 / 25 | 0 / 6 | 0 / 14 | 0 / 12 | 0 / 3 | 0 / 61 |
| Total | 9 / 60 | 2 / 12 | 9 / 47 | 11 / 50 | 1 / 6 | 31 / 175 |
| **Net New Vehicle Trips** | | | | | | |
| Students | 8 / 27 | 1 / 3 | | | | 9 / 30 |
| Faculty | 1 / 7 | 0 / 0 | | | | 1 / 8 |
| Staff | 0 / 25 | 0 / 3 | | | | 0 / 28 |
| Total | 9 / 60 | 1 / 6 | | | | 10 / 66 |

Source: Fehr & Peers, 2011

## 3.3 TRIP DISTRIBUTION

Project-generated person trips are then assigned to general regional destinations and origins, including the four San Francisco Superdistricts (northeast, northwest, southeast, and southwest quadrants of San Francisco), the East Bay, the North Bay, the South Bay, and areas outside the region. For most development projects in San Francisco, trips are distributed according to average trip patterns of San Francisco residents and employees as summarized in the SF Guidelines. However, universities often have trip patterns that are unique to the campus populations. Therefore, home origin data provided by USF are used in this analysis. The trip distribution percentages are shown in **Table 3.4**.

**TABLE 3.4: TRIP DISTRIBUTION PATTERNS**

| Place of Trip End | Student | | | Faculty | | | Staff | | |
|---|---|---|---|---|---|---|---|---|---|
| | Overall | Vehicle | Transit | Overall | Vehicle | Transit | Overall | Vehicle | Transit |
| **San Francisco** | | | | | | | | | |
| Superdistrict 1 / Northeast Quadrant | 4% | 3% | 6% | 3% | 2% | 4% | 5% | 3% | 6% |
| Superdistrict 2 / Northwest Quadrant | 26% | 17% | 42% | 21% | 11% | 29% | 30% | 18% | 38% |
| Superdistrict 3 / Southeast Quadrant | 7% | 5% | 11% | 14% | 8% | 19% | 14% | 8% | 18% |
| Superdistrict 4 / Southwest Quadrant | 5% | 3% | 8% | 7% | 4% | 10% | 9% | 5% | 11% |
| **East Bay** | 14% | 26% | 12% | 27% | 40% | 20% | 16% | 27% | 11% |
| **North Bay** | 7% | 13% | 6% | 12% | 18% | 9% | 9% | 15% | 6% |
| **South Bay** | 18% | 33% | 15% | 12% | 18% | 9% | 14% | 23% | 9% |
| **Out of Region** | 20% | -- | -- | 4% | -- | -- | 9% | -- | -- |

Source: Fehr & Peers, 2011

Overall trip distribution patterns, summarized in **Table 3.4**, show most students (26 percent) and staff (30 percent) trips come from the northwest quadrant of San Francisco (Superdistrict 2), whereas most faculty (27 percent) come from the East Bay. Vehicle trips unlikely follow the overall trip distribution patterns, because commute choice depends heavily on distance between residence and campus. According to the USF travel survey, 25 percent of those who live within three miles from campus would drive alone or carpool to campus and 69 percent of those living three miles or more away would drive alone or carpool to campus. **Table 3.4** also shows the trip distribution percentages for external vehicle trips adjusted for mode split by distance lived from campus and normalized for non-out-of-region trips. These percentages are then used to distribute new project trips.

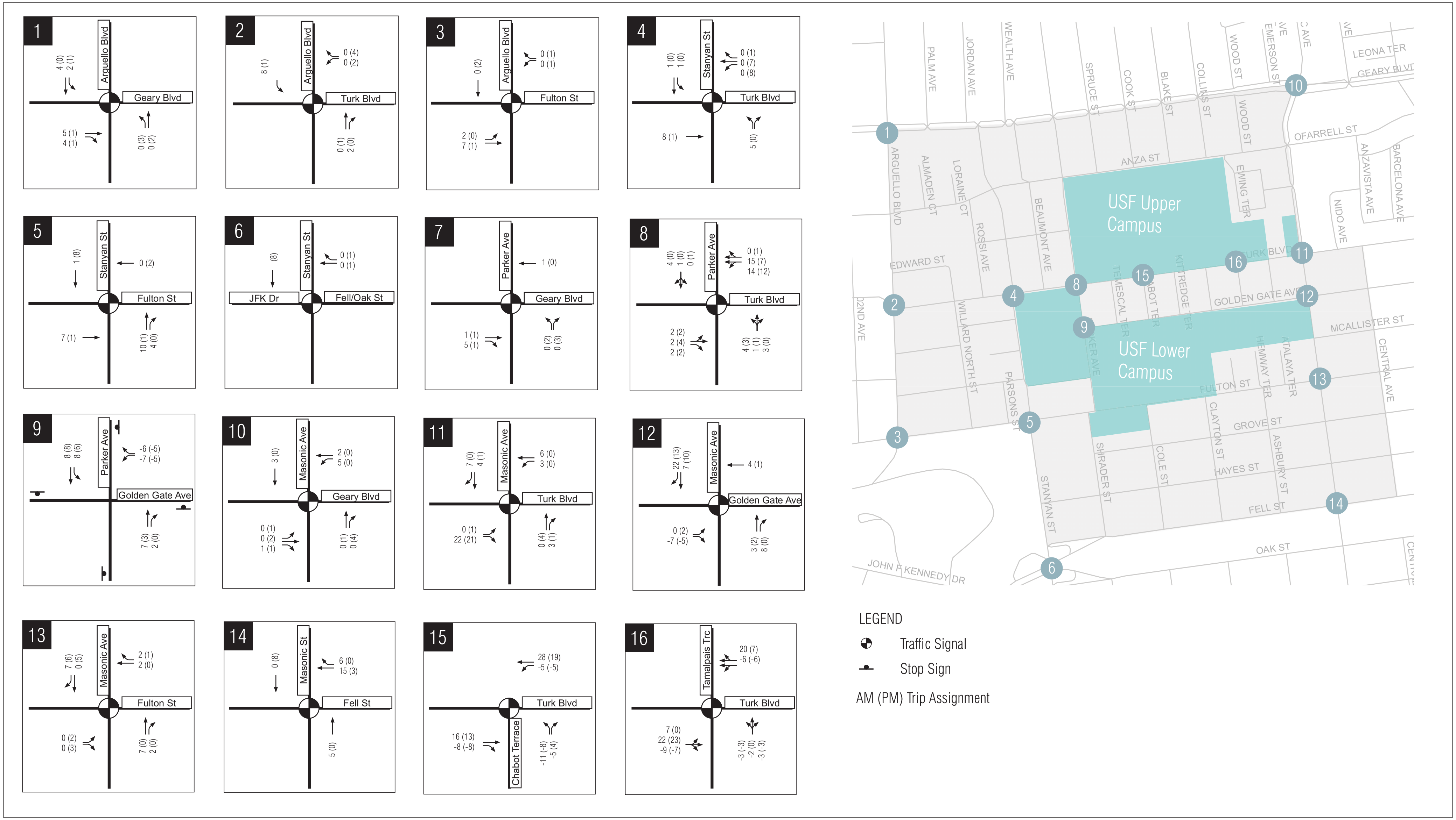
Likewise, trip distribution patterns for transit trips unlikely follow the overall trip distributions patterns. 51 percent of USF faculty, staff, and students who live within three miles from campus would ride on public transit, whereas 27 percent of those living three miles or more away would take public transit to campus. **Table 3.4** presents the normalized trip distributed percentages for transit trips after adjusting for mode split by distance lived from campus and discounting out the out-of-region trips.

## 3.4 TRIP ASSIGNMENT

Project trips are assigned to the specific routes that project-generated AM and PM peak trips would likely take to and from the project site. Vehicle trips are assigned to roadways and intersection movements according to the trip distribution percentages in **Table 3.4**. As shown in **Table 3.3**, upon buildout, the IMP would generate 77 inbound and one outbound vehicle trips during the AM peak hour, and 10 inbound and 66 outbound vehicle trips during the PM peak hour. Vehicle trips were distributed proportionally to parking areas based on capacity. Project trips were manually assigned based on the changes to traffic patterns as a result of the changes to Turk Boulevard and the University Terrace streets.

**Figure 3.1** depicts the specific turning movements for the new inbound and outbound vehicles trips in the AM and PM peak hour at the study intersections due to the IMP.

Transit trips are assigned to specific transit routes using a similar methodology. As shown in **Table 3.3**, the project would generate an estimated 58 inbound and one outbound transit person trips during the AM peak hour, and nine inbound and 47 outbound transit person trips during the PM peak hour. Using the trip distribution percentages presented in **Table 3.4**, transit trips are assigned to the analysis corridors based on the most direct transit route to and from the trip end. For example, since the campus is located near two northbound-southbound crosstown bus routes, as well as major eastbound-westbound bus routes on Geary Boulevard, most project-generated transit trips would likely utilize those routes.




USF

Project Vehicle Trip Assignment

FIGURE 3.1

FEHR & PEERS

2011 Projects\SF11-0547 USF IMP\Graphics\Impact Analysis

[This page intentionally left blank.]

# CHAPTER 4. IMPACT ANALYSIS

This chapter presents the assessment of transportation impacts resulting from the travel demand generated by the IMP. The impacts are grouped into eight potential impact areas: (1) traffic, (2) transit, (3) bicycling, (4) pedestrian, (5) loading, (6) emergency access, and (7) construction impacts. Impacts were analyzed for the 2012 Baseline Plus Project Conditions by adding net project travel demand associated with the IMP to 2012 Baseline No Project Conditions. Potential traffic and transit impacts for Cumulative Conditions with and without the IMP were also assessed.

The campus modifications proposed in the IMP will likely take place at different horizon years with the long-term projection for 10 years. Therefore, this analysis evaluates horizon years of 2022 and 2035. To evaluate the impacts that may occur as a result of the IMP, we will conduct our analysis for the following scenarios:

- Existing Plus Project Conditions
- Year 2012 – Baseline No Project Conditions
- Year 2012 – Baseline Plus Project Conditions
- Year 2022 – Near-Term Cumulative No Project Conditions
- Year 2022 – Near-Term Cumulative Plus Project Conditions
- Year 2035 – Cumulative No Project Conditions
- Year 2035 – Cumulative Plus Project Conditions

The impact analysis also assumes the Masonic Boulevard Streetscape project is constructed in the Near-Term Cumulative (2022) and Cumulative (2035) analysis. The Boulevard Proposal is the recommended design for Masonic Avenue which includes design of bus bulb plazas, raised cycle tracks, pedestrian crossing improvements, removal of 153 on-street parking spaces, and lane reconfigurations along Masonic Avenue which reduces the street from three lanes in each direction to two lanes in each direction.

## 4.1 SIGNIFICANCE CRITERIA

The City of San Francisco uses the following significance thresholds during environmental review to determine whether a project causes an impact on the surrounding transportation network.

### *4.1.1 Traffic*

The operational impact on signalized intersections is considered significant when project-related traffic causes the intersection level of service to deteriorate from LOS D or better to LOS E or LOS F, or from LOS E to LOS F. The operational impacts on unsignalized intersections are considered potentially significant if project-related traffic causes the level of service at the worst approach to deteriorate from LOS D or better to LOS E or LOS F and Caltrans signal warrants would be met, or causes Caltrans signal warrants to be met when the worst approach is already at LOS E or LOS F. The project may result in significant adverse impacts at intersections that operate at LOS E or LOS F under existing conditions, depending upon the magnitude of the project's contribution to the worsening of the average delay per vehicle. In addition, a project would have a significant adverse impact if it would cause major traffic hazards, or contribute considerably to cumulative traffic increases that would cause the deterioration in LOS to unacceptable levels (i.e., to LOS E or LOS F).

#### 4.1.2 Transit

The project would have a significant effect on the environment if it would cause a substantial increase in transit demand that could not be accommodated by adjacent transit capacity, resulting in unacceptable levels of transit service; or cause a substantial increase in operating costs or delays such that significant adverse impacts in transit service levels could result. With the Muni and regional transit screen line analyses, the project would have a significant effect on the transit provider if project-related transit trips would cause the capacity utilization standard to be exceeded during the PM peak hour.

#### 4.1.3 Bicycles

The project would have a significant effect on the environment if it would create potentially hazardous conditions for bicyclists or otherwise substantially interfere with bicycle accessibility to the site and adjoining areas.

#### 4.1.4 Pedestrians

The project would have a significant effect on the environment if it would result in substantial overcrowding on public sidewalks, create potentially hazardous conditions for pedestrians, or otherwise interfere with pedestrian accessibility to the site and adjoining areas.

#### 4.1.5 Loading

The project would have a significant effect on the environment if it would result in a loading demand during the peak hour of loading activities that could not be accommodated within the proposed on-site loading facilities or within convenient on-street loading zones. The project would also have a significant impact if it would create potentially hazardous traffic conditions or significant delays affecting traffic, transit, bicycles or pedestrians.

#### 4.1.6 Emergency Access

The project would have a significant effect on the environment if it would result in inadequate emergency access.

#### 4.1.7 Construction

Construction-related impacts generally would not be considered significant due to their temporary and limited duration.

#### 4.1.8 Parking

San Francisco does not consider parking supply as part of the permanent physical environment. Parking conditions are not static, as parking supply and demand varies from day to day, from day to night, from month to month, etc. Hence, the availability of parking spaces (of lack thereof) is not a permanent physical condition, but changes over time as people change their modes and patterns of travel.

Parking deficits are considered to be social effects, rather than impacts on the physical environment as defined by the *California Environment Quality Act* (CEQA). Under CEQA, a project's social impacts need not be treated as significant impacts on the environment. Environmental documents should, however, address the secondary physical impacts that could be triggered by a social impact. (CEQA Guidelines § 15131(a).) The social inconvenience of parking deficits, such as having to hunt for scarce parking spaces, is not an environmental impact, but there may be secondary physical environmental impacts, such as increased traffic congestion at intersections, air quality impacts, safety impacts, or noise impacts caused by congestion. In the experience of San Francisco transportation planners, however, the absence of a ready supply of parking spaces, combined with available alternatives to auto travel (e.g., transit service, taxis, bicycles or travel by foot) and a relatively dense pattern of urban development, induces many drivers to seek and find alternative parking facilities, shift to other modes of travel, or change their overall travel habits. Any such resulting shifts to transit service in particular, would be in keeping with the City's "Transit First" policy. The City's Transit First Policy, established in the City's Charter Section 8A.115 provides that "parking policies for areas well served by public transit shall be designed to encourage travel by public transportation and alternative transportation."

The transportation analysis accounts for potential secondary effects, such as cars circling and looking for a parking space in areas of limited parking supply, by assuming that all drivers would attempt to find parking at or near the project site and then seek parking farther away if convenient parking is unavailable. Moreover, the secondary effects of drivers searching for parking is typically offset by a reduction in vehicle trips due to others who are aware of constrained parking conditions in a given area. Hence, any secondary environmental impacts which may result from a shortfall in parking in the vicinity of the Project would be minor, and the traffic assignments used in the transportation analysis, as well as in the associated air quality, noise and pedestrian safety analyses, reasonably addresses potential secondary effects.

## 4.2 TRAFFIC IMPACTS

This section describes traffic operations with and without vehicle traffic generated by the IMP. The following scenarios are analyzed in this section:

- Existing Plus Project
- Baseline (2012) No Project
- Baseline (2012) Plus Project
- Near-Term (2022) Cumulative No Project
- Near-Term (2022) Cumulative Plus Project
- Cumulative (2035) No Project
- Cumulative (2035) Plus Project

#### *4.2.1 Existing Plus Project Conditions*

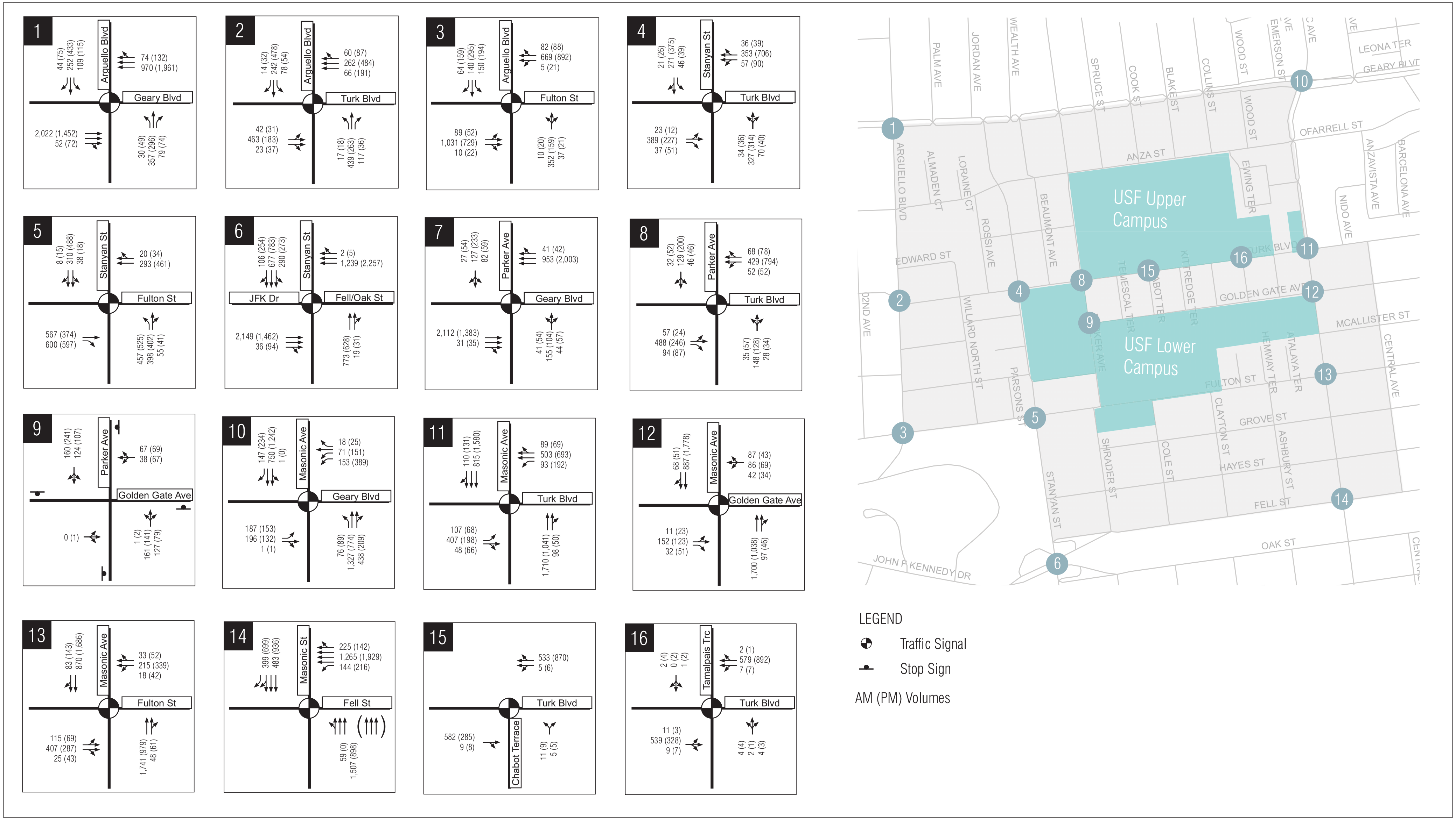
Traffic Operations

The net new vehicle trip estimates for the IMP that were developed in Chapter 3 were added to the existing peak hour intersection volumes (shown in **Figure 2.2**) to represent Existing Plus Project Conditions, shown in **Figure 4.1**.

Consistent with the significance criteria presented in Section 4.1.1, the project was determined to have a significant impact at a signalized intersection if project-generated trips would cause an intersection operating at LOS D or better under Baseline Condition to operate at LOS E or LOS F, or intersection operating at LOS E under the Baseline Condition to deteriorate to LOS F conditions. At intersections that would operate at LOS E or LOS F under the Baseline Condition, and would continue to operate at LOS E or LOS F under Baseline Plus Project Conditions, the increase in project vehicle trips were reviewed to determine whether the increase would contribute considerably to critical movements operating at LOS E or LOS F.

The project was determined to have a significant impact at a unsignalized intersection if project-related traffic causes the level of service at the worst approach to deteriorate from LOS D or better to LOS E or LOS F and Caltrans signal warrants would be met, or causes Caltrans signal warrants to be met when the worst approach is already at LOS E or LOS F.

**Table 4.1** presents intersection LOS during the AM and PM peak hour for Existing and Existing Plus Project Conditions.




USF

Existing Plus Project Conditions Peak Hour Turning Movement Volumes

FIGURE 4.1

FEHR PEERS

2011 Projects\SF11-0547 USF IMP\Graphics\Impact Analysis

**TABLE 4.1: EXISTING PLUS PROJECT CONDITIONS INTERSECTION LEVEL OF SERVICE**

| Intersection | Traffic Control[1] | Peak Hour | Existing | | | Existing Plus Project | | |
|---|---|---|---|---|---|---|---|---|
| | | | Average Delay[2] | LOS | V/C Ratio | Average Delay[2] | LOS | V/C Ratio |
| Arguello Boulevard / Geary Boulevard | Signal | AM | 19 | B | | 19 | B | |
| | | PM | 20 | B | | 20 | B | |
| Arguello Boulevard / Turk Boulevard | Signal | AM | 13 | B | | 13 | B | |
| | | PM | 10 | B | | 10 | B | |
| Arguello Boulevard / Fulton Street | Signal | AM | 18 | B | | 18 | B | |
| | | PM | 15 | B | | 15 | B | |
| Stanyan Street / Turk Boulevard | Signal | AM | 16 | B | | 16 | B | |
| | | PM | 12 | B | | 12 | B | |
| Stanyan Street / Fulton Street | Signal | AM | 46 | D | -- | 47 | D | -- |
| | | PM | **61** | **E** | **0.90** | **61** | **E** | **0.90** |
| Stanyan Street / John F Kennedy Drive | Signal | AM | **> 80** | **F** | **1.49** | **> 80** | **F** | **1.49** |
| | | PM | **73** | **E** | **1.23** | **73** | **E** | **1.23** |
| Parker Street / Geary Boulevard | Signal | AM | 16 | B | | 16 | B | |
| | | PM | 16 | B | | 16 | B | |
| Parker Street / Turk Boulevard | Signal | AM | 14 | B | | 14 | B | |
| | | PM | 15 | B | | 15 | B | |
| Parker Street / Golden Gate Avenue | AWS | AM | 12 (SB) | B | | 12 (SB) | B | |
| | | PM | 12 (SB) | B | | 13 (SB) | B | |
| Masonic Avenue / Geary Boulevard | Signal | AM | **> 80** | **F** | **1.19** | **> 80** | **F** | **1.20** |
| | | PM | **> 80** | **F** | **1.00** | **> 80** | **F** | **1.00** |
| Masonic Avenue / Turk Boulevard | Signal | AM | 17 | B | | 20 | B | |
| | | PM | 21 | C | | 21 | C | |
| Masonic Avenue / Golden Gate Avenue | Signal | AM | < 10 | A | | < 10 | A | |
| | | PM | < 10 | A | | < 10 | A | |
| Masonic Avenue / Fulton Street | Signal | AM | 16 | B | | 16 | B | |
| | | PM | 12 | B | | 12 | B | |
| Masonic Avenue / Fell Street | Signal | AM | 20 | C | | 20 | C | |
| | | PM | 24 | C | | 24 | C | |
| Turk Boulevard / Chabot Terrace | Signal | AM | < 10 | A | | < 10 | A | |
| | | PM | < 10 | A | | < 10 | A | |
| Turk Boulevard / Tamalpais Terrace | Signal | AM | < 10 | A | | < 10 | A | |
| | | PM | 11 | B | | 11 | B | |

Notes: **Bold** = unacceptable operations
1. AWS = All-Way Stop-Controlled intersection
2. Average Delay shown as seconds per vehicle.

Source: Fehr & Peers, 2011

**Table 4.1** present the intersection levels of service for Existing and Existing Plus Project Conditions. In general, the addition of project-generated traffic would not result in changes in the average delay per vehicle at the study intersections; all study intersections would continue to operate at the same service levels as under Existing Conditions. Increase in traffic volumes at the study intersections due to the IMP is not large enough to result in changes in the overall intersection delays.

During the AM peak hour, 14 of the study intersections would continue to operate at acceptable levels of service (LOS D or better) under Existing Plus Project Conditions, and two of the study intersections would continue to operate at unacceptable levels of service (LOS E or F). During the PM peak hour, 13 of the study intersections would continue to operate at acceptable levels of service (LOS D or better) under Existing Plus Project Conditions, and three of the study intersections would operate at unacceptable levels of service (LOS E or F).

The following 13 intersections operate acceptably under both AM and PM peak hour conditions under Existing No Project conditions and would continue to operate acceptably under Existing Plus Project Conditions; therefore, the IMP would have a less-than-significant impact on these intersections.

- Intersection #1: Arguello Boulevard / Geary Boulevard
- Intersection #2: Arguello Boulevard / Turk Boulevard
- Intersection #3: Arguello Boulevard / Fulton Street
- Intersection #4: Stanyan Street / Turk Boulevard
- Intersection #7: Parker Street / Geary Boulevard
- Intersection #8: Parker Street / Turk Boulevard
- Intersection #9: Parker Street / Golden Gate Avenue
- Intersection #11: Masonic Avenue / Turk Boulevard
- Intersection #12: Masonic Avenue / Golden Gate Avenue
- Intersection #13: Masonic Avenue / Fulton Street
- Intersection #14: Masonic Avenue / Fell Street
- Intersection #15: Turk Boulevard / Chabot Terrace
- Intersection #16: Turk Boulevard / Tamalpais Terrace

Project Traffic Impacts

As indicated in **Table 4.1**, the following intersections would operate at unacceptable levels of service (LOS E or F) under Existing Conditions, and would continue to operate at the same LOS under Existing Plus Project Conditions:

- Intersection #5: Stanyan Street / Fulton Street (PM)
- Intersection #6: Stanyan Street / John F Kennedy Drive (AM/PM)
- Intersection #10: Masonic Avenue / Geary Boulevard (AM/PM)

Each of these intersections operates unacceptably under Existing Conditions; therefore, the IMP's contribution to each intersection's critical movements was identified to determine if the project had a significant impact at the intersection.

*Intersection #5: Stanyan Street / Fulton Street (LOS E, PM Peak Hour)*

The Stanyan Street/Fulton Street intersection operates at LOS E in the PM peak hour under Existing Conditions and Existing Plus Project Conditions. The critical southbound through movement operates at LOS F during the PM peak. The IMP would add eight vehicle trips to the critical southbound through movement, which represent 1.6 percent of the movement's future expected volume. While this approach is expected to operate at LOS F under Existing Plus Project Conditions, the project's contribution would not be considered significant. The northbound left movement is expected to operate at LOS E under Existing Plus Project Conditions, but the IMP would not add vehicle trips to this critical movement during the PM peak hour. The other critical movements at the intersection are expected to operate at acceptable levels of service. Hence, the project's impact to this intersection would be considered **less-than-significant**.

*Intersection #6:* Stanyan Street / John F Kennedy Drive *(LOS F, AM Peak Hour; LOS E, PM Peak Hour)*

The Stanyan Street/John F Kennedy Drive intersection operates at LOS F during the AM peak hour under Existing Conditions and Existing Plus Project Conditions. The critical northbound through movement operates at LOS E, and the critical eastbound through and southbound left movements operate at LOS F. The IMP would add zero project trips to these movements. The other critical movements at the intersection are expected to operate at acceptable levels of service. Therefore, the project's impact to this intersection during the AM peak hour would be considered **less-than-significant**.

The Stanyan Street/John F Kennedy Drive intersection operates at LOS E during the PM peak hour under Existing Conditions and Existing Plus Project Conditions. The critical southbound left movement operates unacceptably at LOS F. The IMP would add eight vehicle trips to the critical northbound through movement at the intersection during the PM peak hour, which represent one percent of the movement's expected volume. The critical northbound through movement operates at LOS E but no project trips were added to this approach. The other critical movements at the intersection are expected to operate at acceptable levels of service. Hence, the project's impact to this intersection during the PM peak hour would be considered **less-than-significant**.

*Intersection #10:* Masonic Avenue / Geary Boulevard *(LOS F, AM Peak Hour; LOS F, PM Peak Hour)*

The Masonic Avenue/Geary Boulevard intersection operates at LOS F during the AM peak hour under Existing Conditions and Existing Plus Project Conditions. The critical westbound left movement operates at LOS F. Contributions by the IMP to the westbound left movement are expected to be five trips, or 3.3 percent of the movement's expected volume. Other critical movements include eastbound left, northbound left and northbound through movements but no trips will be added to these movements. Therefore, the IMP's contribution to unacceptable Existing Plus Project Conditions at this intersection during the AM peak hour would be considered **less-than-significant**.

The Masonic Avenue/Geary Boulevard intersection operates at LOS F during the PM peak hour under Existing Conditions and Existing Plus Project Conditions. The critical eastbound left movement operates at LOS F. The IMP would add one vehicle trips to the eastbound left movement at the intersection during the PM peak hour, which represent 0.7 percent of the movement's expected volume. Other critical movements operating at LOS F also include westbound left, northbound left, and southbound through movements. The IMP would not add vehicle trips to any of these critical movements during the PM peak hour. Therefore, the IMP's contribution to the intersection during the PM peak hour would be considered **less-than-significant**.

Overall, implementation of the IMP under Existing Plus Project Conditions would result in a less-than-significant impact at the all study intersections.

### *4.2.2 Baseline (2012) Conditions*

<u>Traffic Operations</u>

Baseline traffic volume forecasts were developed based on expected traffic growth rates between 2010 and 2030 using the San Francisco County Transportation Authority's (SFCTA) travel demand model (SF CHAMP model). The SF-CHAMP models show that AM and PM peak hour volumes at the study intersections are projected to increase by 1.3 and 0.9 percent per year between 2010 and 2030. Based on a linear growth assumption, the expected annual growth rates were applied to the Fall 2011 traffic counts collected at the study intersections in order to obtain year 2012 turning movement volumes. The resulting traffic estimates represent Baseline No Project traffic volumes within the study area assuming no changes to the existing uses within the project site. Baseline No Project Conditions for the selected study intersections are shown on **Figure 4.2**.

The net new vehicle trip estimates for the IMP that were developed in Chapter 3 were added to Baseline No Project peak hour intersection volumes to represent Baseline Plus Project Conditions. Baseline Plus Project Conditions peak hour turning movement volumes are shown on **Figure 4.3**.

Consistent with the significance criteria presented in Section 4.1.1, the project was determined to have a significant impact at a signalized intersection if project-generated trips would cause an intersection operating at LOS D or better under Baseline Condition to operate at LOS E or LOS F, or intersection operating at LOS E under the Baseline Condition to deteriorate to LOS F conditions. At intersections that would operate at LOS E or LOS F under the Baseline Condition, and would continue to operate at LOS E or LOS F under Baseline Plus Project Conditions, the increase in project vehicle trips were reviewed to determine whether the increase would contribute considerably to critical movements operating at LOS E or LOS F.

The project was determined to have a significant impact at an unsignalized intersection if project-related traffic causes the level of service at the worst approach to deteriorate from LOS D or better to LOS E or LOS F and Caltrans signal warrants would be met, or causes Caltrans signal warrants to be met when the worst approach is already at LOS E or LOS F. **Table 4.2** presents intersection LOS during the AM and PM peak hour for Baseline No Project and Baseline Plus Project Conditions.

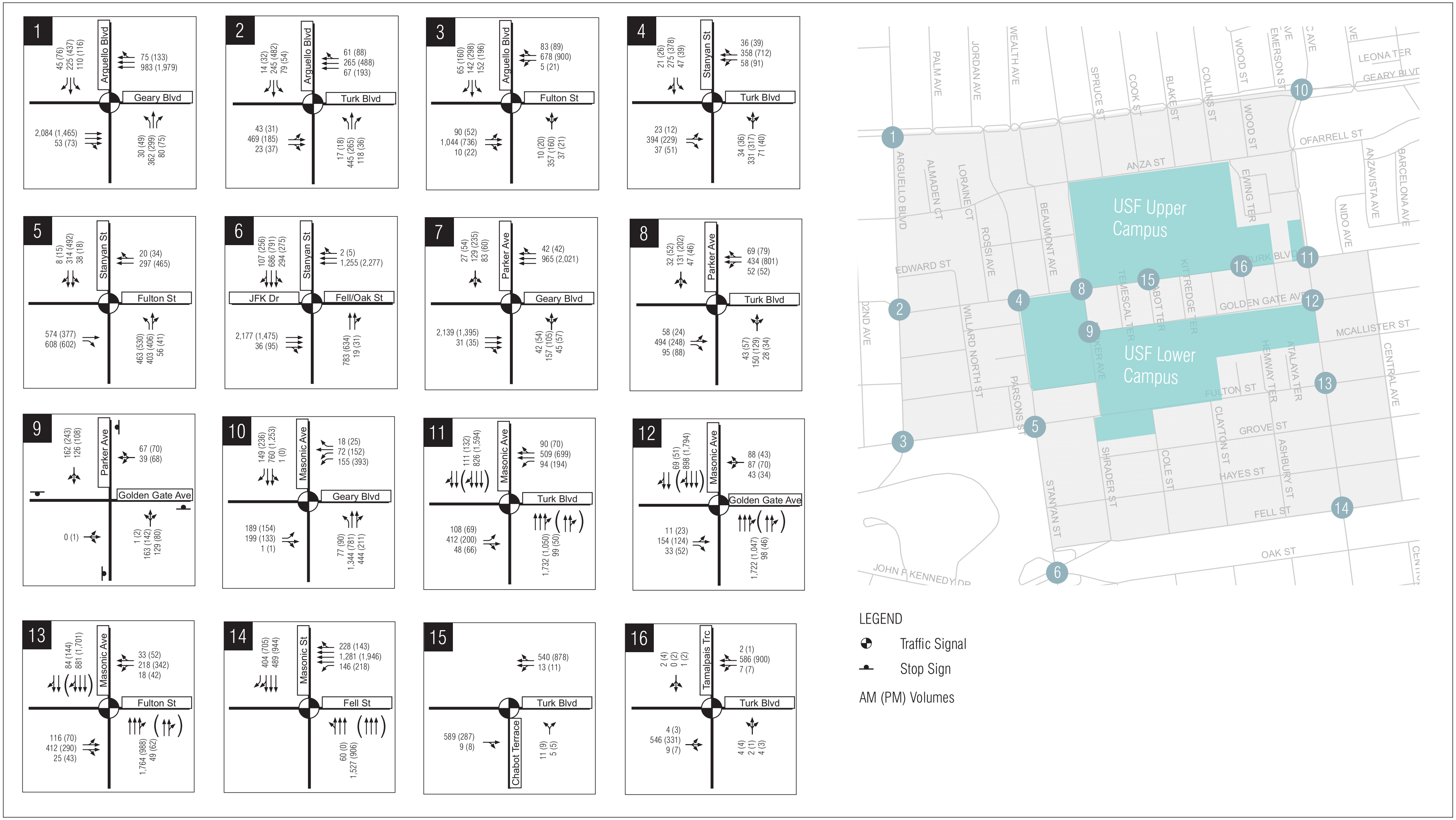

USF

Baseline No Project Conditions Peak Hour Turning Movement Volumes

FIGURE 4.2

FEHR & PEERS

2011 Projects\SF11-0547 USF IMP\Graphics\Impact Analysis




USF

Baseline Plus Project Conditions Peak Hour Turning Movement Volumes

FIGURE 4.3

FEHR & PEERS

2011 Projects\SF11-0547 USF IMP\Graphics\Impact Analysis

| TABLE 4.2: BASELINE CONDITIONS INTERSECTION LEVEL OF SERVICE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Intersection | Traffic Control[1] | Peak Hour | 2012 Baseline No Project | | | 2012 Baseline Plus Project | | |
| | | | Average Delay[2] | LOS | V/C Ratio | Average Delay[2] | LOS | V/C Ratio |
| Arguello Boulevard / Geary Boulevard | Signal | AM | 19 | B | | 19 | B | |
| | | PM | 20 | B | | 20 | B | |
| Arguello Boulevard / Turk Boulevard | Signal | AM | 13 | B | | 13 | B | |
| | | PM | 10 | B | | 10 | B | |
| Arguello Boulevard / Fulton Street | Signal | AM | 18 | B | | 19 | B | |
| | | PM | 15 | B | | 15 | B | |
| Stanyan Street / Turk Boulevard | Signal | AM | 16 | B | | 17 | B | |
| | | PM | 12 | B | | 12 | B | |
| Stanyan Street / Fulton Street | Signal | AM | 47 | D | -- | 48 | D | -- |
| | | PM | **62** | **E** | **0.91** | **62** | **E** | **0.91** |
| Stanyan Street / John F Kennedy Drive | Signal | AM | **> 80** | **F** | **1.51** | **> 80** | **F** | **1.51** |
| | | PM | **74** | **E** | **1.24** | **74** | **E** | **1.24** |
| Parker Street / Geary Boulevard | Signal | AM | 16 | B | | 16 | B | |
| | | PM | 16 | B | | 16 | B | |
| Parker Street / Turk Boulevard | Signal | AM | 14 | B | | 14 | B | |
| | | PM | 15 | B | | 15 | B | |
| Parker Street / Golden Gate Avenue | AWS | AM | 12 | B (SB) | | 12 | B (SB) | |
| | | PM | 13 | B (SB) | | 13 | B (SB) | |
| Masonic Avenue / Geary Boulevard | Signal | AM | **> 80** | **F** | **1.21** | **> 80** | **F** | **1.21** |
| | | PM | **> 80** | **F** | **1.01** | **> 80** | **F** | **1.01** |
| Masonic Avenue / Turk Boulevard | Signal | AM | 17 | B | | 20 | C | |
| | | PM | 21 | C | | 21 | C | |
| Masonic Avenue / Golden Gate Avenue | Signal | AM | < 10 | A | | < 10 | A | |
| | | PM | < 10 | A | | < 10 | A | |
| Masonic Avenue / Fulton Street | Signal | AM | 16 | B | | 16 | B | |
| | | PM | 12 | B | | 13 | B | |
| Masonic Avenue / Fell Street | Signal | AM | 21 | C | | 21 | C | |
| | | PM | 24 | C | | 24 | C | |
| Turk Boulevard / Chabot Terrace | Signal | AM | < 10 | A | | < 10 | A | |
| | | PM | < 10 | A | | < 10 | A | |
| Turk Boulevard / Tamalpais Terrace | Signal | AM | < 10 | A | | < 10 | A | |
| | | PM | 11 | B | | 11 | B | |

Notes: **Bold** = unacceptable operations
1. AWS = All-Way Stop-Controlled intersection
2. Average Delay shown as seconds per vehicle.

Source: Fehr & Peers, 2011



UNIVERSITY OF SAN FRANCISCO
CHANGE THE WORLD FROM HERE

**Table 4.2** presents the intersection levels of service for Baseline No Project and Baseline Plus Project Conditions. In general, the addition of project-generated traffic would not result in changes in the average delay per vehicle at the study intersections; all study intersections would continue to operate at the same service levels as under Baseline No Project Conditions. Increase in traffic volumes at the study intersections due to the IMP is not large enough to result in changes in the overall intersection delays.

During the AM peak hour, 14 of the study intersections would continue to operate at acceptable levels of service (LOS D or better) under Baseline Plus Project Conditions, and two of the study intersections would operate at unacceptable levels of service (LOS E or F). The addition of project-generated traffic would not exacerbate the two intersections – Stanyan Street/John F Kennedy Drive and Masonic Avenue/Geary Boulevard, that operate at unacceptable levels under Baseline No Project Conditions.

During the PM peak hour, 13 of the study intersections would continue to operate at acceptable levels of service (LOS D or better) under Baseline Plus Project Conditions, and three of the study intersections would operate at unacceptable levels of service (LOS E or F). The addition of project-generated traffic would not exacerbate the three intersections – Stanyan Street/Fulton Street, Stanyan Street/John F Kennedy Drive and Masonic Avenue/Geary Boulevard, that operate at unacceptable levels under Baseline No Project Conditions.

The following 13 intersections operate acceptably under both AM and PM peak hour conditions under Baseline No Project conditions and would continue to operate acceptably under Baseline Plus Project Conditions; therefore, the IMP would have a less-than-significant impact on these intersections.

- Intersection #1: Arguello Boulevard / Geary Boulevard
- Intersection #2: Arguello Boulevard / Turk Boulevard
- Intersection #3: Arguello Boulevard / Fulton Street
- Intersection #4: Stanyan Street / Turk Boulevard
- Intersection #7: Parker Street / Geary Boulevard
- Intersection #8: Parker Street / Turk Boulevard
- Intersection #9: Parker Street / Golden Gate Avenue
- Intersection #11: Masonic Avenue / Turk Boulevard
- Intersection #12: Masonic Avenue / Golden Gate Avenue
- Intersection #13: Masonic Avenue / Fulton Street
- Intersection #14: Masonic Avenue / Fell Street
- Intersection #15: Turk Boulevard / Chabot Terrace
- Intersection #16: Turk Boulevard / Tamalpais Terrace

Project Traffic Impacts

As indicated in **Table 4.2**, the following intersections would operate at unacceptable levels of service (LOS E or F) under Baseline No Project Conditions, and would continue to operate at the same LOS under Baseline Plus Project Conditions:

- Intersection #5: Stanyan Street / Fulton Street (PM)
- Intersection #6: Stanyan Street / John F Kennedy Drive (AM/PM)
- Intersection #10: Masonic Avenue / Geary Boulevard (AM/PM)

Each of these intersections operates unacceptably under Baseline No Project Conditions; therefore, the IMP's contribution to each intersection's critical movements was identified to determine if the project had a significant impact at the intersection.

*Intersection #5: Stanyan Street / Fulton Street (LOS E, PM Peak Hour)*

The Stanyan Street/Fulton Street intersection operates at LOS E in the PM peak hour under Baseline Conditions and Baseline Plus Project Conditions. The critical southbound through movement operates at LOS F during the PM peak. The IMP would add eight vehicle trips to the critical southbound through movement, which represent 1.6 percent of the movement's future expected volume. While this approach is expected to operate at LOS F under Baseline Plus Project Conditions, the project's contribution would not be considered significant. The northbound left movement is expected to operate at LOS E under Baseline Plus Project Conditions, but the IMP would not add vehicle trips to this critical movement during the PM peak hour. The other critical movements at the intersection are expected to operate at acceptable levels of service. Hence, the project's impact to this intersection would be considered **less-than-significant**.

*Intersection #6:* Stanyan Street / John F Kennedy Drive *(LOS F, AM Peak Hour; LOS E, PM Peak Hour)*

The Stanyan Street/John F Kennedy Drive intersection operates at LOS F during the AM peak hour under Baseline Conditions and Baseline Plus Project Conditions. The critical northbound through movement operates at LOS E, and the critical eastbound through and southbound left movements operate at LOS F. The IMP would add zero project trips to these movements. The other critical movements at the intersection are expected to operate at acceptable levels of service. Therefore, the project's impact to this intersection during the AM peak hour would be considered **less-than-significant**.

The Stanyan Street/John F Kennedy Drive intersection operates at LOS E during the PM peak hour under Baseline Conditions and Baseline Plus Project Conditions. The critical southbound left movement operates unacceptably at LOS F. The IMP would add eight vehicle trips to the critical northbound through movement at the intersection during the PM peak hour, which represent 1.0 percent of the movement's expected volume. The critical northbound through movement operates at LOS E but no project trips were added to this approach. The other critical movements at the intersection are expected to operate at acceptable levels of service. Hence, the project's impact to this intersection during the PM peak hour would be considered **less-than-significant**.

*Intersection #10:* Masonic Avenue / Geary Boulevard *(LOS F, AM Peak Hour; LOS F, PM Peak Hour)*

The Masonic Avenue/Geary Boulevard intersection operates at LOS F during the AM peak hour under Baseline Conditions and Baseline Plus Project Conditions. The critical westbound left movement operates at LOS F. Contributions by the IMP to the westbound left movement are expected to be five trips, or 3.2 percent of the movement's expected volume. Other critical movements include eastbound left, northbound left and northbound through movements but no trips will be added to these movements. Therefore, the IMP's contribution to unacceptable Baseline Plus Project Conditions at this intersection during the AM peak hour would be considered **less-than-significant**.

The Masonic Avenue/Geary Boulevard intersection operates at LOS F during the PM peak hour under Baseline Conditions and Baseline Plus Project Conditions. The critical eastbound left movement operates at LOS F. The IMP would add one vehicle trips to the eastbound left movement at the intersection during the PM peak hour, which represent 0.6 percent of the movement's expected volume. Other critical movements operating at LOS F also include westbound left, northbound left, and southbound through movements. The IMP would not add vehicle trip to any of these critical movements during the PM peak hour. Therefore, the IMP's contribution to the intersection during the PM peak hour would be considered **less-than-significant**.

Overall, implementation of the IMP under Baseline Plus Project Conditions would result in a less-than-significant impact at the all study intersections.

### *4.2.3 Near-Term Cumulative (2022) Conditions*

This section presents traffic conditions for future year 2022 Cumulative Conditions without and with the IMP. Future year traffic volume forecasts were estimated based on output from the SF CHAMP travel demand model. The Near-Term Cumulative analysis assumes that the Masonic Boulevard Streetscape project is constructed.

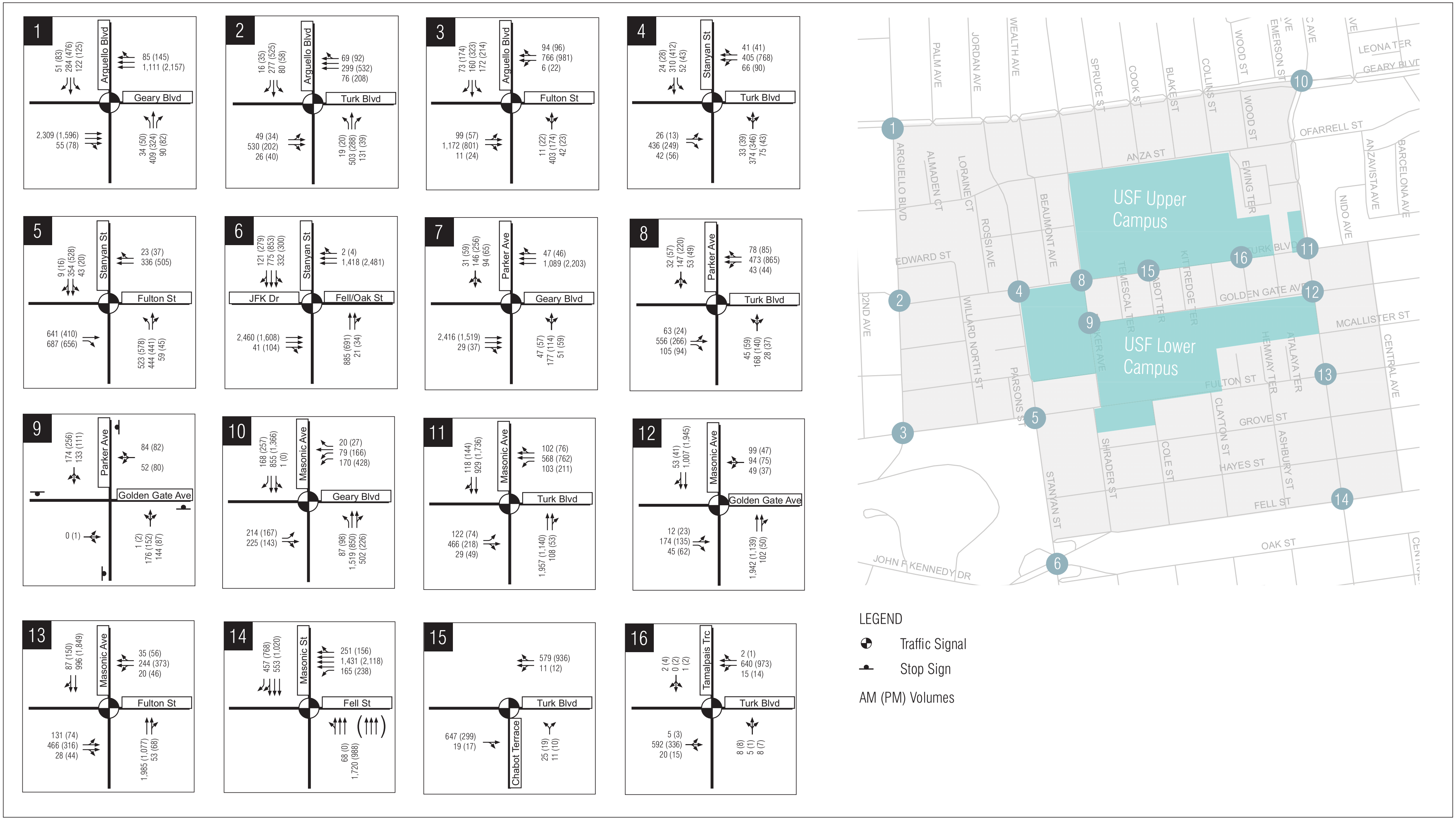
Traffic Forecast

Year 2022 Cumulative No Project traffic estimates were developed based on expected traffic growth rates between years 2010 and 2030 for the AM and PM peak periods, obtained from the SF-CHAMP model. Based on a linear growth assumption, the annual growth rates between years 2010 and 2030 were applied to the Fall 2011 traffic counts collected at the study intersections in order to obtain year 2022 turning movement volumes.

Travel demand analyses that were performed in the SF-CHAMP models used land use forecasts as input for each of the 981 Travel Analysis Zones (TAZs) within the City and County limits. These land use forecasts reflect the distinct characteristics of a given economic activity. Based on the land use forecasts for the TAZs that represent the USF Campus, the SF-CHAMP models assume USF would not contribute to the expected traffic growth between years 2010 and 2030 within the study area. In other words, the IMP is expected to generate additional trips to the study area beyond traffic growth estimates from the SF-CHAMP models. As shown in Section 4.2.1, the AM and PM peak hour volumes at the study intersections are projected to increase by 1.3 and 0.9 percent per year.

Traffic Operations

Year 2022 Cumulative No Project Conditions traffic volumes are depicted on **Figure 4.4**. Project-generated trips were added to the Year 2022 Cumulative No Project Conditions to develop the Year 2022 Cumulative Plus Project Conditions, whose volumes are shown in **Figure 4.5**. Project-generated trips under the Cumulative Plus Project Conditions are the same as those under the Baseline Plus Project Conditions. **Table 4.3** presents intersection LOS for AM and PM peak hour for Baseline, Year 2022 Cumulative No Project, and Year 2022 Cumulative Plus Project Conditions.



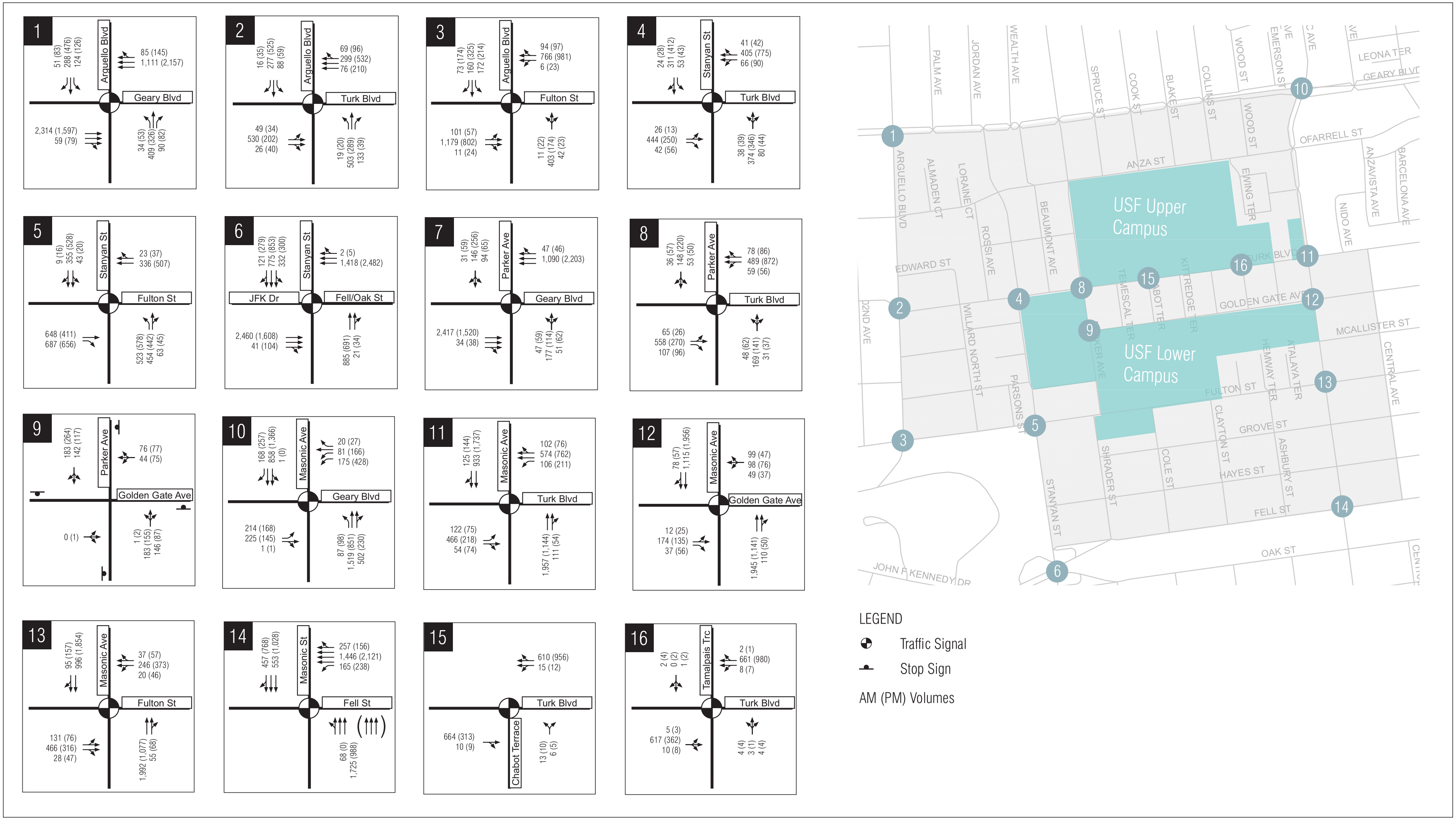

USF

Year 2022 Cumulative No Project Conditions Peak Hour Turning Movement Volumes

FIGURE 4.4

FEHR & PEERS

2011 Projects\SF11-0547 USF IMP\Graphics\Impact Analysis




USF

Year 2022 Cumulative Plus Project Conditions Peak Hour Turning Movement Volumes

FIGURE 4.5

FEHR PEERS

2011 Projects\SF11-0547 USF IMP\Graphics\Impact Analysis

**TABLE 4.3: YEAR 2022 CUMULATIVE CONDITIONS INTERSECTION LEVEL OF SERVICE**

| Intersection | Traffic Control[1] | Peak Hour | Baseline No Project | | | 2022 Cumulative No Project | | | 2022 Cumulative Plus Project | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Avg. Delay[2] | LOS | V/C Ratio | Avg. Delay[2] | LOS | V/C Ratio | Avg. Delay[2] | LOS | V/C Ratio |
| Arguello Boulevard / Geary Boulevard | Signal | AM | 19 | B | | 22 | C | | 22 | C | |
| | | PM | 20 | B | | 22 | C | | 22 | C | |
| Arguello Boulevard / Turk Boulevard | Signal | AM | 13 | B | | 14 | B | | 14 | B | |
| | | PM | 10 | B | | 11 | B | | 11 | B | |
| Arguello Boulevard / Fulton Street | Signal | AM | 18 | B | | 31 | C | | 33 | C | |
| | | PM | 15 | B | | 18 | B | | 18 | B | |
| Stanyan Street / Turk Boulevard | Signal | AM | 16 | B | | 18 | B | | 19 | B | |
| | | PM | 12 | B | | 13 | B | | 13 | B | |
| Stanyan Street / Fulton Street | Signal | AM | 47 | D | -- | **67** | **E** | **1.05** | **69** | **E** | **1.06** |
| | | PM | **62** | **E** | **0.91** | **78** | **E** | **1.00** | **78** | **E** | **1.00** |
| Stanyan Street / John F Kennedy Drive | Signal | AM | **> 80** | **F** | **1.51** | **> 80** | **F** | **1.72** | **> 80** | **F** | **1.72** |
| | | PM | **74** | **E** | **1.24** | **> 80** | **F** | **1.38** | **> 80** | **F** | **1.38** |
| Parker Street / Geary Boulevard | Signal | AM | 16 | B | | 19 | B | | 19 | B | |
| | | PM | 16 | B | | 17 | B | | 17 | B | |
| Parker Street / Turk Boulevard | Signal | AM | 14 | B | | 18 | B | | 19 | B | |
| | | PM | 15 | B | | 16 | B | | 16 | B | |
| Parker Street / Golden Gate Avenue | AWS | AM | 12 | B (SB) | | 14 | B (SB) | | 14 | B (SB) | |
| | | PM | 13 | B (SB) | | 14 | B (SB) | | 14 | B (SB) | |
| Masonic Avenue / Geary Boulevard | Signal | AM | **> 80** | **F** | **1.21** | **> 80** | **F** | **1.37** | **> 80** | **F** | **1.37** |
| | | PM | **> 80** | **F** | **1.01** | **> 80** | **F** | **1.10** | **> 80** | **F** | **1.10** |
| Masonic Avenue / Turk Boulevard | Signal | AM | 17 | B | | 43 | D | | 46 | D | |
| | | PM | 21 | C | | 34 | C | | 35 | C | |
| Masonic Avenue / Golden Gate Avenue | Signal | AM | < 10 | A | | < 10 | A | | < 10 | A | |
| | | PM | < 10 | A | | < 10 | A | | < 10 | A | |
| Masonic Avenue / Fulton Street | Signal | AM | 16 | B | | 40 | D | | 41 | D | |
| | | PM | 12 | B | | 20 | B | | 20 | C | |
| Masonic Avenue / Fell Street | Signal | AM | 21 | C | | 25 | C | | 25 | C | |
| | | PM | 24 | C | | 48 | D | | 49 | D | |
| Turk Boulevard / Chabot Terrace | Signal | AM | < 10 | A | | < 10 | A | | < 10 | A | |
| | | PM | < 10 | A | | < 10 | A | | < 10 | A | |
| Turk Boulevard / Tamalpais Terrace | Signal | AM | < 10 | A | | < 10 | A | | < 10 | A | |
| | | PM | 11 | B | | 11 | B | | 11 | B | |

Notes: **Bold** = unacceptable operations
1. AWS = All-Way Stop-Controlled intersection
2. Average Delay shown as seconds per vehicle.

Source: Fehr & Peers, 2011

Project Traffic Impacts

**Table 4.3** shows that the IMP would contribute to the following intersections that are estimated to operate at LOS E or LOS F under 2022 Cumulative No Project Conditions, and would continue to operate unacceptably under 2022 Cumulative Plus Project Conditions:

- Intersection #5: Stanyan Street / Fulton Street (AM/PM)
- Intersection #6: Stanyan Street / John F Kennedy Drive (AM/PM)
- Intersection #10: Masonic Avenue / Geary Boulevard (AM/PM)

Each of these intersections operates unacceptably under 2022 Cumulative No Project Conditions; therefore, the IMP's contribution to each intersection's critical movements was identified to determine if the project had a significant impact at the intersection.

*Intersection #5: Stanyan Street / Fulton Street (LOS E, AM Peak Hour; LOS E, PM Peak Hour)*

The Stanyan Street/Fulton Street intersection operates at LOS E in the AM peak hour under 2022 Cumulative No Project and 2022 Cumulative Plus Project Conditions. The critical northbound through movement operates at LOS F during the PM peak. The IMP would add ten vehicle trips to the critical northbound through movement, which represent 2.2 percent of the movement's future expected volume. While this approach is expected to operate at LOS F, the project's contribution would not be considered significant. The southbound through movement is expected to operate at LOS F under 2022 Cumulative Plus Project Conditions, but one project trip (0.3 percent of the movement's future volume) would be added to this movement so the impact would not be considered significant. The northbound left would operate at LOS F but no project trips would be assigned to this movement. Hence, the project's impact to this intersection would be considered **less-than-significant**.

The Stanyan Street / Fulton Street intersection would operate at LOS E during the PM peak hour under 2022 Cumulative No Project and 2022 Cumulative Plus Project Conditions. The critical movements at this intersection during the PM peak hour include the northbound left (LOS E) and southbound through (LOS F) movements. The IMP would add eight trips to the southbound through movement, which represents 1.5 percent of the movement's future expected volume. The IMP would not add trips to the northbound left movement. Therefore, the project's contribution to these critical movements would not be considered significant. The project's contribution to the operating conditions at this intersection during the PM peak hour would be considered **less-than-significant**.

*Intersection #6:* Stanyan Street / John F Kennedy Drive *(LOS F, AM Peak Hour; LOS F, PM Peak Hour)*

The Stanyan Street/John F Kennedy Drive intersection operates at LOS F during the AM peak hour under 2022 Cumulative No Project and 2022 Cumulative Plus Project Conditions. The IMP would not add vehicle trips to the critical northbound through (LOS F), eastbound through (LOS F), and southbound left (LOS F) movements but zero project trips would be added to these movements. The other critical movements at the intersection are expected to operate at acceptable levels of service. Therefore, the project's impact to this intersection during the AM peak hour would be considered **less-than-significant**.

The Stanyan Street/John F Kennedy Drive intersection operates at LOS E during the PM peak hour under 2022 Cumulative No Project and 2022 Cumulative Plus Project Conditions. The critical northbound through (LOS F), southbound left (LOS F), and southbound through (LOS E) movements operate unacceptably. The IMP would add eight vehicle trips to the critical southbound left movement at the intersection during the PM peak hour, which represent 0.9 percent of the movement's expected volume. The IMP would not add vehicle trips to the southbound left and northbound through movements. The other critical movements at the intersection are expected to operate at acceptable levels of service. Hence, the project's impact to this intersection during the PM peak hour would be considered **less-than-significant**.

*Intersection #10:* Masonic Avenue / Geary Boulevard *(LOS F, AM Peak Hour; LOS F, PM Peak Hour)*

The Masonic Avenue/Geary Boulevard intersection operates at LOS F during the AM peak hour under 2022 Cumulative No Project and 2022 Cumulative Plus Project Conditions. The critical westbound left movement operates at LOS F. Contributions by the IMP to the westbound left movement are expected to be five trips, or 2.9 percent of the movement's expected volume. Other critical movements operating at LOS F also include eastbound left, northbound left, and northbound through movements. The IMP would not add vehicle trip to any of these critical movements during the AM peak hour. Therefore, the IMP's contribution to unacceptable 2022 Cumulative Conditions at this intersection during the AM peak hour would be considered **less-than-significant**.

During the PM peak hour, the intersection operates at LOS F under 2022 Cumulative No Project and Plus Project Conditions. The IMP would add one vehicle trips to the eastbound left movement (LOS F) at the intersection during the PM peak hour, which represent 0.6 percent of the movement's expected volume. The other critical movements operating at LOS F also include westbound left, northbound left, and southbound through movements. The IMP would not add vehicle trip to any of these critical movements during the AM peak hour. Therefore, the IMP's contribution to the intersection during the PM peak hour would be considered **less-than-significant**.

Overall, implementation of the IMP under 2022 Cumulative Conditions would result in a less-than-significant impact at the all study intersections.

### *4.2.4 Cumulative (2035) Conditions*

The preceding discussion of project impacts has been related to ten-year conditions with the IMP. This section presents traffic future year 2035 Cumulative Conditions without and with the IMP. Future year traffic volume forecasts and transit ridership were estimated based on output from the SF CHAMP travel demand model. The Cumulative 2035 analysis assumes that the Masonic Boulevard Streetscape project is constructed.

Traffic Forecast

Year 2035 Cumulative No Project traffic estimates were developed based on expected linear growth rates between years 2010 and 2030 for the AM and PM peak periods, obtained from the SF-CHAMP model. The annual growth rates between years 2010 and 2030 were assumed to be applicable to years between 2030 and 2035 as well. No additional public roadway changes were assumed under year 2035 Cumulative Conditions than those of Baseline Conditions in the project area. The resulting traffic estimates represent year 2035 No Project Conditions. As shown in Section 4.2.1, the AM and PM peak hour volumes at the study intersections are projected to increase by 1.3 and 0.9 percent per year. The 2035 Cumulative No Project Conditions peak hour turning movement volumes are shown in **Figure 4.6**.

Since the SF-CHAMP models do not assume USF to contribute much to the expected traffic growth between years 2010 and 2030 within the study area, the IMP is expected to generate additional trips to the study beyond the growth estimated from the SF-CHAMP model. The net new vehicle estimates for the IMP that were shown in **Figure 3.1** were added to the 2035 Cumulative No Project peak hour intersection volumes to represent 2035 Cumulative Plus Project Conditions. The 2035 Cumulative Plus Project Conditions peak hour turning movement volumes are shown in **Figure 4.7**. **Table 4.4** compares the intersection LOS between the Baseline, 2022 Cumulative No Project, and 2035 Cumulative No Project and Plus Project Conditions.


USF

Year 2035 Cumulative No Project Conditions Peak Hour Turning Movement Volumes

FIGURE 4.6

FEHR & PEERS

2011 Projects\SF11-0547 USF IMP\Graphics\Impact Analysis


Year 2035 Cumulative Plus Project Conditions Peak Hour Turning Movement Volumes

FIGURE 4.7

## TABLE 4.4: YEAR 2035 CUMULATIVE CONDITIONS INTERSECTION LEVEL OF SERVICE

| Intersection | Traffic Control[1] | Peak Hour | Baseline No Project | | | 2022 Cumulative No Project | | | 2035 Cumulative No Project | | | 2035 Cumulative Plus Project | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Avg. Delay[2] | LOS | V/C Ratio | Avg. Delay[2] | LOS | V/C Ratio | Avg. Delay[2] | LOS | V/C Ratio | Avg. Delay[2] | LOS | V/C Ratio |
| Arguello Boulevard / Geary Boulevard | Signal | AM | 19 | B | | 22 | C | | 38 | D | | 39 | D | |
| | | PM | 20 | B | | 22 | C | | 28 | C | | 28 | C | |
| Arguello Boulevard / Turk Boulevard | Signal | AM | 13 | B | | 14 | B | | 16 | B | | 16 | B | |
| | | PM | 10 | B | | 11 | B | | 12 | B | | 12 | B | |
| Arguello Boulevard / Fulton Street | Signal | AM | 18 | B | | 31 | C | | **> 80** | **F** | **1.19** | **> 80** | **F** | **1.19** |
| | | PM | 15 | B | | 18 | B | | 26 | C | - | 26 | C | - |
| Stanyan Street / Turk Boulevard | Signal | AM | 16 | B | | 18 | B | | 23 | C | | 26 | C | |
| | | PM | 12 | B | | 13 | B | | 18 | B | | 18 | B | |
| Stanyan Street / Fulton Street | Signal | AM | 47 | D | -- | **67** | **E** | **1.05** | **> 80** | **F** | **1.21** | **> 80** | **F** | **1.21** |
| | | PM | **62** | **E** | **0.91** | **78** | **E** | **1.00** | **> 80** | **F** | **1.11** | **> 80** | **F** | **1.11** |
| Stanyan Street / John F Kennedy Drive | Signal | AM | **> 80** | **F** | **1.51** | **> 80** | **F** | **1.72** | **> 80** | **F** | **1.98** | **> 80** | **F** | **1.98** |
| | | PM | **74** | **E** | **1.24** | **> 80** | **F** | **1.38** | **> 80** | **F** | **1.58** | **> 80** | **F** | **1.59** |
| Parker Street / Geary Boulevard | Signal | AM | 16 | B | | 19 | B | | 31 | C | | 31 | C | |
| | | PM | 16 | B | | 17 | B | | 21 | C | | 21 | C | |
| Parker Street / Turk Boulevard | Signal | AM | 14 | B | | 18 | B | | 34 | C | | 38 | C | |
| | | PM | 15 | B | | 16 | B | | 18 | B | | 18 | B | |
| Parker Street / Golden Gate Avenue | AWS | AM | 12 | B (SB) | | 14 | B (SB) | | 17 | C | | 18 | C | |
| | | PM | 13 | B (SB) | | 14 | B (SB) | | 16 | C | | 17 | C | |
| Masonic Avenue / Geary Boulevard | Signal | AM | **> 80** | **F** | **1.21** | **> 80** | **F** | **1.37** | **> 80** | **F** | **1.58** | **> 80** | **F** | **1.58** |
| | | PM | **> 80** | **F** | **1.01** | **> 80** | **F** | **1.10** | **> 80** | **F** | **1.22** | **> 80** | **F** | **1.22** |
| Masonic Avenue / Turk Boulevard | Signal | AM | 17 | B | | 43 | D | | **> 80** | **F** | **1.43** | **> 80** | **F** | **1.44** |
| | | PM | 21 | C | | 34 | C | | 54 | D | - | **55** | **E** | **1.09** |
| Masonic Avenue / Golden Gate Avenue | Signal | AM | < 10 | A | | < 10 | A | | 37 | D | | 38 | D | |
| | | PM | < 10 | A | | < 10 | A | | 11 | B | | 11 | B | |
| Masonic Avenue / Fulton Street | Signal | AM | 16 | B | | 40 | D | | **77** | **E** | **1.13** | **78** | **E** | **1.14** |
| | | PM | 12 | B | | 20 | B | | 39 | D | - | 40 | D | - |
| Masonic Avenue / Fell Street | Signal | AM | 21 | C | | 25 | C | | 48 | D | | 48 | D | |

## TABLE 4.4: YEAR 2035 CUMULATIVE CONDITIONS INTERSECTION LEVEL OF SERVICE

| Intersection | Traffic Control[1] | Peak Hour | Baseline No Project | | | 2022 Cumulative No Project | | | 2035 Cumulative No Project | | | 2035 Cumulative Plus Project | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Avg. Delay[2] | LOS | V/C Ratio | Avg. Delay[2] | LOS | V/C Ratio | Avg. Delay[2] | LOS | V/C Ratio | Avg. Delay[2] | LOS | V/C Ratio |
| | | PM | 24 | C | | 48 | D | | **68** | **E** | | **69** | **E** | |
| Turk Boulevard / Chabot Terrace | Signal | AM | < 10 | A | | < 10 | A | | < 10 | A | | < 10 | A | |
| | | PM | < 10 | A | | < 10 | A | | < 10 | A | | < 10 | A | |
| Turk Boulevard / Tamalpais Terrace | Signal | AM | < 10 | A | | < 10 | A | | < 10 | A | | < 10 | A | |
| | | PM | 11 | B | | 11 | B | | 12 | B | | 12 | B | |

Notes: **Bold** = unacceptable operations
1. AWS = All-Way Stop-Controlled intersection
2. Average Delay shown as seconds per vehicle.

Source: Fehr & Peers, 2011

Project Traffic Impacts

As indicated in **Table 4.4**, one intersection which operated at acceptable levels of service (LOS D or better) under 2035 Cumulative No Project Conditions would operate at unacceptable levels of service (LOS E or F) with the addition of project-generated traffic. Implementation of the Proposed Project would therefore result in **significant** project impacts at the following intersection:

- Intersection #11: Masonic Avenue / Turk Boulevard (LOS D to LOS E, PM)

In addition, the project would contribute to the following intersections that are estimated to operate at LOS E or LOS F under 2035 Cumulative No Project Conditions, and would continue to operate unacceptably under Cumulative Plus Project Conditions:

- Intersection #3: Arguello Boulevard / Fulton Street (AM)
- Intersection #5: Stanyan Street / Fulton Street (AM/PM)
- Intersection #6: Stanyan Street / John F Kennedy Drive (AM/PM)
- Intersection #10: Masonic Avenue / Geary Boulevard (AM/PM)
- Intersection #11: Masonic Avenue / Turk Boulevard (AM)
- Intersection #13: Masonic Avenue / Fulton Street (AM)
- Intersection #14: Masonic Avenue / Fell Street (PM)

Each of these intersections would operate unacceptably under both 2035 Cumulative No Project and 2035 Cumulative Plus Project Conditions; therefore, the project's contribution to each intersection's critical movements was analyzed to determine if the project would have a significant impact at the intersection.

*Intersection #3: Arguello Boulevard / Fulton Street (LOS F, AM Peak Hour)*

The Arguello Boulevard/Fulton Street intersection would operate at LOS F during the AM peak period under 2035 Cumulative No Project Conditions and 2035 Cumulative Plus Project Conditions. The IMP would add nine vehicle trips to the critical eastbound movement at the intersection during the AM peak hour, which represents 0.6 percent of the movement's expected future volume. The southbound left movement is another critical movement but the project is not expected to add trips to this approach. These approaches are expected to operate at LOS F under 2035 Cumulative Plus Project Conditions; however, the project's contribution to these critical movements would be considered **less-than-significant**.

*Intersection #5: Stanyan Street / Fulton Street (LOS F, AM Peak Hour; LOS F, PM Peak Hour)*

The Stanyan Street / Fulton Street intersection would operate at LOS F during the AM peak hour under 2035 Cumulative No Project and 2035 Cumulative Plus Project Conditions. The critical movements operating at LOS F at this intersection during the AM peak hour include the eastbound through, northbound through, northbound left, and southbound through movements. The IMP would add seven vehicle trips to the critical eastbound through movement, which represents 0.9 percent of the movement's future expected volume. The IMP would add ten vehicle trips to the northbound through movement, which represent 1.9 percent of the movement's future expected volume. The IMP would also add one vehicle trip to the southbound through movement, representing 0.2 percent of the movement's future volume. The IMP would not add trips to the northbound left movement. Therefore, the project's contribution to these critical movements would not be considered significant. The project's contribution to the intersection's failing operating conditions during the AM peak hour would be considered **less-than-significant**.

The Stanyan Street / Fulton Street intersection would operate at LOS F during the PM peak hour under 2035 Cumulative No Project and 2035 Cumulative Plus Project Conditions. The critical movements at this intersection during the PM peak hour include the northbound left (LOS F) and southbound through (LOS F) movements. The IMP would add eight trips to the southbound through movement, which represents 1.3 percent of the movement's future expected volume. The IMP would not add trips to the northbound left movement. Therefore, the project's contribution to these critical movements would not be considered significant. The project's contribution to the operating conditions at this intersection during the PM peak hour would be considered **less-than-significant**.

*Intersection #6: Stanyan Street / John F Kennedy Drive (LOS F, AM Peak Hour; LOS F, PM Peak Hour)*

The Stanyan Street / John F. Kennedy Drive intersection would operate unacceptably at LOS F during the AM peak hour under 2035 Cumulative No Project and 2035 Cumulative Plus Project Conditions. The critical movements operating at LOS F would include eastbound through, northbound through, and southbound left. The IMP would not add any trips to the any of the critical movements. Therefore, the project would have a **less-than-significant** impact to intersection during the AM peak hour.

During the PM peak hour under 2035 Cumulative No Project and 2035 Cumulative Plus Project Conditions, the intersection would operate at LOS F and the critical movements would include the westbound through (LOS E), northbound through (LOS F), southbound through (LOS F), and southbound left (LOS F) movements. One vehicle trip and eight vehicle trips would be added to the westbound through and southbound through movements due to the IMP, representing 0.04 and 0.1 percent of the respective movements' future expected volume. Hence, the project would have a **less-than-significant** impact to the operating conditions at this intersection during the PM peak hour.

*Intersection #10: Masonic Avenue / Geary Boulevard (LOS F, AM Peak Hour; LOS F, PM Peak Hour)*

The Masonic Avenue / Geary Boulevard intersection would operate at LOS F during the AM peak hour under 2035 Cumulative No Project and 2035 Cumulative Plus Project Conditions. The eastbound left, westbound left, northbound left and northbound through movements would be the critical movements during the AM peak hour, operating at LOS F. The IMP would add five trips to the westbound left movement, or 0.3 percent of the movement's future expected volume. No trips would be added to the other critical movements. Thus, the project's impact on the intersection during the AM peak hour would be considered **less-than-significant**.

The intersection would also operate at LOS F during the PM peak hour under 2035 Cumulative No Project and Plus Project Conditions, with the eastbound left, westbound left, northbound left, and southbound through as the critical movements operating at LOS F. The IMP is expected to add one trip to the eastbound left approach, which represent just 0.5 percent of the movement's future expected volume. The project would have a **less-than-significant** impact to the operating conditions at this intersection during the PM peak hour.

*Intersection #11: Masonic Avenue / Turk Boulevard (LOS F, AM Peak Hour; LOS E, PM Peak Hour)*

The Masonic Avenue / Turk Boulevard intersection would operate unacceptably at LOS F during the AM peak hour under 2035 Cumulative No Project and 2035 Cumulative Plus Project Conditions. Critical movements include the eastbound left, eastbound through, westbound left, and northbound through movements, all of which would operate at LOS F during the Am peak hour. The IMP would add 22 vehicle trips to the eastbound right movement, which represents 3.7 percent of future volume for the eastbound through-right lane. With three trips added to the critical westbound left movement, the project would contribute to 2.5 percent of the movement's future expected volume. The IMP is not expected to add vehicle trips to the other critical movements. Therefore, the project's contribution to the critical movements as well as the intersection's LOS F operating conditions would be considered **less-than-significant**.

The addition of Proposed Project trips would degrade PM peak hour level of service from LOS D under 2035 Cumulative No Project Conditions to LOS E under 2035 Cumulative Plus Project Conditions. This would be considered a **significant** traffic impact. Providing an additional right turn lane at this intersection would improve operations to acceptable levels and reduce the impact to a **less-than-significant** level.

*Intersection #13: Masonic Avenue / Fulton Street (LOS E, AM Peak Hour)*

Under 2035 Cumulative No Project and Plus Project Conditions, the Masonic Avenue / Fulton Street intersection would operate at LOS E during the AM peak hour. Seven vehicle trips would be added to the critical northbound through (LOS F) movement due to the IMP, representing 0.3 percent of the movement's future expected volume. Hence, the project would have a **less-than-significant** contribution to the intersection.

*Intersection #14: Masonic Avenue / Fell Street (LOS E, AM Peak Hour; LOS E, PM Peak Hour)*

The Masonic Avenue / Fell Street intersection would operate unacceptably at LOS E during the AM peak hour under 2035 Cumulative No Project and 2035 Cumulative Plus Project Conditions. The southbound through movement would be the critical movement and operate at LOS F. The IMP would add eight southbound through trips at this intersection, which would be 0.7 percent of the southbound through movement's future expected volume. Therefore, the project's contribution to the intersection's failing operating conditions would be considered **less-than-significant**.

Overall, implementation of the IMP under 2035 Cumulative Conditions would result in insignificant impact at the all study intersections.

## 4.3 TRANSIT IMPACTS

To estimate transit operations under project conditions, future year ridership projections were obtained from the SF CHAMP model for each line serving the Campus. Ridership demand estimates for each of the scenario years were developed by assuming linear growth between the 2008 model and future year 2030 model, and applying that growth rate to the scenario year. Estimated future hourly ridership demand was then compared to the expected hourly capacity, assuming transit routes and headway changes would not change between 2008 and the scenario year. Transit capacity utilization rates were then calculated for both the No Project and Plus Project Conditions. No future changes to the bus routes, headways, and capacity of the lines were assumed.

### *4.3.1 Existing Plus Project Conditions*

The IMP is estimated to produce 447 net new daily transit trips, 40 net new AM peak hour transit trips, and 36 net new PM peak hour transit trips. These transit person trips were added to the Existing Conditions for the transit lines within study area that would be used by employees and visitors to access the campus. Transit routes were chosen based on the trip distribution percentages presented in Section 3.3. **Table 4.6** summarizes Existing and Existing Plus Project transit conditions.

Transit routes serving the Hilltop Campus were split into directional groups to analyze whether or not the IMP would cause transit operating in a particular direction (i.e., northbound, southbound, westbound, eastbound) to exceed the SFMTA's 85 percent capacity utilization standard. Northbound and eastbound routes carry inbound riders, whereas southbound and westbound routes carry outbound riders. As shown in **Table 4.6**, no transit corridors are expected to operate over 85 percent of capacity standard; hence, impacts to transit ridership are expected to be **less-than-significant**.

**TABLE 4.6: MUNI TRANSIT CAPACITY UTILIZATION BY CORRIDOR SCREENLINE – EXISTING PLUS PROJECT CONDITIONS**

| Direction | Peak Hour | Existing Conditions | | | Existing Plus Project | | |
|---|---|---|---|---|---|---|---|
| | | Capacity | Ridership | Capacity Utilization | Project Trips | Ridership | Capacity Utilization |
| Northbound[1] | AM | 630 | 471 | 75% | 14 | 485 | 77% |
| | PM | 630 | 302 | 48% | 8 | 310 | 49% |
| Southbound[1] | AM | 693 | 193 | 28% | 2 | 195 | 28% |
| | PM | 630 | 348 | 55% | 6 | 354 | 56% |
| Eastbound[2] | AM | 3,631 | 2,077 | 57% | 25 | 2,102 | 58% |
| | PM | 3,361 | 1,540 | 46% | 18 | 1,558 | 46% |
| Westbound[2] | AM | 3,141 | 2,039 | 65% | 15 | 2,054 | 65% |
| | PM | 3,882 | 2,141 | 55% | 23 | 2,164 | 56% |

Notes:
1. 33 Stanyan, 43 Masonic
2. 5 Fulton, 21 Hayes, 31 Balboa, 31BX Balboa B Express, 38 Geary, 38L Geary Limited

Source: Fehr & Peers, 2011

### *4.3.2 Baseline 2012 Conditions*

The IMP is estimated to produce 447 net new daily transit trips, 40 net new AM peak hour transit trips, and 36 net new PM peak hour transit trips. These transit person trips were added to the Baseline

Conditions for the transit lines within study area that would be used by employees and visitors to access the campus. Transit routes were chosen based on the trip distribution percentages presented in Section 3.3. **Table 4.7** summarizes Baseline and Baseline Plus Project transit conditions.

Transit routes serving the Hilltop Campus were split into directional groups to analyze whether or not the IMP would cause transit operating in a particular direction (i.e., northbound, southbound, westbound, eastbound) to exceed the SFMTA's 85 percent capacity utilization standard. Northbound and eastbound routes carry inbound riders, whereas southbound and westbound routes carry outbound riders. As shown in **Table 4.7**, no transit corridors are expected to operate over 85 percent of capacity standard; hence, impacts to transit ridership are expected to be **less-than-significant**.

**TABLE 4.7: MUNI TRANSIT CAPACITY UTILIZATION BY CORRIDOR SCREENLINE – BASELINE CONDITIONS**

| Direction | Peak Hour | Baseline No Project | | | Baseline Plus Project | | |
|---|---|---|---|---|---|---|---|
| | | Capacity | Ridership | Capacity Utilization | Project Trips | Ridership | Capacity Utilization |
| Northbound[1] | AM | 630 | 475 | 75% | 14 | 489 | 78% |
| | PM | 630 | 305 | 48% | 8 | 313 | 50% |
| Southbound[1] | AM | 693 | 204 | 29% | 2 | 206 | 30% |
| | PM | 630 | 366 | 58% | 6 | 372 | 59% |
| Eastbound[2] | AM | 3,631 | 2,184 | 60% | 25 | 2,209 | 61% |
| | PM | 3,361 | 1,634 | 49% | 18 | 1,652 | 49% |
| Westbound[2] | AM | 3,141 | 2,042 | 65% | 15 | 2,057 | 65% |
| | PM | 3,882 | 2,143 | 55% | 23 | 2,166 | 56% |

Notes:
1. 33 Stanyan, 43 Masonic
2. 5 Fulton, 21 Hayes, 31 Balboa, 31BX Balboa B Express, 38 Geary, 38L Geary Limited

Source: Fehr & Peers, 2011

### *4.3.3 Year 2022 Cumulative Conditions*

The transit person trips estimated to be generated by the IMP were added to the Year 2022 Cumulative No Project Conditions for the bus lines within the transit study area that would be used by USF faculty, staff, and students to the campus. Project-generated inbound and outbound transit trips were distributed directionally based on the regional distribution for transit trips presented in Section 3.3. These trips were then assigned proportionally to bus lines that operate in the same corridor and would likely serve these trips.

The project would be considered to have a significant cumulative impact by year 2022 if the addition of project trips to the Muni corridors would result in the capacity utilization to exceed 85 percent standard. Where a corridor operates at over 85 percent capacity utilization under Year 2022 Cumulative No Project Conditions, the increase in project transit trips were reviewed to determine whether the increase would contribute significantly to the capacity utilization.

As shown in **Table 4.8**, no transit corridors are expected to operate over Muni's 85 percent standard; hence, impacts to transit ridership are expected to be **less-than-significant**.

.

**TABLE 4.8: MUNI TRANSIT CAPACITY UTILIZATION BY CORRIDOR SCREENLINE – YEAR 2022 CUMULATIVE CONDITIONS**

| Direction | Peak Hour | Year 2022 No Project | | | Year 2022 Cumulative Plus Project | | |
|---|---|---|---|---|---|---|---|
| | | Capacity | Ridership | Capacity Utilization | Project Trips | Ridership | Capacity Utilization |
| Northbound[1] | AM | 630 | 481 | 76% | 14 | 495 | 79% |
| | PM | 630 | 309 | 49% | 8 | 317 | 50% |
| Southbound[1] | AM | 693 | 234 | 34% | 2 | 236 | 34% |
| | PM | 630 | 415 | 66% | 6 | 421 | 67% |
| Eastbound[2] | AM | 3,631 | 2,482 | 68% | 25 | 2,507 | 69% |
| | PM | 3,361 | 1,897 | 56% | 18 | 1,915 | 57% |
| Westbound[2] | AM | 3,141 | 2,046 | 65% | 15 | 2,061 | 66% |
| | PM | 3,882 | 2,142 | 55% | 23 | 2,165 | 56% |

Notes:
3. 33 Stanyan, 43 Masonic
4. 5 Fulton, 21 Hayes, 31 Balboa, 31BX Balboa B Express, 38 Geary, 38L Geary Limited

Source: Fehr & Peers, 2011

### *4.3.4 Year 2035 Cumulative Conditions*

Ridership demand estimates for year 2035 were developed by assuming linear growth between the year 2008 and 2030 SF-CHAMP models. The same annual growth rates were also assumed between years 2030 and 2035. Estimated future hourly ridership demand was compared to expected hourly capacity, with the assumption that no changes in transit routes, headway, and bus capacity would occur between year 2012 Baseline and year 2035.

The IMP is estimated to produce 40 AM peak hour transit trips (39 inbound and one outbound) and 36 PM peak hour transit trips (eight inbound and 28 outbound).

As for the preceding year scenarios, the transit routes serving the USF Campus were split into directional groups to analyze whether or not the IMP would cause transit operating in a directional screenline to exceed the Muni's 85 percent capacity utilization standard.

The project would have a significant impact if the addition of project trips to the Muni corridors was a substantial contribution that would result in the capacity utilization to exceed 85 percent. As shown in **Table 4.9**, no transit corridors are expected to operate over 85 percent of capacity standard; therefore, the IMP's contribution to the transit ridership would be considered **less-than-significant**.

**TABLE 4.8: MUNI TRANSIT CAPACITY UTILIZATION BY CORRIDOR SCREENLINE – YEAR 2035 CUMULATIVE CONDITIONS**

| Direction | Peak Hour | Year 2035 No Project | | | Year 2035 Cumulative Plus Project | | |
|---|---|---|---|---|---|---|---|
| | | Capacity | Ridership | Capacity Utilization | Project Trips | Ridership | Capacity Utilization |
| Northbound[1] | AM | 630 | 490 | 78% | 14 | 504 | 80% |
| | PM | 630 | 314 | 50% | 8 | 322 | 51% |
| Southbound[1] | AM | 693 | 281 | 41% | 2 | 283 | 41% |
| | PM | 630 | 492 | 78% | 6 | 498 | 79% |
| Eastbound[2] | AM | 3,631 | 2,953 | 81% | 25 | 2,978 | 82% |
| | PM | 3,361 | 2,317 | 69% | 18 | 2,335 | 69% |
| Westbound[2] | AM | 3,141 | 2,052 | 65% | 15 | 2,067 | 66% |
| | PM | 3,882 | 2,143 | 55% | 23 | 2,166 | 56% |

Notes:
5. 33 Stanyan, 43 Masonic
6. 5 Fulton, 21 Hayes, 31 Balboa, 31BX Balboa B Express, 38 Geary, 38L Geary Limited

Source: Fehr & Peers, 2011

## 4.4 BICYCLE IMPACTS

The IMP is expected to increase bicycle demand around the Campus. This section describes the City of San Francisco bicycle parking requirements per the *Planning Code*, as they relate to the campus, and the bicycle circulation impacts in the area around the campus.

### *4.4.1 Bicycle Parking*

The City of San Francisco *Planning Code* Section 155 specifies that new developments or major renovations must provide a minimum number of bicycle parking spaces and bicycle amenities. The design of the bicycle parking areas on the Campus would be subject to review by the City to ensure *Planning Code* compliance, either directly, through a variance, or exception. *Planning Code* information is presented for informational purposes only, and no impacts were identified.

As part of the IMP, the University may expand or alter its parking garages. The Campus would be required to provide a minimum of six bicycle parking spaces, plus one bicycle parking space for every 20 parking spaces in garages with 120 to 500 parking spaces. Garages which offer more than 500 automobile parking spaces would be required to provide 25 bicycle parking spaces plus one for every 40 automobile spaces, up to a maximum of 50 bicycle parking spaces.

New or significantly renovated academic buildings on the Campus would also be required to provide bicycle parking. Where the gross square footage of the floor area exceeds 10,000 square feet but is no greater than 20,000 feet, three bicycle spaces would be required. Where the gross square footage of the floor area exceeds 20,000 square feet but is no greater than 50,000 feet, six bicycle spaces would be required. Where the gross square footage of the floor area exceeds 50,000 square feet, 12 bicycle spaces would be required.

Any new dormitory or housing facility would be required to provide one bicycle parking space for every three bedrooms.

Additionally, the University would be required to provide locker and shower facilities for cyclist commuters in new buildings or buildings undergoing major renovations. Where the gross square footage of the floor area exceeds 10,000 square feet but is no greater than 20,000 square feet, one shower and two clothes lockers would be required. Where the gross square footage of the floor area exceeds 20,000 square feet but is no greater than 50,000 square feet, two showers and four clothes lockers would be required. Where the gross square footage of the floor area exceeds 50,000 square feet, four showers and eight clothes lockers would be required. This requirement can be waived if the University establishes an agreement to provide lockers and showers at a health club (e.g., Koret Center) or other facility within four blocks of the University building free of charge to employees who choose to bicycle to Campus.

As mentioned before, the University would be required to submit plans to the City for any future project on the Campus, and bicycle parking would be reviewed at that time. Therefore, no impacts are identified in this subsection and data is presented for informational purposes only.

### *4.4.2 Bicycle Circulation*

As discussed in Section 2.5, the area around the Campus has a number streets designated as bicycle routes or with striped bicycle lanes. In summary, the following on-street bicycle facilities are located near the USF Campus:

- Turk Boulevard, west of Masonic Avenue, Class II bicycle lanes in both directions;
- Golden Gate Avenue, between Baker Street and Shrader Street, a westbound Class II bicycle lane, between Annapolis Street and Broderick Street, an eastbound Class II bicycle lane, and between Shrader Street and Annapolis Street, a Class III bicycle route (signs and sharrows).
- Other bicycle facilities near the Lone Mountain and Lower Campus include bidirectional Class II bicycle lanes on Arguello Boulevard, a Class III bicycle route on Masonic Avenue, and a Class III bicycle route (signs and Sharrows) on McAllister Street.

The recently adopted Masonic Avenue Street Design study also identified future bicycle network changes along Masonic Avenue. A grade-separated cycletrack would be added in both the northbound and southbound directions. This improvement would be implemented at the same time of a planned lane reduction and signal retiming of the Masonic corridor. Although the project was approved, the City is still in the process of identifying funding to implement the preferred alternative.

During the implementation of the ten year IMP, the Campus would experience an increase in the number of students, faculty and staff. Some of these new people on campus would bicycle to Campus; however, a majority is still expected to drive. As part of the IMP, the University would implement two streetscape design plans –Turk Boulevard and Golden Gate Avenue between Masonic Avenue and Shrader Street – to increase bicycle and pedestrian safety on the streets adjacent to the campus.

The IMP does not include any elements that would significantly inhibit bicycle activity in the area surrounding the Campus, nor does it interfere with the implementation of elements of the *Bike Plan*. The proposed streetscape improvements to Turk Boulevard and Golden Gate Avenue would generally enhance the bicycling environment and improve bicyclist safety. The project is expected to generate new bicycle trips within San Francisco; however, these new trips can be reasonably accommodated on the existing and planned bicycle network; therefore, the project's impact to the bicycle network would be **less-than-significant.**

## 4.5 PEDESTRIAN IMPACTS

The IMP is expected to increase pedestrian traffic on and around the USF Campus, including walking trips to and from nearby transit stops. Although pedestrian activity around the campus is generally dispersed, pedestrian activity would likely increase at locations proposed as future development sites, particularly across Parker Avenue and between the Lower and Hilltop portions of the Campus.

There would also likely be an increase in the number of pedestrians at transit stops around the Campus. This includes walking trips to transit stops located along Turk Boulevard at Stanyan Street, Parker Avenue, Chabot Terrace, Roselyn Terrace, and Masonic Avenue, and along Fulton Street at Parker Avenue, Clayton Street, and Masonic Avenue.

To address an increased number of pedestrians, the IMP includes pedestrian enhancements as part of the Turk Boulevard and Golden Gate Avenue streetscape plans. Improvements would include enhanced crosswalks, medians, curb extensions, and traffic calming elements. The Master Plan also includes an enhanced crosswalk on Parker Avenue at McAllister Street.

The IMP would not create unsafe conditions for pedestrians, nor would the additional walk trips cause crowding on nearby sidewalks; therefore, the IMP would have a **less-than-significant** impact to pedestrian facilities around the Campus. Generally, the traffic calming plan would improve conditions for pedestrians around the Campus.

Prior to constructing any proposed improvements to the public right-of-way, USF would coordinate their proposed plan and design with the SFMTA, the agency with the authority to make changes to the roadway.

## 4.6 LOADING IMPACTS

Assessments of loading impacts are specific to individual projects, and include the ability of the new development to accommodate the projected delivery and service vehicle demand generated by the new uses. To the extent that the loading demand is not accommodated on-site, and could not be accommodated within existing or new on-street loading zones, double-parking, illegal use of sidewalks and other public space is likely to occur with associated disruptions and impacts to traffic and transit operations as well as to bicyclists and pedestrians. These disruptions are usually short in duration and occur when trucks enter and exit loading areas. However, USF has implemented several improvement measures to manage loading issues including creating a Traffic Coordinator position in 2010 to manage campus deliveries and to address disruptions and impacts. The University limits the hours of use of its loading docks to Monday through Friday, 7am to 4pm and Saturday & Sunday 9am to 4pm. Therefore, no impacts associated with loading were identified.

## 4.7 EMERGENCY ACCESS IMPACTS

Aside from the modest increase in vehicle traffic associated with the new students, faculty, and staff at the Hilltop Campus, the IMP would not inhibit or create any barriers to emergency access vehicles on the Campus or traveling through the Campus. Therefore, impacts to emergency access are expected to be **less-than-significant**.

## 4.8 CONSTRUCTION IMPACTS

Temporary construction impacts are specific to individual development projects, and include impacts related to temporary roadway and sidewalk closures, relocation of bus stops, effects on roadway circulation due to construction vehicles, and parking demand associated with construction workers. The IMP envisions development sites that may affect the transportation network along Fulton Street, next to St. Ignatius; Parker Avenue, between McAllister and Turk; Golden Gate Avenue, west of Masonic; Turk Avenue, between Tamalpais Terrace and Roselyn Terrace; Anza Street, east of Parker Avenue. Construction activities that affect street right-of-way are typically regulated through permits and construction requirements to ensure acceptable levels of traffic and transit flow during the period of traffic disruptions. Construction best management practices are typically required to be in place to ensure the safety of construction workers, motorists, bicyclists, and pedestrians throughout the construction period. No construction impacts were identified.

## 4.9 PARKING IMPACTS

Although there are no significance thresholds for parking impacts, parking impacts due to campus population growth, the traffic calming plan, and the Masonic Boulevard Streetscape project were analyzed to help shape USF's transportation demand management strategy. Based on campus population projections, removal of on-street parking due to both the traffic calming plan and the Masonic Boulevard project, and future on-campus parking supply, the estimated future on-campus parking deficit is 101 vehicles and off-campus parking deficit is 127 vehicles. The USF transportation demand management strategy is tailored to address the projected parking deficits. The existing and forecasted parking conditions are discussed in further detail in Chapter 6.

[This page intentionally left blank.]

# CHAPTER 5. MITIGATION AND IMPROVEMENTS

This chapter presents the transportation mitigation measures that would be required to reduce the impacts of the IMP. In some cases, mitigation measures would reduce the magnitude of the project's impacts, but not to less-than-significant levels. In some cases, no significant impact was identified; however, an improvement measure was noted that would improve operations. This chapter describes the level of significance following implementation of the recommended mitigation measure.

## 5.1 TRAFFIC

One significant environmental impact has been identified. The addition of Proposed Project trips at the Masonic Avenue / Turk Boulevard intersection would degrade PM peak hour level of service from LOS D under 2035 Cumulative No Project Conditions to LOS E under 2035 Cumulative Plus Project Conditions. This would be considered a significant traffic impact. Providing an additional right turn lane at this intersection would improve operations to acceptable levels and reduce the impact to a **less-than-significant** level.

## 5.2 TRANSIT

No significant environmental impacts have been identified. No mitigation required.

## 5.3 BICYCLES

No significant environmental impacts have been identified. No mitigation required.

## 5.4 PEDESTRIANS

No significant environmental impacts have been identified. No mitigation required.

## 5.5 LOADING

No significant environmental impacts have been identified. No mitigation required.

## 5.6 EMERGENCY ACCESS

No significant environmental impacts have been identified. No mitigation required.

## 5.7 LOADING

No significant environmental impacts have been identified. No mitigation required.

## 5.8 CONSTRUCTION

No significant environmental impacts have been identified. No mitigation required.

[This page intentionally left blank.]

# CHAPTER 6. PARKING CONDITIONS

The City of San Francisco does not consider parking to be a part of the physical environment, since the availability of parking spaces (or lack thereof) is not a permanent physical conditions and changes over time (both throughout the day and week and as people change their travel mode and patterns). However, parking supply and demand is generally of interest to both residents and the USF community. This chapter describes the data collection, analysis, and results of an on-street and on-campus parking study completed as part of the IMP.

Existing on-street and off-street parking conditions were examined in a parking study area bounded by Geary Boulevard to the north, Central Avenue to the east, Fell Street to the south, and Arguello Boulevard to the west. The parking study area encompasses areas that are within ½ mile from the center of the Upper and Lower Campuses, which includes most street segments within two blocks of a Campus edge. This boundary for the study area is assumed to represent areas within a reasonable walking distance from the Campus for those who choose to park along the street. The parking study area, as well as subareas, is shown in **Figure 6.1**.

This study area is inclusive of the entire BB residential parking permit area and the entire L residential parking permit area expect for one L permit block north of Geary and one L permit block west of Arguello. The parking area captures drivers who might look for less-convenient, but less-restricted parking, as well as those less willing to walk, willing to spend more time looking for parking, and more willing to move their car for applicable time restrictions.

## 6.1 ON-STREET PARKING

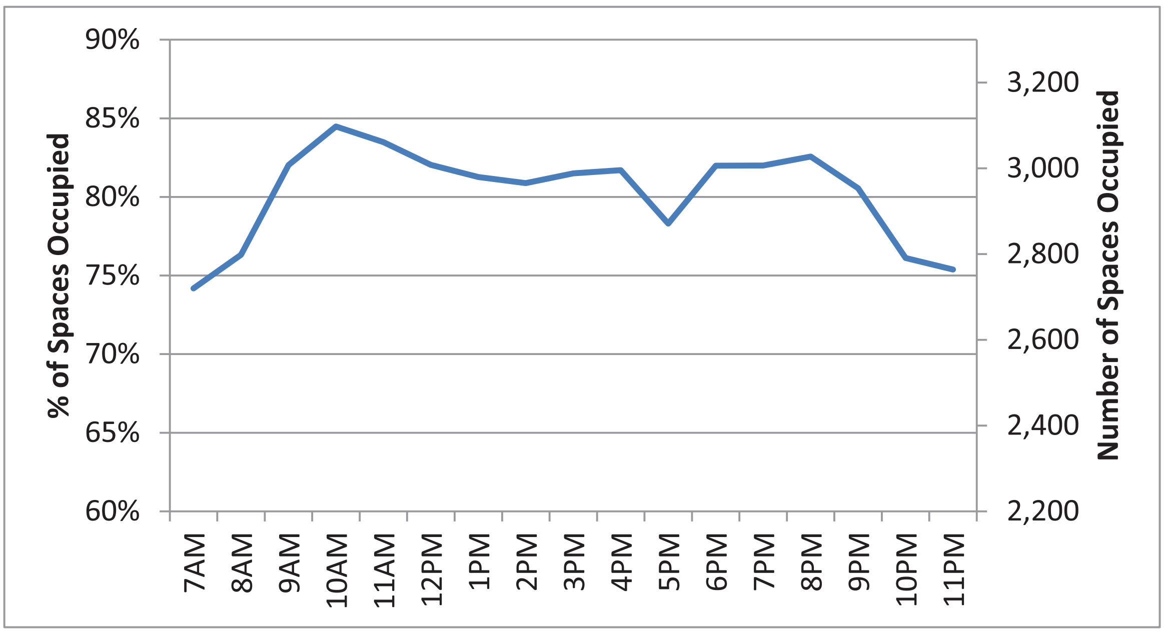
The residential streets surrounding USF were surveyed to determine the typical on-street parking occupancy rate. The area surveyed covers the streets within two blocks of a Campus edge, as shown in **Figure 6.1**. To determine the existing parking occupancy of the surrounding area, field surveys were conducted on these streets on March 24, March 31, and April 19, 2011 and are included in **Appendix D**. This study area includes a total of 3,670 on street parking spaces. Of these spaces, approximately 1,601 spaces are unrestricted with only street cleaning limitations. The unrestricted spaces are generally located along the USF Campus (Anza Street, Turk Boulevard, and Parker Avenue). Except for block faces around the USF Campus and the St. Mary's Campus, parking is generally restricted to 2-hours except for those with residential parking permits.

The parking field surveys were conducted in-person by counting the total parking spaces available on each roadway segment, then counting the number of parked vehicles on each roadway segment for each hour between 7:00 AM and midnight. Because the data was collected by roadway segment, the data could be aggregated by block or subarea to determine if a particular area had a more constrained (i.e., more occupied) parking supply throughout a typical day. Data was not collected between midnight at 7:00 AM because parking restrictions are typically not in effect and parking occupancy changes less frequently from one hour to the next because residents are sleeping. For example, conditions at midnight and at 7:00 AM can be used as proxy for what parking occupancy is at 3:00 AM.

The data was also collected such that it reflected typical conditions in the study area when school is in session and parking supply is most constrained. As a result, the analysis could focus on what the effect of enrollment changes on the Campus would do to parking when it is in most short supply, and the study could inform decisions regarding transportation demand management tools to reduce parking demand and improve parking strategies (e.g., restructuring on-campus permits to manage demand or building a new garage).

As shown in **Chart 6.1** of the transportation impact study, on street parking in the study area ranges from approximately 73% occupancy at 7:00 AM to 83% occupied at 10:00AM. **Figure 6.2** summarizes the peak hour occupancy of each roadway segment in the study area. As shown, even when area wide parking is most constrained (i.e., most occupied), some streets, including Fulton Street, Rossi Avenue, and Ewing Terrace have available parking. In fact, many of the blocks to the west of the Campus, including Beaumont, Willard, Edward, and Arguello have parking occupancy under 80%. However, as noted, the blocks nearest to the Campus, including Golden Gate, Roselyn Terrace, and Annapolis Terrace, are 100% occupied at the peak time of day for the area.

**Chart 6.1 - On-Street Parking Occupancy by hour**



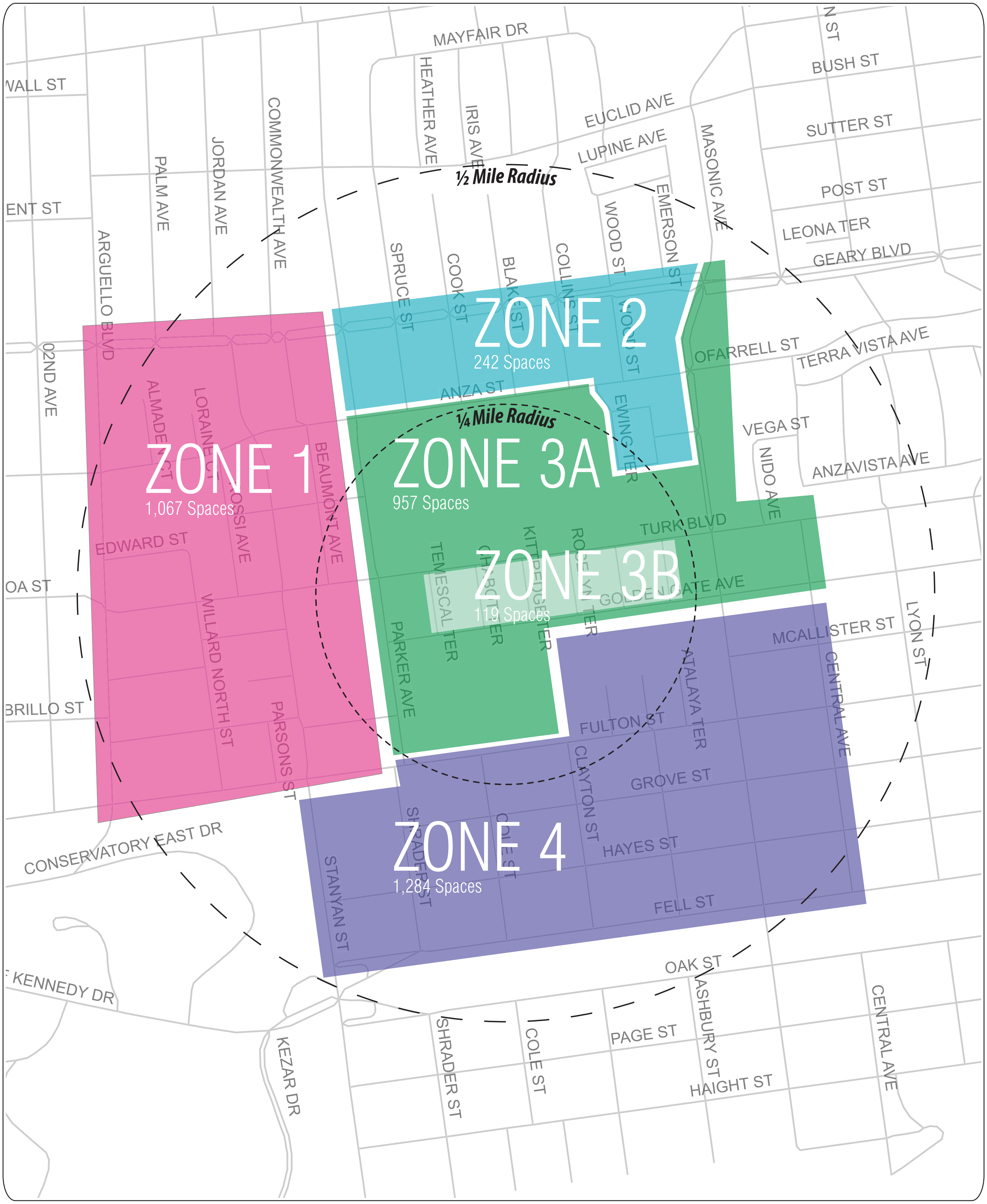

The parking survey data contained in Appendix D of can be aggregated to identify the peak occupancy and peak times of day for subareas and individual streets. **Table 6.1** summarizes parking occupancy for each subarea shown in **Figure 6.1** throughout the day. As shown, Subarea 3's approximately 1,076 spaces are most occupied throughout the day, ranging from about 60% occupied at midnight to about 93% occupied at 10:00 AM.

**TABLE 6.1: PARKING OCCUPANCY AND AVAILABLE SUPPLY BY SUBAREA AND HOUR OF DAY**

| Location | Total Available Spaces | Time of Day | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Morning | | | | | Afternoon | | | | | | Evening | | | | | |
| | | 7:00 | 8:00 | 9:00 | 10:00 | 11:00 | 12:00 | 1:00 | 2:00 | 3:00 | 4:00 | 5:00 | 6:00 | 7:00 | 8:00 | 9:00 | 10:00 | 11:00 |
| **Area #1 – West of Parker** | | | | | | | | | | | | | | | | | | |
| Percent Occupied | 1,067 | 73% | 68% | 67% | 70% | 70% | 71% | 67% | 68% | 66% | 68% | 60% | 73% | 75% | 79% | 77% | 75% | 74% |
| Spaces Available | | 293 | 343 | 353 | 317 | 323 | 308 | 347 | 343 | 361 | 339 | 422 | 285 | 267 | 227 | 248 | 268 | 274 |
| **Area #2 – North of Anza + Ewing Terrace** | | | | | | | | | | | | | | | | | | |
| Percent Occupied | 242 | 68% | 69% | 72% | 80% | 81% | 79% | 71% | 69% | 72% | 71% | 81% | 77% | 74% | 76% | 80% | 78% | 73% |
| Spaces Available | | 77 | 75 | 68 | 49 | 45 | 51 | 69 | 76 | 68 | 69 | 46 | 56 | 63 | 57 | 49 | 53 | 65 |
| **Area #3a – University Block Faces** | | | | | | | | | | | | | | | | | | |
| Percent Occupied | 957 | 65% | 76% | **92%** | **94%** | **92%** | **90%** | **91%** | **90%** | **92%** | **90%** | 82% | 80% | 77% | 74% | 71% | 62% | 60% |
| Spaces Available | | 331 | 226 | **81** | **60** | **75** | **97** | **88** | **95** | **77** | **92** | 174 | 189 | 216 | 245 | 279 | 368 | 379 |
| **Area #3b – University Terrace Streets** | | | | | | | | | | | | | | | | | | |
| Percent Occupied | 119 | 50% | 68% | **95%** | **92%** | **92%** | **92%** | **93%** | **90%** | **95%** | **92%** | **91%** | **91%** | 86% | 76% | 70% | 48% | 44% |
| Spaces Available | | 60 | 38 | **6** | **10** | **10** | **10** | **8** | **12** | **6** | **9** | **11** | **11** | 17 | 28 | 36 | 62 | 67 |
| **Area #4 – South of Lower Campus / Panhandle Neighborhoods** | | | | | | | | | | | | | | | | | | |
| Percent Occupied | 1,284 | 82% | 81% | 85% | 86% | 85% | 85% | 86% | 86% | 87% | 87% | 89% | **91%** | **93%** | **93%** | **92%** | **90%** | **91%** |
| Spaces Available | | 229 | 242 | 188 | 180 | 199 | 196 | 177 | 176 | 167 | 164 | 143 | **120** | **94** | **86** | **102** | **126** | **117** |

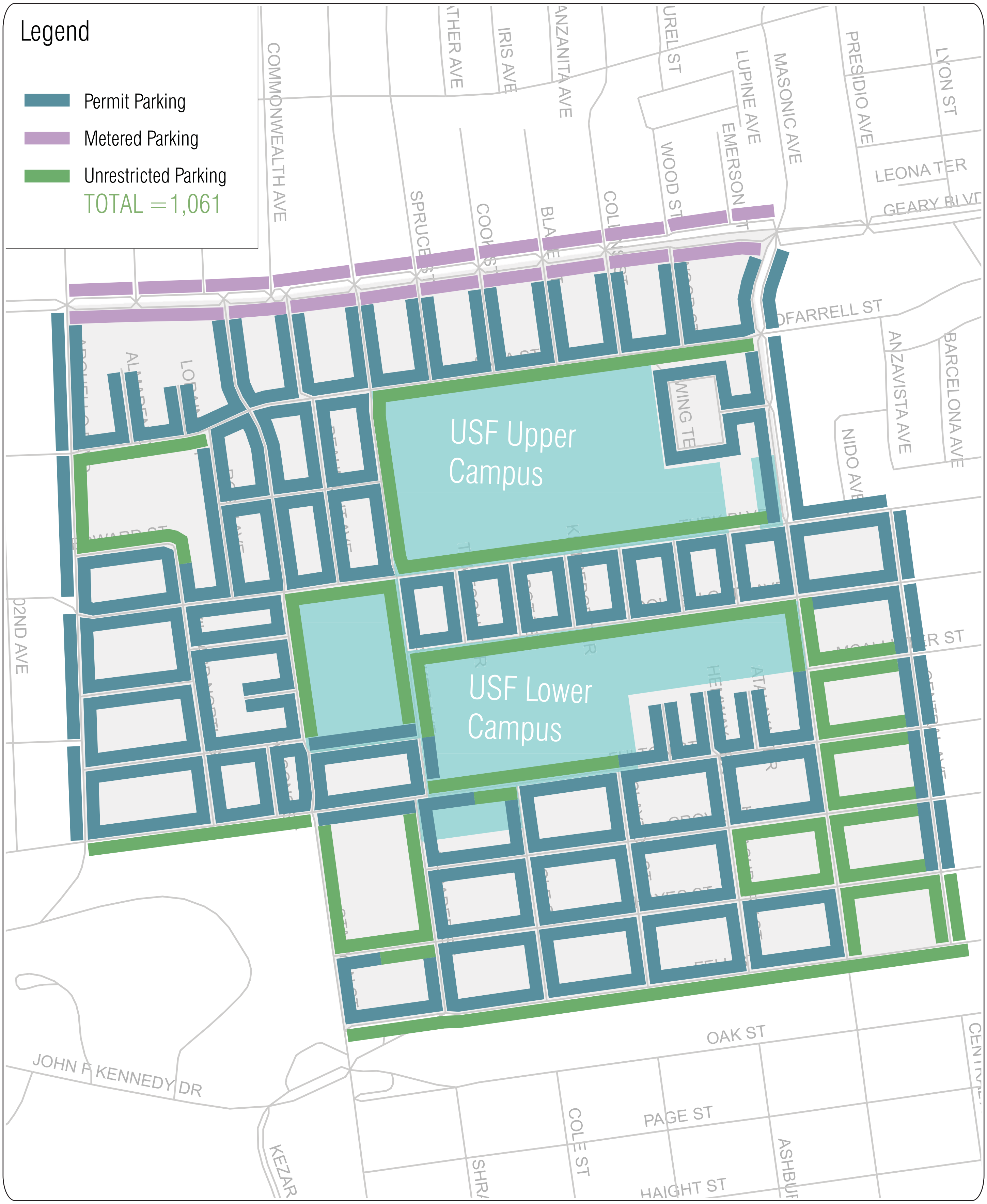
Notes:
1. Parking occupancy over 90% has been shown in **bold** typeface to indicate times of day when parking is most constrained in each of the subareas.

Source: Fehr & Peers, 2012



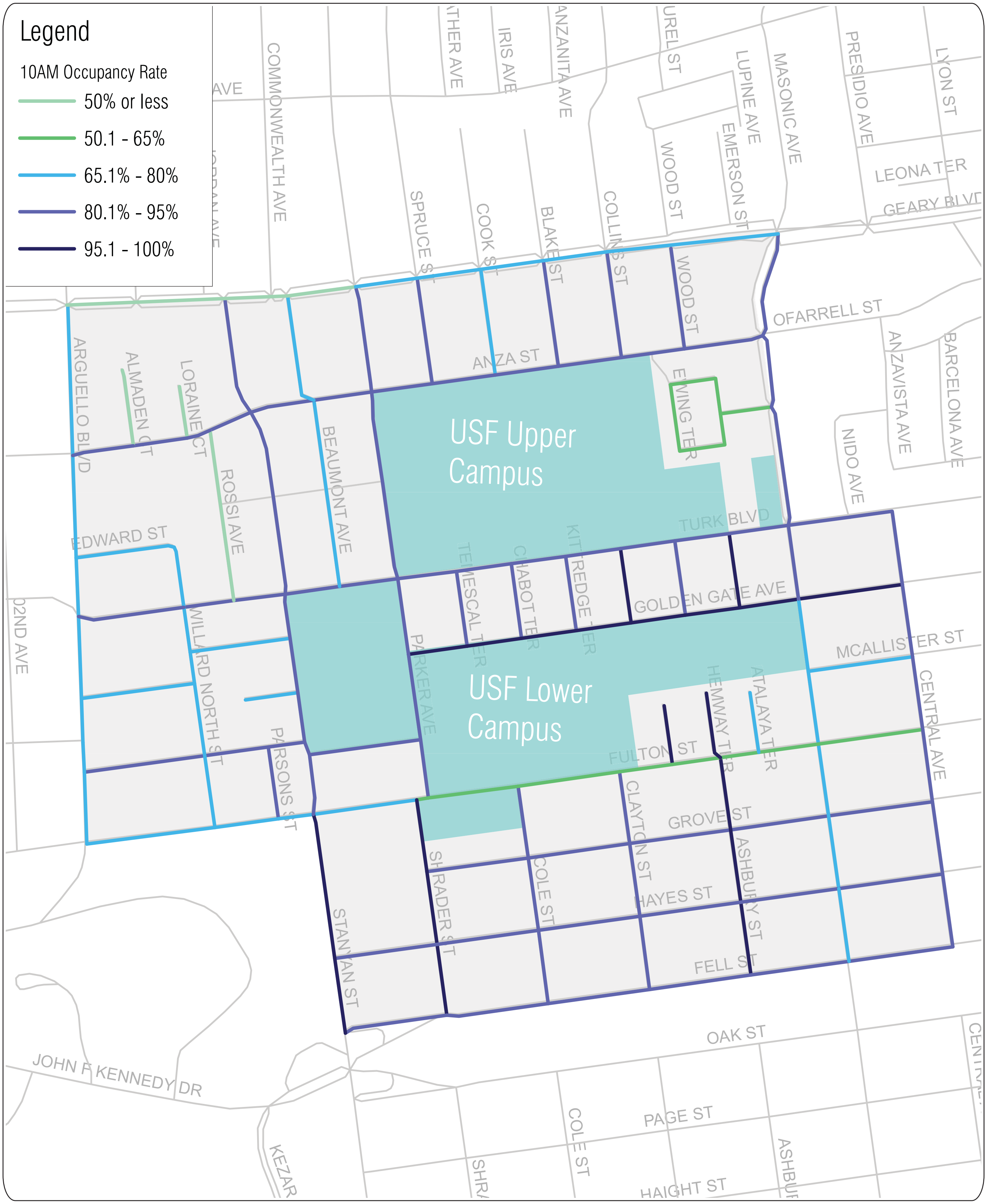

On-Street Parking Capacity

Figure 6.1




On-Street Parking Peak Occupancy

Figure 6.2




Existing On-Street Parking Occupancy

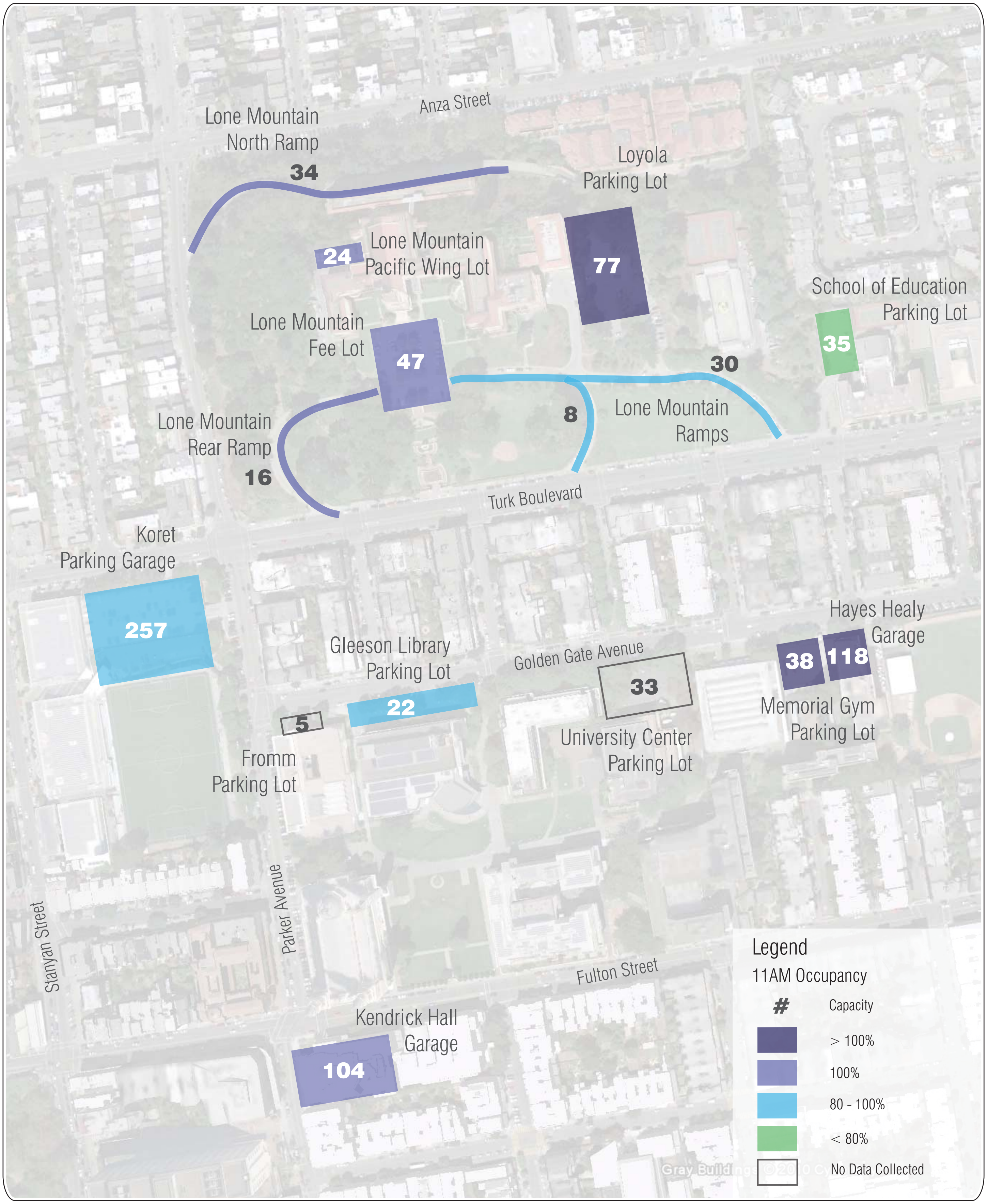
Figure 6.3

## 6.2 ON-CAMPUS PARKING

USF currently has seven parking lots and three parking garages on campus (**Figure 6.3**). Cars may also park on-campus along the Lone Mountain entrance ramps. The total on-campus parking supply is 860 spaces. 710 of these spaces are regular use spaces while the remaining 150 are designated for specific uses, including handicap spaces, motorcycle spaces, dedicated carpool and carshare spaces, and short-term loading zones.

**Figure 6.3** also indicates the peak occupancy of on-campus parking during the day. The daily occupancy was surveyed at the same time that on-street parking was surveyed. The peak occupancy hour was 11 AM to 12 PM when 93 percent of the regular parking spaces were occupied. During this time the majority of on-campus parking lots/garages are at capacity. One exception is the School of Education Parking Lot, in which only 16 of its 32 regular parking spaces, or 50 percent, are occupied. Furthermore, the Koret Parking Lot lower level never reached above a 79 percent occupancy rate, demonstrating that some on-campus parking spaces remained available throughout the day.

USF faculty, staff, and students arrive to and depart from campus at various times throughout the day. According to the transportation survey conducted, the peak arrival time to campus occurs from 8AM to 10AM while the peak departure time from campus occurs from 5PM to 7PM. Among those who typically drive to USF, 45 percent use a parking garage or lot on the campus.




Existing On-Campus Parking Locations and Occupancy

## 6.3 PARKING DEMAND

The number of on-street USF parked cars was estimated using existing commute patterns to the University that were documented in the University's transportation survey administered in 2010 and industry standard practice for estimating parking demand for other land uses in the area.

According to the transportation survey administered to the USF community, approximately 31 percent of USF faculty, staff, and students drive alone to campus. Among those who typically drive to USF, 55 percent park on-street while 45 percent use a parking garage or lot. Two-thirds of those who drive to campus and park on street said that they can typically find parking within 3 blocks of campus (roughly the same distance as the parking study area).

To estimate the amount of on-street parking by USF faculty, staff, and students, 45% of the 31% of the total campus population who drove to campus were assumed to park on the street based on the surveyed data. However, the total number was also adjusted to account for people who did not come to campus every day and for arrival and departure times recorded in the transportation survey. For example, the survey indicated that only about 70% of those who drove to campus were on-campus during the peak time of day (between 12 and 1:00 PM).

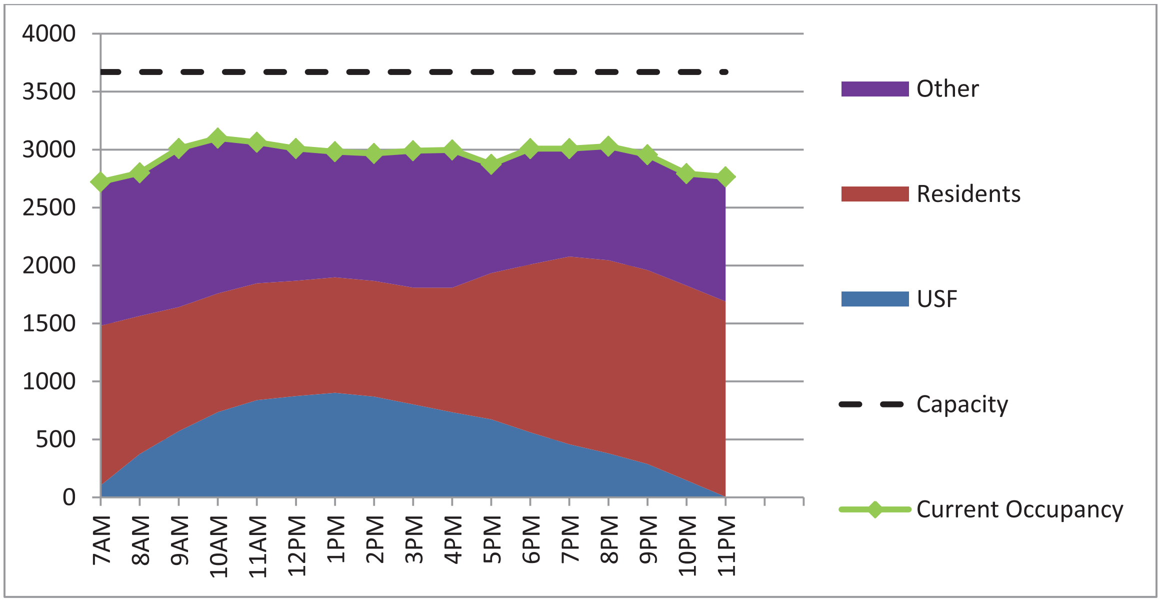
Taking into consideration the number of days single occupancy drivers and carpoolers travel to campus per week, the expected number of vehicles traveling to campus on a typical weekday is approximately 2,400. Furthermore, not all of these vehicles are on campus at the same time throughout the day. Using the times of arrival and departure recorded in the transportation survey, approximately 1,670 vehicles related to USF are parked on or near campus during the peak hour (approximately Noon). Although a total of 1,670 vehicles are expected on or near USF campus during peak hours, only 860 spaces are designated on campus for parking, and the remainder must park on street.

The empirical rate developed for USF was compared to national surveys and reported in the Institute of Transportation Engineers *Parking Generation* Handbook. ITE *Parking Generation* rates indicate that an urban university campus the size of USF would generate a weekday peak period parking demand of 2,324 vehicles, which is about 40 percent higher than what was forecasted for USF. This demonstrates the importance of performing specific analysis for each university, since parking demand can vary greatly based on the local environment and circumstances.

**Chart 6.2** shows the estimated on-street parking demand from USF faculty, staff, and students, residents, and other uses in the area around the Campus, including St. Mary's Campus, the CCSF John Adams Campus, nearby public elementary schools and private schools, retail businesses, offices, banks, post offices, and restaurants. Parking demand for these uses and shown in the Chart were estimated based on standard industry parking demand ratios based on national surveys and reported by ITE. The parking demand for residential uses in the parking study area was estimated based on SFMTA's records of issued residential parking permits, US Census American Community Survey (ACS) travel mode share, and ACS "time leaving for work" data.

At the peak time of day for USF faculty, staff, and students (approximately Noon), USF faculty, staff, and students occupy 15% of on-street parking spaces and represent 18% of parked vehicles, on average throughout the day. At Noon, when USF has the highest parking demand, approximately 25% of all on-street parking spaces are occupied by USF faculty, staff, and students.

**Chart 6.2 - Existing On-Street Parking Occupancy**




### 6.3.1 *Parking Supply and USF Demand*

Parking data was collected such that it reflected typical conditions in the study area when school is in session and parking supply is most constrained. As a result, the analysis could focus on what the effect of enrollment changes on the Campus would do to parking when it is in most short supply, and the study could inform decisions regarding transportation demand management tools to reduce parking demand and improve parking strategies (e.g., restructuring on-campus permits to manage demand or building a new garage).

The parking occupancy data shown in **Table 6.1** were then used to evaluate whether the availability of parking within the parking study area would be affected by enrollment changes on the USF campus on a typical day. Based on the data and analysis described above, 1,670 USF-related vehicles are expected on or near campus during the peak hour. 860 of those vehicles park on campus while 810 park on street. The occupancy study for on-street parking within ½ mile of the campus indicates that available parking is available on-street within the study area. During the peak hour of the day, there are approximately 620 unoccupied on-street parking spaces in the parking study area around the Campus. Assuming that approximately 45 percent of the future USF parking demand (i.e., approximately 100 vehicles) is met using on-street parking spaces, then the parking study area would continue to have available parking.

Based on campus population projections, enrollment growth as a result of the IMP would increase parking demand by approximately 225 parking spaces. Removal of on-street parking due to the traffic calming plan and the Masonic Boulevard project, and future on-campus parking supply, the estimated future on-campus parking deficit is 101 vehicles. The USF transportation demand management strategy is tailored to address the projected parking deficits. The TDM plan’s goal is to reduce parking demand by 13 percent.

Recognizing that some parking will continue to occur on streets around the Campus even with the enhanced TDM plan, USF would implement the Traffic Calming Plan to reduce the impact of vehicles circling neighborhood blocks looking for on-street parking. The turn restrictions on the Terrace streets included in the Traffic Calming plan would discourage vehicles from circulating through each street looking for parking in an area where availability is most constrained.

Additionally, USF is working the University Terrace neighborhood to change the time limit restrictions on BB permitted streets. As proposed, time limits would be reduced from two-hours to one-hour for non-BB permitted vehicles.

.

# USF SOUND STUDY

## REPORT

**14 OCTOBER 2011**

**CSA Project No: 10-0298**

Prepared for:

Elizabeth Miles
Master Plan Manager
**University of San Francisco**
2130 Fulton Street
San Francisco, CA 94117
E-mail: lizmiles25@gmail.com

Prepared by:

Charles M. Salter, PE
**Charles M. Salter Associates, Inc.**
130 Sutter Street, Suite 500
San Francisco, CA 94104
E-mail: charles.salter@cmsalter.com

**CHARLES M. SALTER ASSOCIATES, INC.**

Charles M. Salter

Charles M. Salter, PE
President

## INTRODUCTION

Since August of 2010 our firm has conducted a variety of sound studies at the University. These studies have addressed noise at the batting cage, the baseball field, and the soccer field, and ambient measurements prior to construction of the science building addition.

This report summarizes our efforts.

### Batting Cage Measurements

At the time of our measurements on 10 August 2010, the batting cage has sound reflecting wall and ceiling surfaces. Neighbors living on Annapolis Terrace complained about batting cage noise.

With Lorraine batting in the batting cage, acoustical measurements were conducted at varying distances in front of the batting cage (15 feet, 30 feet, and 45 feet).

45 feet away the maximum noise of batting was 80 dBA.

At Annapolis Terrace, about 360 feet away, the predicted maximum sound level of batting was 58 dBA.

We recommended adding sound absorbing material on the ceiling and wall surfaces of the batting cage, the batting noise transfer to the neighbors was expected to be reduced by about 3 dBA. This is the same sound level which was predicted to occur due to batting noise prior to the construction of the batting cage.

If further noise reduction is warranted, additional shielding of noise transfer from the batting cage to the residential neighborhood can be considered.

### Baseball Field Sound System Noise

On 10 August 2010, test tones were played through the sound system to quantify sound transfer to the residential neighborhood.

To reduce this noise effect, a new sound reinforcement system was engineered and installed. The new sound system has loud speakers that are directionally oriented to cover the seating area while reducing sound emitted to the neighborhood. The system also has capabilities to limit maximum noise transfer.

### Ambient Noise Levels

The ambient noise along Annapolis Terrace was measured on 10 August 2010 in order to compare to the batting cage noise and speech noise transfer of the baseball announcement system. The average ambient sound level was about 60 dBA with maximum sound levels which occasionally exceeded 75 dBA.

**Soccer Field Sound System Noise**

We conducted measurements of soccer game noise during the 22 October 2010 Men's Soccer game against Santa Clara. The game took place between 7 pm and 9 pm. We understand this game has high attendance. Figure 1 shows the measurement locations. The following summarizes our measurement results:

Measurement Location 1 (along Golden Gate): At this location, the game noise was somewhat constant and traffic noise was intermittent. The noise of the occasional crowd cheers and bleacher stomping was approximately 60 dBA. One loud cheer for a goal was 71 dBA. The PA loudspeaker for the game was between 57 and 60 dBA, and occasional referee whistles were 53 dBA. The ambient with no crowd noise and no car passbys was approximately 50 dBA due to general city noise. Car passbys were generally between 64 and 68 dBA and there were 13 passbys in a five minute span.

Measurement Location 2 (along Parker): At this location, the game noise and traffic noise were both constant. There was lots of traffic passing directly by the field, approximately 30 passbys in a five-minute span. The players yelling on the field was continuous and up to 65 dBA. The crowd noise was up to 60 dBA and stomping on the bleachers was up to 65 dBA. The PA loudspeaker was between 63 and 73 dBA.

Measurement Location 3 (along Temescal): At this location, the game noise was quiet and traffic noise was mostly intermittent, dominated by cars on Golden Gate and on Turk Street. During the short-term measurement, a lady had her car idling quietly across the street for the duration of the entire measurement. Also during the measurement, half-time began and the crowd noise stopped but the PA loudspeaker was used continuously and was between 50 and 60 dBA. The crowd cheering was between 54 and 60 dBA and the halftime horn was 59 dBA. A nearby dog barking at the horn was between 68 and 73 dBA. Traffic along Turk Street was 53 to 55 dBA. The PA loudspeaker from a different nearby sporting event was between 52 and 55 dBA. The car idling across the street was 48 dBA.

We also conducted measurements at Location 3 (Temescal) on an evening when there was no soccer game to quantify the ambient noise level under "normal" conditions. The graph that follows Figure 1 compares the game day noise level to the non-game day noise level. You can see that there is virtually no difference in ambient noise between the two conditions.


◉ = MEASUREMENT LOCATIONS
1 – 59 Temescal
2 – 2550 Golden Gate
3 – 36 Temescal

© 2010
CHARLES M. SALTER ASSOCIATES, INC.
FOR ACOUSTICAL DESIGN INFORMATION ONLY

USF NEGOESCO FIELD:
NOISE MEASUREMENT LOCATIONS

FIGURE 1

CSA # 10-0298
RDW/PKH 11.02.10

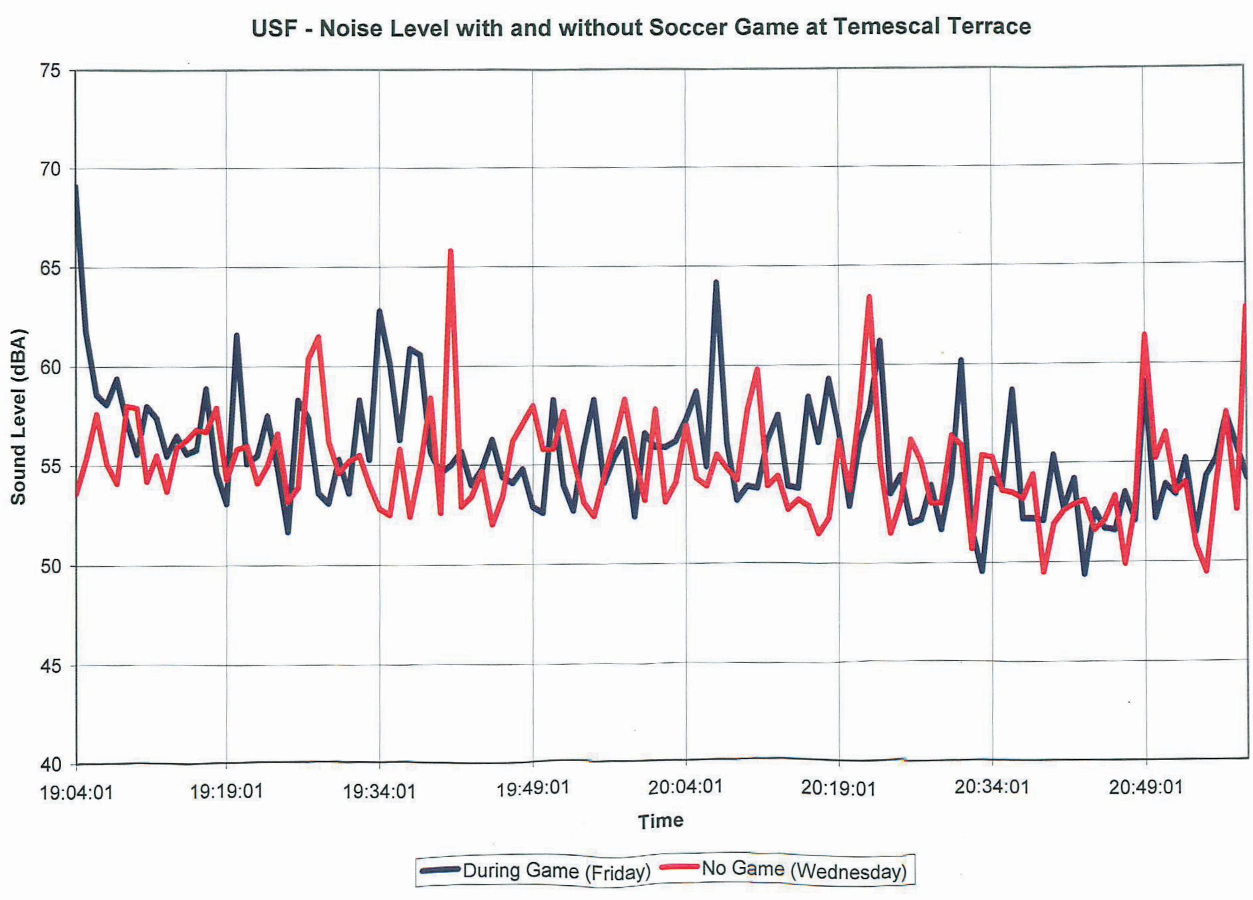
Charles M Salter Associates Inc 130 Sutter Street San Francisco California 94104 Tel: 415 397 0442 Fax: 415 397 0454

**Ambient Noise Measurements at the corner of Roswell and Golden Gate**

These measurements occurred on 10, 15, 17, and 22 November 2011 from about 7:00 a.m. to noon. This data represents the ambient at this location prior to the construction of the science building addition.

The average sound levels around 70 dBA with maximums that occasionally exceeded 80 dBA.

Traffic noise was the primary source.



Charles M Salter Associates Inc

Consultants in
Acoustics,
Audiovisual,
Telecommunications
& Security System Design

130 Sutter Street
Suite 500
San Francisco
California 94104
Tel: 415 397 0442
Fax: 415 397 0454
www.cmsalter.com
info@cmsalter.com



08 November 2011

Elizabeth Miles
Master Plan Manager
**University of San Francisco**
2130 Fulton Street
San Francisco, CA 94117
E-mail: lizmiles25@gmail.com

Subject: **USF Sound Study of Soccer Field Public Announcement System –** Follow-Up Measurements

Dear Elizabeth:

As you know we measured the community noise during a soccer game on Sunday 04 November 2011. Our measured values were compared to what we measured on 22 October 2010 during a USF Men's soccer game prior to the installation of the new PA system.

## Soccer Field Sound System Noise

The USF Women's Soccer team played Bakersfield from 1 – 3 pm. We understand this game had a medium attendance. Figure 1 shows the measurement locations. The following summarizes our measurement results:

<u>Measurement Location 1 (on corner of Temescal and Golden Gate):</u> The game noise was somewhat constant and traffic noise was intermittent. The noise of players yelling was between 51 to 53 dBA. The horn from the stadium was measured at 67 dBA. The PA loudspeaker for the game was between 51 to 53 dBA during the half-time announcements. The ambient, with no crowd noise nor car passbys, was approximately 50 dBA due to general city noise. Car passbys were generally between 65 and 69 dBA.

<u>Measurement Location 2 (along Parker):</u> The game and traffic noise were both constant. There was lots of traffic passing directly by the field, approximately 30 passbys in a five-minute span, with a noise level between 66 to 73 dBA. The players yelling on the field varied between 61 to 69 dBA. The crowd noise was up to 72 dBA when a goal was scored. The PA loudspeaker was between 55 and 60 dBA. The ambient noise when no traffic was present and the crowd and players were quiet was 51 dBA.

<u>Measurement Location 3 (along Temescal):</u> The game noise was low. Intermittent traffic noise was dominated by cars on Golden Gate and Turk Street. The crowd and player noise was audible but only slightly louder than the ambient levels that were between 45 to 50 dBA. Traffic along Turk Street was 55 to 62 dBA and exceeded traffic on Golden Gate. The PA loudspeaker was not noticeable.

**CONCLUSION**

A comparison of the measured PA system noise is shown in Table 1.

**Table 1: Comparison of PA System Noise**

| Location | 22 October 2010 | 04 November 2011 |
|---|---|---|
| 1. Golden Gate | 59 dBA | 53 dBA |
| 2. Parker Ave. | 67 dBA | 58 dBA |
| 3. Temescal Terr. | 55 dBA | 45 dBA |

As you can see, the PA system noise transfer into the community has been reduced by an average of about 8 dBA, a noticeable reduction.

* * *

This concludes our current comments on the subject project. If there are any comments or questions please feel free to contact us.

Sincerely,

**CHARLES M. SALTER ASSOCIATES, INC.**

Travis R. Lawrence
Consultant

*CMS/trl*
*P:/2010/10-0298/08Nov11 USF Soccer Measure*

Charles M Salter Associates Inc

Consultants in
Acoustics,
Audiovisual,
Telecommunications
& Security System Design

130 Sutter Street
Suite 500
San Francisco
California 94104
Tel: 415 397 0442
Fax: 415 397 0454
www.cmsalter.com
info@cmsalter.com



4 November 2011

Lisha Karpay-Brody
**University of San Francisco**
2130 Fulton Street
San Francisco, CA 94117
Email: lkarpaybrody@usfca.edu

Subject: **University of San Francisco – San Francisco, CA**
**Batting Cage Follow-up Acoustical Measurements**
CSA Project No. 10-0267

Dear Lisha:

This letter summarizes the results of our follow-up noise measurements of the batting cages at Ulrich Field on the University of San Francisco campus. These measurements were made to quantify the noise reduction provided by two inch thick Sound Silencer panels from Acoustical Surfaces, Inc. applied to the walls and ceiling of the batting cage. Our comments are as follows:

## PROJECT GOALS

Based on our previous analysis and report, sound absorbing treatment was added to the batting cages to reduce noise levels to 55 dBA or below approximately 360-ft away at residences along Annapolis Terrace. This is considered the pre-batting cage noise level, as it was determined noise levels were increased 3 dBA due to sound reflections off the batting cage structure.

## MEASUREMENTS AND RESULTS

On 27 October 2011 we visited the project site to quantify noise levels from batting impact noise inside the batting cages at Ulrich Field. Measurements were made at a distance of 45-ft from the batter and approximately 360-ft away in front of residences along Annapolis Terrace. The results are as shown in Table 1:

**TABLE 1: ULRICH FIELD BATTING CAGE IMPACT NOISE LEVELS**

| | 45-ft away (dBA) | 360-ft away along Annapolis Terrace (dBA) |
|---|---|---|
| Maximum Noise Level | 75 | 53 |
| Minimum Noise Level | 66 | 47 |
| Average Noise Level | 72 | 51 |

As indicated in Table 1, batting cage noise levels do not exceed 55 dBA at residences along Annapolis Terrace and no further mitigation is needed.

*           *           *

This concludes our current comments for the Ulrich Field batting cage project. Please call if you have any questions.

Sincerely,

**CHARLES M. SALTER ASSOCIATES, INC.**

Alexander K. Salter, P.E.
Senior Consultant

# Appendix 3

## Prior Conditional Use Authorizations—March 2012

This section of the IMP includes a list of conditional use authorizations for projects on the Main Campus and the Lone Mountain Campus over the past five decades. The conditions of project approval are listed below with a brief description of how applicable conditions have been or will be satisfied.

***Lone Mountain – 2800 Turk Street; Block 1107, Lot 003A***

***1. Resolution No. 5357 (Case No. CU61.13)***

1961 conditional use authorization for expansion of an existing conditional use (San Francisco College for Women).

- No conditions are listed in the approval.

***Kendrick Hall and Harney Hall – Block 1190 & 1145, Lot 001***

***2. Resolution No. 5367 (Case No. CU61.16)***

1961 conditional use authorization for (1) a new Law School and (2) a new Science building for the University.

- No conditions are listed in the approval.

***Gillson Hall – Block 1145, Lot 001***

***3. Resolution No. 5766 (Case No. CU64.11)***

1964 conditional use authorization for a 382-student multi-floor men's dormitory subject to the further conditions as follows:

1. Said dormitory shall be located as indicated on the site plan by Milton T. Pflueger, architect, dated April 9, 1964, marked Exhibit "A11" and filed as a part of this application and said structure shall be generally in character with the plans and perspective marked Exhibit "B" filed with this application;

2. Vehicular and pedestrian access to the university property and this dormitory from Loyola Terrace shall be limited and controlled in the following manner: (a) a fence and gate a minimum of eight feet high with a vehicular opening 16 feet or less in width and a pedestrian opening within the vehicular gate 3 feet or less in width, all in general conformity with the sketch by Milton T. Pflueger dated April 14, 1964 marked Exhibit "C" and filed with this application. (b) A lock on the vehicular gate which may be opened only for access to the dormitory by scavenger trucks and other necessary service vehicles and for emergency purposes. (c) The pedestrian gate shall be open only as long as the use of said gate for access to Loyola Terrace does not result in objectionable activity and/or noise or undue vehicular congestion of Loyola Terrace, a residentially developed street, by on-street parking of automobiles or use of Loyola Terrace as a passenger pickup area. (d) Signs, if any, to give notice of the above restrictions shall not exceed 4 square feet in area and shall be approved as to form and location by the Department of City Planning prior to filing for a sign permit.

3. A planting strip, 10 feet wide except where necessarily less for vehicular turning maneuvers at the Loyola Terrace entrance shall be provided along the southern property line between said dormitory and adjacent residential properties. Said landscaping shall consist of such plants as Monterey Pines or comparable-size broadleaf evergreens combined with medium-size shrubs and broadleaf evergreens at the above mentioned gate of a type which will arch over the entry way in conformity with a landscaping plan to be submitted to the Department of City Planning for approval. All such landscaping shall be installed prior to occupancy of this dormitory.

4. Any outside artificial lighting shall be directed downward and away from adjoining residential properties.

5. During construction of this dormitory a solid fence, a minimum of six feet high, shall be erected along the southern property line adjacent to nearby residential buildings.

6. Final plans, including landscaping plans, prepared in consultation with the Department of City Planning shall be submitted for approval to the Department of City Planning prior to filing for any building permit applications.

- The conditions above have been met. This project is now complete.

***Student Union and Hayes-Healy Hall – Block 1145, Lot 001***

### *4. Resolution No. 5830 (Case No. CU64.28)*

1964 conditional use authorization of a (1) a 5-story student union building (opposite Kittredge Terrace and between the Harney Science Building and the Gymnasium) and (2) a 9-story dormitory for approximately 400 students (opposite Tamalpais Terrace and north of a dormitory authorized on April 16, 1964, by the City Planning Commission) subject to further conditions as follows:

1. The student union building shall be located, constructed and landscaped in general conformity with plans entitled “Preliminary, Student Union Building, University of San Francisco, Milton T. Pflueger, Architect” dated August 20, 1964 and revised August 24, 1964; which plans have been submitted with this application and marked as Exhibit A.

2. The dormitory building shall be located, constructed and landscaped in general conformity (except as noted below) with plans entitled 11 Preliminary Plans for Student Residence #3 & Parking Garage, University of San Francisco, Milton T. Pflueger, Architect” dated August 20, 1964; which plans have been submitted with this application and marked as Exhibit B.

3. Landscaping and solid fencing or other appropriate measures shall be provided in a manner approved by the Department of City Planning so as to screen the truck loading and parking areas adjacent to the dormitory building from residential properties across Golden Gate Avenue.

4. In the event that a portion of the approximately 171 parking spaces proposed to be located in the garage and lot adjacent to the dormitory may be appropriately located elsewhere on the campus all but approximately 40 of said spaces may be so relocated subject to the approval of the City Planning Commission prior to the filing of any application for grading or building permits for the dormitory building, and all 171 parking spaces must be available for use prior to the issuance of a certificate of occupancy for the dormitory building.

   During construction of these two buildings an attractive solid fence, a minimum of six feet high, shall be erected along Golden Gate Avenue in front of the two construction sites to conceal debris resulting from the construction, and the contractors for these two buildings shall take appropriate action at the discretion of the Department of City Planning to prevent undue blowing of dust and debris from the construction sites to nearby residences.

5. Final building and landscaping plans for these two buildings shall be submitted to and approved by the Department of City Planning prior to the filing of any application for grading or building permits.

- The conditions above have been met. This project is now complete.

***Library – Block 1145, Lot 001***

### *5. Resolution No. 5985 (Case No. CU66.17)*

1966 conditional use authorization for the expansion of an authorized conditional use by addition of a four-story library wing subject to further conditions as follows:

1. Said expansion shall be in general conformity with plans titled "Library Addition for San Francisco College for Women" by Ohmura, Teague and Associates, dated December 10, 1965 and filed with this application.

2. The City Planning Commission shall receive a report every three months from the College on the progress of the installation of landscaping on the north slope of Lone Mountain as described to the Commission in February 1961.

- The conditions above have been met. This project is now complete.

***School of Business and Education; Law School Parking Garage – Block 1145, Lot 001; 1144, Lots 001 & 001B; 1190, Lot 001***

### *6. Resolution No. 6634 (Case No. CU70.79)*

1970 conditional use authorization to permit a 3-story building adjacent to St. Ignatius Church on Fulton Street for the Schools of Business Administration and Education; to remove 36 off-street parking spaces thereby modifying the off-street parking requirements of City Planning Commission Resolution No. 6083; and to provide additional parking at some future date in a new parking garage adjacent to the Law School, having access on Cole Street subject to further conditions as follows:

1. The site for the Education and Business Administration Building shall be developed in general conformity with the plot plan filed with this application and marked "Exhibit A," except that surface or below grade parking may be placed on the site upon approval by the Department of City Planning without further Conditional Use authorization.

2. A minimum of 624 off-street parking spaces shall be provided on the campus at all times, except during construction of buildings authorized in this Resolution when a lesser number, if necessary, may be provided upon receiving approval of such lesser number from the Department of City Planning.

3. Prior to the filing for any building permits, final preliminary plans for landscaping shall be submitted to the Department of City Planning for review and approval. Said landscaping shall be installed and continuously maintained in a healthy and attractive condition. Defective, damaged or lost plants and trees shall be replaced whenever necessary by the applicant.

4. Plans for a parking garage, located to the east of the adjacent Law School and accommodating at least 116 automobiles shall be prepared in consultation with and be approved by the Department of City Planning prior to the application for any building permits for said parking structure. Without further conditional use authorization, said building containing the parking garage may contain other uses appropriate to the operation of the University of San Francisco to the extent that the number of off-street parking spaces to be provided therein meets the strict requirement of the City Planning Code for such uses. The height of said building shall not exceed an elevation of 370 feet, the height of the adjacent Law School. Automobiles in the garage shall be effectively and attractively screened from the view of residential properties. The exterior treatment and appearance of said parking garage shall be in general conformity with the character of neighboring structures.

5. Signs, if any, shall be limited to non-projecting, non-illuminated signs for identification and control of access and circulation for the parking garage and shall all be in conformity with sign plans approved by the Department of City Planning prior to filing for sign permits.

- The conditions above have been met. The parking garage adjacent to the Law School was built. The 3-story building proposed to be adjacent to St. Ignatius Church on Fulton Street has not been built and the site remains open space.

- Regarding Condition No. 3, in 2012 the University plans to replace the prior Acacia trees by extending the line of existing Lombardi Poplar trees along the south side of the parking structure.

- Regarding Condition No 4, the parking garage adjacent to the Law School includes approximately 104 off-street parking spaces. This condition provides that the parking garage may contain other uses (i.e. fewer than 116 parking spaces) so long as Planning Code parking requirements are met. There are currently about 135 classrooms (including teaching laboratories and seminar rooms) campus-wide, resulting in a Planning Code requirement of 68 off-street parking spaces. There are approximately 847 off-street parking spaces campus-wide, exclusive of the dedicated parking provided for Loyola Village apartments and the Loyola House Jesuit residence. Loyola village includes approximately 136 off-street parking spaces (one parking space per dwelling unit, consistent with Planning Code requirements). Loyola House has 26 rooms with one bed per room and there are a total of 25 off-street parking spaces dedicated for use by the Jesuit community, consistent with Planning Code requirements.

***Loyola Village – Block 1107, Lot 003A***

***7. Resolution No. 8248 (Case No. CU79.22)***

***8.*** 1979 conditional use authorization to permit a community recycling program and facility.

- This facility was removed to accommodate the Loyola Village project and is no longer in operation.

***9. Motion No. 14322 (Case No. 95.336C)***

1997 conditional use authorization to construct up to 136 dwelling units [Anza Street Housing] and up to 34 group housing units [Jesuit Residence], and allowance of parking exceeding 150% of the requirement, and as a Planned Unit Development seeking exceptions from rear yard standards, modification of the method of measurement of building height, and review of the proposed reconfiguration and improvement of the south side of Anza Street from wood street to Parker Avenue for consistency with the general plan.

- The conditions of approval to this motion were superseded by the conditions to Motion No. 14998, discussed below.

***10. Motion No. 14998 (Case No. 99.289C)***

2000 conditional use authorization to modify a previously approved conditional use application (Case No. 95.336C, Motion No. 14322) to construct up to 136 dwelling units, and to modify a previously approved Planned Unit Development with exceptions from the rear yard requirements, and method of height measurement. This proposal is in compliance with USF's Institutional Master Plan. Conditions of approvals as follows:

1. This Conditional Use authorization shall be for the construction of up to 136 dwelling units in 5 buildings in general conformity with plans filed with the application and labeled "Exhibit B" and dated January 24, 2000.

General Mitigation Measures

2. Mitigation Measures, as outlined in Negative Declaration File No. 95.336C dated October 2, 1996, and reconfirmed in Addendum No. 2 dated August 2, 1999, shall be Conditions of Approval and are accepted by the Project Sponsor and are binding on its successors in interest. If said measures are less restrictive than the additional conditions imposed herein, the more restrictive and protective measures, as determined by the Zoning Administrator shall apply.

Transportation

3. USF will cooperate with the neighbors in the vicinity of the project if such neighbors seek to create a separate residential permit parking area for the on-street parking along Anza Street, adjacent to the project, which is not currently identified as residential permit parking. USF will not seek to add the Anza Street project nor the parking areas adjacent to the project to the current "L" residential permit parking area unless it is agreed to by both the Ewing Terrace Neighborhood Association and the Francisco Heights Civic Association.

4. USF will cooperate with the neighbors in the vicinity of the project towards getting approval from the Department of Parking and Traffic for a crosswalk and placement of a STOP sign at Blake Street and/or Collins Street.

5. During site preparation and construction the Project Sponsor shall restrict hoe ram operation or similar operations to the hours of 9:00 a.m. to 3:30 p.m.. Construction hours are restricted to 7:00 a.m. through 4:00 p.m. Mondays through Fridays, and 9:00 a.m. to 3:30 p.m. on Saturdays and Sundays.

6. During construction of the project, the Project Sponsor shall request that the Department of Parking and Traffic close the south parking lane and sidewalk between Parker and Collins Avenues.

7. During construction of the project, material storage shall be located on site.

8. Project sponsor will install a STOP sign on the Driveway Approach to Anza Street, and will obtain a permit for this from the Department of Parking and Traffic if necessary.

9. USF will modify the intersection at the viaduct exit onto Parker Avenue and will add a right turn only sign.

Parking

10. A minimum of eleven (11) off-street parking spaces, split between at least two different locations on the Project Site, shall be made available exclusively to guests and visitors to the project, subject to reasonable regulation by the Project Sponsor or homeowner's association. The visitor parking shall be designated as such by appropriate signage.

11. Except for a maximum of eight (8) employees whose duties require the use of an automobile, residents of the project shall not be eligible for parking permits for daytime parking in University parking lots other than those lots associated with their individual residences.

Housing Affordability

12. The Project Sponsor shall designate a total of 17 units as affordable Below Market Rate (BMR) units to be constructed on the site of the principal project. This total represents 12.5 percent of all units in the Modified Project.

13. The subject BMR units may all be located in the two larger apartment buildings, and shall reflect the unit size/mix of the market rate units in those buildings.

14. The BMR units shall be designated by the Project Sponsor by notice to both the Zoning Administrator and the Director of the Mayor's Office of Housing prior to the issuance of the first temporary certificate of occupancy for the Modified Project. Thereafter, the designated affordable units may be changed from time to time by the Project Sponsor upon thirty (30) days' notice to both the Zoning Administrator and the Director of the Mayor's Office of Housing; provided, however, that such change shall not be made if within such thirty (30) days either the Zoning Administrator or the Director of the Mayor's Office of Housing determines that the proposed substitute affordable unit is not equivalent in size and quality to the previously designated unit, or that any existing owner or tenant of the substitute BMR unit is not a qualified household.

15. Six (6) of the seventeen (17) BMR units shall be rented to qualifying households, as defined in the Affordable Housing Monitoring Procedures Manual (hereinafter "Procedures Manual") published and adopted by Resolution No. 13405 on September 10, 1992 by the City Planning Commission, whose gross annual income, adjusted for household size, does not exceed sixty percent (60%) of the median income for the San Francisco Principal Metropolitan Statistical Area (PMSA). The remaining eleven (11) BMR Units shall be rented to qualifying households whose gross income, adjusted for household size, does not exceed seventy-five percent (75%) of the median income for the San Francisco PMSA. The percentage of median income specified herein shall be the maximum income for qualifying households and the basis of base rent for BMR units. Base rent for BMR rental units, together with a utility allowance, shall not exceed thirty (30) percent of the percentage of median income specified above adjusted annually for permitted rent increase as described in the Procedures Manual, for a period of fifty (50) years from the date of initial rental of the BMR unit. These restrictions shall apply for a fifty (50) year period from the date of the initial rental of the BMR unit.

16. All BMR units shall be rented to qualifying households in accordance with these Conditions of Approval and the Procedures Manual for the 50 year term of this approval. Tenant and/or buyers shall so qualify upon first occupancy.

17. All qualifying households shall maintain residence in the BMR unit according to the procedures established in the Procedures Manual.

18. The City acknowledges that the Modified Project, including the BMR units, is primarily intended for sale or rental to faculty and staff of the University of San Francisco. The City further acknowledges that certain changes in the Procedures Manual are necessary to effectuate this purpose and to permit changes from time to time in the designated BMR units and to permit at the option of the Project Sponsor either the sale or rental of the units. Consequently, notwithstanding the provisions of the Procedures Manual, so long as the BMR units are marketed only to faculty and staff of the University, the provisions set forth in Section II C, D and E shall not apply, but shall apply to the marketing of the BMR units to other persons; (ii) the restriction or conversion of BMR rental units to ownership units set forth in Section II.J shall not apply; and (iii) the BMR Note referenced in Section II.K of the Procedures Manual shall be payable to the Project Sponsor or USF, and any funds received by the Project Sponsor or USF from the repayment of BMR Notes shall be used to subsidize housing in the Modified Project.

19. The definitions, procedures and requirements for BMR units set forth in the Procedures Manual, as modified by the Conditions of Approval, are incorporated herein as Conditions of Approval. Terms used in these Conditions of Approval and not otherwise defined shall have the meanings set forth in the Procedures Manual.

Resale Restrictions

20. Condominiums sold shall be subject to resale restrictions which (a) require that the units be marketed for a period of at least forty-five (45) days exclusively to the University of San Francisco and its affiliates and its faculty and staff, and (b) provide the University or the Project Sponsor with a right of first offer on the sale of the unit to any person who is not a member of the University faculty or staff.

Landscaping

21. A detailed landscaping plan shall be developed, in consultation with the Ewing Terrace Neighborhood Association and Francisco Heights Civic Association, and shall be subject to the approval of the Department of City Planning staff prior to issuance of a building permit. Such landscaping plan shall include, (a) repair and replanting of the existing footpaths, (b) criteria developed by an arborist to protect, to the extent reasonably feasible, existing trees not designated to be removed.

Design

22. Final design details, specifically window treatment including but not limited to illusion of depth, detailing, placement, and materials shall be subject to Planning Department review (in consultation

with the neighborhood) and approval before the Architectural Addendum is released for approval to the Department of Building Inspection.

Performance

23. The Project Sponsor shall appoint a community liaison officer to deal with issues of concern to neighbors related to the construction and operation of the Modified Project. The name and telephone number shall be reported to the Zoning Administrator for reference.

24. Should implementation of this project result in complaints from neighborhood residents, which are not resolved by the Project Sponsor and are subsequently reported to the Zoning Administrator and found to be in violation of the Planning Code and/or the specific Conditions of Approval for the Project as set forth with Exhibit A of the motion, the Zoning Administrator shall report such complaints to the Planning Commission which may thereafter hold a public hearing on the matter in accordance with the hearing notification and conduct procedures as set forth in Sections 174, 306.3 and 306.4 of the Code to consider revocation of this Conditional Use Authorization.

25. Should the monitoring of the Conditions of Approval contained in Exhibit A of this Motion be required, the Project Sponsor or successor shall pay fees as established in Planning code Section 351(f)(2).

26. The Applicant will record a copy of these Conditions with the City and County of San Francisco's Office of the Recorder as part of the Property records prior to the approval of any building permit application by Planning Department.

27. The authorization and rights vested by virtue of this action shall be deemed void and canceled if within thirty-six months of the effective date of this Motion, construction has not yet begun by the applicant.

- The conditions above have substantially been met, as explained below.
- Regarding Condition No. 2, the required mitigation measures pertained to construction of the project and are no longer relevant. See "Mitigation Measures Referenced in Motion No. 14998" below.
- Condition No. 10 requires, in part, that visitor parking be split in at least two different locations and be designated as such by signage. The University is beginning a review of parking facilities and policies. These conditions will be incorporated in future parking restrictions.
- Condition No. 9, requires a right turn only sign at Parker Avenue. However, because there is no westbound traffic on the viaduct it is not possible to exit onto Parker Avenue so this condition is moot.
- Regarding Condition No. 12, the University will initiate annual reporting to the Mayor's Office of Housing in 2012. To date, there have only been minimal changes in occupancy and no rent increases.
- Regarding Condition No. 20, there are no condominiums in Loyola Village. All units are rental units.

### *11. Mitigation Measures Referenced in Motion No. 14998*

***12.*** Pursuant to Motion No. 14998 (discussed above) the project sponsor was required to comply with the following Mitigation Measures, as outlined in Negative Declaration File No. 95.336C dated October 2, 1996, and reconfirmed in Addendum No. 2 dated August 2, 1999:

Construction Air Quality

The project sponsor would require the contractor(s) to spray the site with water during demolition, excavation, and construction activities; spray unpaved construction areas with water at least twice per day; cover stockpiles of soil, sand, and other material; cover trucks hauling debris, soil, sand or other such material; and sweep surrounding streets during demolition, excavation, and construction at least once per day to reduce particulate emissions.

Ordinance 175-91, passed by the Board of Supervisors on May 6, 1991, requires that non-potable water be used for dust control activities. Therefore, the project sponsor would require that the contractor(s) obtain reclaimed water from the Clean Water Program for this purpose. The project sponsors would require the project contractors) to maintain and operate construction equipment so as to minimize exhaust emissions of particulates and other pollutants, by such means as a prohibition on idling motors when equipment is not in use or when trucks are waiting in queues, and implementation of specific maintenance programs to reduce emissions from equipment that would be in frequent use for much of the construction period.

Hazardous Materials

To mitigate any potential health risks related to chrysotile asbestos, which may or may not be located on the site, the project contractor will water the site during excavation activities at least twice daily, or more frequently if necessary to prohibit visible dust emissions (which might indicate emission of non-visible dust), and take other steps (such as covering of haul loads, rinsing of tires, and sweeping construction dirt and debris from adjacent streets, as necessary) to minimize dust generation during excavation, storage, and transport. Excavated materials containing over one percent friable asbestos will be treated as hazardous waste, and will be transported and disposed of in accordance with applicable State and Federal regulations.

Cultural

Should evidence of archaeological resources of potential significance be found during ground disturbance, the project sponsor would immediately notify the Environmental Review Officer (ERO) and would suspend any excavation which the ERO determined could damage such archaeological resources. Excavation or construction activities which might damage discovered cultural resources would be suspended for a total maximum of four weeks over the course of construction.

After notifying the ERO, the project sponsor would select an archaeologist to assist the Office of Environmental Review in determining the significance of the find. The archaeologist would prepare a draft report containing an assessment of the potential significance of the find and recommendations for what measures should be implemented to minimize potential effects on archaeological resources. Based on this report, the ERO would recommend specific additional mitigation measures to be implemented by the project sponsor.

Mitigation measures might include a site security program, additional on-site investigations by the archaeologist, and/or documentation, preservation, and recovery of cultural materials. Finally, the archaeologist would prepare a draft report documenting the cultural resources that were discovered, and evaluation as to their significance, and a description as to how any archaeological testing, exploration and/or recovery program was conducted.

Copies of all draft reports prepared according to this mitigation measure would be sent first and directly to the ERO for review. Following approval by the ERO, copies of the final reports(s) would be sent by the archaeologist directly to the president of the Landmarks Preservation Advisory Board and the California Archaeological Site Survey Northwest Information Center. Three copies of the final archaeology report(s) shall be submitted to the Office of Environmental Review, accompanied by copies of the transmittals documenting its distribution to the president of the Landmarks Preservation Advisory Board and the California Archaeological Site Survey Northwest Information Center.

***Kendrick Law School – Block 1190, Lot 001***

***13. Resolution No. 8708 (Case No. CU80.213)***

1980 conditional use authorization to permit building expansion subject to further conditions as follows:

1. This authorization is for construction of an addition to Kendrick Law School in general conformity with plans entitled: "Kendrick Hall Additions, University of San Francisco", sheets A-1, A-3, A-4 and A-5 dated June 10, 1980 and on file with the conditional use application.

2. The University shall provide for regular clean up and removal of litter and trash from the open area of the site.

3. The University shall continue the diligent implementation of the Transportation Systems Management

Plan, and shall submit yearly reports to the Department of City Planning describing the progress made in implementing the plan.

- The conditions above have been substantially met. Regarding Condition No. 3, the University has diligently implemented its Transportation Systems Management Plan since 1980 and will submit yearly reports to the Planning Department. The University's Transportation Systems Management Plan (a.k.a. the Transportation Demand Management Program) has been evaluated and updated as part of this new IMP.

***Saint Ignatius High School – Block 1144, Lot 001 & 001B***

***14. Resolution No. 6366 (Case No. CU69.20)***

1969 conditional use authorization to permit expansion of the facilities of the University of San Francisco by the alteration of the St. Ignatius High School building into university classrooms and offices and the adjoining playfield into a parking lot on the property subject to further conditions as follows:

1. The subject site shall be developed in general conformity with the plot plan filed with this application and marked "Exhibit A," except that additional surface of below grade parking may be placed on the site upon approval by the Department of City Planning without further Conditional Use authorization.

2. The subject site shall be landscaped according to plans and specifications prepared in consultation with and approved by the Department of City Planning prior to any excavation of the site or preparation for new parking areas on the site. All parking areas shall be screened from facing residential properties by a landscaped solid fence, wall or other solid landscaping screen, and said landscaping plan shall include appropriate on-site shrubs, ground cover and trees to enhance the appearance of the parking areas as viewed from nearby residential properties. All three street frontages of the site shall be planted with appropriate street trees.

3. Landscaping shall be perpetually maintained to sustain plants in a healthy, attractive condition and promote normal growth and full development typical of their species.

4. Any artificial lighting shall be deflected downward and away from adjoining and facing residential properties.

5. Signs, if any shall be limited to non-projecting, non-illuminated signs to control access and circulation within the parking area, and identifying signs for the University and shall all be in conformity with sign plans approved by the Department of City Planning prior to filing for sign permits.

- The conditions above have been met. This project is complete.

***Koret Center – Block 1144, Lots 001 & 001B***

***15. Motion No. 10407 (Case No 83.469C)***

1985 conditional use authorization for modifications and additions to the recreation facilities of a private post-secondary educational institution including consolidation of off-street parking. Three new building components would be constructed along the Stanyan Street frontage and linked by a glass enclosed circulation system to each other and to the remaining portion of Loyola Gym. These components would be: (1) Racquetball Courts (5,500 sq.ft.), (2) Natatorium (57,100 sq.ft.), (3) Multipurpose Courts (43,200 sq.ft.). The three existing parking lots on site would be consolidated in the northeast portion of the project block, retaining the existing lot entrance on Turk Street. (Seven spaces on site would be lost in the consolidation and would be replaced elsewhere on the USF main campus.) The existing soccer field would be shifted 10 feet to the west and the existing spectator seating would be moved to the east side of the field and a press box and public restrooms would be incorporated into the spectator viewing area. Conditions of Approval are as follows:

1. The authorization contained herein is for the use of the Subject Property as the University of San Francisco Health and Recreation Center with off-street parking in the amount proposed in Application No. 83.469ECC (177 spaces on-site). Final plans, including a plan for landscaping, the planting and

maintenance of plant materials, fencing, parking lot lighting, and parking lot screening along all street frontages shall be reviewed and approved by the staff of the Department prior to the issuance of any building permit.

2. This authorization is limited to USF and is not transferrable to any other assignees or successors in interest. Any new non-residential use of the property would be subject to the regulations of the Code and, accordingly, would be required to seek a new conditional use authorization.

3. The Applicant shall continue to encourage ride sharing and transit use and shall continue to pursue the goals and objectives of the USF Transportation Systems Management Plan to decrease reliance on the automobile for the operation of the Health and Recreation Center on the Subject Property.

4. A final plan for the layout and arrangement of parking spaces preferential carpool spaces and the ingress and egress to the parking lot shall be made under the advisement of staff of the Department of City Planning. Said final parking plan shall be kept on file with the Application.

5. The Applicant shall provide for use of the facilities by neighborhood residents as outlined in the application and the FEIR.

6. The Subject property shall be maintained in a neat and attractive manner in keeping with the residential character of the surrounding area.

7. Colors used for the exterior finish of the structure will be earth-tones.

8. Evergreen landscaping will be used to screen exposed glass surfaces such as the Recreation Center entrance atrium and galleria to reduce glare from glass surfaces. Insofar as possible, west facing glass will be angled northwest to reduce glare directly across Stanyan Street. Non-reflective glass will be used for the Recreation Center atria and galleria as proposed.

- The conditions above have been met. This project is now complete.

***Koret Center Parking Platform***

### *16. Motion No. 13862 (93.314C)*

1995 conditional use authorization to allow construction of a parking platform above an existing parking lot. The project includes the construction of an additional parking level containing approximately 119 automobile parking spaces on a 31,640 square feet platform over an existing parking lot containing 169 automobiles and 10 motorcycle spaces, at the corner of Turk Boulevard and Parker Avenue for a total parking area of about 78,200 square feet. The project would Increase the number of (automobile) parking spaces for this lot by 99 (119 new spaces minus twenty that would be lost on the first level due to structural requirements), for a total of 268 spaces on the two levels. The university plans to eliminate two other parking lots (Lots D and I) as described in the Institutional Master Plan. There would be no net increase in total off-street automobile parking spaces in the area, though there would be a loss of 59 motorcycle spaces. (Lots D and I would be removed from use at or before the time the subject project is completed.). Conditions of approval are as follows:

A. Land Use

1. This Conditional Use Authorization shall be for the construction of an additional parking level on Lot 1 in Assessor’s Block 1144, and containing up to approximately 119 parking spaces over an existing lot containing 169 automobile and motorcycle spaces at the comer of Turk Boulevard and Parker Street in general conformity with plans filed with the Application and labeled “Exhibit B” and dated April 13, 1995.

2. Ingress and egress for the new parking level shall be limited to Parker Avenue.

3. The applicant shall use good faith efforts to request and encourage the Department of Public Works

or Department of Parking and Traffic to install traffic bumps (similar to those on Masonic Avenue near Fulton Street) on Turk Boulevard to discourage illegal left turns into or out of the lower parking level. If installed, the Project Sponsor shall reimburse the City for the cost of installation.

4. The applicant shall restrict parking in the lower level of the parking structure, accessed from Turk Boulevard, to handicapped parking and USF faculty and employees expected to use the parking on a long-term daily basis.

5. The applicant shall restrict parking available for short term users to the upper level accessed from Parker Street.

6. No internal vehicular connection between the two levels will be permitted and parking on each of the two levels will require a separate parking permit.

7. Security measures, including lighting, video surveillance and emergency telephones directly hooked up to the University Public Safety Office will be installed on both parking levels. The parking deck will be a part of the University Public Safety officer's regular security surveillance. Lighting shall be directed down and away from residentially developed properties in a manner that prevents adverse glare to surrounding dwelling and in accordance with plans approved by the Department of City Planning.

8. The applicant shall make available night time and weekend parking privileges in the parking structure to neighborhood residents on terms as the University determines after consultation with interested residents and neighborhood groups.

9. Construction, site preparation and clean up guidelines shall be developed in consultation with the Department of City Planning and adhered to by the Applicant.

10. Construction hours shall be restricted to the time after 8:00 a.m. and ending prior to 5:00 p.m. Monday through Saturday. There shall be no construction work on Sundays. The use of heavy machinery and equipment and other activities involving substantial noise shall not commence until after 9:00 a.m.

11. There shall be notice to adjacent neighbors 30 days prior to construction according to procedures approved by the Zoning Administrator.

12. The Applicant shall meet and confer with operators of the recycling center and use its best efforts to allow continuation of the operation either at the current location or at an alternative location through December.

B. Performance

1. Should the implementation of this Project result in complaints from Interested property owners, residents or commercial lessees, which are not resolved by the applicant (and/or the appointed Community Liaison for the Project) and are subsequently reported to the Zoning Administrator and found to be in violation of the City Planning Code and/or the specific Conditions of Approval for the Project as set forth in Exhibit A of this Motion, the Zoning Administrator shall refer such unresolved complaints to the City Planning Commission after which the Commission shall hold a public hearing on the matter in accordance with the hearing notification and conduct procedures as set forth in Section 174, 306.3, and 306.4 of the Code to consider revocation of this Conditional Use Authorization.

13. Should monitoring of the Conditions of Approval be required, the applicant or successors in interest shall pay applicable fees as established in Planning Code Section 351.

14. The applicant shall execute and record the specified conditions as a Notice of Special Restrictions at the Office of the County Clerk/Recorder.

- The conditions above have substantially been met. Regarding Conditions No. 4 and 5, the University is beginning a review of parking facilities and policies. These conditions will be incorporated in future parking restrictions.

Handicapped parking spaces are already designated on the lower level.

***Cogeneration Power Plant – Block 1145, Lot 001***

### *17. Motion No. 10408 (Case No. 83.469C)*

1985 conditional use authorization for modifications of the heat and power-generation facilities of a private post-secondary educational institution. Construction of a cogeneration power plant and demolition of four existing steam boilers. Conditions of approval are as follows:

1. The authorization contained herein is for the use of the Subject Property as the University of San Francisco Cogeneration Plant as proposed in Application No. 83.469ECC. Final plans shall be reviewed and approved by the staff of the Department prior to the issuance of any building permit. Said plant, and the cogeneration system approved, shall be limited to operating at the level needed to provide for the USF electrical demand or steam demand, whichever is the higher level of operation.

2. This authorization is limited to USF and is not transferable to any other assignees or successors in interest. Any new non-residential use of the property would be subject to the regulations of the Code and, accordingly, would be required to seek a new conditional use authorization.

3. The heat radiator of the Cogeneration System shall be encased within a noise insulating enclosure that reduces noise to levels at or below the respective daytime and nighttime ambient levels.

4. The fan in the heat radiator shall be run at low speed during the night to reduce noise generated by the radiator to a level below that which would potentially cause sleep disturbance for the residents of the homes nearest the Gleeson Library site.

5. The intake and outlet of the system shall be equipped with silencing devices to reduce noise levels measured at the nearest homes.

6. The system shall be installed in a basement to reduce noise levels emitted from the system to the environment.

7. The system shall be enclosed in an acoustically treated shell to reduce noise to levels currently existing inside the steam plant.

8. Soundproofing of the steam plant shall include acoustical tiles or padding on the walls and air intake and exhaust pipe sound traps to reduce noise levels to 50 dBa just outside the basement walls.

9. Insofar as feasible, major equipment shall undergo initial testing with all acoustically mitigating auxiliary equipment in place to reduce noise impacts during equipment installation and system start-up.

10. To minimize the impact of exhaust emissions on the people in the vicinity of the cogeneration system, the project sponsor shall have the top of the cogeneration system exhaust stack narrowed to increase emission velocity and thus the extent of the dispersion.

11. Cogeneration equipment shall be installed in compliance with the National Fire Protection Association (NFPA) recommended “Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines,” NFPA 37.

12. Existing PCB-containing electrical transformers shall be replaced with new transformers not containing PCBs.

13. A noise level survey shall be performed after the cogeneration facility is operating to determine whether the cogeneration facility equipment generates a sound level at the sidewalk on the north side of Golden Gate Avenue across from Gleeson Library in excess of 50 dBa between 7:00 AM and 10:00 PM at full load or 45 dBa between 10:00 PM and 7:00 AM under night operating conditions. The results of the

survey shall be submitted to the Zoning Administrator. If the noise level should exceed these levels, USF shall implement additional engineering controls to reduce the sound to the stated levels.

14. Appropriate air dispersion modeling as determined by the Bay Area Air Quality Management District shall be performed on the stack at Gleeson Hall. If modeling indicates a potential violation of a State or Federal ambient Air Quality Standard, the design shall be adjusted as necessary to insure that no violation will occur.

15. The construction contract shall include a requirement that the contractor not exceed equipment noise limits stated in the City Noise Ordinance (Article 29, San Francisco Administrative Code, 1972).

16. All construction shall take place between 8:00 AM and 5:00 PM and shall be restricted to weekdays.

17. The general contractor for the project shall meet with the Department of Public Works to establish construction vehicle routes that shall minimize impacts to residents and businesses in the vicinity of the site.

18. The University shall monitor noise levels each year at a time of cold weather that requires full operation of the cogeneration system. If the noise level is greater than the existing noise level, the University shall implement engineering changes to reduce the noise level to the existing level.

- The conditions above have substantially been met.

***18. Gleeson Library – Block 1145, Lot 001***

***19. Motion No. 13986 (95.435C)***

1995 conditional use authorization to allow construction of an addition to the existing Gleeson Library. The project will include the construction of a three-story, approximately 37,040 gross square foot addition to the existing Gleeson Library, which is located on USF's lower campus. Conditions of approval are as follows:

Land Use

1. This approval is for the construction of a three-story approximately 37,100 gross square foot addition to the existing approximately 96,000 square foot Gleeson Library in general conformity with plans filed with the application and labeled "Exhibit B" and dated October 19, 1995.

Conditions to be Met During the Construction Phase

1. All storage and staging of construction materials must take place on property owned by the University of San Francisco.

2. All construction vehicles are prohibited from parking or idling on any City street surrounding the construction site.

3. During the construction phase, all construction workers shall park on USF's property and not on public streets.

4. There shall not be any construction before 7 a.m., Monday through Saturday nor any construction on Sundays.

Air Quality

1. To reduce particulate emission during construction, the contractors shall:

   a. Spray the site with water to reduce particulate emission during excavation and foundation phase.

b. Spray the soils affected during disruptive activities, such as pavement/ foundation removal, excavation, grading, truck loading and compaction, continuously.

c. Cover stockpiles of soil, sand, and other material.

d. Cover trucks hauling debris, soils, sand, and other such materials.

e. Sweep surrounding street and unpaved construction areas at least once a day during demolition, excavation, and foundation setting phase.

5. The project sponsor shall require its contractor(s) to comply with Ordinance 175-71, adopted by the Board of Supervisors, requiring the use of non-potable water for particulate control activities, and to obtain reclaimed water from the Clean Water Program for this purpose.

Performance Conditions

1. The authorization and rights vested by virtue of this action shall be deemed void and canceled if the building permits are not issued within 36 months of the Commission authorization. This time limitation may be extended at the direction of the Zoning Administrator only where the failure to issue a building permit to construct the project is delayed by a City or State Agency, by administrative appeals or court challenge.

6. Should the construction phase of this project result in complaints from interested property owners or residents, which are not resolved by the applicant and are subsequently reported to the Zoning Administrator and found to be in violation of the City Planning Code and/or the specific Conditions of Approval for the Project as set forth in Exhibit A of this Motion, the Zoning Administrator shall refer such unresolved complaints to the City Planning Commission after which the Commission shall hold a public hearing on the matter in accordance with the hearing notification and conduct procedures as set forth in section 174, 306.3, and 306.4 of the Code to consider revocation of this Conditional Use Authorization.

7. Should monitoring of the Conditions of Approval be required, the applicant or successors in interest shall pay applicable fees as established in Planning Code Section 351.

8. The applicant shall execute and record the specified conditions as a Notice of Special Restrictions at the Office of the County Clerk/Recorder.

- The conditions above have been met. This project is now complete.

***Law Library – Block 1190, Lot 001***

***20. Motion No. 14744 (98.072C)***

1998 conditional use and planned unit development approval for construction of a new 61,000 square-foot law library building, intensifying an institutional use and constructing a building over 40 feet in height (about 52 feet at its peak), and allowing modifications to front setback and rear yard requirements within a planned unit development. Conditions of approval as follows:

1. This authorization is the approval of a Conditional Use and Planned Unit Development to construct a new 61,000 square foot law library building for the University of San Francisco pursuant to conditional use application number 98.072C, allowing intensification of an institutional use in a residential district, a building of greater than 40 feet in height (about 52 feet at the atrium peak) in a residential district, and modification of the front setback and rear yard standards under a planned unit development at 2195 Fulton Street, the southwest corner of the intersection of Fulton and Cole Streets (the eastern portion of Lot 1 in Assessor's Block 1190), in an RH-3 (Residential House, Three Family) District and 80-D Height and Bulk District, per Sections 209.3(i), 290.9(b), 253 and 304 of the Planning Code, in general conformance with "Exhibit B", the architectural plans so labeled contained in the case file as reviewed

and approved by the Planning Commission. The Project will displace the existing 30 parking spaces from the site, and the new building will be integrated into the existing Kendrick Hall law school building at various levels. Overall the Project will add about 61,000 gross square feet of library space, which includes book and reference stacks, study, storage, processing and administrative areas. The new building could include up to three new classroom or seminar room spaces. About 22,000 square feet of area in the existing Kendrick Hall building will be vacated when those library facilities move into the new structure. This back space would be converted to offices and administrative space to alleviate existing overcrowded conditions in the building and the addition of up to four new seminar or classrooms. The Applicant has testified and presented evidence that student enrollment is not expected to increase due to the Project, but that the new law library building is intended to provide adequate space to service their existing program.

2. The mitigation measures identified in Negative Declaration No. 98.072E shall be required of the Project as follows:

Construction Air Quality

The project sponsor would require the contractor(s) to spray the site with water during excavation and construction activities; spray unpaved construction areas with water at least twice per day; cover stockpiles of soil, sand, and other material; cover trucks hauling debris, soil, sand or other such material; and sweep surrounding streets during excavation and construction at least once per day to reduce particulate emissions. Ordinance 175-91, passed by the Board of Supervisors on May 6 1991, requires that non-potable water be used for dust control activities. Therefore, the project sponsor would require that the contractor(s) obtain reclaimed water from the Clean Water Program for this purpose. The project sponsors would require the project contractor(s) to maintain and operate construction equipment so as to minimize exhaust emissions of particulates and other pollutants, by such means as a prohibition on idling motors when equipment is not in use or when trucks are waiting in queues, and implementation of specific maintenance programs to reduce emissions from equipment that would be in frequent use for much of the construction period.

Cultural Resources

Should evidence of archaeological resources of potential significance be found during ground disturbance, the project sponsor would immediately notify the Environmental Review Officer and would suspend any excavation which the Environmental Review Officer determined could damage such archaeological resources. Excavation or construction activities which might damage discovered cultural resources would be suspended for a total maximum of four weeks over the course of construction. After notifying the Environmental Review Officer, the project sponsor would select an archaeologist to assist the Office of Environmental Review in determining the significance of the find. The archaeologist would prepare a draft report containing an assessment of the potential significance of the find and a recommendation for what measures should be implemented to minimize potential effects on archaeological resources. Based on this report, the Environmental Review Officer would recommend specific additional mitigation measures to be implemented by the project sponsor. Mitigation measures might include the site security program, additional on-site investigations by the archaeologist, and/or documentation, preservation, and recovery of cultural materials. Finally, the archaeologist would prepare a draft report documenting the cultural resources that were discovered, and an evaluation as to their significance, and a description as to how any archaeological testing, exploration and/or recovery program was conducted. Copies of all draft reports prepared according to this mitigation measure would be sent first and directly to the Environmental Review Officer for review. Following approval by the Environmental Review Officer, copies of the final report(s) would be sent by the archaeologist directly to the president of the Landmarks Preservation Advisory Board and the California Archaeological Site Survey Northwest Information Center. Three copies of the final archaeology report(s) shall be submitted to the Office of Environmental Review, accompanied by copies of the transmittals documenting its distribution to the president of the Landmarks Preservation Advisory Board and the California Archaeological Site Survey Northwest Information Center.

3. The final plans shall conform substantially to the plans approved by the Commission on December 3, 1998, labeled as Exhibit B in the case file. The Planning Department shall continue working with the Applicant's architect on development of the details of the Project design, consistent with the plans approved by the Commission. Planning Department shall approve final design.

4. Landscaping shall be provided as indicated on the plans in Exhibit B, at a minimum. Every reasonable effort shall be made to preserve and integrate existing mature trees on the site. Screening landscaping,

including substantial trees shall be planted to the extent feasible along the southern perimeter of the Project and adjacent Kendrick Hall building. Street trees shall be planted as indicated on the plans in Exhibit B. All landscaping shall be maintained for the life of the Project.

5. Non-reflective glass shall be utilized in all areas of the new building. Glazed, frosted, or otherwise non-transparent glazing shall be used on the portions of the south facade of the building as indicated on Exhibit B, or other mechanisms employed to ensure the privacy of adjacent residences to the south. A landscape or other buffer shall be provided along the perimeter of south-facing balconies and terraces sufficient to prevent a direct line-of-sight of persons on the terraces to the north-facing windows on the adjacent residential buildings to the south.

6. Outdoor events which might take place on the south-facing terraces and open spaces within the Project shall be closely managed by the Applicant, limited to the day time and early evening hours, and controlled so as not to become a nuisance to nearby residents.

7. All Project lighting shall be directed onto the Project site and immediately surrounding sidewalk area only, and designed and managed so as not to be a nuisance to adjacent residents.

8. Construction of the herein-authorized Project shall commence within three years of the date of this action and shall be, thenceforth, pursued diligently to completion or the said authorization shall become null and void. This authorization may be extended at the direction of the Zoning Administrator only where the failure to issue a building permit to construct the Project is delayed by a City or State Agency or legal challenges.

9. Should the monitoring of the Conditions of Approval be required, the Applicant or successors shall pay fees as established in Planning Code Section 351 (f)(2).

10. The Project sponsor shall appoint a community liaison officer to deal with issues and other related matters of concern to nearby residents. The Applicant shall report the name and telephone number of this officer to nearby residents and the Zoning Administrator for reference. Should implementation of this Project result in complaints from neighborhood residents, which are not resolved by the Project Sponsor and are subsequently reported to the Zoning Administrator and found to be in violation of the Planning Code and/or the specific Conditions of Approval for the Project as set forth in Exhibit A of this motion, the Zoning Administrator shall report such complaints to the Planning Commission which may thereafter hold a public hearing on the matter in accordance with the hearing notification and conduct procedures as set forth in Sections 174, 306.3 and 306.4 of the Code to consider revocation of this Conditional Use Authorization.

11. The Applicant shall transmit a copy of the Conditions of Approval to the Office of the Recorder of the City and County of San Francisco for recordation as part of the property records. This action shall be taken prior to any approval of a building permit by the Planning Department.

- The conditions above have been met. This project is now complete.

***Antennas on Kendrick Hall – Block 1190, Lot 001***

### *21. Motion No. 14294 (Case No. 96.731C)*

1997 conditional use authorization to install a total of six panel antennas and a base transceiver station on the roof of an existing building for Sprint Spectrum. Conditions of approval as follows:

1. This authorization is granted to install up to six antennas and a base transceiver station (the “facilities”) on the roof of the existing building at 2195 Fulton Street, Assessor’s Block 1190, Lot 1; the facilities are to be installed in general conformity with the plans identified as EXHIBIT B, dated November 27, 1996, and submitted to the Commission for review on January 16, 1997.

2. Plan Drawings. Prior to the issuance of any building or electrical permits for the installation of the

facilities, the Project Sponsor shall submit final scaled drawings for review and approval by the Planning Department ("Plan Drawings"). The Plan Drawings shall:

a.) Structure and Siting. Identify all facility related support and protection measures to be installed. This includes, but is not limited to, the location(s) and Method(s) of placement, support, protection, screening, paint and/or other treatments of the antennas and other appurtenances to insure public safety, insure compatibility with urban design, architectural and historic preservation principles, and harmony with neighborhood character.

b.) For the Project Site, regardless of the ownership of the existing facilities: Identify the location of all existing antennas and facilities; and identify the location of all approved (but not installed) antennas and facilities.

c.) Emissions. Provide a report, subject to approval of the Zoning Administrator, that operation of the facilities in addition to ambient RF emission levels will not exceed adopted FCC standards with regard to human exposure in uncontrolled areas.

3. Project Implementation Report. The Project Sponsor shall prepare and submit to the Zoning Administrator a Project Implementation Report. The Project Implementation Report shall:

a.) identify the three-dimensional perimeter closest to the facility at which adopted FCC standards for human exposure to RF emissions in uncontrolled areas are satisfied;

b.) document testing that demonstrates that the facility will not cause any potential exposure to RF emissions that exceed adopted FCC emission standards for human exposure in uncontrolled areas.

c.) the Project Implementation Report shall compare test results for each test point with applicable FCC standards. Testing shall be conducted in compliance with FCC regulations governing the measurement of RF emissions and shall be conducted during normal business hours on a non-holiday week day with the subject equipment measured while operating at maximum power.

d.) Testing, Monitoring, and Preparation. The Project Implementation Report shall be prepared by a certified professional engineer or other technical expert approved by the Department. At the sole option of the Department, the Department (or its agents) may monitor the performance of testing required for preparation of the Project Implementation Report. The cost of such monitoring shall be borne by the Project Sponsor pursuant to the condition related to the payment of the City's reasonable costs.

e.) Notification and Testing. The Project Implementation Report shall set forth the testing and measurements undertaken pursuant to Conditions 2 and 8.

f.) Approval. The Zoning Administrator shall request that the Certification of Final Completion for operation of the facility not be issued by the Department of Building Inspection until such time that the Project Implementation Report is approved by the Department for compliance with these conditions.

4. Notification prior to Project Implementation Report. The Project Sponsor shall undertake to inform and perform appropriate tests for residents of any dwelling units located within 25 feet of the transmitting antennae at the time of testing for the Project Implementation Report.

a.) At least twenty calendar days prior to conducting the testing required for preparation of the Project Implementation Report, the Project Sponsor shall mail notice to the Department, as well as to the resident of any legal dwelling unit within 25 feet of a transmitting antenna, of the date on which testing will be conducted. The Applicant will submit a written affidavit attesting to this mail notice along with the mailing list.

b.) When requested in advance by a resident notified of testing pursuant to subsection (a), the Project Sponsor shall conduct testing of total power density of RF emissions within the residence of that resident on the date on which the testing is conducted for the Project Implementation Report.

5. Community Liaison. Within 10 days of the effective date of this authorization, the Project Sponsor shall appoint a community liaison officer to resolve issues of concern to neighbors and residents relating to the construction and operation of the facilities. Upon appointment, the Project Sponsor shall report in writing the name, address and telephone number of this officer to the Zoning Administrator. The Community Liaison Officer shall report to the Zoning Administrator what issues, if any, are of concern to the community and what issues have not been resolved by the Project Sponsor.

6. Installation. Within 10 days of the installation and operation of the facilities, the Project Sponsor shall confirm in writing to the Zoning Administrator that the facilities are being maintained and operated in compliance with applicable Building, Electrical and other Code requirements, as well as applicable FCC emissions standards.

7. Screening.

a.) To the extent necessary to ensure compliance with adopted FCC regulations regarding human exposure to RF emissions, and upon the recommendation of the Zoning Administrator, the Project Sponsor shall:

i.) Modify the placement of the facilities;

ii.) install fencing, barriers or other appropriate structures or devices to restrict access to the facilities;

iii.) install multi-lingual signage, including the RF radiation hazard warning symbol identified in ANSI C95.2-1982, to notify persons that the facility could cause exposure to RF emissions; or

iv.) implement any other practice reasonably necessary to ensure that the facility is operated in compliance with adopted FCC RF emission standards.

b.) To the extent necessary to minimize visual obtrusion and clutter, installations shall conform to the following standards:

i) Antennas and back-up equipment shall be painted, fenced, landscaped or otherwise treated architecturally so as to minimize visual impacts;

ii) Rooftop installations shall be setback such that back-up facilities are not viewed from the street;

iii) Antennae attached to building facades shall be so placed, screened or otherwise treated to minimize any negative visual impact; and

iv) If WTS facilities are to be located on architecturally significant or historic buildings or structures, all facilities shall be integrated architecturally with the style an character of the structure or otherwise made unobtrusive.

v) Although co-location of various companies' facilities may be desirable, a maximum number of antennas and back-up facilities on the Project Site shall be established, on a case-by-case basis, such that "antennae farms" or similar visual intrusions for the site and area is not created.

vi) The Project Sponsor shall remove antennae and equipment that has been out of service for a continuous period of six months.

8. Periodic Safety Monitoring. The Project Sponsor shall submit to the Zoning Administrator 10 days after installation of the facilities, and every two years thereafter, a certification attested to by a licensed engineer expert in the field of EMR/RF emissions, that the facilities are and have been operated within the then current applicable FCC standards for RF/EMF emissions.

9. Emissions Conditions. It is a continuing condition of this authorization that the facilities be operated in such a manner so as not to contribute to ambient RF/EMF emissions in excess of then current FCC adopted RF/EMF emission standards; violation of this condition shall be grounds for revocation.

10. Noise and Heat. The WTS facility, including power source and cooling facility, shall be operated at all times within the limits of the San Francisco Noise Ordinance. The WTS facility, including power source and cooling facility, shall not be operated so as to cause the generation of heat that adversely affects a building occupant.

11. Implementation and Monitoring Costs.

    a.) The Project Sponsor, on an equitable basis with other WTS providers, shall pay the cost of preparing and adopting appropriate General Plan policies related to the placement of WTS facilities. Should future legislation be enacted to provide for cost recovery for planning, the Project Sponsor shall be bound by such legislation.

    b.) The Project Sponsor or its successors shall be responsible for the payment of all reasonable costs associated with the monitoring of the conditions of approval contained in this authorization, including costs incurred by this Department, the Department of Public Health, the Department of Electricity and Telecommunications, Office of the City Attorney, or any other appropriate City Department or agency pursuant to Planning Code Section 351 (f)(2). The Planning Department shall collect such costs on behalf of the City.

    c.) The Project Sponsor shall be responsible for the payment of all fees associated with the installation of the subject facility which are assessed by the City pursuant to all applicable law.

12. All Conditions Basis for Revocation. The Project Sponsor or its successors shall comply fully with all conditions specified in this authorization. Failure to comply with any condition shall constitute grounds for revocation under the provisions of Planning Code sections 174, 176 and 303(d). The Zoning Administrator shall schedule a public hearing before the Planning Commission to receive testimony and other evidence to demonstrate a finding of a violation of a condition of the authorization of the use of the facility and, finding that violation, the Commission shall revoke the Conditional Use authorization. Such revocation by the Planning Commission is appealable to the Board of Supervisors. In the event that the project implementation report includes a finding that RF emissions for the site exceed FCC Standards in any uncontrolled location, the Zoning Administrator may require the Applicant to immediately cease and desist operation of the facility until such time that the violation is corrected to the satisfaction of the Zoning Administrator.

13. Complaints and Proceedings. Should any party complain to the Project Sponsor about the installation or operation of the facilities, which complaints are not resolved by the Project Sponsor, the Project Sponsor (or its appointed agent) shall advise the Zoning Administrator of the complaint and the failure to satisfactorily resolve such complaint. If the Zoning Administrator thereafter finds a violation of any provision of the City Planning Code and/or any condition of approval herein, the Zoning Administrator shall attempt to resolve such violation on a expedited basis with the Project Sponsor. If such efforts fail, the Zoning Administrator shall refer such complains to the Commission for consideration at the next regularly scheduled public meeting.

14. Severability. If any clause, sentence, section or any part of these conditions of approval is for any reason held to be invalid, such invalidity shall not affect or impair other of the remaining provisions, clauses, sentences, or sections of these conditions. It is hereby declared to be the intent of the Commission that these conditions of approval would have been adopted had such invalid sentence, clause, or section or part thereof not been included herein.

15. Transfer of Operation. Any carrier/provider authorized by the Zoning Administrator or by the Planning Commission to operate a specific WTS installation may assign the operation of the facility to another carrier licensed by the FCC for that radio frequency provided that such transfer is made known to the Zoning Administrator in advance of such operation, and all conditions of approval for the subject installation are carried out by the new carrier/provider, and the authorizing Motion is recorded on the deed of the property stating the new carrier/provider and authorizing conditions of approval.

16. Compatibility with City Emergency Services. The facility shall not be operated, nor caused to transmit on or adjacent to any radio frequencies licensed to the City for emergency telecommunication services such that the City's emergency telecommunications system experiences interference, unless prior approval for such has been granted in writing by the City.

17. Recordation. The Property Owner shall execute and record these specified conditions as a Notice of Special Restrictions at the Office of the County Recorder/County Clerk.

- The University has contacted the vendor responsible for the installation, maintenance and operation of the antennas and has requested that the vendor confirm that it has complied with the conditions set forth above. The University has instructed the vendor to provide the facilities department with a specific plan of action for immediate compliance in the unlikely event that it is not in compliance with any of the conditions.

### *22. Motion No. 14456 (Case No. 97.507C)*

1997 conditional use authorization for Pac Bell Mobile Services to install a total of three panel antennas on the building's façade and a base transceiver station on the roof of an existing building. Conditional of approvals as follows:

1. This authorization is granted to install up to three antennas on the building's facade, and a base transceiver station (the "facilities") on the roof of the existing building at 2195 Fulton Street, Assessor's Block 1190, Lot 1; the facilities are to be installed in general conformity with the plans identified as EXHIBIT B, dated July 17, 1997, and submitted to the Commission for review on September 4, 1997.

2. Plan Drawings. Prior to the issuance of any building or electrical permits for the installation of the facilities, the Project Sponsor shall submit final scaled drawings for review and approval by the Planning Department ("Plan Drawings"). The Plan Drawings shall:

   a.) Structure and Siting. Identify all facility related support and protection measures to be installed. This includes, but is not limited to, the location(s) and method(s) of placement, support, protection, screening, paint and/or other treatments of the antennas and other appurtenances to insure public safety, insure compatibility with urban design, architectural and historic preservation principles, and harmony with neighborhood character.

   b.) For the Project Site, regardless of the ownership of the existing facilities: Identify the location of all existing antennas and facilities; and identify the location of all approved (but not installed) antennas and facilities.

   c.) Emissions. Provide a report, subject to approval of the Zoning Administrator, that operation of the facilities in addition to ambient RF emission levels will not exceed adopted FCC standards with regard to human exposure in uncontrolled areas.

3. Project Implementation Report. The Project Sponsor shall prepare and submit to the Zoning Administrator a Project Implementation Report. The Project Implementation Report shall:

   a.) identify the three-dimensional perimeter closest to the facility at which adopted FCC standards for human exposure to RF emissions in uncontrolled areas are satisfied;

   b.) document testing that demonstrates that the facility will not cause any potential exposure to RF emissions that exceed adopted FCC emission standards for human exposure in uncontrolled areas.

   c.) the Project Implementation Report shall compare test results for each test point with applicable

FCC standards. Testing shall be conducted in compliance with FCC regulations governing the measurement of RF emissions and shall be conducted during normal business hours on a non-holiday week day with the subject equipment measured while operating at maximum power.

d.) Testing, Monitoring, and Preparation. The Project Implementation Report shall be prepared by a certified professional engineer or other technical expert approved by the Department. At the sole option of the Department, the [ ] shall be borne by the Project Sponsor pursuant to the condition related to the payment of the City's reasonable costs.

e.) Notification and Testing. The Project Implementation Report shall set forth the testing and measurements undertaken pursuant to Conditions 2 and 8.

f.) Approval. The Zoning Administrator shall request that the Certification of Final Completion for operation of the facility not be issued by the Department of Building Inspection until such time that the Project Implementation Report is approved by the Department for compliance with these conditions.

4. Notification prior to Project Implementation Report. The Project Sponsor shall undertake to inform and perform appropriate tests for residents of any dwelling units located within 25 feet of the transmitting antennae at the time of testing for the Project Implementation Report.

a.) At least twenty calendar days prior to conducting the testing required for preparation of the Project Implementation Report, the Project Sponsor shall mail notice to the Department, as well as to the resident of any legal dwelling unit within 25 feet of a transmitting antenna, of the date on which testing will be conducted. The Applicant will submit a written affidavit attesting to this mail notice along with the mailing list.

b.) When requested in advance by a resident notified of testing pursuant to subsection (a), the Project Sponsor shall conduct testing of total power density of RF emissions within the residence of that resident on the date on which the testing is conducted for the Project Implementation Report.

5. Community Liaison. Within 10 days of the effective date of this authorization, the Project Sponsor shall appoint a community liaison officer to resolve issues of concern to neighbors and residents relating to the construction and operation of the facilities. Upon appointment, the Project Sponsor shall report in writing the name, address and telephone number of this officer to the Zoning Administrator. The Community Liaison Officer shall report to the Zoning Administrator what issues, if any, are of concern to the community and what issues have not been resolved by the Project Sponsor.

6. Installation. Within 10 days of the installation and operation of the facilities, the Project Sponsor shall confirm in writing to the Zoning Administrator that the facilities are being maintained and operated in compliance with applicable Building, Electrical and other Code requirements, as well as applicable FCC emissions standards.

7. Screening.

a.) To the extent necessary to ensure compliance with adopted FCC regulations regarding human exposure to RF emissions, and upon the recommendation of the Zoning Administrator, the Project Sponsor shall:

i.) Modify the placement of the facilities;

ii.) install fencing, barriers or other appropriate structures or devices to restrict access to the facilities;

iii.) [ ]

iv.) implement any other practice reasonably necessary to ensure that the facility is operated in compliance with adopted FCC RF emission standards.

b.) To the extent necessary to minimize visual obtrusion and clutter, installations shall conform to the following standards:

i) Antennas and back-up equipment shall be painted, fenced, landscaped or otherwise treated architecturally so as to minimize visual impacts;

ii) Rooftop installations shall be setback such that back-up facilities are not viewed from the street;

iii) Antennae attached to building facades shall be so placed, screened or otherwise treated to minimize any negative visual impact; and

iv) If WTS facilities are to be located on architecturally significant or historic buildings or structures, all facilities shall be integrated architecturally with the style an character of the structure or otherwise made unobtrusive.

v) Although co-location of various companies' facilities may be desirable, a maximum number of antennas and back-up facilities on the Project Site shall be established, on a case-by-case basis, such that "antennae farms" or similar visual intrusions for the site and area is not created.

vi) The Project Sponsor shall remove antennae and equipment that has been out of service for a continuous period of six months.

8. Periodic Safety Monitoring. The Project Sponsor shall submit to the Zoning Administrator 10 days after installation of the facilities, and every two years thereafter, a certification attested to by a licensed engineer expert in the field of EMR/RF emissions, that the facilities are and have been operated within the then current applicable FCC standards for RF/EMF emissions.

9. Emissions Conditions. It is a continuing condition of this authorization that the facilities be operated in such a manner so as not to contribute to ambient RF/EMF emissions in excess of then current FCC adopted RF/EMF emission standards; violation of this condition shall be grounds for revocation.

10. Noise and Heat. The WTS facility, including power source and cooling facility, shall be operated at all times within the limits of the San Francisco Noise Ordinance. The WTS facility, including power source and cooling facility, shall not be operated so as to cause the generation of heat that adversely affects a building occupant.

11. Implementation and Monitoring Costs.

a.) The Project Sponsor, on an equitable basis with other WTS providers, shall pay the cost of preparing and adopting appropriate General Plan policies related to the placement of WTS facilities. Should future legislation be enacted to provide for cost recovery for planning, the Project Sponsor shall be bound by such legislation.

b.) The Project Sponsor or its successors shall be responsible for the payment of all [ ] Office of the City Attorney, or any other appropriate City Department or agency pursuant to Planning Code Section 351(f)(2). The Planning Department shall collect such costs on behalf of the City.

c.) The Project Sponsor shall be responsible for the payment of all fees associated with the installation of the subject facility which are assessed by the City pursuant to all applicable law.

12. All Conditions Basis for Revocation. The Project Sponsor or its successors shall comply fully with all conditions specified in this authorization. Failure to comply with any condition shall constitute grounds for revocation under the provisions of Planning Code sections 174, 176 and 303(d). The Zoning Administrator shall schedule a public hearing before the Planning Commission to receive testimony and other evidence to demonstrate a finding of a violation of a condition of the authorization of the use of the facility and, finding that violation, the Commission shall revoke the Conditional Use authorization. Such revocation by the Planning Commission is appealable to the Board of Supervisors.

    In the event that the project implementation report includes a finding that RF emissions for the site exceed FCC Standards in any uncontrolled location, the Zoning Administrator may require the Applicant to immediately cease and desist operation of the facility until such time that the violation is corrected to the satisfaction of the Zoning Administrator.

13. Complaints and Proceedings. Should any party complain to the Project Sponsor about the installation or operation of the facilities, which complaints are not resolved by the Project Sponsor, the Project Sponsor (or its appointed agent) shall advise the Zoning Administrator of the complaint and the failure to satisfactorily resolve such complaint. If the Zoning Administrator thereafter finds a violation of any provision of the City Planning Code and/or any condition of approval herein, the Zoning Administrator shall attempt to resolve such violation on a expedited basis with the Project Sponsor. If such efforts fail, the Zoning Administrator shall refer such complains to the Commission for consideration at the next regularly scheduled public meeting.

14.

15. Severability. If any clause, sentence, section or any part of these conditions of approval is for any reason held to be invalid, such invalidity shall not affect or impair other of the remaining provisions, clauses, sentences, or sections of these conditions. It is hereby declared to be the intent of the Commission that these conditions of approval would have been adopted had such invalid sentence, clause, or section or part thereof not been included herein.

16. Transfer of Operation. Any carrier/provider authorized by the Zoning Administrator or by the Planning Commission to operate a specific WTS installation may assign the operation of the facility to another carrier licensed by the FCC for that radio frequency provided that such transfer is made known to the Zoning Administrator in advance of such operation, and all conditions of approval for the subject installation are carried out by the new [ ].

17. Compatibility with City Emergency Services. The facility shall not be operated, nor caused to transmit on or adjacent to any radio frequencies licensed to the City for emergency telecommunication services such that the City's emergency telecommunications system experiences interference, unless prior approval for such has been granted in writing by the City.

18. Recordation. The Property Owner shall execute and record a Memorandum of Site Agreement and Special Conditions Under the Planning Code at the Office of the County Recorder/County Clerk.

- The University has contacted the vendor responsible for the installation, maintenance and operation of the antennas and has requested that the vendor confirm that it has complied with the conditions set forth above. The University has instructed the vendor to provide the facilities department with a specific plan of action for immediate compliance in the unlikely event that it is not in compliance with any of the conditions.

***Antennas on Gershwin Theater– Block 1107, Lot 006***

### *23. Motion No. 15049 (00.036C)*

2000 conditional use authorization to flush-mount a total of two panel antennas on the facade and install a base transceiver station in an existing rooftop penthouse of the existing Gershwin Theater.

1. This authorization is granted to flush-mount up to two panel antennas on the facade of the building and install a base transceiver station (the “facilities”) on the roof of the existing school building at 2350 Turk Street, Assessor’s Block 1107, Lot 006; the facilities are to be installed in general conformity with the plans identified as EXHIBIT B, dated March 21, 2000.

2. Plan Drawings. Prior to the issuance of any building or electrical permits for the installation of the facilities, the Project Sponsor shall submit final scaled drawings for review and approval by the Planning Department (“Plan Drawings”). The Plan Drawings shall:

    a.) Structure and Siting. Identify all facility related support and protection measures to be installed. This includes, but is not limited to, the location(s) and method(s) of placement, support, protection, screening, paint and/or other treatments of the antennas and other appurtenances to insure public safety, insure compatibility with urban design, architectural and historic preservation principles, and harmony with neighborhood character.

    b.) For the Project Site, regardless of the ownership of the existing facilities: Identify the location of all existing antennas and facilities; and identify the location of all approved (but not installed) antennas and facilities.

    c.) Emissions. Provide a report, subject to approval of the Zoning Administrator, that operation of the facilities in addition to ambient RF emission levels will not exceed adopted FCC standards with regard to human exposure in uncontrolled areas.

3. Project Implementation Report. The Project Sponsor shall prepare and submit to the Zoning Administrator a Project Implementation Report. The Project Implementation Report shall:

    a.) identify the three-dimensional perimeter closest to the facility at which adopted FCC standards for human exposure to RF emissions in uncontrolled areas are satisfied;

    b.) document testing that demonstrates that the facility will not cause any potential exposure to RF emissions that exceed adopted FCC emission standards for human exposure in uncontrolled areas.

    c.) the Project Implementation Report shall compare test results for each test point with applicable FCC standards. Testing shall be conducted in compliance with FCC regulations governing the measurement of RF emissions and shall be conducted during normal business hours on a non-holiday week day with the subject equipment measured while operating at maximum power.

    d.) Testing, Monitoring, and Preparation. The Project Implementation Report shall be prepared by a certified professional engineer or other technical expert approved by the Department. At the sole option of the Department, the Department (or its agents) may monitor the performance of testing required for preparation of the Project Implementation Report. The cost of such monitoring shall be borne by the Project Sponsor pursuant to the condition related to the payment of the City’s reasonable costs.

    e.) Notification and Testing. The Project Implementation Report shall set forth the testing and measurements undertaken pursuant to Conditions 2 and 9.

    f.) Approval. The Zoning Administrator shall request that the Certification of Final Completion for operation of the facility not be issued by the Department of Building Inspection until such time that the Project Implementation Report is approved by the Department for compliance with these conditions.

4. Notification prior to Project Implementation Report. The Project Sponsor shall undertake to, inform and perform appropriate tests for residents of any dwelling units located within 25 feet of the transmitting antennae at the time of testing for the Project Implementation Report.

   a.) At least twenty calendar days prior to conducting the testing required for preparation of the Project Implementation Report, the Project Sponsor shall mail notice to the Department, as well as to the resident of any legal dwelling unit within 25 feet of a transmitting antenna, of the date on which testing will be conducted. The Applicant will submit a written affidavit attesting to this mail notice along with the mailing list.

   b.) When requested in advance by a resident notified of testing pursuant to subsection (a), the Project Sponsor shall conduct testing of total power density of RF emissions within the residence of that resident on the date on which the testing is conducted for the Project Implementation Report.

5. Community Liaison. Within 10 days of the effective date of this authorization, the Project Sponsor shall appoint a community liaison officer to resolve issues of concern to neighbors and residents relating to the construction and operation of the facilities. Upon appointment, the Project Sponsor shall report in writing the name, address and telephone number of this officer to the Zoning Administrator. The Community Liaison Officer shall report to the Zoning Administrator what issues, if any, are of concern to the community and what issues have not been resolved by the Project Sponsor.

6. Installation. Within 10 days of the installation and operation of the facilities, the Project Sponsor shall confirm in writing to the Zoning Administrator that the facilities are being maintained and operated in compliance with applicable Building, Electrical and other Code requirements, as well as applicable FCC emissions standards.

7. Screening.

   a.) To the extent necessary to ensure compliance with adopted FCC regulations regarding human exposure to RF emissions, and upon the recommendation of the Zoning Administrator, the Project Sponsor shall:

      i.) Modify the placement of the facilities;

      ii.) install fencing, barriers or other appropriate structures or devices to restrict access to the facilities;

      iii.) install multi-lingual signage, including the RF radiation hazard warning symbol identified in ANSI C95.2-1982, to notify persons that the facility could cause exposure to RF emissions; or

      iv.) implement any other practice reasonably necessary to ensure that the facility is operated in compliance with adopted FCC RF emission standards.

   b.) To the extent necessary to minimize visual obtrusion and clutter, installations shall conform to the following standards:

      i.) Antennas and back-up equipment shall be painted, fenced, landscaped or otherwise treated architecturally so as to minimize visual impacts;

      ii.) Rooftop installations shall be setback such that back-up facilities are not viewed from the street;

      iii.) Antennae attached to building facades shall be so placed, screened or otherwise treated to minimize any negative visual impact; and iv.) Although co-location of various companies' facilities may be desirable, a maximum number of antennas and back-up facilities on the Project Site shall be established, on a case-by-case basis, such that "antennae farms" or similar visual intrusions for the site and area is not created.

8. The Project Sponsor shall remove antennae and equipment that has been out of service for a continuous period of six months.

9. Periodic Safety Monitoring. The Project Sponsor shall submit to the Zoning Administrator 10 days after installation of the facilities, and every two years thereafter, a certification attested to by a licensed engineer expert in the field of EMR/RF emissions, that the facilities are and have been operated within the then current applicable FCC standards for RF/EMF emissions.

10. Emissions Conditions. It is a continuing condition of this authorization that the facilities be operated in such a manner so as not to contribute to ambient RF/EMF emissions in excess of then current FCC adopted RF/EMF emission standards; violation of this condition shall be grounds for revocation.

11. Noise and Heat. The WTS facility, including power source and cooling facility, shall be operated at all times within the limits of the San Francisco Noise Ordinance. The WTS facility, including power source and cooling facility, shall not be operated so as to cause the generation of heat that adversely affects a building occupant.

12. Implementation and Monitoring Costs.

a.) The Project Sponsor, on an equitable basis with other WTS providers, shall pay the cost of preparing and adopting appropriate General Plan policies related to the placement of WTS facilities. Should future legislation be enacted to provide for cost recovery for planning, the Project Sponsor shall be bound by such legislation.

b.) The Project Sponsor or its successors shall be responsible for the payment of all reasonable costs associated with the monitoring of the conditions of approval contained in this authorization, including costs incurred by this Department, the Department of Public Health, the Department of Electricity and Telecommunications, Office of the City Attorney, or any other appropriate City Department or agency pursuant to Planning Code Section 351(f)(2). The Planning Department shall collect such costs on behalf of the City.

c.) The Project Sponsor shall be responsible for the payment of all fees associated with the installation of the subject facility which are assessed by the City pursuant to all applicable law.

13. All Conditions Basis for Revocation. The Project Sponsor or its successors shall comply fully with all conditions specified in this authorization. Failure to comply with any condition shall constitute grounds for revocation under the provisions of Planning Code sections 174, 176 and 303(d). The Zoning Administrator shall schedule a public hearing before the Planning Commission to receive testimony and other evidence to demonstrate a finding of a violation of a condition of the authorization of the use of the facility and, finding that violation, the Commission shall revoke the Conditional Use authorization. Such revocation by the Planning Commission is appealable to the Board of Supervisors.

In the event that the project implementation report includes a finding that RF emissions for the site exceed FCC Standards in any uncontrolled location, the Zoning Administrator may require the Applicant to immediately cease and desist operation of the facility until such time that the violation is corrected to the satisfaction of the Zoning Administrator.

14. Complaints and Proceedings. Should any party complain to the Project Sponsor about the installation or operation of the facilities, which complaints are not resolved by the Project Sponsor, the Project Sponsor (or its appointed agent) shall advise the Zoning Administrator of the complaint and the failure to satisfactorily resolve such complaint. If the Zoning Administrator thereafter finds a violation of any

provision of the City Planning Code and/or any condition of approval herein, the Zoning Administrator shall attempt to resolve such violation on a expedited basis with the Project Sponsor. If such efforts fail, the Zoning Administrator shall refer such complains to the Commission for consideration at the next regularly scheduled public meeting.

15. Severability. If any clause, sentence, section or any part of these conditions of approval is for any reason held to be invalid, such invalidity shall not affect or impair other of the remaining provisions, clauses, sentences, or sections of these conditions. It is hereby declared to be the intent of the Commission that these conditions of approval would have been adopted had such invalid sentence, clause, or section or part thereof not been included herein.

16. Transfer of Operation. Any carrier/provider authorized by the Zoning Administrator or by the Planning Commission to operate a specific WTS installation may assign the operation of the facility to another carrier licensed by the FCC for that radio frequency provided that such transfer is made known to the Zoning Administrator in advance of such operation, and all conditions of approval for the subject installation are carried out by the new carrier/provider.

17. Compatibility with City Emergency Services. The facility shall not be operated, nor caused to transmit on or adjacent to any radio frequencies licensed to the City for emergency telecommunication services such that the City's emergency telecommunications system experiences interference, unless prior approval for such has been granted in writing by the City.

- The University has contacted the vendor responsible for the installation, maintenance and operation of the antennas and has requested that the vendor confirm that it has complied with the conditions set forth above. The University has instructed the vendor to provide the facilities department with a specific plan of action for immediate compliance in the unlikely event that it is not in compliance with any of the conditions.

### *1. Antennas on Rossi Wing – Block 1107, Lot 003A*

#### *1. Motion No. 15913 (00.566C)*

2000 conditional use authorization to flush-mount a total of sixteen panel antennas on the facade of an existing stair penthouse and install a base transceiver station on the roof of an existing school administration building.

1. This authorization is granted to flush-mount up to sixteen panel antennas on the facade of an existing stair penthouse and install a base transceiver station (the "facilities") on the roof of a school administration building at 2500-2698 Turk Street, Assessor's Block 1107, Lot 003A; the facilities are to be installed in general conformity with the plans identified as EXHIBIT B, dated May 5, 2000 and revised on May 30, 2000.

2. Plan Drawings. Prior to the issuance of any building or electrical permits for the installation of the facilities, the Project Sponsor shall submit final scaled drawings for review and approval by the Planning Department ("Plan Drawings"). The Plan Drawings shall:

a.) Structure and Siting. Identify all facility related support and protection measures to be installed. This includes, but is not limited to, the location(s) and method(s) of placement, support, protection, screening, paint and/or other treatments of the antennas and other appurtenances to insure public safety, insure compatibility with urban design, architectural and historic preservation principles, and harmony with neighborhood character.

b.) For the Project Site, regardless of the ownership of the existing facilities: Identify the location of all existing antennas and facilities; and identify the location of all approved (but not installed) antennas and facilities.

c.) Emissions. Provide a report, subject to approval of the Zoning Administrator, that operation of the facilities in addition to ambient RF emission levels will not exceed adopted FCC standards with regard to human exposure in uncontrolled areas.

3. Project Implementation Report. The Project Sponsor shall prepare and submit to the Zoning Administrator a Project Implementation Report. The Project Implementation Report shall:

a) identify the three-dimensional perimeter closest to the facility at which adopted FCC standards for human exposure to RF emissions in uncontrolled areas are satisfied;

b) document testing that demonstrates that the facility will not cause any potential exposure to RF emissions that exceed adopted FCC emission standards for human exposure in uncontrolled areas.

c) the Project Implementation Report shall compare test results for each test point with applicable FCC standards. Testing shall be conducted in compliance with FCC regulations governing the measurement of RF emissions and shall be conducted during normal business hours on a non-holiday week day with the subject equipment measured while operating at maximum power.

d) Testing, Monitoring, and Preparation. The Project Implementation Report shall be prepared by a certified professional engineer or other technical expert approved by the Department. At the sole option of the Department, the Department (or its agents) may monitor the performance of testing required for preparation of the Project Implementation Report. The cost of such monitoring shall be borne by the Project Sponsor pursuant to the condition related to the payment of the City's reasonable costs.

e) Notification and Testing. The Project Implementation Report shall set forth the testing and measurements undertaken pursuant to Conditions 2 and 9.

f) Approval. The Zoning Administrator shall request that the Certification of Final Completion for operation of the facility not be issued by the Department of Building Inspection until such time that the Project Implementation Report is approved by the Department for compliance with these conditions.

4. Notification prior to Project Implementation Report. The Project Sponsor shall undertake to inform and perform appropriate tests for residents of any dwelling units located within 25 feet of the transmitting antennae at the time of testing for the Project Implementation Report.

a) At least twenty calendar days prior to conducting the testing required for preparation of the Project Implementation Report, the Project Sponsor shall mail notice to the Department, as well as to the resident of any legal dwelling unit within 25 feet of a transmitting antenna, of the date on which testing will be conducted. The Applicant will submit a written affidavit attesting to this mail notice along with the mailing list.

b) When requested in advance by a resident notified of testing pursuant to subsection (a), the Project Sponsor shall conduct testing of total power density of RF emissions within the residence of that resident on the date on which the testing is conducted for the Project Implementation Report.

5. Community Liaison. Within 10 days of the effective date of this authorization, the Project Sponsor shall appoint a community liaison officer to resolve issues of concern to neighbors and residents relating to the construction and operation of the facilities. Upon appointment, the Project Sponsor shall report in writing the name, address and telephone number of this officer to the Zoning Administrator. The Community Liaison Officer shall report to the Zoning Administrator what issues, if any, are of concern to the community and what issues have not been resolved by the Project Sponsor.

6. Installation. Within 10 days of the installation and operation of the facilities, the Project Sponsor shall confirm in writing to the Zoning Administrator that the facilities are being maintained and operated in compliance with applicable Building, Electrical and other Code requirements, as well as applicable FCC emissions standards.

7. Screening.

a) To the extent necessary to ensure compliance with adopted FCC regulations regarding human exposure to RF emissions, and upon the recommendation of the Zoning Administrator, the Project Sponsor shall:

i) Modify the placement of the facilities;

ii) install fencing, barriers or other appropriate structures or devices to restrict access to the facilities:

iii) install multi-lingual signage, including the RF radiation hazard warning symbol identified in ANSI C95.2-1982, to notify persons that the facility could cause exposure to RF emissions: or

iv) implement any other practice reasonably necessary to ensure that the facility is operated in compliance with adopted FCC RF emission standards.

b) To the extent necessary to minimize visual obtrusion and clutter, installations shall conform to the following standards:

i) Antennas and back-up equipment shall be painted, fenced, landscaped or otherwise treated architecturally so as to minimize visual impacts;

ii) Rooftop installations shall be setback such that back-up facilities are not viewed from the street;

iii) Antennae attached to building facades shall be so placed, screened or otherwise treated to minimize any negative visual impact; and

iv) Although co-location of various companies' facilities may be desirable, a maximum number of antennas and back-up facilities on the Project Site shall be established, on a case-by-case basis, such that "antennae farms" or similar visual intrusions for the site and area is not created.

8. The Project Sponsor shall remove antennae and equipment that has been out of service for a continuous period of six months.

9. Periodic Safety Monitoring. The Project Sponsor shall submit to the Zoning Administrator 10 days after installation of the facilities, and every two years thereafter, a certification attested to by a licensed engineer expert in the field of EMR/RF emissions, that the facilities are and have been operated within the then current applicable FCC standards for RF/EMF emissions.

10. Emissions Conditions. It is a continuing condition of this authorization that the facilities be operated in such a manner so as not to contribute to ambient RF/EMF emissions in excess of then current FCC adopted RF/EMF emission standards; violation of this condition shall be grounds for revocation.

11. Noise and Heat. The WTS facility, including power source and cooling facility, shall be operated at all times within the limits of the San Francisco Noise Ordinance. The WTS facility, including power source and cooling facility, shall not be operated so as to cause the generation of heat that adversely affects a building occupant.

12. Implementation and Monitoring Costs.

    a) The Project Sponsor, on an equitable basis with other WTS providers, shall pay the cost of preparing and adopting appropriate General Plan policies related to the placement of WTS facilities. Should future legislation be enacted to provide for cost recovery for planning, the Project Sponsor shall be bound by such legislation.

    b) The Project Sponsor or its successors shall be responsible for the payment of all reasonable costs associated with the monitoring of the conditions of approval contained in this authorization, including costs incurred by this Department, the Department of Public Health, the Department of Electricity and Telecommunications, Office of the City Attorney or any other appropriate City Department or agency pursuant to Planning Code Section 351(f)(2). The Planning Department shall collect such costs on behalf of the City.

    c) The Project Sponsor shall be responsible for the payment of all fees associated with the installation of the subject facility which are assessed by the City pursuant to all applicable law.

13. All Conditions Basis for Revocation. The Project Sponsor or its successors shall comply fully with all conditions specified in this authorization. Failure to comply with any condition shall constitute grounds for revocation under the provisions of Planning Code sections 174, 176 and 303(d). The Zoning Administrator shall schedule a public hearing before the Planning Commission to receive testimony and other evidence to demonstrate a finding of a violation of a condition of the authorization of the use of the facility and, finding that violation, the Commission shall revoke the Conditional Use authorization. Such revocation by the Planning Commission is appealable to the Board of Supervisors.

    In the event that the project implementation report includes a finding that RF emissions for the site exceed FCC Standards in any uncontrolled location, the Zoning Administrator may require the Applicant to immediately cease and desist operation of the facility until such time that the violation is corrected to the satisfaction of the Zoning Administrator.

14. Complaints and Proceedings. Should any party complain to the Project Sponsor about the installation or operation of the facilities, which complaints are not resolved by the Project Sponsor, the Project Sponsor (or its appointed agent) shall advise the Zoning Administrator of the complaint and the failure to satisfactorily resolve such complaint. If the Zoning Administrator thereafter finds a violation of any provision of the City Planning Code and/or any condition of approval herein, the Zoning Administrator shall attempt to resolve such violation on a expedited basis with the Project Sponsor. If such efforts fail, the Zoning Administrator shall refer such complains to the Commission for consideration at the next regularly scheduled public meeting.

15. Severability. If any clause, sentence, section or any part of these conditions of approval is for any reason held to be invalid, such invalidity shall not affect or impair other of the remaining provisions, clauses, sentences, or sections of these conditions. It is hereby declared to be the intent of the Commission that these conditions of approval would have been adopted had such invalid sentence, clause, or section or part thereof not been included herein.

16. Transfer of Operation. Any carrier/provider authorized by the Zoning Administrator or by the Planning Commission to operate a specific WTS installation may assign the operation of the facility to another carrier licensed by the FCC for that radio frequency provided that such transfer is made known to the Zoning Administrator in advance of such operation, and all conditions of approval for the subject installation are carried out by the new carrier/provider.

17. Compatibility with City Emergency Services. The facility shall not be operated, nor caused to transmit on or adjacent to any radio frequencies licensed to the City for emergency telecommunication services such that the City's emergency telecommunications system experiences interference, unless prior approval for such has been granted in writing by the City.

- The University has contacted the vendor responsible for the installation, maintenance and operation of the antennas and has requested that the vendor confirm that it has complied with the conditions set forth above. The University has instructed the vendor to provide the facilities department with a specific plan of action for immediate compliance in the unlikely event that it is not in compliance with any of the conditions.

***Malloy Hall – Block 1145, Lot 003***

### *2. Motion No. 16496 (02.0110C)*

2002 conditional use authorization allowing intensification of an institutional use in a residential district, a building greater than 40 feet in height in a residential district, and a reduction in the bulk limit for buildings over 40 feet tall in a residential district to construct a 26,000 square foot, 60- foot tall, academic office and classroom building. Conditions of approvals as follows:

1. This Motion is the granting of Conditional Use authorization to construct a new approximately 26,000 square foot office and classroom addition to the University of San Francisco Business School's McLaren Hall pursuant to Sections 1 01.1, 209.3, 253, 295, 271, 303, and 304.5 of the Planning Code, allowing intensification of an institutional use in a residential district, a building greater than 40 feet in height in a residential district, and an exception from the bulk limit for buildings over 40 feet tall in a residential district at 2130 Fulton Street, north side of Fulton at the intersection with Clayton Street (the southeastern portion of Lot 003 in Block 1145), in an RH-2 (Residential, House, Two-Family) District and an 80-D Height and Bulk District, in general conformity with plans dated 12/09/02 and labeled "EXHIBIT B." The proposal is to construct a four story over excavated ground floor building on a presently vacant portion of the site. The approximately 26,000 square foot addition would be attached to and extend eastward from the south end of the existing 5-story McLaren Hall, and would contain approximately 13,000 square feet of faculty offices and support space, approximately 10,000 square feet of new classrooms, and approximately 3,000 square feet of student lounge area. A small portion of McLaren hall will also be renovated as part of this project, but will result in negligible changes to that building. The project will result in the creation of one additional parking space. The Applicant has represented that student enrollment is not expected to increase as a result of the Project, but that the new classroom, lounge, and academic office space is intended to provide adequate space to service

their existing program.

2. The final plans shall meet the standards of the Planning Code and be in general conformity with the plans reviewed by the Commission on December 19, 2002 and filed with the Planning Department as EXHIBIT B.

Design

3. Landscaping shall be provided as indicated in the case materials (drawing SKA•P1 and rendered perspective drawing), and submitted drawings shall be revised to reflect this landscaping. Work related to the retaining wall currently located at the corner of the access driveway and Fulton Street reflecting the work proposed in the case materials shall be added to the scope of work, and submitted drawings shall be revised as described above.

4. Highly reflective glass or mirror glass shall not be used on any area of the new building.

5. All Project lighting shall be directed onto the Project site and immediately surrounding sidewalk area only, and designed and managed so as not to be a nuisance to adjacent residents.

6. Prior to approval of any Building Permit Application subsequent to this authorization, the Project Sponsor shall work with the Planning Department to further develop and refine the envelope design of the proposed project, specifically as regards facade detailing intended to break down the mass of the main volume of the building into component pieces. The Planning Department shall approve the final design, to be in substantial conformity to the plans approved by the Commission on December 19, 2002, and labeled as EXHIBIT B.

7. The species, location, and number of any proposed street trees in the public right-of-way (sidewalk) shall be subject to the final approval of the Department of Public Works.

General

8. The Project Sponsor shall appoint a community liaison officer to deal with issues and other related matters of concern to nearby residents. The Applicant shall report the name and telephone number of this officer to the Zoning Administrator for reference, and for inclusion in the Case Docket. Should implementation of this Project result in complaints from neighborhood residents, which are not resolved by the Project Sponsor and are subsequently reported to the Zoning Administrator and found to be in violation of the Planning Code an/or the specific Conditions of Approval for the Project as set forth in EXHIBIT A of this motion, the Zoning Administrator shall report such complaints to the Planning Commission which may thereafter hold a public hearing on the matter in accordance with the hearing notification and conduct procedures as set forth in Sections 174, 306.3 and 306.4 of the Code to consider revocation or modification of this Conditional Use authorization.

9. Construction of the herein-authorized Project shall commence within three years of the date of this action and shall be thenceforth pursued diligently to completion or the said authorization shall become null and void. This authorization may be extended by the Zoning Administrator for where the failure to implement the Project is caused by delay by another public agency or by legal challenge.

10. Failure to comply with any of the Conditions of Approval shall constitute a violation of the Planning Code, enforceable by the Zoning Administrator. Should the monitoring of the Conditions of Approval be required, the Applicant or successors shall pay fees as established in Planning Code Section 351 (f)(2).

Recordation

11. The Applicant shall record a copy of these conditions with the Office of the Recorder of the City and County of San Francisco as part of the property records. This action shall be taken prior to any approval of a building permit application for any use approved by this action.

12. Mitigation Measures

The following mitigation measures, which have been agreed to by the project sponsor, and which constitute the mitigation measures included in the Project's Preliminary Negative Declaration (Case No. 2002.0110E) and Addendum, are necessary to avoid potential significant effects of the project, and are included herein in full as conditions of approval of this authorization:

***2.*** M-1.
Construction Air Quality

The project sponsor would require the contractor(s) to spray the site with water during demolition, excavation, and construction activities; spray unpaved construction areas with water at least twice per day; cover stockpiles of soil, sand, and other material; cover trucks hauling debris, soils, sand or other such material; and sweep surrounding streets during demolition, excavation, and construction at least once per day to reduce particulate emissions. Ordinance 175-91, passed by the Board of Supervisors on May 6, 1991, requires that non-potable water be used for dust control activities. Therefore, the project sponsor would require that the contractor(s) obtain reclaimed water from the Clean Water Program for this purpose. The project sponsors would require the project contractor(s) to maintain and operate construction equipment so as to minimize exhaust emissions of particulates and other pollutants, by such means as a prohibition on idling motors when equipment is not in use or when trucks are waiting in queues, and implementation of specific maintenance programs to reduce emissions for equipment that would be in frequent use for much of the construction period.

***3.***
M-2. Testing for Contaminated Soil and Groundwater

Prior to disturbing soils on the project site, the project sponsor shall implement the following measures:

a. Soil and groundwater testing

A Phase II Environmental Site Assessment of the project site shall be conducted to ensure that all areas of suspected subsurface contamination subject to ground disturbance during site development activities are sampled. These studies shall be completed by a Registered Environmental Assessor (REA) or similarly qualified individual. Testing results shall be reported to the San Francisco Department of Public Health (DPH), which would require further characterization of any hazards associated with petroleum hydrocarbons from the site fill materials. Should contamination at or above potentially hazardous levels be found, the following actions shall be taken:

b. Site Mitigation Plan (SMP) and Corrective Action Plan (CAP)

If the sampling conducted identifies surface and/or subsurface contamination in areas subject to ground disturbance, a SMP shall be prepared, per the determination of DPH, noted in SM-4; (see the Statutory Measures section of this Initial Study). Where hazardous substances are found for which no standards are established, the sponsor would request a determination from state and federal agencies as to whether an SMP is needed. The sponsor would be required to submit the SMP to the appropriate state or federal agency(ies), and to implement and approved SMP prior to issuance of any building permit.

Should groundwater be found to have been contaminated, or where petroleum contamination in soils has the potential to impact groundwater at levels above regulatory thresholds, a Corrective Action Plan (CAP) would be required by Regional Water Quality Control Board (RWQCB), noted in SM-4; (see the Statutory Measures section of this Initial Study).

c. Remediation

Prior to conducting any remediation activities at Site Health and Safety Plan would be prepared pursuant to the California Division of Occupational Health and Safety (Cal-OSHA) requirements and National Institute for Occupational Safely and Health guidance to ensure worker safety. Under Cal-OSHA requirements, the Site Health and Safety Plan would need to be prepared prior to initiating any earth moving activities at the site.

The site shall be remediated in accordance with the standards, regulations, and determinations of local, state, and federal regulatory agencies. The project sponsor shall coordinate with the DPH and any other applicable regulatory agencies to adopt contaminant specific remediation target levels. Should contaminants at potentially hazardous levels be found, the hazardous substances shall be removed and disposed of at an approved site, or other appropriate actions shall be taken. In addition, installation of groundwater monitoring wells may be required to confirm contaminant concentrations and groundwater flow direction.

Several possible remediation scenarios are: 1) natural attenuation (impacted soil and groundwater is allowed to remain in place and degrade naturally over time); 2) excavation and removal of impacted soil to the extent feasible and backfill with clean soil; 3) introduction of an oxygen release compound into the soil and groundwater at the release site to stimulate biodegradation of the petroleum hydrocarbons; and 4) some form of active groundwater treatment, such as air sparging or extraction and treatment. Remedial actions associated with the soil and groundwater at the project site, if required by DPH, shall be performed concurrently or shortly following demolition.

d. Handling, hauling, and disposal of contaminated soils

d.1. Dust suppression

Soils exposed during excavation for site preparation and project construction activities shall be kept moist, or as otherwise directed by DPH to minimize particulates, throughout the time they are exposed, both during and after work hours.

d.2. Surface water runoff control

Where soils are stockpiled, plastic sheeting shall be used to create an impermeable liner, both beneath and on top of the soils, with a berm to contain any potential surface water runoff from the soil stockpiles during inclement weather.

d.3. Soils replacement

If necessary, clean fill or other suitable material(s) shall be used to bring portions of the project site, where contaminated soils have been excavated and removed, up to construction grade. If directed by DBI, the recommendations of the geotechnical report1 will be followed, and the top 24 inches of site soils will be re-compacted to 95% relative compaction (SM-4; see the Statutory Measures section of this Initial Study).

d.4. Hauling and disposal

Contaminated soils shall be hauled off the project site by waste hauling trucks appropriately certified with the State of California and adequately covered to prevent dispersion of the soils during transit, and shall be disposed of at a permitted hazardous waste disposal facility registered with the State of California.

e. Preparation of certification report

After excavation, tank replacement, and foundation construction activities are completed, the project sponsor shall prepare and submit a certification report to DPH for review and approval. The certification report shall include the mitigation measures in the SMP for handling and removing contaminated soils from the project site, whether the construction contractor modified any of these mitigation measures, and how and why the construction contractor modified those mitigation measures.

f. Deed recordation

After project construction and if both of the following circumstances are met, the project sponsor shall file a recordation on the deed for the subject property that indicates the need to take special precautions during future disturbance of the soils on the property due to certain on-site soil conditions: 1) based on the results of the soil and groundwater tests, DPH determines that project site soils or groundwater are contaminated at or above potentially hazardous levels, and/or 2) potentially hazardous levels of contaminants remain at the project site.

***4.*** MM-3. Cultural Resources

Based on a reasonable presumption that archeological resources may be present within the project site, the following measures shall be undertaken to avoid any potentially significant adverse effect from the proposed project on buried or submerged historical resources. The project sponsor shall retain the services of a qualified archeological consultant having expertise in California prehistoric and urban historical archeology. The archeological consultant shall undertake an archeological monitoring program. The archeological monitoring program, whether or not significant archeological resources were encountered, shall result in a written report of findings to be submitted first and directly to the Environmental Review Officer (ERO). Archeological monitoring and/or data recovery programs required by this measure could suspend project construction activities for up to a maximum of four weeks. At the direction of the ERO, the suspension of project activities can be extended beyond four weeks only if such a suspension is necessary and is the only feasible means to reduce to a less than significant level potential effects on a significant archeological resource as defined in CEQA Guidelines Sect. 15064.5 (a)(c).

***5.*** Archeological monitoring program.

The archeological monitoring program shall minimally include the following provisions:

a.1. The ERO in consultation with the project archeologist shall determine what project activities shall be archeologically monitored. In most cases, any soils disturbing activities, such as demolition, foundation removal, excavation, grading, utilities installation, foundation work, driving of piles (foundation, shoring, etc.), site remediation, etc., shall require archeological monitoring because of the potential risk these activities pose to archaeological resources and to their depositional context;

a.2. The archeological consultant shall advise all project contractors to be on the alert for evidence of the presence of the expected resource(s), of how to identify the evidence of the expected resource(s), and of the appropriate protocol in the event of apparent discovery of an archeological resource;

a.3. The archaeological monitor(s) shall be present on the project site until the ERO has, in consultation with the archeological consultant, determines that project construction activities could have no effects on significant archeological deposits;

a.4. The archeological monitor shall record and be authorized to collect soil samples and artifactual/ecofactual material as warranted for analysis;

a.5. If an intact archeological deposit is encountered, all soils disturbing activities in the vicinity of the deposit shall cease. The archeological monitor shall be empowered to temporarily redirect demolition/excavation/pile driving/construction crews and heavy equipment until the resource is evaluated. If in the case of pile driving activity (foundation, shoring, etc.), the archeological monitor has cause to believe that the pile driving activity may affect an archeological resource, the pile driving activity shall be terminated until an appropriate evaluation of the resource has been made in consultation with the ERO. The archeological consultant shall immediately notify the ERO of the encountered archeological deposit. The archeological consultant shall, after making a reasonable effort to assess the identity, integrity, and significance of the encountered archeological deposit, present the findings of this assessment to the ERO. If the ERO in consultation with the archeological consultant determines that a significant archeological resource is present and that the resource could be adversely affected by the proposed project, at the discretion of the project sponsor either: the proposed project shall be re-designed so as to avoid any adverse effect on the significant archeological resource; or an archeological data recovery program shall be implemented. If an archeological data recovery program is required by the ERO, the archeological data recovery program shall be conducted in accord with an archeological data recovery plan (ADRP). The project archeological consultant, project sponsor, and ERO shall meet and consult on the scope of the ADRP. The archeological consultant shall prepare a draft ADRP that shall be submitted to the ERO for review and approval. The ADRP shall identify how the proposed data recovery program will preserve the significant information the archeological resource is expected to contain.

b. Human Remains, Associated or Unassociated Funerary Objects.

The treatment of human remains and of associated or unassociated funerary objects discovered during any soils disturbing activity shall comply with applicable State and Federal Laws, including immediate notification of the

Coroner of the City and County of San Francisco and in the event of the Coroner's determination that the human remains are Native American remains, notification of the California State Native American Heritage Commission (NAHC) who shall appoint a Most Likely Descendant (MLD) (Pub. Res. Code Sec. 5097.98). The archeological consultant, project sponsor, and MLD shall make all reasonable efforts to develop an agreement for the treatment of, with appropriate dignity, human remains and associated or unassociated funerary objects (CEQA Guidelines. Sec. 15064.5(d)). The agreement should take into consideration the appropriate excavation, removal, recordation, analysis, curation, possession, and final disposition of the human remains and associated or unassociated funerary objects.

c. Final Archeological Resources Report.

The archeological consultant shall prepare a Draft Final Archeological Resources Report (FARR) evaluating the historical importance of the archeological resource and describing the archeological and historical research methods employed in the archeological testing/monitoring/data recovery program(s). Information that may put at risk any archeological resource shall be provided in a separate removable insert within the draft final report.

- The conditions above have been met. This project is now complete.

***6. Center for Science and Innovation – Block 1145, Lot 003***

***1. Motion No. 18123 (Case No. 2008.0395C)***

2010 conditional use authorization allowing intensification of an existing institutional use, a building greater than 40 feet in height in a residential district and a planned unit development to modify the rear yard requirement to construct an approximately 60,000 square foot academic building of approximately 50 feet in height (not including mechanical stacks) to include classrooms, teaching laboratories, instrumentation rooms, and building mechanical/support spaces and reconfigure approximately 20,000 square feet of Harney Plaza at 2130 Fulton Street, between Parker and Masonic Avenues. Condition of approvals as follows:

Wherever "Project Sponsor" is used in the following conditions, the conditions shall also bind any successor to the Project or other persons having an interest in the Project or underlying property.

This Conditional Use authorization per Sections 101.1, 209.3, 253, 295, 303 and 304 of the Planning Code is to allow the intensification of an existing institutional use (University of San Francisco (USF)), a building greater than 40 feet in height in a residential district, and a Planned Unit Development (PUD) to construct an approximately 60,000 square foot academic building of approximately 50 feet in height (excluding stacks) and renovation of Harney Plaza of approximately 20,000 square feet on a site of approximately 43,000 square feet within an RH-2 (Residential, House, Two Family District) and an 80-D Height and Bulk District and the plans dated December 9, 2008.

1. COMPLIANCE WITH OTHER REQUIREMENTS

A. This decision conveys no right to construct. The conditions set forth below are additional conditions required in connection with the Project. If these conditions overlap with any other requirement imposed on the Project, the more restrictive or protective condition or requirement, as determined by the Zoning Administrator, shall apply. The conditions set forth below shall remain in effect for the life of the Project, unless specifically noted otherwise.

2. MITIGATION MEASURES

A. Mitigation Measures. The Project Sponsor shall implement the mitigation and improvement measures set forth in and otherwise comply with, the Mitigation Monitoring Program attached as "Exhibit C" and incorporated herein by this reference.

3. GENERAL CONDITIONS

A. Recordation. Prior to the issuance of any building permit for the construction of the Project, the Zoning Administrator shall approve and order the recordation of a notice in the Official Records of the Recorder of the City and County of San Francisco, which notice shall state that construction of the Project has been authorized by and is subject to the conditions of this Motion. From time to time after the recordation of such notice, at the request of the Project

Sponsor, the Zoning Administrator shall affirm in writing the extent to which the conditions of this Motion have been satisfied, and record said writing if requested.

B. Performance. The Commission may consider revocation of this conditional use authorization if a permit for the project has been issued, but is allowed to expire and more than three years have passed since the Motion was approved. This authorization may be extended at the discretion of the Zoning Administrator only if the failure to issue a permit by the Department of Building Inspection within three years is delayed by a City, state or federal agency, or by appeal of the issuance of such permit.

C. Severability. If any clause, sentence, section or any part of these conditions of approval is for any reason held to be invalid, such invalidity shall not affect or impair other of the remaining provisions, clauses, sentences, or sections of these conditions. It is hereby declared to be the intent of the Commission that these conditions of approval would have been adopted had such invalid sentence, clause, or section or part thereof not been included herein.

D. The Project is subject to the requirements of the First Source Hiring Program (Chapter 83 of the Administrative Code) and the Project Sponsor shall comply with the requirements of this Program.

E. Violation of the conditions contained in this Motion or of any other provisions of the Planning Code may be subject to abatement procedures and fines up to $500 a day in accordance with Section 176.

F. Should monitoring of the Conditions of Approval contained in Exhibit A of this Motion be required, the Project Sponsor or successors shall pay fees as established in Section 351(e)(1).

G. An enclosed garbage area shall be provided within the Project. All garbage containers shall be kept within the building until pick-up by the disposal company.

4. CONDITIONS TO BE MET PRIOR TO THE ISSUANCE OF AN ARCHITECTURAL ADDENDUM TO A BUILDING (OR SITE) PERMIT

A. Except as otherwise provided in this Motion, the Project shall be completed in compliance with the Planning Code and in general conformity with plans dated December 9, 2008, labeled “Exhibit B”.

B. Final detailed building plans shall be reviewed and approved by the Planning Department. Detailed building plans shall include a final site plan, elevations, sections, and a landscape plan, and shall specify final architectural and decorative detailing, materials, glazing, color and texture of exterior finishes, and details of construction.

C. Highly reflective spandrel glass, mirror glass, or deeply tinted glass shall not be permitted. Only clear glass shall be used at pedestrian levels.

D. Pursuant to Planning Code Section 141, rooftop mechanical equipment is required to be screened so as not to be visible from any point at or below the roof level of the subject building.

5. CONDITIONS TO BE MET PRIOR TO ISSUANCE OF ANY CERTIFICATES OF OCCUPANCY FOR THE PROJECT.

A. An evacuation and emergency response plan shall be developed by the Project Sponsor or building management staff, in consultation with the Mayor’s Office of Emergency Services, to ensure coordination between the City’s emergency planning activities and the Project’s plan and to provide for building occupants in the event of an emergency. The Project’s plan shall be reviewed by the Office of Emergency Services and implemented by the building management insofar as feasible before issuance of the final certificate of occupancy by the Department of Public Works. A copy of the transmittal and the plan submitted to the Office of Emergency Services shall be submitted to the Department. To expedite the implementation of the City’s Emergency Response Plan, the Project Sponsor shall post information (with locations noted on the final plans) for building occupants concerning actions to take in the event of a disaster.

6. OTHER CONDITIONS

A. In order to confirm that the number of classrooms (including teaching laboratories) constructed as a result of the Center for Science and Innovation do not surpass the number of existing classrooms (including teaching laboratories) in Harney Science Building, as part of the building permit submittal, the sponsor will provide floor plans of Harney Science Building labeling all room uses and which classrooms (including teaching laboratories) will no longer be used for classroom purposes. The project sponsor shall ensure that the Harney Science Building plans are microfiched with the building permit should future review be necessary. A copy of the microfiche shall be provided to the Department for the case docket.

B. Truck deliveries to the University Center loading docks shall be restricted to the hours between 7:00 am and 4:00 pm on weekdays and between 9:00 am and 4:00 pm on weekends. USF, including its food service operation, may use the loading dock for internal loading activities at other hours.

- The conditions above have been met to the extent that they have applied now that the project is under construction. The University will continue to comply with these conditions as the project moves forward.

USF UNIVERSITY of SAN FRANCISCO

# USF 2028 Planning Document

THE CORE MISSION of the University of San Francisco is to "promote learning in the Jesuit Catholic tradition" (*Mission Statement*). In this tradition, education aims at fully developing every dimension of a person's humanity — intellectual, moral, social, religious and aesthetic — so that our graduates, in addition to mastering a requisite body of knowledge, think clearly, analyze critically, communicate effectively, evidence a disciplined sensitivity to human suffering, construct lives of purpose and meaning and work effectively with persons of varying background and cultures for the common good.

In pursuit of its mission, USF offers students a demanding, integrated and holistic education that is the product of: 1) its Jesuit Catholic tradition, 2) academic excellence, 3) its San Francisco location, 4) the diverse experiences, perspectives and opinions within the University community and the Bay Area, and 5) a global perspective. These five qualifiers are not discrete attributes that may be neatly separated one from the other, but five closely interwoven strands that together, and only together, are the "whole cloth" of educational excellence in our distinctively Jesuit tradition.

**1. Jesuit Catholic Tradition**

The Jesuit tradition is fully committed to the pursuit of academic excellence in the framework of students' realizing the fullness of their humanity — of their developing into intelligent, sensitive and responsible members of society. As a Catholic university, USF asserts the centrality of God as a mystery that should engage believers and non-believers alike and the compatibility of faith and reason in the pursuit of truth. Therefore, USF:

a. challenges students to wrestle in a disciplined and thoughtful way with "big questions" of ultimate meaning and purpose so that they may live lives of passion, integrity and purpose;

b. rigorously explores the transcendent dimension of human experience and its consequences for individuals and society;

c. promotes learning from other cultures and informed conversation between faith and reason, religion and culture, belief and non-belief and among different faith traditions;

d. serves the Catholic Church, local and universal, through teaching, research, creative expression and service;

e. offers students the knowledge, skills, sensitivities, and motivation to succeed as persons and as professionals contributing to the common good of all, especially the most vulnerable;

f. provides opportunities for persons of all faiths, and for Catholics in particular, to explore, share, celebrate and appropriate their faith tradition;

g. offers programs and resources that allow trustee, faculty, staff and students to experience the dynamics of Ignatian spirituality, which animates USF's Jesuit Catholic educational tradition.

**2. Academic Excellence**

The University holds-up "excellence as the standard for teaching, scholarship, creative expression and service" (*Core Values*). USF evidences this commitment to excellence in the core activities of discovering, communicating and applying knowledge. Therefore, USF:

a. offers demanding academic programs that challenge students to maximally expand and develop their intellectual capacities and transformative educational experiences that will "act" them into new ways of thinking about the world and their role in it;

b. supports a faculty of teaching scholars whose pedagogy is informed by rigorous research and who engage in their disciplines, participate in scholarly discourse that constitutes serious inquiry and involve students in their research efforts;

c. encourages faculty to address issues, questions and problems of import through their scholarly work;

d. fosters the development of curricula that reflect the most recent advances within and between the disciplines;

e. sponsors campus programs and activities that promote student development and resident hall experiences that enhance learning and strengthen community;

f. challenges students of demonstrated academic capability to develop the intellectual curiosity and discipline that support advanced learning;

g. promotes close student-faculty relationships and effective mentoring/advising by faculty and staff on the personal and professional development of students.

**3. San Francisco Location**

USF contributes to and benefits from the energy, resources, diversity and opportunities of a world-class city on the edge of the Pacific Rim. Therefore, USF:

a. draws on the cultural, civic, legal, commercial, service and scientific resources in San Francisco to create opportunities that connect classroom learning with out-of-class experiences;

b. taps into the creativity, diversity, and entrepreneurial energy of the Bay Area to enrich curricular and co-curricular experiences;

c. cultivates partnerships with local organizations that mutually benefit the university and the community;

d. works with community organizations on issues of common concern and provides space for conflicting interest groups to work towards the common good;

e. serves as a social and educational agent by applying creative expression, knowledge, and research skills to promoting human development, advancing understanding, and improving the quality of life for all Bay Area residents and promoting academic engagement from the university;

**4. Diversity**

USF prepares students for the complexities of a diverse and interdependent world through curricular and co-curricular offerings which capitalize on the differences within the city and the university. Therefore, USF:

a. creates structures, programs, and courses that engage differences of persons, perspectives and opinions so that students appreciate the commonality of our humanity as well as what distinguishes individuals and groups within the human family;

b. ensures that different voices and perspectives are present in curricula, programs and activities across the university so that students engage the complexities and subtleties of human experience;

c. recruits and retains a richly diverse mix of students, faculty and staff so that the university community, as much a possible, broadly resembles the world to which our students will contribute;

d. promotes disciplinary competence for students and faculty while also providing opportunities to cooperatively probe issues, questions, and problems from multi-disciplinary perspectives;

e. offers students a wide variety of activities that promote engagement with each other and affiliation with the University, as well as opportunities to develop important life skills;

f. draws from the cultural offerings of San Francisco to enrich students' understanding and appreciation of a diverse and multicultural world class city.

**5. Global Perspective**

USF educates students to responsible global citizenship in an increasingly interdependent world that offers innumerable opportunities for good, but is also home to two billon people who struggle to survive on $2 a day or less. Therefore, USF:

a. exposes students, faculty and staff to the multiplicity of values, the rich artistic and cultural achievements and the natural beauty of our world, as well as to the inhumane conditions which diminish the lives of seventy-five percent of the world;

b. recruits and retains students, faculty and staff from other countries, who have global exposure and perspectives that insure a breadth of experiences and views inform a campus culture which challenges students to think and act in a globally responsible manner;

c. acts in an environmentally responsible way, which acknowledges that the earth and its resources are to be shared justly among all people and held in trust for future generations;

d. challenges students to pursue a common good that transcends local and national boundaries;

e. educates students to issues affecting the global community, e.g., environmental justice, the creation and distribution of wealth and resources, war, migration, health, and education;

f. offers on-site courses, programs, and experiences that help students understand and appreciate the complexities of our global reality, so that they may succeed in an interdependent world and contribute professionally across the globe.

The University's challenge is to interweave these five qualities into a single multi-hued tapestry that is Jesuit Catholic education at the University of San Francisco.

It is critical for the future of USF that it recruit, retain and develop faculty, staff and students who share its understanding of and commitment to offering this academically rigorous, integrated, holistic education. USF's continued success demands that we be increasingly intentional, focused and accountable in educating the minds and hearts of our students so that they change their piece of the world.

[8.6.09]

# The University of San Francisco

## Neighborhood Meetings on IMP, Traffic, & Neighbor Relations

## August 2010 – August 2013

**Key Meetings**

| | | |
|---|---|---|
| **Aug 9 2010** | UTA, USF User | Student Behavior Committee |
| August 12 | UTA reps, Sasaki, USF | Initial IMP process meeting |
| September 14 | UTA reps, Sasaki, USF | IMP meeting |
| September 30 | UTA reps, Fehr & Peers, Sasaki, USF | Walk UT to ID traffic Issues |
| October 29 | UTA reps, MTA, Fehr & Peers | Traffic calming w SFMTA |
| November 9 | UTA representatives, Chas Salter Assoc | Review Sound Study findings |
| November 10 | UTA representatives, Fehr & Peers | Traffic Calming review |
| November 15 | UTA Community meeting | Traffic Calming, IMP update, Construction Update |
| November 18 | UTA Board & Sasaki,USF | IMP update |
| December 14 | UTA representatives, Provost Turpin | IMP process, issues |
| Feb 2 2011 | UTA reps. Fehr & Peers, Cahill | Traffic Alternatives, CSI logistics |
| February 8 | UTA reps & Sasaki | IMP update |
| February 28 | UTA Community Meeting | Traffic Calming, Cahill Logistics |
| March 1 | UTA USF Student Behavior Committee | |
| March 8 | UTA reps, Chas Salter | Review sound mitigations |
| March 17 | UTA reps, Sasaki | IMP update |
| March 24 | UTA reps, Sasaki, Fehr & Peers | IMP, Traffic –update, process |
| March 31 | UTA/Fehr & Peers – Traffic Work Session | Examine traffic options |
| April 12 | UTA Annual Meeting | |
| April 20 | UTA reps, USF, & Sasaki | IMP update |
| April 26 | UTA President Mira Ringler meets w USF student senate | |
| April 27 | UTA Traffic Subcommittee, Fehr&Peers | Examine traffic options |
| May 10 | UTA Community Meeting | IMP initial review Part 1 |
| May 18 | UTA Community Meeting | IMP initial review Part 2 |
| May 19 | UTA/USF Master Plan working meeting | |
| May 23 | *Construction of CSI commenced* | |
| June 14 | UTA Traffic Subcommittee | Examine traffic options |
| August 3 | UTA Traffic Subcommittee | Examine traffic options |
| Sept 1 | UTA Board USF | Settlement Agmt review |
| Sept 7 | UTA Board USF | Settlement Agmt review (cont) |
| Sept 7 | UTA USF Student Behavior Committee | Academic yr 2011 kickoff mtg |
| Sept 14 | UTA Traffic Subcommittee | Examine traffic options |
| October 5 | UTA Community Meeting | Traffic Calming – Plan Review |
| November 1 | UTA, USF Public Safety, SFMTA | Spot Devices Demo/Pedestrian safety |
| November 15 | UTA Community Meeting | USF IMP – Present Draft IMP |
| December 5 | UTA USF Student Behavior Committee | |

# The University of San Francisco
## Neighborhood Meetings on IMP, Traffic, & Neighbor Relations
## August 2010 – August 2013

| | | |
|---|---|---|
| **Jan 13 2012** | *Draft IMP posted online. Comment period for 30 days.* | |
| January 30 | USF, UTA individuals regarding student behavior issues | |
| February 7 | UTA Traffic Comm, USF, Fehr & Peers, Sasaki | Traffic Calming & Parking |
| February 10 | UTA Board reps, USF rep | Start standing meetings |
| February 13 | *Close of comment period re IMP draft* | |
| February 24 | UTA Board reps, USF rep | Standing meeting |
| March 9 | UTA Board reps, USF rep | Standing meeting |
| March 23 | UTA Board reps, USF rep | Standing meeting |
| *March 2012* | *USF submits Draft IMP to SF Planning Department* | |
| April 6 | UTA Board reps, USF rep | Standing meeting April 17 |
| | UTA individuals, Vice Provost, Public Safety | Student issues |
| April 19 | UTA & USF Executive staff | Social event |
| May 2 | UTA USF Student Behavior Committee | Now=Neighborhood Relations |
| May 11 | UTA Board reps, USF rep | Standing meeting |
| May 30 | UTA Board reps, USF rep | Standing meeting/ Settlement Agmt review |
| June 19 | UTA Board reps, USF rep | Standing meeting g |
| June 29 | UTA Board reps, USF rep | Standing meeting |
| July 16 | UTA Board reps, USF rep | Standing meeting |
| August 6 | UTA meets with USF dorm RAs and Res Life staff | |
| August 20 | UTA Board reps, USF rep | Standing meeting |
| August 29 | UTA Traffic Comm, USF, SFMTA | Traffic Calming plan review |
| Sept 10 | UTA Board reps, USF rep | Standing meeting |
| Sept 19 | UTA USF Neighborhood Relations | |
| Sept 24 | UTA Board reps, USF rep | Standing meeting |
| Oct 25 | UTA Board reps, USF rep | Standing meeting |
| November 2 | UTA, USF, SFMTA | BB parking |
| November 20 | UTA Board reps, USF rep | Standing meeting |
| December 10 | UTA Board reps, USF rep | Standing meeting |
| December 12 | UTA reps USF reps SFMTA | Parking |
| December 12 | UTA USF Neighborhood Relations Committee | |
| **Jan 10 2013** | UTA Board reps, USF rep | Standing meeting |
| January 14 | UTA Bd Conf Call – USF rep calls in | |
| February 7 | UTA/USF/SFMTA | SFMTA parking proposal |
| February 21 | UTA/Neighborhood groups/SFMTA/USF | SFMTA parking proposal |
| February 26 | Martin MacIntyre UT walk-thru/PSAC UTA, USF | |
| April 15 | UTA Board, USF reps | IMP update |
| May 2 | Ewing Terrace Bd (J Munz), USF reps | IMP update |
| May 3 | Richard Rabbitt, USF reps, Coblenz | IMP update |
| May 6 | SFMTA, WLMA, F Heights, UTA, MacAllister | Parking & SFMTA |
| May 14 | Ewing Terrace Board, USF reps | IMP update |
| May 15 | Campus Town Hall | IMP update |
| May 16 | Community Town Hall | IMP update |

# The University of San Francisco
## Neighborhood Meetings on IMP, Traffic, & Neighbor Relations
### August 2010 – August 2013

| | | |
|---|---|---|
| June 12 | Community Town Hall (UTA,ET, FH, WLMA) | Parking/Traffic issues |
| June 18 | UTA Annual Mtg: USF rep report | |
| June 26 | SFMTA, USF rep, UTA rep, F&P rep | Traffic Calming |
| July 11 | UTA Board reps, USF rep | Standing meeting |
| July 25 | Community Work Group (UTA,ET, FH, WLMA) | Parking/Traffic issues |

SASAKI

Complete copies of the **University of San Francisco Institutional Master Plan** can be found at: http://www.usfca.edu/busfin/neighbors/

Click under the heading *Master Plan Documentation.*

**University of San Francisco**
**2012 Institutional Master Plan**

**SUPPLEMENT A**
**Proposed Student Residence Hall**
**December 2013**

The purpose of this Institutional Master Plan (IMP) Supplement A is to provide (1) a summary of compliance with Planning Code Section 304.5(c) requirements regarding the required format and substance of the IMP and (2) at the City Planning Department's request, additional information about the proposed Upper Campus student residence hall and parking project (the "Student Residence Hall Project").

1. Summary of Compliance with City Planning Code Section 304.5(c)

- Sections 304.5(c)(1) & (2) require information about the nature of the institution, such as its history of growth, services provided, service population, employment characteristics, etc. and a description of the present physical plant, including the location and bulk of buildings, land uses on adjacent properties, circulation and parking and other factors. This information is presented in Chapter 1 of the IMP, pages 14-46.

- Section 304.5(c)(3) requires information about the University's 10-year development plan, in particular the plans for development during the first five years including site area, ground coverage, building bulk, circulation patterns and timing for construction. This information is presented in Chapter 2 of the IMP.

- Section 304.5(c)(3)(A) requires information about how the development plan conforms with the City's General Plan. This discussion can be found in Chapter 3 of the IMP, pages 108-121.

- Section 304.5(c)(3)(B) requires information about anticipated impacts. Chapter 3 of the IMP includes information about the University's neighborhood engagement and impact in the surrounding community. Potential effects on housing, changes in traffic levels and circulation patterns, transit demand, parking availability, and the character and scale of development are described and analyzed on IMP pages 98-108 and in IMP Appendices 1 and 2.

- Section 304.5(c)(3)(C) requires an analysis of alternative scenarios to the overall master plan, including the alternative of no new development. That analysis is described on IMP pages 72-73.

- Section 304.5(c)(3)(D) requires an analysis of proposed mitigating actions to lessen the impacts upon the surrounding neighborhood. That analysis is described on IMP pages 98-108.

2. Proposed Student Residence Hall Project

# University of San Francisco
# 2012 Institutional Master Plan

## SUPPLEMENT A
## Proposed Student Residence Hall
## December 2013

Under City Planning Code Section 304.5(c)(5), additional information may be reasonably required to be provided in the IMP by the City Planning Department or City Planning Commission. At the City Planning Department's request, the following additional information[1] has been provided to supplement the existing discussion of the proposed Student Residence Hall Project on IMP page 67. As distinguished from the other new development projects discussed in the IMP, the Student Residence Hall Project is a priority project for the University but has not been developed beyond a conceptual level.

a. Background

The Student Residence Hall Project is intended to address the University's significant need for additional student housing. While the Student Residence Hall Project has not yet been designed, it is expected to be an approximately 300,000 gross square foot facility with approximately 635 bedrooms. The facility would be designed to also accommodate living-learning programs and student life, academic, study and meeting spaces. See IMP page 67. The University proposes to locate the Student Residence Hall Project on the Underhill site on the Upper Campus (on the slope east of the Rossi Wing), which has been identified for new development in University's IMPs since 1993. The site roughly covers the area currently occupied by the Underhill buildings, Loyola parking lot, and two tennis courts. As discussed in detail under Section 2(d) below, this site was chosen after analysis of several alternatives and was judged to have the least adverse impact of those alternatives.

Currently, the University is not able to meet demand for student housing, due to the scarcity of student housing on campus. In fall 2013 over 3000 admitted students applied to live on campus but did not receive campus housing. Most of those students enrolled at other institutions. Additionally, USF found through its 2013 Admitted Student Questionnaire that approximately 75% of those surveyed indicated that the lack of availability of on-campus housing was a factor in their final decision of which college they chose to attend.

The University operates eight residence halls on campus and one off campus, providing a total of about 2,200 beds. See IMP Table 1, page 22. However, the University falls well short of its peer institutions in accommodating the undergraduate population. See IMP Figure 12, page 57. In 2012, the University housed about 38% of the undergraduate population while its competitors ranged from approximately 48% - 98%, a fact which not only challenges the University in attracting students, but indicates the high number of University students who must seek housing elsewhere in the City. The University

[1] For organizational purposes, the additional information provided mirrors that required for the IMP as a whole under Planning Code Section 304.5(c)(3)(A)-(D).

determined, based on peer benchmarking, that at least 600-650 new bedrooms are required to house a competitive percentage of undergraduate students on campus.

The Student Residence Hall Project is also an important element in the pursuit of the University's mission, which is to promote learning in the Jesuit Catholic tradition, offering students a "demanding, integrated and holistic education." See IMP Appendix 4. The integration of academic support and student life is a high priority for the University and is achieved in large part through the programs offered through student housing. The purpose of the Student Residence Hall Project is to provide an on-campus residential living and learning experience for a larger proportion of the existing student population, as opposed to increasing the University's overall capacity to accommodate additional students. In sum, regardless of current or future student population, this housing is necessary for the University to meet its mission.

b. <u>Conformity with City Policy</u>

There is currently a shortage of student housing in the City. According to data gathered by the San Francisco Housing Action Coalition, approximately 14 institutions of higher education in the City enroll over 100,000 students and the current housing inventory among those institutions is estimated to provide one bed for every ten students. The remainder must seek housing throughout the City, including the City's family-sized rental housing stock. In recognition of the need for new student housing, the City adopted legislation in 2010 and 2012 to incentivize the development of new student housing. See City Ordinance Nos. 321-10 and 188-12, the latter of which exempts qualified student housing projects from the City's significant inclusionary affordable housing requirements. The proposed additional capacity provided by the Student Residence Hall Project would be an important contribution in meeting the recognized City-wide need for additional student housing.

The Student Residence Hall Project would be in conformity with the City General Plan. City General Plan Housing Element Policy 1.9, cited on IMP page 111 and also copied below, pertains specifically to the Student Residence Hall Project. Policy 1.9 urges higher educational institutions, such as the University, to meet the housing demand they generate and the Student Residence Hall Project would provide approximately 635 additional on-campus bedrooms for students.

*HOUSING ELEMENT POLICY 1.9*
*Require new commercial developments and higher educational institutions to meet the housing demand they generate, particularly the need for affordable housing for lower income workers and students.*

*New commercial or other non-residential development projects increase the City's employment base, thereby increasing the demand for housing. Similarly, institutions of higher education provide needed services and contribute to the intellectual and cultural life of the City, while at the same time create a demand for housing by students, which can pressure on existing housing stock.*

*The City's Jobs-Housing Linkage Program, which collects fees for affordable housing production from commercial developments, should continue to be enforced and monitored. Higher educational institutions should assist in the provision of additional housing, including affordable housing, as well. The City should use the institutional master plan (IMP) process required by the City's Planning Code to encourage institutions to provide housing, should support new construction of student housing that could reduce pressure on the existing housing stock, and should consider incentives for student housing development.*

c. Anticipated Impacts

The following is a summary of the Student Residence Hall Project's potential impacts on the surrounding neighborhood, including existing housing units, existing commercial or industrial tenants, changes in traffic levels and circulation patterns, transit demand, parking availability and the character and scale of development of the neighborhood.

No existing commercial or industrial tenants would be affected by the Student Residence Hall Project. The Student Residence Hall Project would replace the existing Underhill buildings, which do not house any commercial or industrial tenants.

The Student Residence Hall Project would not remove any existing housing units. Rather, it would increase the availability of additional student housing for the University's students, which would have a favorable effect on the City's housing stock by relieving some pressure on family-sized and lower-income housing stock in the neighborhood and throughout the City. While the overall impact of the Student Residence Hall Project would be positive, the University recognizes that the Student Residence Hall Project is a matter of concern to the adjacent Ewing Terrace neighborhood. Based on recent discussions with those neighbors, the University understands the concerns regarding the Student Residence Hall Project to include potential noise, privacy, building design, potential parking impacts, potential odors, seismic risks and potential construction impacts. Please see the discussion under Section 2(e) below for information about how the University plans to address those concerns.

Fehr & Peers Traffic Consultants evaluated the potential impacts of the Student Residence Hall Project on traffic, transit, bicyclists, pedestrians, loading, and construction activities consistent with the City and County of San Francisco

Transportation Impacts Analysis Guidelines (SF Guidelines) (October 2002)(See Appendix 6 in the IMP). Additional detail on the methodology and assumptions used for the transportation impact analysis, as well as the City of San Francisco significance criteria for identifying the significance (i.e., significant or less-than-significant) of certain impacts, is provided in Appendix 1 of the USF IMP and the memorandum *USF IMP Transportation Impact Study 2013 Update – Student Residence Hall* (Fehr & Peers, November 2013).

The Student Residence Hall Project would reduce the total number of trips to campus when compared to the IMP as the new students living on-campus would otherwise live in other areas of the City and would therefore arrive to campus via car, public transit or other means. This shift would primarily reduce the number of vehicle trips and transit trips to campus when compared to the IMP, reducing the severity of impacts on the surrounding roadway and transit lines. Pedestrian and bicycle trips are expected to increase due to the Student Residence Hall Project; however, these new trips would be accommodated through the pedestrian and bicycle enhancements proposed as a part of the traffic calming plan and USF Transportation Demand Management (TDM) Plan. Construction, emergency access, and loading conditions are not expected to change due to the proposed Student Residence Hall Project compared to what was analyzed in the IMP.

The Student Residence Hall Project would alter the existing on-campus circulation patterns on the upper campus by realigning the driveways connecting to Turk Boulevard. The primary access into the upper campus would be located within the center of the upper campus and travel in a counterclockwise loop from Roselyn Terrace to Temescal Terrace. This roadway would provide access to the parking garages at the center of the upper campus. Secondary access would be provided at the existing Tamalpais Driveway to a new garage at the existing location of the surface parking lot. Turk Boulevard is expected to operate with minimal congestion in the future, and this shift in automobile circulation is not expected to affect roadway operations as documented in the IMP.

The Student Residence Hall Project would replace the existing 80 space surface parking lot with 160 spaces in an underground garage for faculty and staff. This increase in off-street parking would help relieve some of the parking demand on neighborhood streets. The IMP identified an on-campus parking deficit after the removal of on-street parking due to the traffic calming plan and the Masonic Boulevard project and changes to future on-campus parking supply. This deficit accounts for the future growth in vehicle trips due to the expected campus growth in the IMP. The Student Residence Hall Project would reduce this parking deficit in the following ways: by providing new parking spaces for faculty and staff in the new garage under the residence hall and a reduction in students driving to campus. This reduction in the parking deficit, in addition to the TDM plan's goal is to reduce parking demand by 13 percent, would reduce parking demand on adjacent streets compared to existing conditions.

USF restricts students in residence halls from bringing cars to campus and would not provide parking for new on-campus students. Although a majority of the streets in the neighborhood require residential parking permits, some streets are unregulated and can be used by USF students and other residents within and outside the neighborhood to store vehicles without permits. USF will continue to work with the neighborhood and the City through its TDM program to discourage students from bringing cars to campus and monitor the regulation of on-street parking to ensure that new on-campus students do not create new parking demand in the surrounding neighborhoods.

The Student Residence Hall Project is not expected to result in any new significant impacts to the surrounding transportation network in addition to what was analyzed in the IMP; therefore, no additional improvement measures were identified. The Student Residence Hall Project will be subject to additional review by the City to ensure that potential issues with bicycle parking, loading, and construction are addressed in the future design. As noted in the IMP, USF will be implementing a more comprehensive TDM strategy to address increasing travel demand to and from the campus. The University has implemented a loading management plan and construction management plan to minimize loading and construction impacts to adjacent streets.

The Student Residence Hall Project is intended to be designed as consistent with the character and scale of the neighborhood. The building is planned to be four stories over a parking garage, which is consistent with the scale of the campus, the surrounding neighborhood and the existing 40-foot Height District, which limits buildings to 40 feet in height. Nearby residential and campus buildings also reach a height of approximately 40 feet. Under the current initial design concept, the Student Residence Hall Project would step down the slope, fitting within the land form and offering an articulated façade, in keeping with the massing of residential buildings across Turk Boulevard. The aesthetic style of the building would complement the southern European style of the other Upper Campus buildings.

The Student Residence Hall Project would be partially visible from portions of the Ewing Terrace neighborhood [**USF to confirm**], Turk Boulevard and various locations on the Upper Campus. Even so, partial views of the Student Residence Hall Project, in the context of the existing University buildings in the foreground and/or background, would not significantly impact existing views.

d. <u>Alternatives</u>

**University of San Francisco**
**2012 Institutional Master Plan**

**SUPPLEMENT A**
**Proposed Student Residence Hall**
**December 2013**

123 g

The following is a summary of potential alternatives analyzed for the Student Residence Hall Project.

In terms of size, the University had previously contemplated a smaller 300-350 bed residence hall at the Underhill site and another 300-350 bed facility off campus nearby. The off-campus site was yet to be identified and the options uncertain. In late 2012, a University donor approached the University with a proposal to support the construction of a larger facility on campus by offering significant financial support. The larger on-campus facility would eliminate the need to develop an off-campus facility in the foreseeable future. The University disclosed this change in scope with the University Terrace and Ewing Terrace Neighborhood Associations shortly after the University learned of the donor's proposal.

In terms of location, the University considered three locations for the Student Residence Hall Project, including the west side of Lone Mountain, Ulrich Baseball Field and the currently proposed Underhill site. There are no other locations on the campus that could reasonably accommodate this project. Each of the sites are discussed in turn, below.

The University also considered a "no development" alternative, albeit in the context of a clear need for new student housing on campus. See Section 2(a) above for a detailed discussion of the University's need for new student housing. The University has not built a residence hall on campus since Hayes Healy Hall was built in 1966 (Loyola Village was built as staff and faculty housing) and converting existing buildings on campus into residence halls is no longer a viable option. Pedro Arrupe Hall and Fromm Hall have already been converted and there are currently no other campus buildings suitable for conversion.

i. West Lone Mountain

The west Lone Mountain site is located between the Lone Mountain Main building and Parker Avenue. The area is forested and is also the location of a substantial landslide that occurred some decades ago. The site directly faces a long line of residential homes on the west side of Parker Avenue, between Turk and Anza

The estimate for a comparable-sized project on the west Lone Mountain site would cost approximately $50 million, but would also require additional costs to mitigate the geotechnical risks at the site. The geotechnical challenges associated with the site are significant and would add substantial, possibly prohibitive, expense for any required structural mitigation. Current estimates of that additional costs range from about $10 to $20 million.

The cost of losing the urban forest is more difficult to measure. The area is defined by large groves of pine, cypress and eucalyptus trees. The benefits of retaining this area in its current form include the ecological benefits provided to the urban environment including soil stabilization, water resources protection, carbon storage, habitat enhancement, and microclimate and air quality improvement. There may come a time when the area is identified for development, but currently the benefit of maintaining its current state outweigh the considerable cost of building on the west Lone Mountain site. 123 l

In sum, while the University may consider possible future development on the west side of Lone Mountain, the site does not offer any advantages over the Underhill or Ulrich Field sites.

ii. Ulrich Baseball Field

Ulrich Baseball Field is located on the Lower Campus, at the southwest corner of the intersection of Masonic and Golden Gate Avenues. The University's intercollegiate baseball team currently uses the site for practice and competition. The field also serves as a playing field for the students at the San Francisco Day School, which is located at the northeast corner of Golden Gate and Masonic Avenues.

Ulrich Baseball Field is central to the University's sponsorship of Division I baseball. The University's Intercollegiate Athletic Department is an integral part of the University's campus and culture and, as described in the IMP, the University proposes to upgrade and improve the facility for intercollegiate competition. There is no alternative site on University property for a baseball field; thus, the loss of this space would critically compromise the University's intercollegiate baseball program.

The main benefit that Ulrich Field offers for new development is that it is a large, level site at street level. This however might equally be considered a drawback as the flow of traffic, both by car and foot, would increase in the immediate neighborhood. Contrast the Underhill site, which is already embedded in the Upper Campus with pedestrian traffic patterns already established.

Ulrich Baseball Field is also bordered on three sides by residential properties: residences on Hemway and Atalaya Terraces to the south, residences on the east side of Masonic Avenue, and residences on the north side of Golden Gate Avenue. Therefore, in the context of potential impacts on nearby neighbors, the University concluded that this site, of the three under consideration, would be the least desirable.

The estimate for a comparable-sized project on Ulrich Baseball Field would be between about $50 and $60 million, which is approximately the same cost as for the Underhill site. However, the additional cost of acquiring new land and constructing a new baseball facility would substantially increase that cost.

123 i

For these reasons, the Ulrich Baseball Field site does not have any advantages over the Underhill site and would not reduce potential impacts on the University's neighbors.

iii. Underhill Site

The Underhill site has been under consideration for future development since the University's 1993 IMP. The site is already developed and is currently occupied by a parking lot, two tennis courts and the deteriorated Underhill buildings. A residence hall at this site would create a desired connection between the Lone Mountain Complex and the academic buildings fronting immediately on Turk Boulevard to the east. This site would also support the existing north-south connection between the Upper and Lower Campuses. Of the three sites under consideration, this site offers the best opportunity to strengthen the connections that foster community on campus.

Additionally, when compared to the alternatives, this site would have the least adverse impact on neighboring homes. Three sides of the site are within the larger Upper Campus and are not near neighboring houses. While the eastern border of the site is near the Ewing Terrace neighborhood, the proposed building would be situated not less than 100 feet from the eastern property line and would be buffered by trees and green space.

The University acknowledges that the Ewing Terrace neighbors have concerns about the Student Residence Hall Project. The University fully intends to address those concerns to the extent possible through the design of the new facility and by involving the neighbors in that process. See Section 2(e) below regarding neighborhood outreach and proposed mitigating actions.

Based on the foregoing, the University has determined that of the possible campus locations, this site would have the least adverse impact.

e. Proposed Mitigating Actions

The following is a summary of potential mitigating actions for the Student Residence Hall Project.

The University is committed to implementing potential mitigation measures to ameliorate perceived potential adverse impacts of the Student Residence Hall Project upon the adjacent properties. Chapter 3 of the IMP outlines in detail the considerable time and resources the University has devoted in recent years to engage with its neighbors to identify issues and concerns, develop measures to address those concerns, and programs to insure that those mitigations are systematized in the operations of the University.

As explained above, the University understands the concerns regarding the Student Residence Hall Project to include potential noise, privacy impacts, building design, potential parking impacts, potential odors, seismic risks and potential construction impacts. The University's initial concept drawings for the Student Residence Hall Project deliberately address most of these concerns by locating the building approximately 100 feet from the property line, providing a dense buffer of trees, and orienting building courtyards towards the inside of the site. In addition to the mitigating actions already incorporated in the massing study, further mitigation measures will be implemented through the environmental review process under the California Environmental Quality Act (CEQA), such as measures to reduce other potential impacts on potential archeological resources to a less-than-significant level. The University will also be required to comply with all applicable City ordinances, including but not limited to the City Noise Ordinance and the City Construction Dust Control Ordinance. Furthermore, all applicable California and City Building and Fire Code standards, including seismic standards, would be met. 123 j

As stated directly to the Ewing Terrace neighbors, the University welcomes the opportunity to involve them in meetings with the Student Residence Hall Project's architects and designers to further flesh out neighborhood concerns, hear the designers' proposed solutions, and to brainstorm ways to minimize potential impacts. The University made similar efforts before the construction of the Center for Science and Innovation (CSI) and met with University Terrace neighbors to develop strategies to respond to their specific concerns regarding potential construction impacts. A comprehensive construction mitigation plan was jointly developed. In the end, there was minimal impact to the neighborhood, as evidenced both by the few complaints filed with the University during the construction period and by the feedback from neighbors gained from an August 21, 2013 community meeting, which was specifically held to review the effectiveness of the CSI construction mitigation plan. The University will apply that same level of effort, time and resources in addressing the concerns of its neighbors, including residents of Ewing Terrace, in the context of the Student Residence Hall Project.

**University of San Francisco**
**2012 Institutional Master Plan**

**SUPPLEMENT B**
**Mixed-Use Buildings at Negoesco Field**
**December, 2013**

The purpose of this Institutional Master Plan (IMP) Supplement B is to describe a change in footprint for the proposed project called Mixed Use Buildings at Negoesco Field.

1. Mixed-Use Buildings at Negoesco Field

As explained on pages 66 and 67 of the IMP, the University proposes new athletic support facilities as part of the "Mixed Use Buildings at Negoesco Field" project.. The footprint of the new facilities at Negoesco Field will include an underground basketball practice courts as well as other directly related support facilities, See Figure 16A below, in this Supplement B. The approximately 25,000 gsf subgrade practice facility will not be visible from above ground.

# MEMORANDUM

Date: December 5, 2013

To: Liz Miles and Mike London, University of San Francisco

From: Matt Goyne and Matthew Ridgway, Fehr & Peers

**Subject: USF IMP Transportation Impact Study 2013 Update – Student Residence Hall**

*SF10-0518*

---

This memorandum presents an update to the Transportation Study (Original Transportation Study) in Appendix 1 of the University of San Francisco (USF) Institutional Master Plan (IMP)[1] dated March 2012 and resubmitted with the August 2013 IMP. This update reflects the changes made to the proposed Upper Campus Student Residence Hall and Parking project (page 71 of the March 2012 IMP draft). The revised Upper Campus Student Residence Hall and Parking project (Revised Student Residence Hall), found on page 67 of the August 2013 IMP proposes a 635-bedroom facility on the Underhill site of the upper campus, as opposed to the 350-bed facility proposed in the March 2012 Draft IMP. It was assumed in the March 2012 draft that the 285 students would seek private off-campus housing.

Additionally, an update to the level of service analysis documented in the Original Transportation Study is presented for the intersection of Masonic Avenue / Turk Boulevard under 2035 Cumulative PM Peak Hour Conditions.

Potential impacts of the additional 285 bedrooms proposed for the Revised Student Residence Hall Project on traffic, transit, bicyclists, pedestrians, loading, and construction activities are evaluated in a fashion consistent with the City and County of San Francisco *Transportation Impacts Analysis Guidelines* (SF Guidelines, October 2002). Additional detail on the methodology and assumptions used for the transportation impact analysis, as well as the City of San Francisco significance criteria (i.e., significant or less-than-significant) of certain impacts, is provided in Appendix 1 of the USF Institutional Master Plan

---

[1] *Appendix I: Transportation Study for the University of San Francisco Institutional Master Plan* (Fehr & Peers, March 2012)

The Revised Student Residence Hall Project is larger than the 350 bed residence facility proposed in the 2012 Draft IMP at this site. Even so, the proposed residence hall would not reflect a change in the total number of students anticipated under the IMP, but rather a shift in students from off-campus housing locations to on-campus housing. The proposed residence hall is not yet designed, but is intended to accommodate living-learning programs, student life, academic, study, and meeting spaces on the upper campus, as explained on page 67 of the IMP. Further study, including analysis of the potential impacts under the California Environmental Quality Act (CEQA), and approval by the City will be required to determine project specific impacts associated to construction and loading when the design is complete. Thus, this memorandum, along with the original Transportation Study in Appendix 1 to the IMP, is provided for informational purposes only.

## SUMMARY OF FINDINGS

The Revised Student Residence Hall Project would reduce the total number of vehicle and transit trips to campus when compared to the Original Transportation Study as the new students living on-campus[2] would otherwise live off-campus and would arrive to campus via car, public transit or other means. This shift would reduce the severity of impacts on the surrounding roadway and transit lines. While pedestrian and bicycle trips are expected to increase due to the Revised Student Residence Hall Project, the Revised Student Residence Hall Project would not create unsafe conditions for pedestrians or bicyclists, nor would the additional walk and bike trips cause crowding on nearby sidewalks or bicycle facilities. The traffic calming plan and USF Transportation Demand Management (TDM) Plan would improve pedestrian and bicyclist conditions in the study area by reducing crosswalk lengths, increasing bicycle parking, and slowing vehicle travel speeds. Construction, emergency access, and loading conditions would not change due to the Revised Student Residence Hall Project compared to what was analyzed in the Original Transportation Study.

The Revised Student Residence Hall Project would replace the existing 80-space surface parking lot with 160 spaces in an underground garage for faculty and staff. The Original Transportation

[2] This memorandum presents an analysis of the USF Hilltop Campus as this was the focus of the Original Transportation Study. The USF Hilltop Campus is bounded generally by Anza Street to the north, Masonic Avenue to the east, Fulton Street to the south, and Stanyan Street to the west. The Hilltop Campus includes USF's Lone Mountain (upper) and lower campuses.

Study identified a parking deficit of 232 spaces in on- and off-campus parking under the proposed IMP. The 160 parking spaces proposed as a part of the Revised Student Residence Hall Project would therefore relieve some of the parking demand that was projected to potentially use neighborhood streets. In addition, the IMP Transportation Demand Management (TDM) plan would reduce overall parking demand by 13 percent. The additional on-campus parking, in addition to the TDM plan, would reduce parking demand on adjacent streets compared to existing conditions.

USF discourages students in residence halls from bringing cars to campus and would not provide parking for new on-campus students. Although a majority of the streets in the neighborhood require residential parking permits, some streets are unregulated and can be used by USF students and other residents within and outside the neighborhood to store vehicles without permits. USF will continue to discourage students from bringing cars to campus through its housing policies and TDM program and to work with the neighborhood and the City to develop on-street parking management strategies.

The Revised Student Residence Hall Project is not expected to result in any new significant impacts to the surrounding transportation network beyond that already analyzed in the Original Transportation Study; therefore, no additional improvement measures were identified. The Revised Student Residence Hall Project will be subject to additional review by the City, including environmental review under CEQA, to analyze potential issues with bicycle parking, loading, and construction, and to mitigate any related potential impacts to the extent feasible. The University has implemented a loading management plan and construction management plan to minimize loading and construction impacts to adjacent streets. A detailed analysis of project specific loading and construction impacts will be conducted when the design of the Revised Student Residence Hall Project is finalized.

Optimizing the traffic signal at Masonic Avenue / Turk Boulevard would result in acceptable intersection operations under 2035 Cumulative Conditions with and without the project. Therefore, the Revised Student Residence Hall project would result in **less-than-significant impacts** to Year 2035 Cumulative Conditions, and no mitigation measure is required.

# TRAVEL DEMAND ANALYSIS

The section describes the changes to the projected vehicle, pedestrian, bicycle, and transit travel demand generated by the Revised Student Residence Hall Project. This analysis assumes the facility will house 635 students; the ultimate capacity will be determined in the final design and approval process. The impact of potential new traffic associated with the Revised Student Residence Hall Project is compared to the findings of the Original Transportation Study in the following section.

## TRIP GENERATION

As explained in the Original Transportation Study, the critical step in evaluating future transportation conditions is identifying the number of new "trips" that would be generated by population growth on the upper and lower campuses. The trips included in the analysis are trips coming to campus and leaving campus, not trips that occur between different buildings on the Campus during the day. For example, a student riding his bike to campus in the morning, walking to and from three classes during the day and biking home in the evening would be counted as two daily bicycle trips.

The travel demand forecasts are based on the projected number of students and employees, as well as travel survey responses by faculty, staff, and students from April 2011. Forecasting the net new travel demand involves estimating the number of trips generated by the completion of the planned projects, less trips associated with the existing uses on-site.

Using daily population data for the USF campus, new person trips were developed separately for students, faculty, and staff. The new person trip generation is presented in Table 3.1 of Appendix 1 of the IMP. As the projected campus population and size would remain the same regardless of whether the additional beds are provided off-campus or on-campus, the new person trips would not change compared to what is presented in the Original Transportation Study. However, since some students would shift from off-campus housing locations to on-campus housing locations, these trips would primarily shift to on-campus walk trips.

## MODE SPLIT

Mode split is the relative proportioning of project-generated trips to various travel modes. Modes include drive alone, carpooling, transit, and other modes. The percentages for each mode were based on online travel survey data collected by USF. The same mode shares were used for the baseline year conditions and future conditions. This resulted in a conservative traffic analysis by assuming existing travel patterns and housing locations remain the same.

As shown in Table 1, students who live on-campus or within a couple blocks of campus are much less likely to drive or take transit when compared to those who live farther away from campus. The automobile and transit mode share for students traveling to and from campus would decrease in the future as some students who currently drive to campus would instead walk or bike from the on-campus housing.

**TABLE 1: MODE SHARE BY HOUSEHOLD DISTANCE FROM CAMPUS**

| Household Location | Auto[1] | Transit | Walk | Other[2] |
|---|---|---|---|---|
| | | | | |
| On-Campus or within a few blocks of campus | 3% | 12% | **83%** | 2% |
| More than a few blocks and within 3 miles | 25% | **51%** | 19% | 5% |
| Greater than 3 miles | **69%** | 27% | 1% | 3% |

Notes: USF Transportation Demand Management survey, 2011. Based on 1,529 respondents including approximately 1,000 students.

1. Auto mode share includes drive alone and carpool responses. Carpools represent seven percent of the total responses for those living more than a few blocks away and eight percent of the total responses of those who live more than three miles away.
2. Other includes bicycle, skateboard, taxi, and motorcycles.

Source: Fehr & Peers, 2013

The Revised Student Residence Hall Project would create new on-campus housing for approximately 285 students in addition to the 350 students analyzed in the Original Transportation Study. Per Chapter 3 of Appendix 1 of the IMP, students living off-campus would be expected to generate two trips a day (one to campus and one leaving campus), an average of four days a week, resulting in a total of 456 daily trips.[3] These students would shift from off-campus housing to on-campus housing; therefore, while the total number of person trips would remain the same, the mode of these trips would change and shift to on-campus. Applying the mode share percentages shown in Table 1 to the existing household locations and future on-campus housing locations shown in Table 2 results in the change in daily trip types that would be expected due to the Revised Student Residence Hall Project. As shown in Table 2, this would result in approximately 155 fewer auto person trips to campus (including some carpools), 75

[3] 285 students x 2 trips a day x 4 out of 5 days a week = 456 daily trips

fewer transit trips to campus, and 6 fewer "other" trips to campus. The impacts of these mode shift changes are discussed in the subsequent section.

| TABLE 2: DAILY PERSON TRIPS FOR RESIDENT HALL | | | | | |
|---|---|---|---|---|---|
| **Household Location** | **Percent[1]** | **Auto** | **Transit** | **Walk** | **Other[2]** |
| **Original Transportation Analysis – Existing Mode Share and Housing Location** | | | | | |
| On-Campus or within a few blocks of campus | 31% | 4 | 17 | 117 | 3 |
| More than a few blocks and within 3 miles | 26% | 30 | 60 | 23 | 6 |
| Greater than 3 miles | 43% | 135 | 53 | 2 | 6 |
| **Total** | **100%** | **169** | **130** | **142** | **15** |
| **Analysis with the Larger/Expanded Revised Student Residence Hall** | | | | | |
| On-Campus | 100% | 14 | 55 | 378 | 9 |
| **Net Change** | | | | | |
| Shift in Trips | -- | -155 | -75 | +236 | -6 |

Notes: USF Transportation Demand Management survey, 2011. Based on 1,529 respondents including approximately 1,000 students.

1. The TDM survey found that 31 percent of USF affiliates live within a few blocks of campus, 26 percent live further but within three miles of campus and 43 percent live three miles or more from campus.
2. Other includes bicycle, skateboard, taxi, and motorcycles.

Source: Fehr & Peers, 2013

# IMPACT ANALYSIS

This section summarizes the assessment of transportation impacts resulting from the travel demand generated by the Revised Student Residence Hall Project compared to what was analyzed in the Original Transportation Study. The impacts are grouped into eight potential impact areas: (1) traffic, (2) transit, (3) bicycling, (4) pedestrian, (5) loading, (6) emergency access, and (7) construction impacts.

## TRAFFIC IMPACTS

Traffic conditions in the Original Transportation Study were analyzed under Existing, Baseline (2012), Near-Term (2022), and Cumulative (2035) scenarios with and without the completion of the IMP development plan. Appendix 1 determined that the IMP development plan would not result in any significant traffic impacts at the study intersections. The increase in the number of new bedrooms in the currently proposed Revised Student Residence Hall Project would generate approximately 155 fewer daily automobile person trips compared to the 350-bed residence hall analyzed in the Original Transportation Study due to the shift in students from off-campus to on-campus housing. Therefore, impacts to traffic conditions due to the Revised Student Residence Hall Project would be less severe than presented in the Original Transportation Study and would remain **less-than-significant** with implementation of the proposed mitigation measure. As discussed later in the memorandum, assuming the signal timings for the Masonic Avenue / Turk Boulevard intersection will be optimized, the addition of Proposed Project vehicle trips would result in **less-than-significant impacts** to Year 2035 Cumulative traffic conditions, and no mitigation measure is required.

As shown in **Appendix A**, the Revised Student Residence Hall Project would alter the existing on-campus circulation patterns on the upper campus by realigning the driveways connecting to Turk Boulevard. The primary access into the upper campus would be located within the center of the upper campus and travel in a counterclockwise loop from Roselyn Terrace to Temescal Terrace. This roadway would provide access to the parking garages at the center of the upper campus. Secondary access would be provided at the existing Tamalpais Driveway to a new garage at the existing location of the surface parking lot. Turk Boulevard is expected to operate with minimal congestion in the future (Levels of Service A or B), and this shift in automobile circulation is not expected to affect roadway operations as documented in the Original Transportation Study.

## TRANSIT IMPACTS

Transit operations for the transit routes operating within ¼ mile of USF campus were analyzed under Existing, Baseline (2012), Near-Term (2022), and Cumulative (2035) Conditions, including analysis of the 33 Stanyan, 43 Masonic, 5 Fulton, 21 Hayes, 31/31BX Balboa, and 38/38L Geary bus routes. Future transit ridership for the routes was estimated using the expected transit ridership growth forecast in the San Francisco travel demand model. The Original Transportation Study determined that additional new transit riders generated by the IMP development plan would not cause transit screenlines to operate above the San Francisco Municipal Transportation Agency's (SFMTA) capacity utilization standards. Therefore, the IMP would have a **less-than-significant** impact on transit.

The Revised Student Residence Hall Project would generate approximately 75 fewer daily transit trips compared to the Original Transportation Study due to the shift in students from off-campus to on-campus housing. Therefore, impacts to transit conditions due to Revised Student Residence

Hall Project would be less severe than presented in the IMP and would remain **less-than-significant**.

## BICYCLE IMPACTS

The Original Transportation Study determined that the IMP would reduce the number of bicyclists traveling to USF, although bicyclists traveling near campus could increase due to the new on-campus residents. The IMP traffic calming plan includes street modifications to Turk Boulevard and Golden Gate Avenue that would improve bicyclist safety on the Campus (as well as for those bicyclists traveling through the Campus). These modifications are detailed in the IMP's traffic calming element. In overview, bicycle lanes on Turk Boulevard would be made continuous, and Golden Gate Avenue would receive additional traffic calming treatments to address pedestrian and bicyclist safety. These improvements would be consistent with the San Francisco Better Streets Plan and Bicycle Plan.

The existing facilities and the proposed bicycle improvements, including those on Masonic Avenue, would be able to accommodate the new cyclists. The Revised Student Residence Hall Project would not create hazards to bicycle circulation and the existing facilities could generally accommodate additional bicyclists; therefore, the Revised Student Residence Hall Project is expected to have a **less-than-significant** impact on bicyclists. Furthermore, the proposed elements of the traffic calming plan would improve bicycling conditions compared to the existing conditions.

The Revised Student Residence Hall Project would generate a similar number of trips compared to the Original Transportation Study due to the shift in students from off-campus to on-campus housing[4]. Therefore, impacts to bicycle conditions due to the Revised Student Residence Hall Project would be similar to what is presented in the Original Transportation Study and therefore, the potential impact would remain **less-than-significant**.

The City of San Francisco *Planning Code* Section 155 specifies that new developments or major renovations must provide a specified number of bicycle parking spaces and bicycle amenities. The design of the bicycle parking areas on the Campus would be subject to review by the City to ensure *Planning Code* compliance, either directly, through a variance, or exception. *Planning Code* information is presented for informational purposes only.

---

[4] The "Other" trips shown in Table 2 would decrease by 6 daily trips. The other category includes bicycle, skateboard, taxi, and motorcycles.

> As part of the Revised Student Residence Hall Project, the University would build a 160-space parking garage under the project. USF is required to provide a minimum of six bicycle parking spaces, plus one bicycle parking space for every 20 parking spaces in garages with 120 to 500 parking spaces. In addition, any new dormitory or housing facility would be required to provide one bicycle parking space for every three bedrooms. This would result in 226 bicycle parking spaces required for the Revised Student Residence Hall Project.[5]

As mentioned in the IMP, the University would be required to submit plans to the City for any future project on the Campus, and bicycle parking would be reviewed at that time. Therefore, no impacts are identified in this subsection.

## PEDESTRIAN IMPACTS

The IMP is expected to increase pedestrian traffic on and around the USF Campus. Although pedestrian activity around the campus is generally dispersed, pedestrian activity would likely increase at locations proposed as future development sites such as the Revised Student Residence Hall Project.

The Revised Student Residence Hall Project would increase on-campus pedestrian trips to and from the lower campus compared to what was presented in the Original Transportation Study. These pedestrians would use public streets to travel between the upper and lower campuses including Turk Boulevard, Parker Avenue, Chabot Terrace, Roselyn Terrace, and Masonic Avenue. The Revised Student Residence Hall Project would include amenities on the upper campus such as dining facilities, living-learning programs, student life, academic, study, and meeting spaces to help reduce the need for students to walk between upper and lower campuses for non-class related activities or during the evening. Per USF staff, these amenities are expected to similar to those currently located on the lower campus to minimize the new pedestrian trips between campuses.

The IMP traffic calming plan includes pedestrian enhancements as part of the Turk Boulevard and Golden Gate Avenue streetscape plans. Improvements would include enhanced crosswalks,

---

[5] Parking garage = 6 bicycle parking spaces + 160 vehicle parking spaces/20 = 14 bicycle spaces. 635 bedrooms * 0.333 bicycle parking spots / bedroom = 212 bicycle parking spaces. 14+212 = 226 bicycle parking spaces.

medians, curb extensions, and traffic calming elements. The Master Plan also includes an enhanced crosswalk on Parker Avenue at McAllister Street.

The Revised Student Residence Hall Project would not create unsafe conditions for pedestrians, nor would the additional walk trips cause crowding on nearby sidewalks; therefore, the impacts to pedestrian conditions due to Revised Student Residence Hall Project would remain **less-than-significant**. Generally, the traffic calming plan would further improve conditions for pedestrians around the Campus.

## LOADING IMPACTS

Assessments of loading impacts are specific to individual projects, and include the ability of the new development to accommodate the projected delivery and service vehicle demand generated by the new uses. To the extent that the loading demand is not accommodated on-site, and could not be accommodated within existing or new on-street loading zones, double-parking, illegal use of sidewalks and other public space is likely to occur with associated disruptions and impacts to traffic and transit operations as well as to bicyclists and pedestrians. These disruptions are usually short in duration and occur when trucks enter and exit loading areas. However, USF has implemented several improvement measures to manage loading issues including creating a Traffic Coordinator position in 2010 to manage campus deliveries and to address disruptions and impacts. The University limits the hours of use of its loading docks to Monday through Friday, 7am to 4pm and Saturday & Sunday 9am to 4pm. Current plans for the Revised Student Residence Hall Project are conceptual and a detailed loading analysis will be provided prior to project approval. The Revised Student Residence Hall Project would not change loading patterns compared to what was analyzed in the IMP, therefore no impacts associated with loading were identified.

## EMERGENCY ACCESS IMPACTS

The Revised Student Residence Hall Project would not inhibit or create any barriers to emergency access vehicles on the Campus or traveling through the Campus. Proposed modifications to Turk Street and Golden Gate Avenue will need to be reviewed and approved by the SFMTA and San Francisco Fire Department to ensure that the traffic calming plans meet City requirements for emergency access. Therefore, impacts to emergency access are expected to remain **less-than-significant**.

## CONSTRUCTION IMPACTS

Temporary construction impacts are specific to individual development projects, and include impacts related to temporary roadway and sidewalk closures, relocation of bus stops, effects on roadway circulation due to construction vehicles, and parking demand associated with construction workers. The Revised Student Residence Hall Project may affect the transportation network along Turk Street, between Tamalpais Terrace and Roselyn Terrace. Construction activities that affect street right-of-way are typically regulated through permits and construction requirements to ensure acceptable levels of traffic and transit flow during the period of traffic disruptions. Construction best management practices are typically required to be in place to ensure the safety of construction workers, motorists, bicyclists, and pedestrians throughout the construction period. The University would be required to submit detailed plans to the City for any future project on the Campus, and potential construction impacts would be reviewed at that time.

## PARKING IMPACTS

The City of San Francisco does not consider parking to be a part of the physical environment, since the availability of parking spaces (or lack thereof) is not a permanent physical condition and changes over time (both throughout the day and week and as people change their travel mode and patterns). However, parking supply and demand is of interest to both residents and the USF community and was reviewed as part of the Original Transportation Study prepared.

Although there are no significance thresholds for parking impacts, parking impacts due to campus population growth, the traffic calming plan, and the Masonic Boulevard Streetscape project were analyzed in the Original Transportation Study to help shape USF's transportation demand management strategy. Based on campus population growth projections, removal of on-street parking due to both the traffic calming plan and the Masonic Boulevard project, and future on-campus parking supply, the estimated future on-campus parking deficit is 101 vehicles and off-campus parking deficit is 127 vehicles. The USF transportation demand management strategy is designed to address the projected parking deficits by reducing the total USF parking demand by 13 percent.

The Revised Student Residence Hall Project would replace the existing 80-space surface parking lot with 160 spaces in an underground garage for faculty and staff. The March 2012 Draft IMP did not plan for a parking garage at this location. Therefore, the Revised Student Residence Hall Project would increase the on-campus parking supply by 80 spaces compared to existing conditions and 160 spaces when compared to the IMP. This increased on-campus parking supply reduce the parking deficit identified in the Original Transportation Study, reducing the parking demand on City streets.

The Revised Student Residence Hall Project would reduce the daily campus parking demand by shifting students from off-campus to on-campus housing. As shown in Table 2, approximately 155 fewer students would drive (drive alone or in a carpool) to campus compared to what was analyzed in the Original Transportation Study. Carpools make up approximately 20 percent of all student drivers. Assuming each student drives to and from campus and two people per car in a carpool, this would result in approximately 60 fewer vehicles coming to campus each day compared to what was estimated for the 350 bed Student Residence Hall Project in the Original Transportation Study. This would reduce the on-street parking deficit identified in the IMP. In addition, the TDM plan’s goal is to reduce parking demand by 13 percent, which would reduce parking demand on adjacent streets compared to existing conditions.

USF discourages students in residence halls from bringing cars to campus and would not provide parking for new on-campus students. Although a majority of the streets in the neighborhood require residential parking permits, some streets are unregulated and can be used by USF students and other residents within and outside the neighborhood to store vehicles without permits.

Recognizing that some parking will continue to occur on streets around the Campus with the Revised Student Residence Hall Project, USF would continue to work with the neighborhood and the City to implement policies and programs that discourage students from bringing cars to campus and to modify the on-street parking supply to make it less attractive for USF parking through parking management programs. Changes to on-street parking would include the traffic calming plan to reduce the impact of vehicles circling neighborhood blocks looking for on-street parking. The turn restrictions on the Terrace streets included in the traffic calming plan would discourage vehicles from circulating through each street looking for parking in an area where availability is most constrained. USF is also working the University Terrace neighborhood to change the time limit restrictions on BB permitted streets. As currently proposed, time limits would be reduced from two-hours to one-hour for non-BB permitted vehicles. Other parking supply management options include on-street parking pricing along unregulated streets on USF block faces, which was evaluated by the City 2012 but not implemented.

## YEAR 2035 CUMULATIVE CONDITIONS UPDATE

The Original Transportation Study identifies a significant traffic impact under 2035 Plus Project PM peak hour conditions at the intersection of Masonic Avenue / Turk Boulevard. The addition of Proposed Project trips (as defined in the Original Transportation Study) would cause the average vehicle delay at this intersection to increase by one second, from 54 to 55 seconds. This increase in average vehicle delay would degrade the PM peak hour level of service from acceptable LOS D under 2035 Cumulative No Project Conditions to unacceptable LOS E under 2035 Cumulative Plus Project Conditions. This would be considered a **significant traffic impact**. The recommended mitigation measure includes adding an eastbound right-turn lane at this intersection to reduce the impact to a **less-than-significant** level. However, an additional lane at this location would be inconsistent with the San Francisco Better Streets Plan recommendations for reducing pedestrian crossing distances where possible.

An option for reducing this impact to less-than-significant levels without conflicting with the San Francisco Better Streets Plan would be to optimize the signals in the future to account for changes in traffic patterns. The City generally evaluates and optimizes traffic signals to adjust to changing travel patterns or when major infrastructure changes occur, such as the Masonic Avenue Streetscape Project. It is reasonable to assume the signal timings for Masonic Avenue / Turk Boulevard will be updated and optimized in the future to account for the changing traffic patterns and streetscape design. As shown in **Table 3**, optimizing the traffic signal at this intersection would reduce the average vehicle delay from 54 to 51 seconds under 2035 Cumulative No Project Conditions and from 55 to 52 seconds under 2035 Cumulative Plus Project conditions. This would result acceptable intersection operations under 2035 Cumulative Conditions with and without the project. Therefore, assuming the signal timings for the Masonic Avenue / Turk Boulevard intersection will be optimized, the addition of Proposed Project vehicle trips would result in **less-than-significant impacts** to Year 2035 Cumulative traffic conditions, and no mitigation measure is required.

| TABLE 3: YEAR 2035 CUMULATIVE CONDITIONS INTERSECTION LEVEL OF SERVICE PM PEAK HOUR | | | | | | | |
|---|---|---|---|---|---|---|---|
| Intersection | Traffic Control | 2035 Cumulative No Project | | | 2035 Cumulative Plus Project | | |
| | | Avg. Delay[1] | LOS | V/C Ratio | Avg. Delay[2] | LOS | V/C Ratio |
| **Original IMP Transportation Study** | | | | | | | |
| Masonic Avenue / Turk Boulevard | Signal | 54 | D | - | **55** | **E** | **1.09** |
| **Optimized Signal Timing** | | | | | | | |
| Masonic Avenue / Turk Boulevard | Signal | 51 | D | - | 52 | D | - |

Notes: **Bold** = unacceptable operations; Level of Service Calculations sheets are presented in **Appendix B**.

1. Average Delay shown as seconds per vehicle.

Source: Fehr & Peers, 2013

As documented previously, the Revised Student Residence Hall Project would reduce the number of vehicle trips to campus. Therefore, the impacts to traffic due to the Revised Student Residence Hall Project would be less severe than those without the Revised Student Residence Hall Project and impacts to traffic conditions would be **less-than-significant**.

## CONCLUSION

The Revised Student Residence Hall Project would not create new or worsen the severity of impacts identified in the Original Transportation Study. The Revised Student Residence Hall Project reduce the total number of vehicle and transit trips to campus when compared to the Original Transportation Study as the new students living on-campus would otherwise live off-campus and would arrive to campus via car, public transit or other means. Impacts to traffic and transit conditions under baseline, near-term, and cumulative conditions would remain **less-than-significant**. While pedestrian and bicycle trips are expected to increase due to the Revised Student Residence Hall Project, the Revised Student Residence Hall Project would not create unsafe conditions for pedestrians or bicyclists, nor would the additional walk and bike trips cause crowding on nearby sidewalks or bicycle facilities. The severity of impacts due to loading, construction, emergency access, and parking conditions would not worsen compared what was presented in the Original Transportation Study.

Optimizing the traffic signal at Masonic Avenue / Turk Boulevard would result acceptable intersection operations under 2035 Cumulative Conditions with and without the project. Therefore, the addition of Proposed Project vehicle trips as documented in the Original Transportation Study would result in **less-than-significant impacts** to Year 2035 Cumulative Conditions, and no mitigation measure is required.

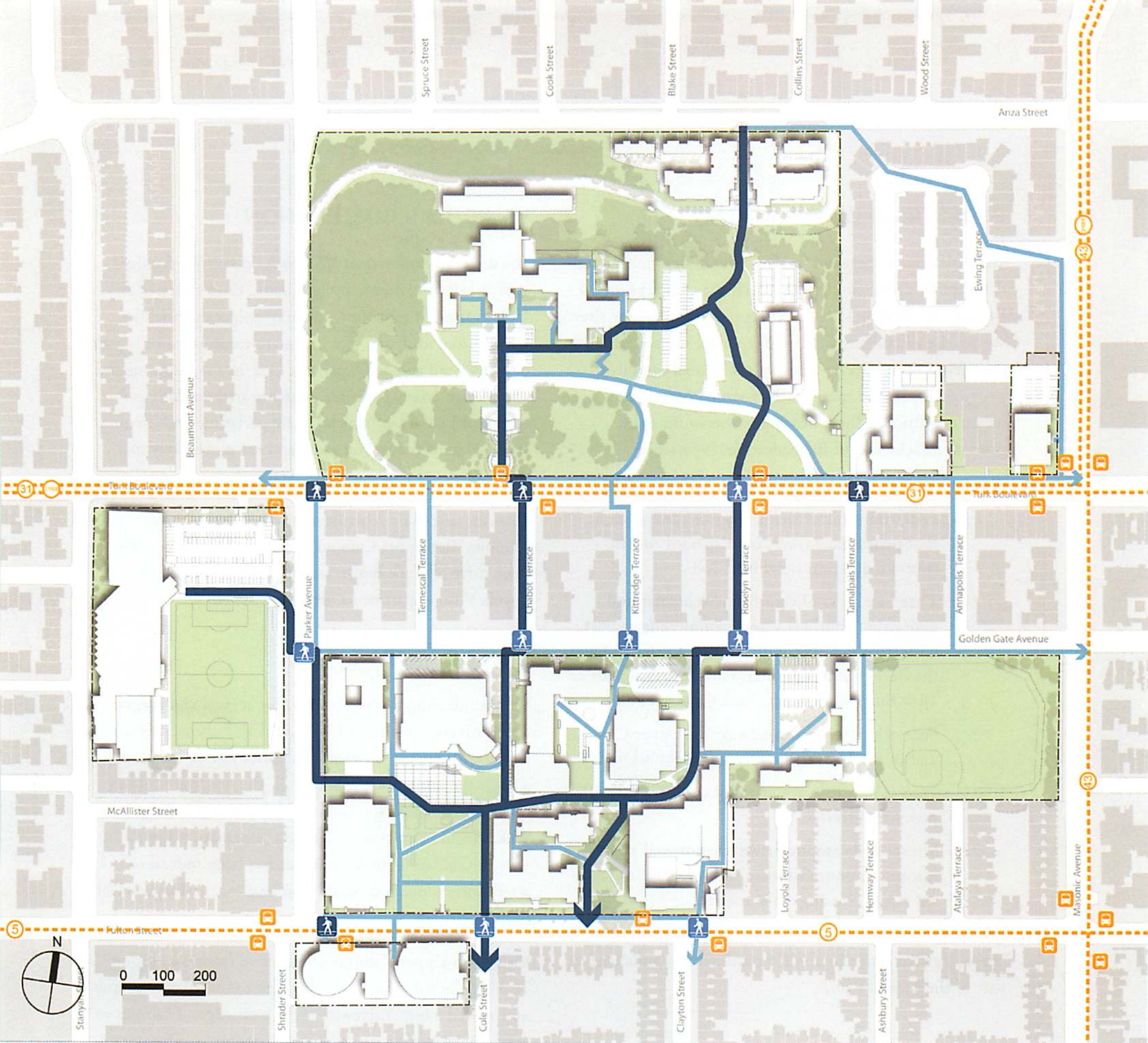
FEHR & PEERS

# APPENDIX A – STUDENT RESIDENCE PROJECT CIRCULATION PLANS


FIGURE 4: EXISTING BUILDING USE

## LEGEND

- USF Hilltop Campus Boundary
- Academic & Administration
- Residential
- Recreation & Athletics
- Storage and Maintenance
- Field/Court
- Mixed Use Residential Academic/Administration
- Mixed Use Student Life and Academic/Administration




△ FIGURE 7: EXISTING PEDESTRIAN CIRCULATION

## LEGEND

- USF Hilltop Campus Boundary
- Primary Pedestrian Route
- Secondary Pedestrian Route
- Muni Line
- Muni Stop
- Signaled Crosswalk
- Non-Signaled Crosswalk


FIGURE 8: EXISTING VEHICULAR CIRCULATION

## LEGEND

- USF Hilltop Campus Boundary
- Primary Vehicular Route
- Secondary Vehicular Route
- Service Only Route
- Service Access Point
- Structured Parking
- Surface Parking
- Primary Arrival Point
- Secondary Arrival Point

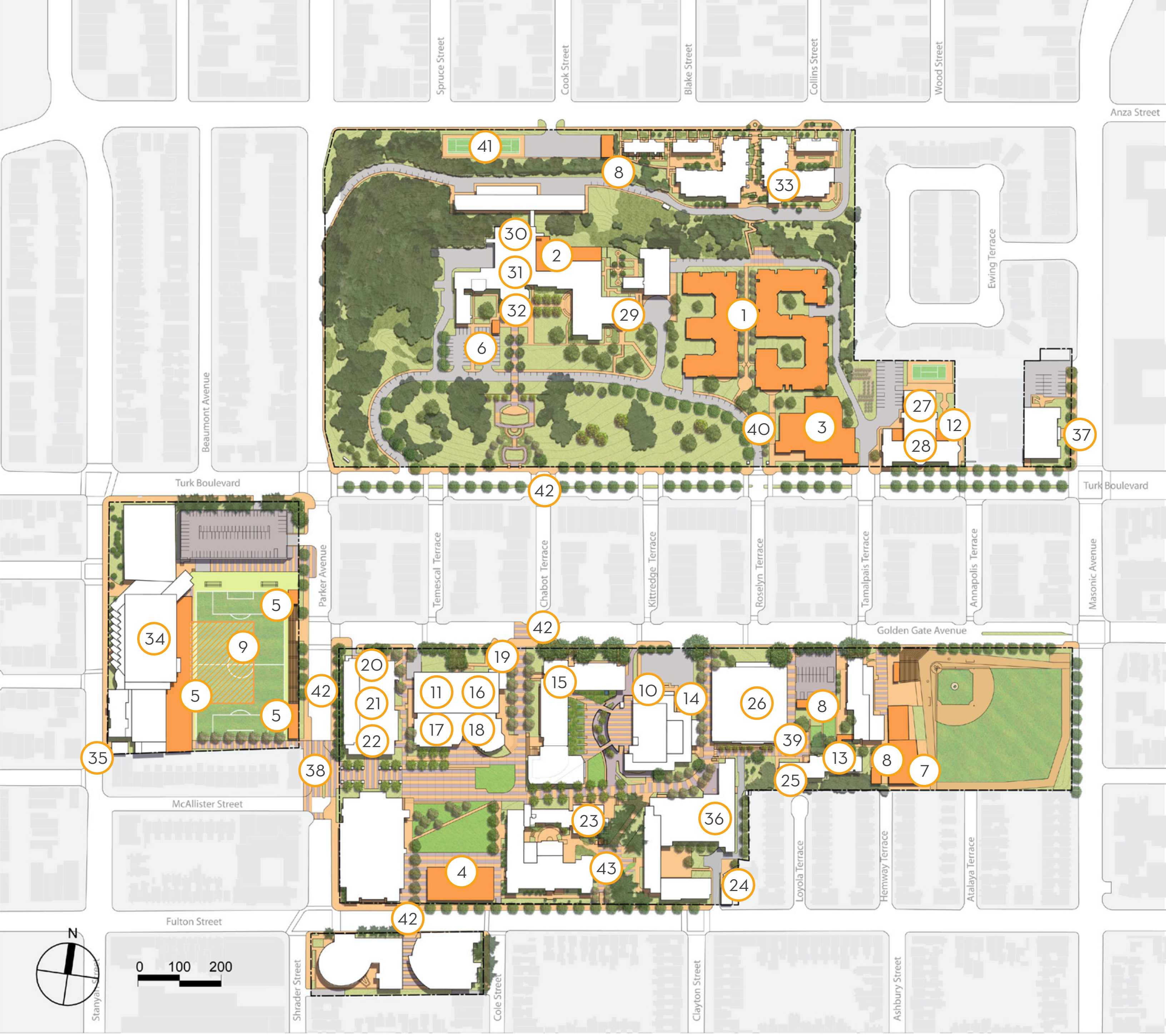



FIGURE 16A: SUPPLEMENT NOVEMBER 5, 2013

## LEGEND

- USF Hilltop Campus Boundary
- Existing Buildings
- Proposed Buildings
- Proposed Underground Athletic Facility

## POTENTIAL HILLTOP CAMPUS PROJECTS, 2012–2022

### NEW CONSTRUCTION

1. Upper Campus Student Residence Hall and Parking
2. Upper Campus Dining Commons
3. Upper Campus Academic Building
4. Welch Field Academic Building
5. Mixed-Use Buildings at Negoesco Field
6. Visitor Center on Lone Mountain
7. Ulrich Field Intercollegiate Baseball Facility Improvements
8. Grounds Storage and Maintenance Facilities
9. Parking Under Negoesco Field

### BUILDING RENOVATIONS / UPGRADE

10. University Center and Harney Science Loading Facility
11. Gleeson Library Roof Space Enclosure
12. 2350 Turk Boulevard Courtyard Infill
13. Hayes-Healy/Gillson Common Area Front Desk
14. University Center Terrace Infill
15. Existing Harney Science Renovation
16. Library Learning Commons and Entrance Renovation
17. Gleeson Rare Book Room Vault Renovation
18. Gleeson First Floor Renovation (Current Disability Services Offices)
19. Cogeneration Plant Technology Upgrade
20. Fromm Hall X-Arts Renovation
21. St. Ignatius Parish Meeting Space and Office Renovation, Including Courtyard Infill (Fromm Hall)
22. Fromm Hall Lounge Renovation
23. Cowell Hall Learning and Writing Center Refurbishment
24. Fulton House Student Housing Renovation (1982 Fulton Street)
25. Hayes-Healy/Gillson Lounge, Bathroom and Sleeping Room Renovation
26. War Memorial Gym New West Entrance and Interior Renovation
27. 2350 Turk Boulevard Renovation
28. Presentation Theater Refurbishment
29. Lone Mountain Stacks Renovation
30. Lone Mountain Main Lower Level ADA Upgrade
31. Lone Mountain Main Mechanical, Electrical, and Plumbing Upgrade
32. Lone Mountain Main Window Replacement
33. Loyola Village Renovation for Student Lounge Space and Exterior Refurbishment
34. Koret Interiors Refurbishment
35. Mission House Renovation (284 Stanyan Street)
36. Phelan Ground Floor Renovation
37. 281 Masonic Classroom Renovation

### SITE IMPROVEMENTS

38. Parker Street Visitor Arrival Area
39. Hayes-Healy/Gillson Forecourt
40. Lone Mountain Drive Realignment
41. Replacement Tennis Courts
42. Streetscape Improvements on Golden Gate, Turk, Parker, Fulton
43. Bicycle Storage Facility

Open space improvements throughout campus including enhanced campus arrival, pedestrian gateways, new plantings, paving material upgrades, screening of service/parking areas, wayfinding signs, and installation of public art


△ FIGURE 18: PROPOSED VISITOR ARRIVAL AND VEHICULAR CIRCULATION

**LEGEND**

- USF Hilltop Campus Boundary
- Primary Vehicular Route
- Secondary Vehicular Route
- Service Only Route
- Service Access Point
- Structured Parking
- Surface Parking
- Primary Arrival Point
- Secondary Arrival Point

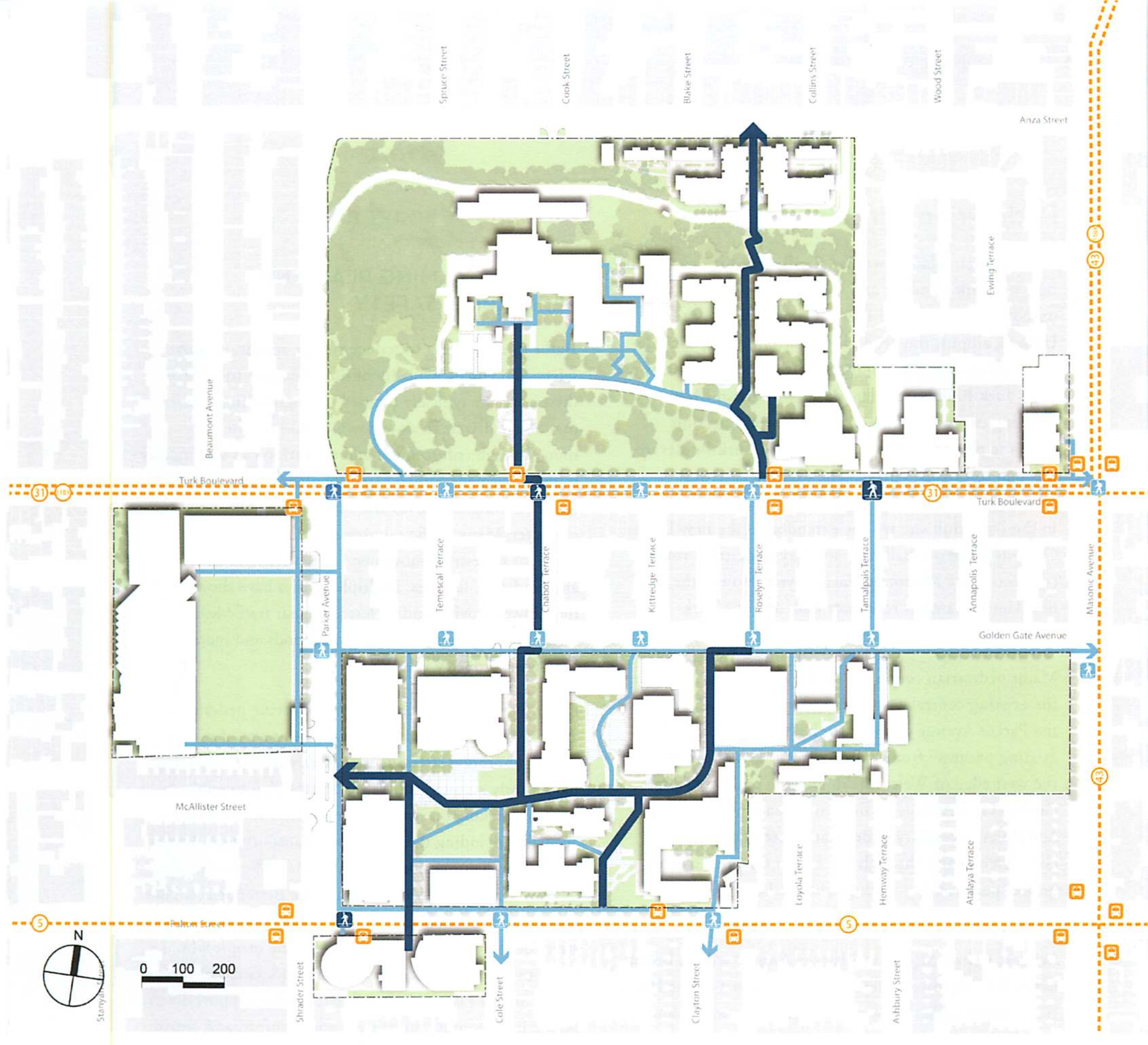



FIGURE 19: PROPOSED PEDESTRIAN CIRCULATION

## LEGEND

- USF Hilltop Campus Boundary
- Primary Pedestrian Route
- Secondary Pedestrian Route
- Muni Line
- Muni Stop
- Signaled Crosswalk
- Non-Signaled Crosswalk

# APPENDIX B – LOS CALCULATION SHEETS

# AUGUST 2013 TRANSPORTATION STUDY LOS RESULTS
# (NO FUTURE SIGNAL OPTIMIZATION)

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↑↱ | | | ↑↱ | | | ↑↱ | |
| Volume (vph) | 82 | 242 | 54 | 235 | 846 | 85 | 0 | 1266 | 59 | 0 | 1928 | 160 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 0.95 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.99 | | | 0.99 | | | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1787 | 1817 | | 1787 | 3501 | | | 3535 | | | 3516 | |
| Flt Permitted | 0.13 | 1.00 | | 0.44 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 241 | 1817 | | 824 | 3501 | | | 3535 | | | 3516 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 85 | 252 | 56 | 245 | 881 | 89 | 0 | 1319 | 61 | 0 | 2008 | 167 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 8 | 0 | 0 | 4 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 85 | 305 | 0 | 245 | 962 | 0 | 0 | 1376 | 0 | 0 | 2168 | 0 |
| Confl. Peds. (#/hr) | | | 30 | | | 70 | | | 85 | | | 87 |
| Confl. Bikes (#/hr) | | | 4 | | | 5 | | | 7 | | | 10 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | 31.2 | 31.2 | | 31.2 | 31.2 | | | 49.2 | | | 49.2 | |
| Effective Green, g (s) | 31.2 | 31.2 | | 31.2 | 31.2 | | | 49.2 | | | 49.2 | |
| Actuated g/C Ratio | 0.35 | 0.35 | | 0.35 | 0.35 | | | 0.55 | | | 0.55 | |
| Clearance Time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 84 | 630 | | 286 | 1214 | | | 1932 | | | 1922 | |
| v/s Ratio Prot | | 0.17 | | | 0.27 | | | 0.39 | | | c0.62 | |
| v/s Ratio Perm | c0.35 | | | 0.30 | | | | | | | | |
| v/c Ratio | 1.01 | 0.48 | | 0.86 | 0.79 | | | 0.71 | | | 1.13 | |
| Uniform Delay, d1 | 29.4 | 23.1 | | 27.3 | 26.5 | | | 15.1 | | | 20.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.58 | | | 1.00 | |
| Incremental Delay, d2 | 101.5 | 0.6 | | 21.5 | 3.6 | | | 1.9 | | | 65.0 | |
| Delay (s) | 130.9 | 23.7 | | 48.8 | 30.1 | | | 25.7 | | | 85.4 | |
| Level of Service | F | C | | D | C | | | C | | | F | |
| Approach Delay (s) | | 46.9 | | | 33.9 | | | 25.7 | | | 85.4 | |
| Approach LOS | | D | | | C | | | C | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 54.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.09 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.6 |
| Intersection Capacity Utilization | 123.4% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 83 | 242 | 81 | 235 | 846 | 85 | 0 | 1270 | 60 | 0 | 1929 | 160 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 0.95 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.99 | | | 0.99 | | | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1787 | 1793 | | 1787 | 3501 | | | 3534 | | | 3516 | |
| Flt Permitted | 0.13 | 1.00 | | 0.40 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 241 | 1793 | | 758 | 3501 | | | 3534 | | | 3516 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 86 | 252 | 84 | 245 | 881 | 89 | 0 | 1323 | 62 | 0 | 2009 | 167 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 8 | 0 | 0 | 4 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 86 | 333 | 0 | 245 | 962 | 0 | 0 | 1381 | 0 | 0 | 2169 | 0 |
| Confl. Peds. (#/hr) | | | 30 | | | 70 | | | 85 | | | 87 |
| Confl. Bikes (#/hr) | | | 4 | | | 5 | | | 7 | | | 10 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | 31.2 | 31.2 | | 31.2 | 31.2 | | | 49.2 | | | 49.2 | |
| Effective Green, g (s) | 31.2 | 31.2 | | 31.2 | 31.2 | | | 49.2 | | | 49.2 | |
| Actuated g/C Ratio | 0.35 | 0.35 | | 0.35 | 0.35 | | | 0.55 | | | 0.55 | |
| Clearance Time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 84 | 622 | | 263 | 1214 | | | 1932 | | | 1922 | |
| v/s Ratio Prot | | 0.19 | | | 0.27 | | | 0.39 | | | c0.62 | |
| v/s Ratio Perm | c0.36 | | | 0.32 | | | | | | | | |
| v/c Ratio | 1.02 | 0.54 | | 0.93 | 0.79 | | | 0.71 | | | 1.13 | |
| Uniform Delay, d1 | 29.4 | 23.6 | | 28.4 | 26.5 | | | 15.2 | | | 20.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.57 | | | 1.00 | |
| Incremental Delay, d2 | 104.9 | 0.9 | | 37.4 | 3.6 | | | 1.9 | | | 65.2 | |
| Delay (s) | 134.3 | 24.5 | | 65.7 | 30.1 | | | 25.7 | | | 85.6 | |
| Level of Service | F | C | | E | C | | | C | | | F | |
| Approach Delay (s) | | 46.9 | | | 37.3 | | | 25.7 | | | 85.6 | |
| Approach LOS | | D | | | D | | | C | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 55.2 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.09 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.6 |
| Intersection Capacity Utilization | 123.4% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

# LOS RESULTS WITH FUTURE SIGNAL OPTIMIZATION

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 82 | 242 | 54 | 235 | 846 | 85 | 0 | 1266 | 59 | 0 | 1928 | 160 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 0.95 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.99 | | | 0.99 | | | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1787 | 1816 | | 1787 | 3500 | | | 3535 | | | 3516 | |
| Flt Permitted | 0.13 | 1.00 | | 0.43 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 249 | 1816 | | 808 | 3500 | | | 3535 | | | 3516 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 85 | 252 | 56 | 245 | 881 | 89 | 0 | 1319 | 61 | 0 | 2008 | 167 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 9 | 0 | 0 | 4 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 85 | 305 | 0 | 245 | 961 | 0 | 0 | 1376 | 0 | 0 | 2168 | 0 |
| Confl. Peds. (#/hr) | | | 30 | | | 70 | | | 85 | | | 87 |
| Confl. Bikes (#/hr) | | | 4 | | | 5 | | | 7 | | | 10 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | 30.2 | 30.2 | | 30.2 | 30.2 | | | 50.2 | | | 50.2 | |
| Effective Green, g (s) | 30.2 | 30.2 | | 30.2 | 30.2 | | | 50.2 | | | 50.2 | |
| Actuated g/C Ratio | 0.34 | 0.34 | | 0.34 | 0.34 | | | 0.56 | | | 0.56 | |
| Clearance Time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 84 | 609 | | 271 | 1174 | | | 1972 | | | 1961 | |
| v/s Ratio Prot | | 0.17 | | | 0.27 | | | 0.39 | | | c0.62 | |
| v/s Ratio Perm | c0.34 | | | 0.30 | | | | | | | | |
| v/c Ratio | 1.01 | 0.50 | | 0.90 | 0.82 | | | 0.70 | | | 1.11 | |
| Uniform Delay, d1 | 29.9 | 23.9 | | 28.5 | 27.4 | | | 14.4 | | | 19.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.66 | | | 1.00 | |
| Incremental Delay, d2 | 101.5 | 0.6 | | 30.7 | 4.6 | | | 1.7 | | | 55.8 | |
| Delay (s) | 131.4 | 24.5 | | 59.2 | 32.0 | | | 25.6 | | | 75.7 | |
| Level of Service | F | C | | E | C | | | C | | | E | |
| Approach Delay (s) | | 47.6 | | | 37.5 | | | 25.6 | | | 75.7 | |
| Approach LOS | | D | | | D | | | C | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 51.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.07 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.6 |
| Intersection Capacity Utilization | 122.5% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↑↱ | | | ↑↱ | | | ↑↱ | |
| Volume (vph) | 83 | 242 | 81 | 235 | 846 | 85 | 0 | 1270 | 60 | 0 | 1929 | 160 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 0.95 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.99 | | | 0.99 | | | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1787 | 1792 | | 1787 | 3500 | | | 3535 | | | 3516 | |
| Flt Permitted | 0.13 | 1.00 | | 0.39 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 249 | 1792 | | 740 | 3500 | | | 3535 | | | 3516 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 86 | 252 | 84 | 245 | 881 | 89 | 0 | 1323 | 62 | 0 | 2009 | 167 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 9 | 0 | 0 | 4 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 86 | 333 | 0 | 245 | 961 | 0 | 0 | 1381 | 0 | 0 | 2169 | 0 |
| Confl. Peds. (#/hr) | | | 30 | | | 70 | | | 85 | | | 87 |
| Confl. Bikes (#/hr) | | | 4 | | | 5 | | | 7 | | | 10 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | 30.2 | 30.2 | | 30.2 | 30.2 | | | 50.2 | | | 50.2 | |
| Effective Green, g (s) | 30.2 | 30.2 | | 30.2 | 30.2 | | | 50.2 | | | 50.2 | |
| Actuated g/C Ratio | 0.34 | 0.34 | | 0.34 | 0.34 | | | 0.56 | | | 0.56 | |
| Clearance Time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 84 | 601 | | 248 | 1174 | | | 1972 | | | 1961 | |
| v/s Ratio Prot | | 0.19 | | | 0.27 | | | 0.39 | | | c0.62 | |
| v/s Ratio Perm | c0.35 | | | 0.33 | | | | | | | | |
| v/c Ratio | 1.02 | 0.55 | | 0.99 | 0.82 | | | 0.70 | | | 1.11 | |
| Uniform Delay, d1 | 29.9 | 24.4 | | 29.7 | 27.4 | | | 14.4 | | | 19.9 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.65 | | | 1.00 | |
| Incremental Delay, d2 | 104.9 | 1.1 | | 53.2 | 4.6 | | | 1.7 | | | 56.0 | |
| Delay (s) | 134.8 | 25.5 | | 83.0 | 32.0 | | | 25.5 | | | 75.9 | |
| Level of Service | F | C | | F | C | | | C | | | E | |
| Approach Delay (s) | | 47.8 | | | 42.2 | | | 25.5 | | | 75.9 | |
| Approach LOS | | D | | | D | | | C | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 52.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.08 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.6 |
| Intersection Capacity Utilization | 122.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

# Technical Appendix

## Transportation Study for the University of San Francisco Institutional Master Plan

**March 2012**

**SF11-0547**

FEHR & PEERS

# APPENDIX A: GENERAL PLAN STREET DESIGNATIONS

## Roadway Classifications

The San Francisco Planning Department has developed a street hierarchy system for the City and County of San Francisco, in which the function and design of each street are consistent with the character and use of adjacent land. The major classifications in the Vehicle Circulation Plan of the San Francisco *General Plan* are:

- **Freeways:** Limited access, very high capacity facilities; primary function is to carry intercity traffic; they may, as a result of route location, also serve the secondary function of providing for travel between distant sections in the city.
- **Major Arterials:** Cross-town thoroughfares whose primary function is to link districts within the city and to distribute traffic from and to the freeways; these are routes generally of citywide significance; of varying capacity depending on the travel demand for the specific direction and adjacent land uses.
- **Transit Conflict Streets:** Streets with a primary transit function which are not classified as major arterials but experience significant conflicts with automobile traffic.
- **Secondary Arterials:** Primarily intra-district routes of varying capacity serving as collectors for the major thoroughfares; in some cases supplemental to the major arterial system.
- **Recreational Streets:** A special category of street whose major function is to provide for slow pleasure drives and cyclist and pedestrian use; more highly valued for recreational use than for traffic movement. The order of priority for these streets should be to accommodate: 1) pedestrians, hiking trails or wilderness routes, as appropriate; 2) cyclists; 3) equestrians; 4) automobile scenic driving. This should be slow and consistent with the topography and nature of the area.
- **Collector Streets:** Relatively low-capacity streets serving local distribution functions primarily in large, low-density areas, connecting to major and secondary arterials.
- **Local Streets:** All other streets intended for access to abutting residential and other land uses, rather than for through traffic; generally of lowest capacity.

In addition to the San Francisco Planning Department's roadway classifications, the freeways, major arterials, and transit conflict streets are included in the Congestion Management Program (CMP) Network and Metropolitan Transportation System (MTS) Network (see below).

## Transit Preferential Streets

The Transit Preferential Street network classification system takes into consideration all transportation functions, and identifies the major transit routes where general traffic should be routed away from. There are two classifications of transit preferential streets: Primary Transit Streets, which are either transit-oriented or transit-important; and Secondary Transit Streets.

- **Primary Transit Street – Transit-Oriented:** Not major arterials, with either high transit ridership, a high frequency of service, or surface rail. Along these streets, the emphasis should be on moving transit vehicles, and impacts on automobile traffic should be of secondary concern.

- **Primary Transit Street – Transit-Important:** Major arterials, with either high transit ridership, high frequency of service, or surface rail. Along these streets, the goal is to improve the balance between modes of transportation, and the emphasis should be on moving people and goods, rather than on moving vehicles.
- **Secondary Transit Street:** Medium transit ridership and low-to-medium frequency of service, or medium frequency of service and low-to-medium transit ridership, or connects two or more major destinations.

In general, it is City policy that transit preferential treatments should be concentrated on the most important transit streets, and the treatments applied should respond to all transportation needs of the street. For example, on streets that are major arterials for transit and not for automobile traffic, treatments should emphasize transit priority; on streets that are major arterials for both transit and automobiles, treatments should emphasize a balance between the modes. It is also City policy that automobile facility features (such as driveways and loading docks) should be reduced, relocated or prohibited on transit preferential streets in order to avoid traffic conflicts and automobile congestion.

### Citywide Pedestrian Network

The Citywide Pedestrian Network is a classification of streets throughout the City used to identify streets devoted to or primarily oriented to pedestrian use. The main classifications are:

- **Citywide Pedestrian Network Street:** An inter-neighborhood connection with "citywide significance" includes both exclusive pedestrian and pedestrian-oriented vehicular streets. These streets include the Bay, Ridge, and Coast trails, are used by commuters, tourists, general public and recreaters, and connect major institutions with transit facilities.
- **Neighborhood Network Street:** A neighborhood commercial, residential or transit street that serves pedestrians from the general vicinity. Some streets may be part of the Citywide network, but are generally oriented towards neighborhood-serving uses. Types include exclusive pedestrian and pedestrian-oriented vehicular streets. As part of the Neighborhood Network Street network, streets are classified as **Neighborhood Commercial Streets**, which are streets that are predominately commercial use with parking and loading conflicts, or **Neighborhood Network Connection Streets**, which are intra-neighborhood connection streets that connect neighborhood destinations.

In general, it is City policy that sufficient pedestrian movement space should be provided to minimize pedestrian congestion, sidewalks should be widened where intensive commercial, recreational or institutional activity is present, and efforts should be made to ensure convenient and safe pedestrian crossings at intersections.

### Congestion Management Program (CMP) Network

The CMP Network is the network of freeways, state highways, major arterials and transit conflict streets (see Roadway Classifications, above) established in accordance with state Congestion Management legislation. As part of the CMP, the San Francisco County Transportation Authority is required to determine the level of service (LOS) for the CMP Network streets every two years. The LOS is based on the average travel speed for each

- **Primary Transit Street – Transit-Important:** Major arterials, with either high transit ridership, high frequency of service, or surface rail. Along these streets, the goal is to improve the balance between modes of transportation, and the emphasis should be on moving people and goods, rather than on moving vehicles.
- **Secondary Transit Street:** Medium transit ridership and low-to-medium frequency of service, or medium frequency of service and low-to-medium transit ridership, or connects two or more major destinations.

In general, it is City policy that transit preferential treatments should be concentrated on the most important transit streets, and the treatments applied should respond to all transportation needs of the street. For example, on streets that are major arterials for transit and not for automobile traffic, treatments should emphasize transit priority; on streets that are major arterials for both transit and automobiles, treatments should emphasize a balance between the modes. It is also City policy that automobile facility features (such as driveways and loading docks) should be reduced, relocated or prohibited on transit preferential streets in order to avoid traffic conflicts and automobile congestion.

### Citywide Pedestrian Network

The Citywide Pedestrian Network is a classification of streets throughout the City used to identify streets devoted to or primarily oriented to pedestrian use. The main classifications are:

- **Citywide Pedestrian Network Street:** An inter-neighborhood connection with "citywide significance" includes both exclusive pedestrian and pedestrian-oriented vehicular streets. These streets include the Bay, Ridge, and Coast trails, are used by commuters, tourists, general public and recreaters, and connect major institutions with transit facilities.
- **Neighborhood Network Street:** A neighborhood commercial, residential or transit street that serves pedestrians from the general vicinity. Some streets may be part of the Citywide network, but are generally oriented towards neighborhood-serving uses. Types include exclusive pedestrian and pedestrian-oriented vehicular streets. As part of the Neighborhood Network Street network, streets are classified as **Neighborhood Commercial Streets**, which are streets that are predominately commercial use with parking and loading conflicts, or **Neighborhood Network Connection Streets**, which are intra-neighborhood connection streets that connect neighborhood destinations.

In general, it is City policy that sufficient pedestrian movement space should be provided to minimize pedestrian congestion, sidewalks should be widened where intensive commercial, recreational or institutional activity is present, and efforts should be made to ensure convenient and safe pedestrian crossings at intersections.

### Congestion Management Program (CMP) Network

The CMP Network is the network of freeways, state highways, major arterials and transit conflict streets (see Roadway Classifications, above) established in accordance with state Congestion Management legislation. As part of the CMP, the San Francisco County Transportation Authority is required to determine the level of service (LOS) for the CMP Network streets every two years. The LOS is based on the average travel speed for each roadway segment during both the AM and PM peak periods. The level of service standard is LOS E, except for roadway segments that operated at LOS F in 1991 (when the first study was performed). The CMP requires development of "Deficiency Plans" for any CMP-designated roadway that operate at LOS F. These plans include an analysis of the causes of the deficiency, a list of improvements that would have to be made to prevent the deficiency from occurring (including cost estimates), a list of improvements proposed as part of the plan, and an action plan for implementation of the improvements (including an implementation schedule).

### Metropolitan Transportation System (MTS) Network

The MTS Network is defined by Metropolitan Transportation Commission (MTC) as part of its Regional Transportation Plan. The MTS is a regional network of roadways, transit corridors and transfer points, identified by the MTC on the basis of specific criteria. The criteria identified facilities that provide relief to congested corridors, improve connectivity, accommodate travel demand and serve a regional transportation function. The State highways and major thoroughfares designated in San Francisco's CMP roadway network are all included in the regional MTS network. There are a few instances in which the local CMP network is not identical to the MTS network due to differences in the criteria used to define each network.

# APPENDIX B: LOS DEFINITIONS

| TABLE B1<br>SIGNALIZED INTERSECTION LEVEL OF SERVICE THRESHOLDS | | |
|---|---|---|
| **LOS** | **Average Control Delay (seconds/vehicle)** | **Description** |
| A | < 10.0 | Operations with very slight delay, with no approach phase fully utilized. |
| B | 10.1 – 20.0 | Operations with slight delay and an occasional approach phase are fully utilized. |
| C | 20.1 - 35.0 | Operations with average delay. Individual cycle failures begin to appear. |
| D | 35.1 – 55.0 | Operations with tolerable delay. Many vehicles stop and individual cycle failures are noticeable. |
| E | 55.1 - 80.0 | Operations with high delay, up to several signal cycles. Long queues form upstream of intersection. |
| F | > 80.0 | Operation with excessive and unacceptable delays. Volumes vary widely depending on downstream queue conditions. |

Source: Transportation Research Board, *Highway Capacity Manual*, Special Report 209, 2000.

| TABLE B2<br>UNSIGNALIZED INTERSECTION LEVEL OF SERVICE THRESHOLDS | | |
|---|---|---|
| **Level of Service** | **Unsignalized Intersection Control Delay (sec/veh)[1]** | **General Description** |
| A | 0 – 10.0 | Little to no congestion or delays. |
| B | 10.1 – 15.0 | Limited congestion. Short delays. |
| C | 15.1 – 25.0 | Some congestion with average delays. |
| D | 25.1 – 35.0 | Significant congestion and delays. |
| E | 35.1 – 50.0 | Severe congestion and delays. |
| F | > 50.0 | Total breakdown with extreme delays. |

Notes:

1. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and acceleration delay.

Source: *Highway Capacity Manual*, Chapter 16 (Signalized Intersections) and Chapter 17 (Unsignalized Intersections), Transportation Research Board, 2000.

# APPENDIX C: INTERSECTION LOS CALCULATIONS

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 2022 | 52 | 0 | 970 | 74 | 30 | 357 | 79 | 109 | 252 | 44 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | 1.00 | 1.00 | 0.77 | 1.00 | 1.00 | 0.94 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | | | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 4909 | | | 4837 | | 1719 | 1810 | 1186 | 1719 | 1810 | 1439 |
| Flt Permitted | | 1.00 | | | 1.00 | | 0.51 | 1.00 | 1.00 | 0.36 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 4909 | | | 4837 | | 915 | 1810 | 1186 | 650 | 1810 | 1439 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 2085 | 54 | 0 | 1000 | 76 | 31 | 368 | 81 | 112 | 260 | 45 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 9 | 0 | 0 | 0 | 3 | 0 | 0 | 30 |
| Lane Group Flow (vph) | 0 | 2136 | 0 | 0 | 1067 | 0 | 31 | 368 | 78 | 112 | 260 | 15 |
| Confl. Peds. (#/hr) | | | 74 | | | 61 | | | 221 | | | 35 |
| Confl. Bikes (#/hr) | | | 2 | | | 8 | | | 34 | | | 32 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | | | | | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 2 | | | 2 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Effective Green, g (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Actuated g/C Ratio | | 0.55 | | | 0.55 | | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 |
| Clearance Time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 2722 | | | 2682 | | 298 | 589 | 386 | 212 | 589 | 468 |
| v/s Ratio Prot | | c0.44 | | | 0.22 | | | c0.20 | | | 0.14 | |
| v/s Ratio Perm | | | | | | | 0.03 | | 0.07 | 0.17 | | 0.01 |
| v/c Ratio | | 0.78 | | | 0.40 | | 0.10 | 0.62 | 0.20 | 0.53 | 0.44 | 0.03 |
| Uniform Delay, d1 | | 15.8 | | | 11.5 | | 21.2 | 25.7 | 21.9 | 24.7 | 23.9 | 20.7 |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 2.4 | | | 0.4 | | 0.7 | 4.9 | 1.2 | 9.1 | 2.4 | 0.1 |
| Delay (s) | | 18.2 | | | 11.9 | | 21.9 | 30.6 | 23.1 | 33.8 | 26.3 | 20.8 |
| Level of Service | | B | | | B | | C | C | C | C | C | C |
| Approach Delay (s) | | 18.2 | | | 11.9 | | | 28.8 | | | 27.7 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 10.8 |
| Intersection Capacity Utilization | 97.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 42 | 463 | 23 | 66 | 262 | 60 | 17 | 439 | 117 | 78 | 242 | 14 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.88 | 1.00 | 1.00 | 0.95 |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.99 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3455 | | 1752 | 3376 | | 1752 | 1845 | 1372 | 1752 | 1845 | 1484 |
| Flt Permitted | | 0.90 | | 0.39 | 1.00 | | 0.56 | 1.00 | 1.00 | 0.34 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 3127 | | 715 | 3376 | | 1039 | 1845 | 1372 | 626 | 1845 | 1484 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 46 | 509 | 25 | 73 | 288 | 66 | 19 | 482 | 129 | 86 | 266 | 15 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 33 | 0 | 0 | 0 | 73 | 0 | 0 | 9 |
| Lane Group Flow (vph) | 0 | 575 | 0 | 73 | 321 | 0 | 19 | 482 | 56 | 86 | 266 | 7 |
| Confl. Peds. (#/hr) | | | 58 | | | 24 | | | 64 | | | 32 |
| Confl. Bikes (#/hr) | | | 4 | | | 1 | | | 41 | | | 40 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | Perm | | | Perm | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Effective Green, g (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Actuated g/C Ratio | | 0.42 | | 0.42 | 0.42 | | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 |
| Clearance Time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | | 0.2 | | 0.2 | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 1303 | | 298 | 1407 | | 450 | 800 | 595 | 271 | 800 | 643 |
| v/s Ratio Prot | | | | | 0.10 | | | c0.26 | | | 0.14 | |
| v/s Ratio Perm | | c0.18 | | 0.10 | | | 0.02 | | 0.04 | 0.14 | | 0.00 |
| v/c Ratio | | 0.44 | | 0.24 | 0.23 | | 0.04 | 0.60 | 0.09 | 0.32 | 0.33 | 0.01 |
| Uniform Delay, d1 | | 12.5 | | 11.4 | 11.3 | | 9.8 | 13.0 | 10.0 | 11.2 | 11.3 | 9.7 |
| Progression Factor | | 1.00 | | 0.93 | 0.87 | | 1.14 | 0.92 | 1.47 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 1.1 | | 1.8 | 0.4 | | 0.1 | 2.8 | 0.3 | 3.1 | 1.1 | 0.0 |
| Delay (s) | | 13.6 | | 12.4 | 10.2 | | 11.3 | 14.8 | 15.0 | 14.2 | 12.4 | 9.7 |
| Level of Service | | B | | B | B | | B | B | B | B | B | A |
| Approach Delay (s) | | 13.6 | | | 10.6 | | | 14.7 | | | 12.7 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 101.4% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 89 | 1031 | 10 | 5 | 669 | 82 | 10 | 352 | 37 | 150 | 140 | 64 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | | 0.99 | | 1.00 | 1.00 | 0.94 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | | | 0.98 | | | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3520 | | | 3462 | | | 1825 | | 1770 | 1863 | 1495 |
| Flt Permitted | | 0.81 | | | 0.95 | | | 0.99 | | 0.41 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 2860 | | | 3282 | | | 1814 | | 760 | 1863 | 1495 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 92 | 1063 | 10 | 5 | 690 | 85 | 10 | 363 | 38 | 155 | 144 | 66 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 16 | 0 | 0 | 6 | 0 | 0 | 0 | 43 |
| Lane Group Flow (vph) | 0 | 1164 | 0 | 0 | 765 | 0 | 0 | 405 | 0 | 155 | 144 | 23 |
| Confl. Peds. (#/hr) | | | 18 | | | 29 | | | 50 | | | 28 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | 32 | | | 33 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | 8 | | 8 |
| Actuated Green, G (s) | | 29.0 | | | 29.0 | | | 21.0 | | 21.0 | 21.0 | 21.0 |
| Effective Green, g (s) | | 29.0 | | | 29.0 | | | 21.0 | | 21.0 | 21.0 | 21.0 |
| Actuated g/C Ratio | | 0.48 | | | 0.48 | | | 0.35 | | 0.35 | 0.35 | 0.35 |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Grp Cap (vph) | | 1382 | | | 1586 | | | 635 | | 266 | 652 | 523 |
| v/s Ratio Prot | | | | | | | | | | | 0.08 | |
| v/s Ratio Perm | | c0.41 | | | 0.23 | | | c0.22 | | 0.20 | | 0.02 |
| v/c Ratio | | 0.84 | | | 0.48 | | | 0.64 | | 0.58 | 0.22 | 0.04 |
| Uniform Delay, d1 | | 13.5 | | | 10.4 | | | 16.3 | | 15.9 | 13.7 | 12.9 |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | 1.21 | 1.19 | 2.26 |
| Incremental Delay, d2 | | 6.4 | | | 1.1 | | | 4.9 | | 8.7 | 0.8 | 0.2 |
| Delay (s) | | 19.9 | | | 11.5 | | | 21.2 | | 27.9 | 17.1 | 29.2 |
| Level of Service | | B | | | B | | | C | | C | B | C |
| Approach Delay (s) | | 19.9 | | | 11.5 | | | 21.2 | | | 23.9 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 111.4% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 23 | 389 | 37 | 57 | 353 | 36 | 34 | 327 | 70 | 46 | 271 | 21 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.92 | | 0.99 | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | | 0.98 | | 1.00 | 0.99 | |
| Flt Protected | | 1.00 | 1.00 | | 0.99 | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1839 | 1445 | | 3423 | | | 1783 | | 1752 | 1820 | |
| Flt Permitted | | 0.96 | 1.00 | | 0.86 | | | 0.95 | | 0.39 | 1.00 | |
| Satd. Flow (perm) | | 1774 | 1445 | | 2952 | | | 1705 | | 719 | 1820 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 26 | 432 | 41 | 63 | 392 | 40 | 38 | 363 | 78 | 51 | 301 | 23 |
| RTOR Reduction (vph) | 0 | 0 | 22 | 0 | 11 | 0 | 0 | 12 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 0 | 458 | 19 | 0 | 484 | 0 | 0 | 467 | 0 | 51 | 320 | 0 |
| Confl. Peds. (#/hr) | | | 53 | | | 41 | | | 19 | | | 31 |
| Confl. Bikes (#/hr) | | | 4 | | | 1 | | | 3 | | | 2 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | 0.38 | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 828 | 674 | | 1378 | | | 654 | | 276 | 698 | |
| v/s Ratio Prot | | | | | | | | | | | 0.18 | |
| v/s Ratio Perm | | c0.26 | 0.01 | | 0.16 | | | c0.27 | | 0.07 | | |
| v/c Ratio | | 0.55 | 0.03 | | 0.35 | | | 0.71 | | 0.18 | 0.46 | |
| Uniform Delay, d1 | | 11.5 | 8.6 | | 10.2 | | | 15.7 | | 12.3 | 13.8 | |
| Progression Factor | | 0.66 | 0.30 | | 1.71 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 2.5 | 0.1 | | 0.6 | | | 6.6 | | 1.5 | 2.2 | |
| Delay (s) | | 10.1 | 2.7 | | 18.1 | | | 22.3 | | 13.8 | 16.0 | |
| Level of Service | | B | A | | B | | | C | | B | B | |
| Approach Delay (s) | | 9.5 | | | 18.1 | | | 22.3 | | | 15.7 | |
| Approach LOS | | A | | | B | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 104.5% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 567 | 600 | 0 | 293 | 20 | 457 | 398 | 55 | 38 | 310 | 8 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | 1.00 | 1.00 | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.93 | | 0.99 | | 1.00 | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | 1.00 | 0.98 | | | 1.00 | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 0.99 | |
| Satd. Flow (prot) | | 1845 | 1452 | | 3453 | | 1752 | 1793 | | | 3469 | |
| Flt Permitted | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 0.54 | |
| Satd. Flow (perm) | | 1845 | 1452 | | 3453 | | 1752 | 1793 | | | 1899 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 0 | 591 | 625 | 0 | 305 | 21 | 476 | 415 | 57 | 40 | 323 | 8 |
| RTOR Reduction (vph) | 0 | 0 | 444 | 0 | 6 | 0 | 0 | 6 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 591 | 181 | 0 | 320 | 0 | 476 | 466 | 0 | 0 | 369 | 0 |
| Confl. Peds. (#/hr) | | | 60 | | | 45 | | | 37 | | | 39 |
| Confl. Bikes (#/hr) | | | 1 | | | 1 | | | 2 | | | 3 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | custom | | | | Split | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | 8 | 8 | | | 4 | |
| Permitted Phases | | | 8 | | | | | | | 4 | | |
| Actuated Green, G (s) | | 34.0 | 26.0 | | 34.0 | | 26.0 | 26.0 | | | 17.0 | |
| Effective Green, g (s) | | 34.0 | 26.0 | | 34.0 | | 26.0 | 26.0 | | | 17.0 | |
| Actuated g/C Ratio | | 0.38 | 0.29 | | 0.38 | | 0.29 | 0.29 | | | 0.19 | |
| Clearance Time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Grp Cap (vph) | | 697 | 419 | | 1304 | | 506 | 518 | | | 359 | |
| v/s Ratio Prot | | c0.32 | | | 0.09 | | c0.27 | 0.26 | | | | |
| v/s Ratio Perm | | | 0.12 | | | | | | | | c0.19 | |
| v/c Ratio | | 0.85 | 0.43 | | 0.25 | | 0.94 | 0.90 | | | 1.03 | |
| Uniform Delay, d1 | | 25.6 | 26.0 | | 19.2 | | 31.2 | 30.8 | | | 36.5 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 12.2 | 3.2 | | 0.4 | | 27.7 | 21.3 | | | 55.1 | |
| Delay (s) | | 37.9 | 29.2 | | 19.7 | | 58.9 | 52.0 | | | 91.6 | |
| Level of Service | | D | C | | B | | E | D | | | F | |
| Approach Delay (s) | | 33.4 | | | 19.7 | | | 55.5 | | | 91.6 | |
| Approach LOS | | C | | | B | | | E | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 46.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.92 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 13.0 |
| Intersection Capacity Utilization | 80.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBR | EBR2 | WBT | WBR | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Volume (vph) | 2149 | 36 | 1239 | 2 | 773 | 19 | 290 | 677 | 106 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Lane Util. Factor | 0.76 | | 0.91 | | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Frt | 0.85 | | 1.00 | | 1.00 | | 1.00 | 0.98 | |
| Flt Protected | 1.00 | | 1.00 | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3610 | | 5084 | | 3512 | | 1770 | 3430 | |
| Flt Permitted | 1.00 | | 1.00 | | 1.00 | | 0.34 | 1.00 | |
| Satd. Flow (perm) | 3610 | | 5084 | | 3512 | | 640 | 3430 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 2215 | 37 | 1277 | 2 | 797 | 20 | 299 | 698 | 109 |
| RTOR Reduction (vph) | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 |
| Lane Group Flow (vph) | 2251 | 0 | 1279 | 0 | 817 | 0 | 299 | 793 | 0 |
| Confl. Peds. (#/hr) | | 38 | | | | 68 | | | 82 |
| Confl. Bikes (#/hr) | | 90 | | | | 2 | | | 4 |
| Turn Type | custom | | | | | | custom | | |
| Protected Phases | 2 | | | | 8 | | | 4 | |
| Permitted Phases | | | 6 | | | | 7 | | |
| Actuated Green, G (s) | 46.0 | | 46.0 | | 21.0 | | 12.0 | 33.0 | |
| Effective Green, g (s) | 46.0 | | 46.0 | | 21.0 | | 12.0 | 33.0 | |
| Actuated g/C Ratio | 0.51 | | 0.51 | | 0.23 | | 0.13 | 0.37 | |
| Clearance Time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Vehicle Extension (s) | 0.2 | | 0.2 | | 0.2 | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1845 | | 2598 | | 819 | | 85 | 1258 | |
| v/s Ratio Prot | c0.62 | | | | c0.23 | | | 0.23 | |
| v/s Ratio Perm | | | 0.25 | | | | c0.47 | | |
| v/c Ratio | 1.22 | | 0.49 | | 1.00 | | 3.52 | 0.63 | |
| Uniform Delay, d1 | 22.0 | | 14.4 | | 34.5 | | 39.0 | 23.5 | |
| Progression Factor | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 104.1 | | 0.7 | | 30.6 | | 1161.8 | 0.8 | |
| Delay (s) | 126.1 | | 15.0 | | 65.1 | | 1200.8 | 24.2 | |
| Level of Service | F | | B | | E | | F | C | |
| Approach Delay (s) | | | 15.0 | | 65.1 | | | 342.3 | |
| Approach LOS | | | B | | E | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 134.7 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.49 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 103.5% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 2112 | 31 | 0 | 953 | 41 | 41 | 155 | 44 | 82 | 127 | 27 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 0.99 | | | 0.98 | | | 0.98 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.99 | | | 0.98 | |
| Satd. Flow (prot) | | 4925 | | | 4895 | | | 1737 | | | 1744 | |
| Flt Permitted | | 1.00 | | | 1.00 | | | 0.92 | | | 0.77 | |
| Satd. Flow (perm) | | 4925 | | | 4895 | | | 1607 | | | 1361 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 0 | 2200 | 32 | 0 | 993 | 43 | 43 | 161 | 46 | 85 | 132 | 28 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 5 | 0 | 0 | 3 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 0 | 2230 | 0 | 0 | 1031 | 0 | 0 | 247 | 0 | 0 | 240 | 0 |
| Confl. Peds. (#/hr) | | | 28 | | | 36 | | | 28 | | | 23 |
| Confl. Bikes (#/hr) | | | 4 | | | 1 | | | 2 | | | 3 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | | | | | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Actuated Green, G (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Effective Green, g (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Actuated g/C Ratio | | 0.59 | | | 0.59 | | | 0.31 | | | 0.31 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 2900 | | | 2883 | | | 500 | | | 423 | |
| v/s Ratio Prot | | c0.45 | | | 0.21 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.15 | | | c0.18 | |
| v/c Ratio | | 0.77 | | | 0.36 | | | 0.49 | | | 0.57 | |
| Uniform Delay, d1 | | 13.9 | | | 9.6 | | | 25.2 | | | 25.9 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 2.0 | | | 0.3 | | | 0.3 | | | 1.0 | |
| Delay (s) | | 15.9 | | | 10.0 | | | 25.5 | | | 27.0 | |
| Level of Service | | B | | | A | | | C | | | C | |
| Approach Delay (s) | | 15.9 | | | 10.0 | | | 25.5 | | | 27.0 | |
| Approach LOS | | B | | | A | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 73.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 57 | 488 | 94 | 52 | 429 | 68 | 35 | 148 | 28 | 46 | 129 | 32 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.95 | | 0.99 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.98 | | | 0.98 | | | 0.98 | |
| Flt Protected | | 0.99 | 1.00 | | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 1817 | 1477 | | 3370 | | | 1770 | | | 1756 | |
| Flt Permitted | | 0.89 | 1.00 | | 0.80 | | | 0.92 | | | 0.89 | |
| Satd. Flow (perm) | | 1628 | 1477 | | 2696 | | | 1646 | | | 1579 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 64 | 548 | 106 | 58 | 482 | 76 | 39 | 166 | 31 | 52 | 145 | 36 |
| RTOR Reduction (vph) | 0 | 0 | 52 | 0 | 18 | 0 | 0 | 9 | 0 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 0 | 612 | 54 | 0 | 598 | 0 | 0 | 227 | 0 | 0 | 222 | 0 |
| Confl. Peds. (#/hr) | | | 21 | | | 29 | | | 16 | | | 47 |
| Confl. Bikes (#/hr) | | | 9 | | | 1 | | | 1 | | | |
| Heavy Vehicles (%) | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 760 | 689 | | 1258 | | | 631 | | | 605 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.38 | 0.04 | | 0.22 | | | 0.14 | | | c0.14 | |
| v/c Ratio | | 0.81 | 0.08 | | 0.48 | | | 0.36 | | | 0.37 | |
| Uniform Delay, d1 | | 13.7 | 8.9 | | 11.0 | | | 13.2 | | | 13.3 | |
| Progression Factor | | 0.70 | 0.30 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 8.3 | 0.2 | | 1.3 | | | 0.4 | | | 0.4 | |
| Delay (s) | | 17.8 | 2.8 | | 12.3 | | | 13.6 | | | 13.7 | |
| Level of Service | | B | A | | B | | | B | | | B | |
| Approach Delay (s) | | 15.6 | | | 12.3 | | | 13.6 | | | 13.7 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 82.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✥ | | | ✥ | | | ✥ | | | ✥ | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 0 | 0 | 0 | 38 | 0 | 67 | 1 | 161 | 127 | 124 | 160 | 0 |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 48 | 0 | 84 | 1 | 201 | 159 | 155 | 200 | 0 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 0 | 131 | 361 | 355 |
| Volume Left (vph) | 0 | 48 | 1 | 155 |
| Volume Right (vph) | 0 | 84 | 159 | 0 |
| Hadj (s) | 0.00 | -0.28 | -0.23 | 0.12 |
| Departure Headway (s) | 5.8 | 5.3 | 4.5 | 4.8 |
| Degree Utilization, x | 0.00 | 0.19 | 0.45 | 0.47 |
| Capacity (veh/h) | 527 | 609 | 779 | 724 |
| Control Delay (s) | 8.8 | 9.5 | 11.1 | 12.1 |
| Approach Delay (s) | 0.0 | 9.5 | 11.1 | 12.1 |
| Approach LOS | A | A | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 11.2 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 56.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 187 | 196 | 1 | 153 | 71 | 18 | 76 | 1327 | 438 | 1 | 750 | 147 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 5.1 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.91 | 1.00 | 0.97 | | | 1.00 | 0.77 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1719 | 1808 | | 3335 | 1810 | 1395 | 1719 | 3198 | | | 3438 | 1178 |
| Flt Permitted | 0.36 | 1.00 | | 0.36 | 1.00 | 1.00 | 0.95 | 1.00 | | | 0.86 | 1.00 |
| Satd. Flow (perm) | 658 | 1808 | | 1277 | 1810 | 1395 | 1719 | 3198 | | | 2971 | 1178 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 199 | 209 | 1 | 163 | 76 | 19 | 81 | 1412 | 466 | 1 | 798 | 156 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 36 | 0 | 0 | 0 | 99 |
| Lane Group Flow (vph) | 199 | 210 | 0 | 163 | 76 | 5 | 81 | 1842 | 0 | 0 | 799 | 57 |
| Confl. Peds. (#/hr) | | | 63 | | | 72 | | | 84 | | | 53 |
| Confl. Bikes (#/hr) | | | 1 | | | 2 | | | 2 | | | 2 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | custom | | | custom | | Perm | Prot | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | 3 | 8 | | | 4 | |
| Permitted Phases | 5 | | | 1 | | 6 | | | | 4 | | 4 |
| Actuated Green, G (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 25.9 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Effective Green, g (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 25.9 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Actuated g/C Ratio | 0.12 | 0.29 | | 0.12 | 0.29 | 0.29 | 0.03 | 0.42 | | | 0.37 | 0.37 |
| Clearance Time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 5.1 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 80 | 520 | | 156 | 521 | 401 | 57 | 1350 | | | 1089 | 432 |
| v/s Ratio Prot | | c0.12 | | | 0.04 | | 0.05 | c0.58 | | | | |
| v/s Ratio Perm | c0.30 | | | 0.13 | | 0.00 | | | | | 0.27 | 0.05 |
| v/c Ratio | 2.49 | 0.40 | | 1.04 | 0.15 | 0.01 | 1.42 | 1.36 | | | 0.73 | 0.13 |
| Uniform Delay, d1 | 39.5 | 25.8 | | 39.5 | 23.8 | 22.9 | 43.5 | 26.0 | | | 24.7 | 19.0 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 705.1 | 2.3 | | 84.4 | 0.6 | 0.1 | 265.5 | 168.9 | | | 2.6 | 0.1 |
| Delay (s) | 744.6 | 28.2 | | 123.9 | 24.4 | 23.0 | 309.0 | 194.9 | | | 27.3 | 19.1 |
| Level of Service | F | C | | F | C | C | F | F | | | C | B |
| Approach Delay (s) | | 376.7 | | | 87.2 | | | 199.6 | | | 26.0 | |
| Approach LOS | | F | | | F | | | F | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 165.4 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.20 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 15.1 |
| Intersection Capacity Utilization | 110.4% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 107 | 407 | 48 | 93 | 503 | 89 | 0 | 1710 | 98 | 0 | 815 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 0.95 | | | 0.91 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.98 | | | 0.99 | | | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1770 | 1826 | | 1770 | 3421 | | | 5020 | | | 3458 | |
| Flt Permitted | 0.27 | 1.00 | | 0.15 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 495 | 1826 | | 282 | 3421 | | | 5020 | | | 3458 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 115 | 438 | 52 | 100 | 541 | 96 | 0 | 1839 | 105 | 0 | 876 | 118 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 8 | 0 | 0 | 7 | 0 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 115 | 485 | 0 | 100 | 629 | 0 | 0 | 1937 | 0 | 0 | 982 | 0 |
| Confl. Peds. (#/hr) | | | 24 | | | 61 | | | 78 | | | 61 |
| Confl. Bikes (#/hr) | | | 2 | | | 2 | | | 5 | | | 5 |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | 27.2 | 27.2 | | 27.2 | 27.2 | | | 53.2 | | | 53.2 | |
| Effective Green, g (s) | 27.2 | 27.2 | | 27.2 | 27.2 | | | 53.2 | | | 53.2 | |
| Actuated g/C Ratio | 0.30 | 0.30 | | 0.30 | 0.30 | | | 0.59 | | | 0.59 | |
| Clearance Time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 150 | 552 | | 85 | 1034 | | | 2967 | | | 2044 | |
| v/s Ratio Prot | | 0.27 | | | 0.18 | | | c0.39 | | | 0.28 | |
| v/s Ratio Perm | 0.23 | | | c0.35 | | | | | | | | |
| v/c Ratio | 0.77 | 0.88 | | 1.18 | 0.61 | | | 0.65 | | | 0.48 | |
| Uniform Delay, d1 | 28.5 | 29.8 | | 31.4 | 26.8 | | | 12.3 | | | 10.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.30 | | | 1.00 | |
| Incremental Delay, d2 | 20.6 | 14.7 | | 152.8 | 1.0 | | | 0.9 | | | 0.8 | |
| Delay (s) | 49.1 | 44.6 | | 184.2 | 27.9 | | | 4.6 | | | 11.3 | |
| Level of Service | D | D | | F | C | | | A | | | B | |
| Approach Delay (s) | | 45.4 | | | 49.1 | | | 4.6 | | | 11.3 | |
| Approach LOS | | D | | | D | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.6 |
| Intersection Capacity Utilization | 103.6% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 11 | 152 | 32 | 42 | 86 | 87 | 0 | 1700 | 97 | 0 | 887 | 68 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | | 0.91 | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.93 | | 0.96 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.95 | | | 0.99 | | | 0.99 | |
| Flt Protected | | 1.00 | 1.00 | | 0.99 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 1856 | 1467 | | 1674 | | | 5023 | | | 3488 | |
| Flt Permitted | | 0.98 | 1.00 | | 0.90 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 1818 | 1467 | | 1526 | | | 5023 | | | 3488 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 12 | 165 | 35 | 46 | 93 | 95 | 0 | 1848 | 105 | 0 | 964 | 74 |
| RTOR Reduction (vph) | 0 | 0 | 27 | 0 | 15 | 0 | 0 | 7 | 0 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 0 | 177 | 8 | 0 | 219 | 0 | 0 | 1946 | 0 | 0 | 1032 | 0 |
| Confl. Peds. (#/hr) | | | 37 | | | 65 | | | 76 | | | 40 |
| Confl. Bikes (#/hr) | | | 14 | | | 2 | | | 3 | | | 5 |
| Turn Type | Perm | | Perm | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | | | | | | |
| Actuated Green, G (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Effective Green, g (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Actuated g/C Ratio | | 0.22 | 0.22 | | 0.22 | | | 0.67 | | | 0.67 | |
| Clearance Time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 408 | 329 | | 343 | | | 3377 | | | 2345 | |
| v/s Ratio Prot | | | | | | | | c0.39 | | | 0.30 | |
| v/s Ratio Perm | | 0.10 | 0.01 | | c0.14 | | | | | | | |
| v/c Ratio | | 0.43 | 0.02 | | 0.64 | | | 0.58 | | | 0.44 | |
| Uniform Delay, d1 | | 30.0 | 27.2 | | 31.6 | | | 7.9 | | | 6.9 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 0.25 | | | 0.52 | |
| Incremental Delay, d2 | | 0.7 | 0.0 | | 3.9 | | | 0.5 | | | 0.5 | |
| Delay (s) | | 30.7 | 27.2 | | 35.5 | | | 2.5 | | | 4.1 | |
| Level of Service | | C | C | | D | | | A | | | A | |
| Approach Delay (s) | | 30.2 | | | 35.5 | | | 2.5 | | | 4.1 | |
| Approach LOS | | C | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.9 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.3 |
| Intersection Capacity Utilization | 95.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 115 | 407 | 25 | 18 | 215 | 33 | 0 | 1741 | 48 | 0 | 870 | 83 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 0.91 | | | 0.95 | |
| Frpb, ped/bikes | | 0.99 | | | 0.99 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 0.99 | | | 0.98 | | | 1.00 | | | 0.99 | |
| Flt Protected | | 0.99 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 3420 | | | 3389 | | | 4980 | | | 3412 | |
| Flt Permitted | | 0.79 | | | 0.90 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 2724 | | | 3060 | | | 4980 | | | 3412 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 122 | 433 | 27 | 19 | 229 | 35 | 0 | 1852 | 51 | 0 | 926 | 88 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 5 | 0 | 0 | 3 | 0 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 0 | 578 | 0 | 0 | 278 | 0 | 0 | 1900 | 0 | 0 | 1006 | 0 |
| Confl. Peds. (#/hr) | | | 101 | | | 61 | | | 143 | | | 81 |
| Confl. Bikes (#/hr) | | | 7 | | | | | | 4 | | | 5 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 28.2 | | | 28.2 | | | 52.7 | | | 52.7 | |
| Effective Green, g (s) | | 28.2 | | | 28.2 | | | 52.7 | | | 52.7 | |
| Actuated g/C Ratio | | 0.31 | | | 0.31 | | | 0.59 | | | 0.59 | |
| Clearance Time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 854 | | | 959 | | | 2916 | | | 1998 | |
| v/s Ratio Prot | | | | | | | | c0.38 | | | 0.29 | |
| v/s Ratio Perm | | c0.21 | | | 0.09 | | | | | | | |
| v/c Ratio | | 0.68 | | | 0.29 | | | 0.65 | | | 0.50 | |
| Uniform Delay, d1 | | 26.9 | | | 23.3 | | | 12.5 | | | 11.0 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 0.76 | |
| Incremental Delay, d2 | | 4.3 | | | 0.8 | | | 1.1 | | | 0.8 | |
| Delay (s) | | 31.2 | | | 24.1 | | | 13.6 | | | 9.2 | |
| Level of Service | | C | | | C | | | B | | | A | |
| Approach Delay (s) | | 31.2 | | | 24.1 | | | 13.6 | | | 9.2 | |
| Approach LOS | | C | | | C | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.1 |
| Intersection Capacity Utilization | 79.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 144 | 1265 | 225 | 59 | 1507 | 0 | 0 | 483 | 399 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | 4.6 |
| Lane Util. Factor | | | | 1.00 | 0.86 | | | 0.91 | | | 0.86 | 0.86 |
| Frpb, ped/bikes | | | | 1.00 | 0.99 | | | 1.00 | | | 0.99 | 0.96 |
| Flpb, ped/bikes | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Frt | | | | 1.00 | 0.98 | | | 1.00 | | | 0.96 | 0.85 |
| Flt Protected | | | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | 1752 | 6166 | | | 5026 | | | 4497 | 1290 |
| Flt Permitted | | | | 0.95 | 1.00 | | | 0.87 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | 1752 | 6166 | | | 4361 | | | 4497 | 1290 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 0 | 0 | 0 | 152 | 1332 | 237 | 62 | 1586 | 0 | 0 | 508 | 420 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 5 | 5 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 152 | 1563 | 0 | 0 | 1648 | 0 | 0 | 709 | 209 |
| Confl. Peds. (#/hr) | | | 406 | | | 24 | | | 51 | | | 29 |
| Confl. Bikes (#/hr) | | | | | | | | | 1 | | | 1 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | | Prot | | | Perm | | | | | Perm |
| Protected Phases | | | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | | | 4 |
| Actuated Green, G (s) | | | | 35.7 | 35.7 | | | 44.4 | | | 44.4 | 44.4 |
| Effective Green, g (s) | | | | 35.7 | 35.7 | | | 44.4 | | | 44.4 | 44.4 |
| Actuated g/C Ratio | | | | 0.40 | 0.40 | | | 0.49 | | | 0.49 | 0.49 |
| Clearance Time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | 4.6 |
| Vehicle Extension (s) | | | | 0.2 | 0.2 | | | 0.2 | | | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | | | 695 | 2446 | | | 2151 | | | 2219 | 636 |
| v/s Ratio Prot | | | | 0.09 | c0.25 | | | | | | 0.16 | |
| v/s Ratio Perm | | | | | | | | c0.38 | | | | 0.16 |
| v/c Ratio | | | | 0.22 | 0.64 | | | 0.77 | | | 0.32 | 0.33 |
| Uniform Delay, d1 | | | | 17.9 | 21.9 | | | 18.6 | | | 13.7 | 13.8 |
| Progression Factor | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | 0.7 | 1.3 | | | 2.7 | | | 0.4 | 1.4 |
| Delay (s) | | | | 18.7 | 23.2 | | | 21.2 | | | 14.1 | 15.2 |
| Level of Service | | | | B | C | | | C | | | B | B |
| Approach Delay (s) | | 0.0 | | | 22.8 | | | 21.2 | | | 14.3 | |
| Approach LOS | | A | | | C | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.9 |
| Intersection Capacity Utilization | 85.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 582 | 9 | 13 | 533 | 11 | 5 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | | 4.0 | 5.0 | |
| Lane Util. Factor | 1.00 | | | 0.95 | 1.00 | |
| Frpb, ped/bikes | 1.00 | | | 1.00 | 0.90 | |
| Flpb, ped/bikes | 1.00 | | | 1.00 | 1.00 | |
| Frt | 1.00 | | | 1.00 | 0.95 | |
| Flt Protected | 1.00 | | | 1.00 | 0.97 | |
| Satd. Flow (prot) | 1822 | | | 3467 | 1524 | |
| Flt Permitted | 1.00 | | | 0.94 | 0.97 | |
| Satd. Flow (perm) | 1822 | | | 3263 | 1524 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 661 | 10 | 15 | 606 | 12 | 6 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 671 | 0 | 0 | 621 | 12 | 0 |
| Confl. Peds. (#/hr) | | 29 | | | | 37 |
| Confl. Bikes (#/hr) | | 1 | | | | |
| Heavy Vehicles (%) | 4% | 4% | 4% | 4% | 4% | 4% |
| Turn Type | | | Perm | | | |
| Protected Phases | 2 | | | 6 | 8 | |
| Permitted Phases | | | 6 | | | |
| Actuated Green, G (s) | 47.0 | | | 47.0 | 4.0 | |
| Effective Green, g (s) | 47.0 | | | 47.0 | 4.0 | |
| Actuated g/C Ratio | 0.78 | | | 0.78 | 0.07 | |
| Clearance Time (s) | 4.0 | | | 4.0 | 5.0 | |
| Vehicle Extension (s) | 0.2 | | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1427 | | | 2556 | 102 | |
| v/s Ratio Prot | c0.37 | | | | c0.01 | |
| v/s Ratio Perm | | | | 0.19 | | |
| v/c Ratio | 0.47 | | | 0.24 | 0.12 | |
| Uniform Delay, d1 | 2.2 | | | 1.7 | 26.3 | |
| Progression Factor | 1.00 | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.1 | | | 0.2 | 0.2 | |
| Delay (s) | 3.3 | | | 2.0 | 26.5 | |
| Level of Service | A | | | A | C | |
| Approach Delay (s) | 3.3 | | | 2.0 | 26.5 | |
| Approach LOS | A | | | A | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 3.0 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 55.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 550 | 0 | 0 | 586 | 2 | 0 | 0 | 6 | 0 | 0 | 3 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 0 | 632 | 0 | 0 | 674 | 2 | 0 | 0 | 7 | 0 | 0 | 3 |
| Pedestrians | | 26 | | | 64 | | | 46 | | | 97 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 2 | | | 5 | | | 4 | | | 8 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | 268 | | | 542 | | | | | | | |
| pX, platoon unblocked | | | | 0.70 | | | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | |
| vC, conflicting volume | 773 | | | 678 | | | 1044 | 1451 | 742 | 1475 | 1450 | 461 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 773 | | | 325 | | | 848 | 1430 | 416 | 1464 | 1428 | 461 |
| tC, single (s) | 4.2 | | | 4.2 | | | 7.6 | 6.6 | 7.0 | 7.6 | 6.6 | 7.0 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 100 | | | 100 | 100 | 98 | 100 | 100 | 99 |
| cM capacity (veh/h) | 759 | | | 819 | | | 150 | 81 | 369 | 48 | 81 | 487 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 | NB 1 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 632 | 337 | 339 | 7 | 3 |
| Volume Left | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 2 | 7 | 3 |
| cSH | 759 | 819 | 1700 | 369 | 487 |
| Volume to Capacity | 0.00 | 0.00 | 0.20 | 0.02 | 0.01 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 1 | 1 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 14.9 | 12.4 |
| Lane LOS | | | | B | B |
| Approach Delay (s) | 0.0 | 0.0 | | 14.9 | 12.4 |
| Approach LOS | | | | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.1 | | |
| Intersection Capacity Utilization | 48.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 546 | 9 | 7 | 550 | 30 | 4 | 2 | 4 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Lane Util. Factor | | 1.00 | | | 0.95 | | | 1.00 | | | | |
| Frt | | 1.00 | | | 0.99 | | | 0.95 | | | | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.98 | | | | |
| Satd. Flow (prot) | | 1857 | | | 3510 | | | 1728 | | | | |
| Flt Permitted | | 0.99 | | | 0.95 | | | 0.98 | | | | |
| Satd. Flow (perm) | | 1835 | | | 3329 | | | 1728 | | | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 11 | 593 | 10 | 8 | 598 | 33 | 4 | 2 | 4 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 9 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 613 | 0 | 0 | 630 | 0 | 0 | 8 | 0 | 0 | 0 | 0 |
| Turn Type | Perm | | | Perm | | | Split | | | | | |
| Protected Phases | | 4 | | | 8 | | 2 | 2 | | | | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 18.9 | | | 18.9 | | | 18.1 | | | | |
| Effective Green, g (s) | | 18.9 | | | 18.9 | | | 18.1 | | | | |
| Actuated g/C Ratio | | 0.42 | | | 0.42 | | | 0.40 | | | | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | | |
| Lane Grp Cap (vph) | | 771 | | | 1398 | | | 695 | | | | |
| v/s Ratio Prot | | | | | | | | c0.00 | | | | |
| v/s Ratio Perm | | c0.33 | | | 0.19 | | | | | | | |
| v/c Ratio | | 0.79 | | | 0.45 | | | 0.01 | | | | |
| Uniform Delay, d1 | | 11.4 | | | 9.3 | | | 8.1 | | | | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | | |
| Incremental Delay, d2 | | 5.7 | | | 0.2 | | | 0.0 | | | | |
| Delay (s) | | 17.0 | | | 9.6 | | | 8.1 | | | | |
| Level of Service | | B | | | A | | | A | | | | |
| Approach Delay (s) | | 17.0 | | | 9.6 | | | 8.1 | | | 0.0 | |
| Approach LOS | | B | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 45.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 47.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1452 | 72 | 0 | 1961 | 132 | 49 | 296 | 74 | 115 | 433 | 75 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | | 0.98 | | 1.00 | 1.00 | 0.78 | 1.00 | 1.00 | 0.88 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.99 | | | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 4957 | | | 4878 | | 1752 | 1845 | 1223 | 1752 | 1845 | 1376 |
| Flt Permitted | | 1.00 | | | 1.00 | | 0.26 | 1.00 | 1.00 | 0.44 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 4957 | | | 4878 | | 477 | 1845 | 1223 | 818 | 1845 | 1376 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 1497 | 74 | 0 | 2022 | 136 | 51 | 305 | 76 | 119 | 446 | 77 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 8 | 0 | 0 | 0 | 9 | 0 | 0 | 2 |
| Lane Group Flow (vph) | 0 | 1565 | 0 | 0 | 2150 | 0 | 51 | 305 | 67 | 119 | 446 | 75 |
| Confl. Peds. (#/hr) | | | 143 | | | 164 | | | 216 | | | 93 |
| Confl. Bikes (#/hr) | | | 5 | | | 3 | | | 24 | | | 44 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | | | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Effective Green, g (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Actuated g/C Ratio | | 0.55 | | | 0.55 | | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 |
| Clearance Time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 2748 | | | 2705 | | 155 | 601 | 398 | 266 | 601 | 448 |
| v/s Ratio Prot | | 0.32 | | | c0.44 | | | 0.17 | | | c0.24 | |
| v/s Ratio Perm | | | | | | | 0.11 | | 0.05 | 0.15 | | 0.05 |
| v/c Ratio | | 0.57 | | | 0.79 | | 0.33 | 0.51 | 0.17 | 0.45 | 0.74 | 0.17 |
| Uniform Delay, d1 | | 13.1 | | | 16.0 | | 22.9 | 24.5 | 21.7 | 24.0 | 27.0 | 21.6 |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.9 | | | 2.5 | | 5.6 | 3.0 | 0.9 | 5.4 | 8.1 | 0.8 |
| Delay (s) | | 13.9 | | | 18.5 | | 28.5 | 27.6 | 22.6 | 29.3 | 35.0 | 22.5 |
| Level of Service | | B | | | B | | C | C | C | C | D | C |
| Approach Delay (s) | | 13.9 | | | 18.5 | | | 26.8 | | | 32.5 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 10.8 |
| Intersection Capacity Utilization | 98.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 31 | 183 | 37 | 191 | 484 | 87 | 18 | 263 | 36 | 54 | 478 | 32 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.89 | 1.00 | 1.00 | 0.93 |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.98 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3396 | | 1770 | 3431 | | 1770 | 1863 | 1407 | 1770 | 1863 | 1472 |
| Flt Permitted | | 0.86 | | 0.59 | 1.00 | | 0.32 | 1.00 | 1.00 | 0.55 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 2933 | | 1096 | 3431 | | 594 | 1863 | 1407 | 1027 | 1863 | 1472 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 33 | 193 | 39 | 201 | 509 | 92 | 19 | 277 | 38 | 57 | 503 | 34 |
| RTOR Reduction (vph) | 0 | 23 | 0 | 0 | 25 | 0 | 0 | 0 | 22 | 0 | 0 | 19 |
| Lane Group Flow (vph) | 0 | 242 | 0 | 201 | 577 | 0 | 19 | 277 | 16 | 57 | 503 | 15 |
| Confl. Peds. (#/hr) | | | 54 | | | 21 | | | 59 | | | 52 |
| Confl. Bikes (#/hr) | | | 3 | | | 7 | | | 31 | | | 48 |
| Turn Type | Perm | | | Perm | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Effective Green, g (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Actuated g/C Ratio | | 0.42 | | 0.42 | 0.42 | | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 |
| Clearance Time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | | 0.2 | | 0.2 | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 1222 | | 457 | 1430 | | 257 | 807 | 610 | 445 | 807 | 638 |
| v/s Ratio Prot | | | | | 0.17 | | | 0.15 | | | c0.27 | |
| v/s Ratio Perm | | 0.08 | | c0.18 | | | 0.03 | | 0.01 | 0.06 | | 0.01 |
| v/c Ratio | | 0.20 | | 0.44 | 0.40 | | 0.07 | 0.34 | 0.03 | 0.13 | 0.62 | 0.02 |
| Uniform Delay, d1 | | 11.1 | | 12.5 | 12.3 | | 10.0 | 11.3 | 9.7 | 10.2 | 13.2 | 9.7 |
| Progression Factor | | 1.00 | | 0.27 | 0.24 | | 1.07 | 1.02 | 1.37 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.4 | | 2.4 | 0.7 | | 0.5 | 1.0 | 0.1 | 0.6 | 3.6 | 0.1 |
| Delay (s) | | 11.5 | | 5.8 | 3.6 | | 11.2 | 12.6 | 13.4 | 10.8 | 16.8 | 9.8 |
| Level of Service | | B | | A | A | | B | B | B | B | B | A |
| Approach Delay (s) | | 11.5 | | | 4.2 | | | 12.6 | | | 15.8 | |
| Approach LOS | | B | | | A | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 97.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 52 | 729 | 22 | 21 | 892 | 88 | 20 | 159 | 21 | 194 | 295 | 159 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.99 | | 1.00 | 1.00 | 0.95 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | | | 0.99 | | | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3510 | | | 3475 | | | 1815 | | 1770 | 1863 | 1504 |
| Flt Permitted | | 0.78 | | | 0.93 | | | 0.95 | | 0.64 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 2753 | | | 3228 | | | 1737 | | 1191 | 1863 | 1504 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 55 | 776 | 23 | 22 | 949 | 94 | 21 | 169 | 22 | 206 | 314 | 169 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 12 | 0 | 0 | 7 | 0 | 0 | 0 | 35 |
| Lane Group Flow (vph) | 0 | 851 | 0 | 0 | 1053 | 0 | 0 | 205 | 0 | 206 | 314 | 134 |
| Confl. Peds. (#/hr) | | | 15 | | | 21 | | | 46 | | | 24 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | 34 | | | 35 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | 8 | | 8 |
| Actuated Green, G (s) | | 27.0 | | | 27.0 | | | 23.0 | | 23.0 | 23.0 | 23.0 |
| Effective Green, g (s) | | 27.0 | | | 27.0 | | | 23.0 | | 23.0 | 23.0 | 23.0 |
| Actuated g/C Ratio | | 0.45 | | | 0.45 | | | 0.38 | | 0.38 | 0.38 | 0.38 |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Grp Cap (vph) | | 1239 | | | 1453 | | | 666 | | 457 | 714 | 577 |
| v/s Ratio Prot | | | | | | | | | | | 0.17 | |
| v/s Ratio Perm | | 0.31 | | | c0.33 | | | 0.12 | | c0.17 | | 0.09 |
| v/c Ratio | | 0.69 | | | 0.72 | | | 0.31 | | 0.45 | 0.44 | 0.23 |
| Uniform Delay, d1 | | 13.1 | | | 13.5 | | | 12.9 | | 13.8 | 13.7 | 12.5 |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | 0.76 | 0.75 | 0.73 |
| Incremental Delay, d2 | | 3.1 | | | 3.2 | | | 1.2 | | 2.7 | 1.7 | 0.8 |
| Delay (s) | | 16.2 | | | 16.6 | | | 14.1 | | 13.1 | 12.0 | 10.0 |
| Level of Service | | B | | | B | | | B | | B | B | A |
| Approach Delay (s) | | 16.2 | | | 16.6 | | | 14.1 | | | 11.8 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 105.7% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 12 | 227 | 51 | 90 | 706 | 39 | 36 | 314 | 40 | 39 | 375 | 26 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.91 | | 1.00 | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | | 1.00 | 1.00 | | 0.99 | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1858 | 1434 | | 3486 | | | 1817 | | 1770 | 1839 | |
| Flt Permitted | | 0.95 | 1.00 | | 0.88 | | | 0.93 | | 0.44 | 1.00 | |
| Satd. Flow (perm) | | 1773 | 1434 | | 3101 | | | 1706 | | 820 | 1839 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 13 | 241 | 54 | 96 | 751 | 41 | 38 | 334 | 43 | 41 | 399 | 28 |
| RTOR Reduction (vph) | 0 | 0 | 29 | 0 | 6 | 0 | 0 | 7 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 0 | 254 | 25 | 0 | 882 | 0 | 0 | 408 | 0 | 41 | 423 | 0 |
| Confl. Peds. (#/hr) | | | 68 | | | 35 | | | 29 | | | 42 |
| Confl. Bikes (#/hr) | | | 4 | | | 6 | | | 2 | | | 3 |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | 0.38 | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 827 | 669 | | 1447 | | | 654 | | 314 | 705 | |
| v/s Ratio Prot | | | | | | | | | | | 0.23 | |
| v/s Ratio Perm | | 0.14 | 0.02 | | c0.28 | | | c0.24 | | 0.05 | | |
| v/c Ratio | | 0.31 | 0.04 | | 0.61 | | | 0.62 | | 0.13 | 0.60 | |
| Uniform Delay, d1 | | 10.0 | 8.7 | | 11.9 | | | 15.0 | | 12.0 | 14.8 | |
| Progression Factor | | 1.08 | 1.48 | | 0.26 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 1.0 | 0.1 | | 1.5 | | | 4.5 | | 0.9 | 3.7 | |
| Delay (s) | | 11.7 | 12.9 | | 4.5 | | | 19.5 | | 12.9 | 18.6 | |
| Level of Service | | B | B | | A | | | B | | B | B | |
| Approach Delay (s) | | 11.9 | | | 4.5 | | | 19.5 | | | 18.1 | |
| Approach LOS | | B | | | A | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 104.6% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 374 | 597 | 0 | 461 | 34 | 525 | 402 | 41 | 18 | 488 | 15 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | 1.00 | 1.00 | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.93 | | 0.99 | | 1.00 | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | 1.00 | 0.99 | | | 1.00 | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 1863 | 1474 | | 3480 | | 1770 | 1816 | | | 3507 | |
| Flt Permitted | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 0.64 | |
| Satd. Flow (perm) | | 1863 | 1474 | | 3480 | | 1770 | 1816 | | | 2233 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 0 | 398 | 635 | 0 | 490 | 36 | 559 | 428 | 44 | 19 | 519 | 16 |
| RTOR Reduction (vph) | 0 | 0 | 423 | 0 | 6 | 0 | 0 | 4 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 398 | 212 | 0 | 520 | 0 | 559 | 468 | 0 | 0 | 552 | 0 |
| Confl. Peds. (#/hr) | | | 64 | | | 50 | | | 68 | | | 57 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | 3 | | | 3 |
| Turn Type | | | custom | | | | Split | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | 8 | 8 | | | 4 | |
| Permitted Phases | | | 8 | | | | | | | 4 | | |
| Actuated Green, G (s) | | 30.0 | 30.0 | | 30.0 | | 30.0 | 30.0 | | | 17.0 | |
| Effective Green, g (s) | | 30.0 | 30.0 | | 30.0 | | 30.0 | 30.0 | | | 17.0 | |
| Actuated g/C Ratio | | 0.33 | 0.33 | | 0.33 | | 0.33 | 0.33 | | | 0.19 | |
| Clearance Time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Grp Cap (vph) | | 621 | 491 | | 1160 | | 590 | 605 | | | 422 | |
| v/s Ratio Prot | | c0.21 | | | 0.15 | | c0.32 | 0.26 | | | | |
| v/s Ratio Perm | | | 0.14 | | | | | | | | c0.25 | |
| v/c Ratio | | 0.64 | 0.43 | | 0.45 | | 0.95 | 0.77 | | | 1.31 | |
| Uniform Delay, d1 | | 25.4 | 23.4 | | 23.5 | | 29.2 | 26.9 | | | 36.5 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 5.0 | 2.7 | | 1.3 | | 26.1 | 9.3 | | | 154.4 | |
| Delay (s) | | 30.5 | 26.1 | | 24.8 | | 55.4 | 36.3 | | | 190.9 | |
| Level of Service | | C | C | | C | | E | D | | | F | |
| Approach Delay (s) | | 27.8 | | | 24.8 | | | 46.6 | | | 190.9 | |
| Approach LOS | | C | | | C | | | D | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 62.2 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 13.0 |
| Intersection Capacity Utilization | 79.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBR | EBR2 | WBT | WBR | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Volume (vph) | 1462 | 94 | 2257 | 5 | 628 | 31 | 273 | 784 | 254 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Lane Util. Factor | 0.76 | | 0.91 | | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | | 0.98 | | 1.00 | 0.98 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Frt | 0.85 | | 1.00 | | 0.99 | | 1.00 | 0.96 | |
| Flt Protected | 1.00 | | 1.00 | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3610 | | 5084 | | 3440 | | 1770 | 3336 | |
| Flt Permitted | 1.00 | | 1.00 | | 1.00 | | 0.39 | 1.00 | |
| Satd. Flow (perm) | 3610 | | 5084 | | 3440 | | 728 | 3336 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 1523 | 98 | 2351 | 5 | 654 | 32 | 284 | 817 | 265 |
| RTOR Reduction (vph) | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 1614 | 0 | 2356 | 0 | 686 | 0 | 284 | 1081 | 0 |
| Confl. Peds. (#/hr) | | 45 | | | | 186 | | | 89 |
| Confl. Bikes (#/hr) | | 4 | 94 | | | 1 | | | |
| Turn Type | custom | | | | | | custom | | |
| Protected Phases | 2 | | | | 8 | | | 4 | |
| Permitted Phases | | | 6 | | | | 7 | | |
| Actuated Green, G (s) | 48.0 | | 48.0 | | 19.0 | | 12.0 | 31.0 | |
| Effective Green, g (s) | 48.0 | | 48.0 | | 19.0 | | 12.0 | 31.0 | |
| Actuated g/C Ratio | 0.53 | | 0.53 | | 0.21 | | 0.13 | 0.34 | |
| Clearance Time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Vehicle Extension (s) | 0.2 | | 0.2 | | 0.2 | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1925 | | 2711 | | 726 | | 97 | 1149 | |
| v/s Ratio Prot | 0.45 | | | | 0.20 | | | c0.32 | |
| v/s Ratio Perm | | | c0.46 | | | | c0.39 | | |
| v/c Ratio | 0.84 | | 0.87 | | 0.94 | | 2.93 | 0.94 | |
| Uniform Delay, d1 | 17.7 | | 18.3 | | 35.0 | | 39.0 | 28.6 | |
| Progression Factor | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.6 | | 4.1 | | 20.7 | | 894.8 | 14.4 | |
| Delay (s) | 22.3 | | 22.4 | | 55.7 | | 933.8 | 43.0 | |
| Level of Service | C | | C | | E | | F | D | |
| Approach Delay (s) | | | 22.4 | | 55.7 | | | 228.2 | |
| Approach LOS | | | C | | E | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 72.8 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.23 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 13.0 |
| Intersection Capacity Utilization | 88.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1383 | 35 | 0 | 2003 | 42 | 54 | 104 | 57 | 59 | 233 | 54 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 1.00 | | | 0.96 | | | 0.98 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 5007 | | | 5015 | | | 1742 | | | 1781 | |
| Flt Permitted | | 1.00 | | | 1.00 | | | 0.79 | | | 0.91 | |
| Satd. Flow (perm) | | 5007 | | | 5015 | | | 1385 | | | 1629 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 0 | 1456 | 37 | 0 | 2108 | 44 | 57 | 109 | 60 | 62 | 245 | 57 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 14 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 0 | 1490 | 0 | 0 | 2150 | 0 | 0 | 212 | 0 | 0 | 359 | 0 |
| Confl. Peds. (#/hr) | | | 43 | | | 22 | | | 19 | | | 20 |
| Confl. Bikes (#/hr) | | | 7 | | | 7 | | | 2 | | | 3 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | | | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Actuated Green, G (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Effective Green, g (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Actuated g/C Ratio | | 0.59 | | | 0.59 | | | 0.31 | | | 0.31 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 2949 | | | 2953 | | | 431 | | | 507 | |
| v/s Ratio Prot | | 0.30 | | | c0.43 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.15 | | | c0.22 | |
| v/c Ratio | | 0.51 | | | 0.73 | | | 0.49 | | | 0.71 | |
| Uniform Delay, d1 | | 10.8 | | | 13.3 | | | 25.2 | | | 27.4 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 0.6 | | | 1.6 | | | 0.3 | | | 3.7 | |
| Delay (s) | | 11.4 | | | 14.9 | | | 25.5 | | | 31.1 | |
| Level of Service | | B | | | B | | | C | | | C | |
| Approach Delay (s) | | 11.4 | | | 14.9 | | | 25.5 | | | 31.1 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 70.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 24 | 246 | 87 | 52 | 794 | 78 | 57 | 128 | 34 | 46 | 200 | 52 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.92 | | 0.99 | | | 0.98 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | | 0.98 | | | 0.98 | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 1855 | 1454 | | 3460 | | | 1770 | | | 1781 | |
| Flt Permitted | | 0.89 | 1.00 | | 0.92 | | | 0.86 | | | 0.92 | |
| Satd. Flow (perm) | | 1653 | 1454 | | 3191 | | | 1539 | | | 1649 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 26 | 270 | 96 | 57 | 873 | 86 | 63 | 141 | 37 | 51 | 220 | 57 |
| RTOR Reduction (vph) | 0 | 0 | 51 | 0 | 12 | 0 | 0 | 11 | 0 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 0 | 296 | 45 | 0 | 1004 | 0 | 0 | 230 | 0 | 0 | 316 | 0 |
| Confl. Peds. (#/hr) | | | 56 | | | 60 | | | 70 | | | 84 |
| Confl. Bikes (#/hr) | | | 4 | | | 2 | | | 3 | | | 2 |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 771 | 679 | | 1489 | | | 590 | | | 632 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.18 | 0.03 | | c0.31 | | | 0.15 | | | c0.19 | |
| v/c Ratio | | 0.38 | 0.07 | | 0.67 | | | 0.39 | | | 0.50 | |
| Uniform Delay, d1 | | 10.4 | 8.8 | | 12.5 | | | 13.4 | | | 14.1 | |
| Progression Factor | | 1.25 | 2.32 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 1.4 | 0.2 | | 2.5 | | | 0.4 | | | 0.6 | |
| Delay (s) | | 14.4 | 20.6 | | 14.9 | | | 13.8 | | | 14.7 | |
| Level of Service | | B | C | | B | | | B | | | B | |
| Approach Delay (s) | | 15.9 | | | 14.9 | | | 13.8 | | | 14.7 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 81.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✣ | | | ✣ | | | ✣ | | | ✣ | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 0 | 1 | 0 | 67 | 0 | 69 | 2 | 141 | 79 | 107 | 241 | 0 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 0 | 1 | 0 | 76 | 0 | 78 | 2 | 160 | 90 | 122 | 274 | 0 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 1 | 155 | 252 | 395 |
| Volume Left (vph) | 0 | 76 | 2 | 122 |
| Volume Right (vph) | 0 | 78 | 90 | 0 |
| Hadj (s) | 0.02 | -0.19 | -0.19 | 0.08 |
| Departure Headway (s) | 5.7 | 5.2 | 4.6 | 4.7 |
| Degree Utilization, x | 0.00 | 0.22 | 0.32 | 0.52 |
| Capacity (veh/h) | 531 | 620 | 746 | 739 |
| Control Delay (s) | 8.7 | 9.7 | 9.8 | 12.6 |
| Approach Delay (s) | 8.7 | 9.7 | 9.8 | 12.6 |
| Approach LOS | A | A | A | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 11.2 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 60.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 153 | 132 | 1 | 389 | 151 | 25 | 89 | 774 | 209 | 0 | 1242 | 234 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 4.0 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.69 | 1.00 | 0.98 | | | 1.00 | 0.55 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1736 | 1823 | | 3367 | 1827 | 1070 | 1736 | 3283 | | | 3471 | 848 |
| Flt Permitted | 0.36 | 1.00 | | 0.36 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | 664 | 1823 | | 1289 | 1827 | 1070 | 1827 | 3283 | | | 3471 | 848 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 158 | 136 | 1 | 401 | 156 | 26 | 92 | 798 | 215 | 0 | 1280 | 241 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 27 | 0 | 0 | 0 | 153 |
| Lane Group Flow (vph) | 158 | 137 | 0 | 401 | 156 | 11 | 92 | 986 | 0 | 0 | 1280 | 88 |
| Confl. Peds. (#/hr) | | | 87 | | | 210 | | | 64 | | | 108 |
| Confl. Bikes (#/hr) | | | 2 | | | 8 | | | 5 | | | 2 |
| Heavy Vehicles (%) | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% |
| Turn Type | custom | | | custom | | custom | custom | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | 5 | | | 1 | | 8 | 3 | | | 4 | | 4 |
| Actuated Green, G (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 38.0 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Effective Green, g (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 38.0 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Actuated g/C Ratio | 0.12 | 0.29 | | 0.12 | 0.29 | 0.42 | 0.03 | 0.42 | | | 0.37 | 0.37 |
| Clearance Time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 4.0 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 0.2 | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | | | 0.2 | 0.2 |
| Lane Grp Cap (vph) | 81 | 525 | | 158 | 526 | 452 | 61 | 1386 | | | 1273 | 311 |
| v/s Ratio Prot | | 0.08 | | | c0.09 | | | 0.30 | | | c0.37 | |
| v/s Ratio Perm | 0.24 | | | c0.31 | | 0.01 | c0.05 | | | | | 0.10 |
| v/c Ratio | 1.95 | 0.26 | | 2.54 | 0.30 | 0.02 | 1.51 | 0.71 | | | 1.01 | 0.28 |
| Uniform Delay, d1 | 39.5 | 24.7 | | 39.5 | 25.0 | 15.2 | 43.5 | 21.5 | | | 28.5 | 20.1 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 469.3 | 1.2 | | 710.4 | 1.4 | 0.0 | 296.3 | 1.5 | | | 26.6 | 0.2 |
| Delay (s) | 508.8 | 25.9 | | 749.9 | 26.4 | 15.2 | 339.8 | 22.9 | | | 55.1 | 20.3 |
| Level of Service | F | C | | F | C | B | F | C | | | E | C |
| Approach Delay (s) | | 284.6 | | | 523.5 | | | 49.3 | | | 49.6 | |
| Approach LOS | | F | | | F | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 148.1 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.00 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 17.1 |
| Intersection Capacity Utilization | 110.4% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 68 | 198 | 66 | 192 | 693 | 69 | 0 | 1041 | 50 | 0 | 1580 | 131 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 0.95 | | | 0.95 | | | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.99 | | | 0.99 | | | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1787 | 1792 | | 1787 | 3502 | | | 3533 | | | 5053 | |
| Flt Permitted | 0.21 | 1.00 | | 0.48 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 386 | 1792 | | 904 | 3502 | | | 3533 | | | 5053 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 71 | 206 | 69 | 200 | 722 | 72 | 0 | 1084 | 52 | 0 | 1646 | 136 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 8 | 0 | 0 | 4 | 0 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 71 | 268 | 0 | 200 | 786 | 0 | 0 | 1132 | 0 | 0 | 1772 | 0 |
| Confl. Peds. (#/hr) | | | 30 | | | 70 | | | 85 | | | 87 |
| Confl. Bikes (#/hr) | | | 4 | | | 5 | | | 7 | | | 10 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | 31.2 | 31.2 | | 31.2 | 31.2 | | | 49.2 | | | 49.2 | |
| Effective Green, g (s) | 31.2 | 31.2 | | 31.2 | 31.2 | | | 49.2 | | | 49.2 | |
| Actuated g/C Ratio | 0.35 | 0.35 | | 0.35 | 0.35 | | | 0.55 | | | 0.55 | |
| Clearance Time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 134 | 621 | | 313 | 1214 | | | 1931 | | | 2762 | |
| v/s Ratio Prot | | 0.15 | | | c0.22 | | | 0.32 | | | c0.35 | |
| v/s Ratio Perm | 0.18 | | | 0.22 | | | | | | | | |
| v/c Ratio | 0.53 | 0.43 | | 0.64 | 0.65 | | | 0.59 | | | 0.64 | |
| Uniform Delay, d1 | 23.5 | 22.6 | | 24.7 | 24.8 | | | 13.6 | | | 14.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.69 | | | 1.00 | |
| Incremental Delay, d2 | 3.7 | 0.5 | | 4.2 | 1.2 | | | 1.2 | | | 1.2 | |
| Delay (s) | 27.3 | 23.1 | | 28.9 | 26.0 | | | 24.2 | | | 15.4 | |
| Level of Service | C | C | | C | C | | | C | | | B | |
| Approach Delay (s) | | 23.9 | | | 26.6 | | | 24.2 | | | 15.4 | |
| Approach LOS | | C | | | C | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.6 |
| Intersection Capacity Utilization | 105.0% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 23 | 123 | 51 | 34 | 69 | 43 | 0 | 1038 | 46 | 0 | 1778 | 51 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | | 0.95 | | | 0.91 | |
| Frpb, ped/bikes | | 1.00 | 0.90 | | 0.98 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.96 | | | 0.99 | | | 1.00 | |
| Flt Protected | | 0.99 | 1.00 | | 0.99 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 1866 | 1435 | | 1754 | | | 3538 | | | 5104 | |
| Flt Permitted | | 0.94 | 1.00 | | 0.90 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 1764 | 1435 | | 1602 | | | 3538 | | | 5104 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 24 | 128 | 53 | 35 | 72 | 45 | 0 | 1081 | 48 | 0 | 1852 | 53 |
| RTOR Reduction (vph) | 0 | 0 | 16 | 0 | 17 | 0 | 0 | 4 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 0 | 152 | 37 | 0 | 135 | 0 | 0 | 1125 | 0 | 0 | 1902 | 0 |
| Confl. Peds. (#/hr) | | | 64 | | | 33 | | | 97 | | | 64 |
| Confl. Bikes (#/hr) | | | 8 | | | 4 | | | 3 | | | 11 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Turn Type | Perm | | Perm | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | | | | | | |
| Actuated Green, G (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Effective Green, g (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Actuated g/C Ratio | | 0.22 | 0.22 | | 0.22 | | | 0.67 | | | 0.67 | |
| Clearance Time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 396 | 322 | | 360 | | | 2378 | | | 3431 | |
| v/s Ratio Prot | | | | | | | | 0.32 | | | c0.37 | |
| v/s Ratio Perm | | c0.09 | 0.03 | | 0.08 | | | | | | | |
| v/c Ratio | | 0.38 | 0.12 | | 0.37 | | | 0.47 | | | 0.55 | |
| Uniform Delay, d1 | | 29.6 | 27.8 | | 29.6 | | | 7.1 | | | 7.7 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 0.77 | | | 0.44 | |
| Incremental Delay, d2 | | 0.6 | 0.2 | | 0.7 | | | 0.6 | | | 0.5 | |
| Delay (s) | | 30.2 | 28.0 | | 30.2 | | | 6.1 | | | 3.9 | |
| Level of Service | | C | C | | C | | | A | | | A | |
| Approach Delay (s) | | 29.6 | | | 30.2 | | | 6.1 | | | 3.9 | |
| Approach LOS | | C | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.4 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.3 |
| Intersection Capacity Utilization | 95.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 69 | 287 | 43 | 42 | 339 | 52 | 0 | 979 | 61 | 0 | 1686 | 143 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 0.95 | | | 0.91 | |
| Frpb, ped/bikes | | 0.98 | | | 0.97 | | | 0.98 | | | 0.98 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 0.98 | | | 0.98 | | | 0.99 | | | 0.99 | |
| Flt Protected | | 0.99 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 3385 | | | 3364 | | | 3444 | | | 4939 | |
| Flt Permitted | | 0.75 | | | 0.87 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 2569 | | | 2945 | | | 3444 | | | 4939 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 72 | 299 | 45 | 44 | 353 | 54 | 0 | 1020 | 64 | 0 | 1756 | 149 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 12 | 0 | 0 | 5 | 0 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 0 | 407 | 0 | 0 | 439 | 0 | 0 | 1079 | 0 | 0 | 1894 | 0 |
| Confl. Peds. (#/hr) | | | 126 | | | 164 | | | 168 | | | 118 |
| Confl. Bikes (#/hr) | | | 3 | | | 2 | | | 2 | | | 3 |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 26.2 | | | 26.2 | | | 54.7 | | | 54.7 | |
| Effective Green, g (s) | | 26.2 | | | 26.2 | | | 54.7 | | | 54.7 | |
| Actuated g/C Ratio | | 0.29 | | | 0.29 | | | 0.61 | | | 0.61 | |
| Clearance Time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 748 | | | 857 | | | 2093 | | | 3002 | |
| v/s Ratio Prot | | | | | | | | 0.31 | | | c0.38 | |
| v/s Ratio Perm | | c0.16 | | | 0.15 | | | | | | | |
| v/c Ratio | | 0.54 | | | 0.51 | | | 0.52 | | | 0.63 | |
| Uniform Delay, d1 | | 26.9 | | | 26.6 | | | 10.1 | | | 11.2 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 0.42 | |
| Incremental Delay, d2 | | 2.8 | | | 2.2 | | | 0.9 | | | 0.9 | |
| Delay (s) | | 29.7 | | | 28.8 | | | 11.0 | | | 5.5 | |
| Level of Service | | C | | | C | | | B | | | A | |
| Approach Delay (s) | | 29.7 | | | 28.8 | | | 11.0 | | | 5.5 | |
| Approach LOS | | C | | | C | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.1 |
| Intersection Capacity Utilization | 81.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 216 | 1929 | 142 | 0 | 898 | 0 | 0 | 936 | 699 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | 4.6 |
| Lane Util. Factor | | | | 1.00 | 0.86 | | | 0.91 | | | 0.86 | 0.86 |
| Frpb, ped/bikes | | | | 1.00 | 1.00 | | | 1.00 | | | 0.98 | 0.91 |
| Flpb, ped/bikes | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Frt | | | | 1.00 | 0.99 | | | 1.00 | | | 0.96 | 0.85 |
| Flt Protected | | | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | 1770 | 6323 | | | 5085 | | | 4509 | 1237 |
| Flt Permitted | | | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | 1770 | 6323 | | | 5085 | | | 4509 | 1237 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 0 | 0 | 223 | 1989 | 146 | 0 | 926 | 0 | 0 | 965 | 721 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 4 | 4 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 223 | 2127 | 0 | 0 | 926 | 0 | 0 | 1300 | 378 |
| Confl. Peds. (#/hr) | | | 418 | | | 28 | | | 67 | | | 75 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | 1 | | | |
| Turn Type | | | | Prot | | | | | | | | Perm |
| Protected Phases | | | | 1 | 6 | | | 4 | | | 4 | |
| Permitted Phases | | | | | | | | | | | | 4 |
| Actuated Green, G (s) | | | | 48.7 | 48.7 | | | 31.4 | | | 31.4 | 31.4 |
| Effective Green, g (s) | | | | 48.7 | 48.7 | | | 31.4 | | | 31.4 | 31.4 |
| Actuated g/C Ratio | | | | 0.54 | 0.54 | | | 0.35 | | | 0.35 | 0.35 |
| Clearance Time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | 4.6 |
| Vehicle Extension (s) | | | | 0.2 | 0.2 | | | 0.2 | | | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | | | 958 | 3421 | | | 1774 | | | 1573 | 432 |
| v/s Ratio Prot | | | | 0.13 | c0.34 | | | 0.18 | | | 0.29 | |
| v/s Ratio Perm | | | | | | | | | | | | c0.31 |
| v/c Ratio | | | | 0.23 | 0.62 | | | 0.52 | | | 0.83 | 0.88 |
| Uniform Delay, d1 | | | | 10.8 | 14.3 | | | 23.3 | | | 26.8 | 27.5 |
| Progression Factor | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | 0.6 | 0.9 | | | 1.1 | | | 5.1 | 21.2 |
| Delay (s) | | | | 11.4 | 15.1 | | | 24.4 | | | 31.9 | 48.7 |
| Level of Service | | | | B | B | | | C | | | C | D |
| Approach Delay (s) | | 0.0 | | | 14.8 | | | 24.4 | | | 35.7 | |
| Approach LOS | | A | | | B | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.9 |
| Intersection Capacity Utilization | 72.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 285 | 8 | 11 | 870 | 9 | 5 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | | 4.0 | 5.0 | |
| Lane Util. Factor | 1.00 | | | 0.95 | 1.00 | |
| Frpb, ped/bikes | 1.00 | | | 1.00 | 0.91 | |
| Flpb, ped/bikes | 1.00 | | | 1.00 | 1.00 | |
| Frt | 1.00 | | | 1.00 | 0.95 | |
| Flt Protected | 1.00 | | | 1.00 | 0.97 | |
| Satd. Flow (prot) | 1854 | | | 3537 | 1570 | |
| Flt Permitted | 1.00 | | | 0.95 | 0.97 | |
| Satd. Flow (perm) | 1854 | | | 3368 | 1570 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 297 | 8 | 11 | 906 | 9 | 5 |
| RTOR Reduction (vph) | 1 | 0 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 304 | 0 | 0 | 917 | 9 | 0 |
| Confl. Peds. (#/hr) | | 26 | | | | 30 |
| Confl. Bikes (#/hr) | | 1 | | | | |
| Turn Type | | | Perm | | | |
| Protected Phases | 2 | | | 6 | 8 | |
| Permitted Phases | | | 6 | | | |
| Actuated Green, G (s) | 47.0 | | | 47.0 | 4.0 | |
| Effective Green, g (s) | 47.0 | | | 47.0 | 4.0 | |
| Actuated g/C Ratio | 0.78 | | | 0.78 | 0.07 | |
| Clearance Time (s) | 4.0 | | | 4.0 | 5.0 | |
| Vehicle Extension (s) | 0.2 | | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1452 | | | 2638 | 105 | |
| v/s Ratio Prot | 0.16 | | | | c0.01 | |
| v/s Ratio Perm | | | | c0.27 | | |
| v/c Ratio | 0.21 | | | 0.35 | 0.09 | |
| Uniform Delay, d1 | 1.7 | | | 1.9 | 26.3 | |
| Progression Factor | 1.00 | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.3 | | | 0.4 | 0.1 | |
| Delay (s) | 2.0 | | | 2.3 | 26.4 | |
| Level of Service | A | | | A | C | |
| Approach Delay (s) | 2.0 | | | 2.3 | 26.4 | |
| Approach LOS | A | | | A | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 2.5 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.33 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 56.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 331 | 0 | 0 | 899 | 1 | 0 | 0 | 4 | 0 | 0 | 8 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 0 | 356 | 0 | 0 | 967 | 1 | 0 | 0 | 4 | 0 | 0 | 9 |
| Pedestrians | | 17 | | | 30 | | | 32 | | | 73 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 1 | | | 3 | | | 3 | | | 6 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | 268 | | | 542 | | | | | | | |
| pX, platoon unblocked | | | | 0.86 | | | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | |
| vC, conflicting volume | 1041 | | | 388 | | | 897 | 1429 | 418 | 1430 | 1428 | 574 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1041 | | | 202 | | | 796 | 1417 | 237 | 1419 | 1416 | 574 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 100 | | | 100 | 100 | 99 | 100 | 100 | 98 |
| cM capacity (veh/h) | 624 | | | 1140 | | | 209 | 107 | 621 | 71 | 107 | 428 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 | NB 1 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 356 | 483 | 484 | 4 | 9 |
| Volume Left | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 1 | 4 | 9 |
| cSH | 624 | 1140 | 1700 | 621 | 428 |
| Volume to Capacity | 0.00 | 0.00 | 0.28 | 0.01 | 0.02 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 1 | 2 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 10.8 | 13.6 |
| Lane LOS | | | | B | B |
| Approach Delay (s) | 0.0 | 0.0 | | 10.8 | 13.6 |
| Approach LOS | | | | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.1 | | |
| Intersection Capacity Utilization | 41.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 5 | 328 | 7 | 7 | 885 | 15 | 4 | 1 | 3 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Lane Util. Factor | | 1.00 | | | 0.95 | | | 1.00 | | | | |
| Frt | | 1.00 | | | 1.00 | | | 0.95 | | | | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.98 | | | | |
| Satd. Flow (prot) | | 1856 | | | 3529 | | | 1725 | | | | |
| Flt Permitted | | 0.99 | | | 0.95 | | | 0.98 | | | | |
| Satd. Flow (perm) | | 1830 | | | 3361 | | | 1725 | | | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 5 | 357 | 8 | 8 | 962 | 16 | 4 | 1 | 3 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 368 | 0 | 0 | 983 | 0 | 0 | 6 | 0 | 0 | 0 | 0 |
| Turn Type | Perm | | | Perm | | | Split | | | | | |
| Protected Phases | | 4 | | | 8 | | 2 | 2 | | | | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 15.4 | | | 15.4 | | | 16.6 | | | | |
| Effective Green, g (s) | | 15.4 | | | 15.4 | | | 16.6 | | | | |
| Actuated g/C Ratio | | 0.39 | | | 0.39 | | | 0.42 | | | | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | | |
| Lane Grp Cap (vph) | | 705 | | | 1294 | | | 716 | | | | |
| v/s Ratio Prot | | | | | | | | c0.00 | | | | |
| v/s Ratio Perm | | 0.20 | | | c0.29 | | | | | | | |
| v/c Ratio | | 0.52 | | | 0.76 | | | 0.01 | | | | |
| Uniform Delay, d1 | | 9.5 | | | 10.7 | | | 6.9 | | | | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | | |
| Incremental Delay, d2 | | 0.7 | | | 2.6 | | | 0.0 | | | | |
| Delay (s) | | 10.2 | | | 13.3 | | | 6.9 | | | | |
| Level of Service | | B | | | B | | | A | | | | |
| Approach Delay (s) | | 10.2 | | | 13.3 | | | 6.9 | | | 0.0 | |
| Approach LOS | | B | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.37 | | |
| Actuated Cycle Length (s) | 40.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 38.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 2043 | 49 | 0 | 983 | 75 | 30 | 362 | 80 | 108 | 251 | 45 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | 1.00 | 1.00 | 0.77 | 1.00 | 1.00 | 0.94 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | | | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 4911 | | | 4837 | | 1719 | 1810 | 1186 | 1719 | 1810 | 1439 |
| Flt Permitted | | 1.00 | | | 1.00 | | 0.51 | 1.00 | 1.00 | 0.35 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 4911 | | | 4837 | | 917 | 1810 | 1186 | 638 | 1810 | 1439 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 2106 | 51 | 0 | 1013 | 77 | 31 | 373 | 82 | 111 | 259 | 46 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 9 | 0 | 0 | 0 | 3 | 0 | 0 | 31 |
| Lane Group Flow (vph) | 0 | 2154 | 0 | 0 | 1081 | 0 | 31 | 373 | 79 | 111 | 259 | 15 |
| Confl. Peds. (#/hr) | | | 74 | | | 61 | | | 221 | | | 35 |
| Confl. Bikes (#/hr) | | | 2 | | | 8 | | | 34 | | | 32 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | | | | | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 2 | | | 2 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Effective Green, g (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Actuated g/C Ratio | | 0.55 | | | 0.55 | | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 |
| Clearance Time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 2723 | | | 2682 | | 299 | 589 | 386 | 208 | 589 | 468 |
| v/s Ratio Prot | | c0.44 | | | 0.22 | | | c0.21 | | | 0.14 | |
| v/s Ratio Perm | | | | | | | 0.03 | | 0.07 | 0.17 | | 0.01 |
| v/c Ratio | | 0.79 | | | 0.40 | | 0.10 | 0.63 | 0.21 | 0.53 | 0.44 | 0.03 |
| Uniform Delay, d1 | | 15.9 | | | 11.5 | | 21.2 | 25.8 | 21.9 | 24.8 | 23.9 | 20.7 |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 2.4 | | | 0.5 | | 0.7 | 5.1 | 1.2 | 9.5 | 2.4 | 0.1 |
| Delay (s) | | 18.4 | | | 12.0 | | 21.9 | 30.9 | 23.1 | 34.2 | 26.3 | 20.8 |
| Level of Service | | B | | | B | | C | C | C | C | C | C |
| Approach Delay (s) | | 18.4 | | | 12.0 | | | 29.0 | | | 27.8 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 10.8 |
| Intersection Capacity Utilization | 97.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 43 | 469 | 23 | 67 | 265 | 61 | 17 | 445 | 116 | 71 | 245 | 14 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.88 | 1.00 | 1.00 | 0.95 |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.99 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3455 | | 1752 | 3375 | | 1752 | 1845 | 1372 | 1752 | 1845 | 1484 |
| Flt Permitted | | 0.90 | | 0.38 | 1.00 | | 0.56 | 1.00 | 1.00 | 0.33 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 3123 | | 707 | 3375 | | 1033 | 1845 | 1372 | 613 | 1845 | 1484 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 47 | 515 | 25 | 74 | 291 | 67 | 19 | 489 | 127 | 78 | 269 | 15 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 33 | 0 | 0 | 0 | 72 | 0 | 0 | 9 |
| Lane Group Flow (vph) | 0 | 582 | 0 | 74 | 325 | 0 | 19 | 489 | 55 | 78 | 269 | 7 |
| Confl. Peds. (#/hr) | | | 58 | | | 24 | | | 64 | | | 32 |
| Confl. Bikes (#/hr) | | | 4 | | | 1 | | | 41 | | | 40 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | Perm | | | Perm | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Effective Green, g (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Actuated g/C Ratio | | 0.42 | | 0.42 | 0.42 | | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 |
| Clearance Time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | | 0.2 | | 0.2 | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 1301 | | 295 | 1406 | | 448 | 800 | 595 | 266 | 800 | 643 |
| v/s Ratio Prot | | | | | 0.10 | | | c0.27 | | | 0.15 | |
| v/s Ratio Perm | | c0.19 | | 0.10 | | | 0.02 | | 0.04 | 0.13 | | 0.00 |
| v/c Ratio | | 0.45 | | 0.25 | 0.23 | | 0.04 | 0.61 | 0.09 | 0.29 | 0.34 | 0.01 |
| Uniform Delay, d1 | | 12.5 | | 11.4 | 11.3 | | 9.8 | 13.1 | 10.0 | 11.0 | 11.3 | 9.7 |
| Progression Factor | | 1.00 | | 0.90 | 0.84 | | 1.15 | 0.92 | 1.50 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 1.1 | | 1.9 | 0.4 | | 0.1 | 2.9 | 0.3 | 2.8 | 1.1 | 0.0 |
| Delay (s) | | 13.7 | | 12.1 | 9.8 | | 11.4 | 15.0 | 15.3 | 13.8 | 12.4 | 9.7 |
| Level of Service | | B | | B | A | | B | B | B | B | B | A |
| Approach Delay (s) | | 13.7 | | | 10.2 | | | 14.9 | | | 12.6 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 101.8% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 88 | 1037 | 10 | 5 | 678 | 83 | 10 | 357 | 37 | 152 | 142 | 65 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | | 0.99 | | 1.00 | 1.00 | 0.94 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | | | 0.98 | | | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3520 | | | 3462 | | | 1825 | | 1770 | 1863 | 1495 |
| Flt Permitted | | 0.81 | | | 0.95 | | | 0.99 | | 0.40 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 2858 | | | 3282 | | | 1815 | | 751 | 1863 | 1495 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 91 | 1069 | 10 | 5 | 699 | 86 | 10 | 368 | 38 | 157 | 146 | 67 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 16 | 0 | 0 | 6 | 0 | 0 | 0 | 44 |
| Lane Group Flow (vph) | 0 | 1169 | 0 | 0 | 775 | 0 | 0 | 410 | 0 | 157 | 146 | 23 |
| Confl. Peds. (#/hr) | | | 18 | | | 29 | | | 50 | | | 28 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | 32 | | | 33 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | 8 | | 8 |
| Actuated Green, G (s) | | 29.0 | | | 29.0 | | | 21.0 | | 21.0 | 21.0 | 21.0 |
| Effective Green, g (s) | | 29.0 | | | 29.0 | | | 21.0 | | 21.0 | 21.0 | 21.0 |
| Actuated g/C Ratio | | 0.48 | | | 0.48 | | | 0.35 | | 0.35 | 0.35 | 0.35 |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Grp Cap (vph) | | 1381 | | | 1586 | | | 635 | | 263 | 652 | 523 |
| v/s Ratio Prot | | | | | | | | | | | 0.08 | |
| v/s Ratio Perm | | c0.41 | | | 0.24 | | | c0.23 | | 0.21 | | 0.02 |
| v/c Ratio | | 0.85 | | | 0.49 | | | 0.65 | | 0.60 | 0.22 | 0.04 |
| Uniform Delay, d1 | | 13.6 | | | 10.5 | | | 16.4 | | 16.0 | 13.8 | 12.9 |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | 1.20 | 1.19 | 2.27 |
| Incremental Delay, d2 | | 6.6 | | | 1.1 | | | 5.0 | | 9.3 | 0.8 | 0.2 |
| Delay (s) | | 20.1 | | | 11.6 | | | 21.4 | | 28.5 | 17.1 | 29.4 |
| Level of Service | | C | | | B | | | C | | C | B | C |
| Approach Delay (s) | | 20.1 | | | 11.6 | | | 21.4 | | | 24.2 | |
| Approach LOS | | C | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 111.8% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 23 | 386 | 37 | 58 | 358 | 36 | 29 | 331 | 66 | 46 | 274 | 21 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.92 | | 0.99 | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | | 0.98 | | 1.00 | 0.99 | |
| Flt Protected | | 1.00 | 1.00 | | 0.99 | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1839 | 1445 | | 3424 | | | 1787 | | 1752 | 1820 | |
| Flt Permitted | | 0.96 | 1.00 | | 0.86 | | | 0.96 | | 0.39 | 1.00 | |
| Satd. Flow (perm) | | 1772 | 1445 | | 2952 | | | 1723 | | 723 | 1820 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 26 | 429 | 41 | 64 | 398 | 40 | 32 | 368 | 73 | 51 | 304 | 23 |
| RTOR Reduction (vph) | 0 | 0 | 22 | 0 | 11 | 0 | 0 | 11 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 0 | 455 | 19 | 0 | 491 | 0 | 0 | 462 | 0 | 51 | 323 | 0 |
| Confl. Peds. (#/hr) | | | 53 | | | 41 | | | 19 | | | 31 |
| Confl. Bikes (#/hr) | | | 4 | | | 1 | | | 3 | | | 2 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | 0.38 | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 827 | 674 | | 1378 | | | 660 | | 277 | 698 | |
| v/s Ratio Prot | | | | | | | | | | | 0.18 | |
| v/s Ratio Perm | | c0.26 | 0.01 | | 0.17 | | | c0.27 | | 0.07 | | |
| v/c Ratio | | 0.55 | 0.03 | | 0.36 | | | 0.70 | | 0.18 | 0.46 | |
| Uniform Delay, d1 | | 11.5 | 8.6 | | 10.2 | | | 15.6 | | 12.3 | 13.9 | |
| Progression Factor | | 0.64 | 0.27 | | 1.61 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 2.5 | 0.1 | | 0.7 | | | 6.1 | | 1.5 | 2.2 | |
| Delay (s) | | 9.8 | 2.4 | | 17.1 | | | 21.7 | | 13.7 | 16.1 | |
| Level of Service | | A | A | | B | | | C | | B | B | |
| Approach Delay (s) | | 9.2 | | | 17.1 | | | 21.7 | | | 15.7 | |
| Approach LOS | | A | | | B | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 103.6% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 567 | 608 | 0 | 297 | 20 | 463 | 393 | 52 | 38 | 313 | 8 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | 1.00 | 1.00 | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.93 | | 0.99 | | 1.00 | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | 1.00 | 0.98 | | | 1.00 | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 0.99 | |
| Satd. Flow (prot) | | 1845 | 1452 | | 3454 | | 1752 | 1794 | | | 3469 | |
| Flt Permitted | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 0.54 | |
| Satd. Flow (perm) | | 1845 | 1452 | | 3454 | | 1752 | 1794 | | | 1899 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 0 | 591 | 633 | 0 | 309 | 21 | 482 | 409 | 54 | 40 | 326 | 8 |
| RTOR Reduction (vph) | 0 | 0 | 450 | 0 | 6 | 0 | 0 | 5 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 591 | 183 | 0 | 324 | 0 | 482 | 458 | 0 | 0 | 372 | 0 |
| Confl. Peds. (#/hr) | | | 60 | | | 45 | | | 37 | | | 39 |
| Confl. Bikes (#/hr) | | | 1 | | | 1 | | | 2 | | | 3 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | custom | | | | Split | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | 8 | 8 | | | 4 | |
| Permitted Phases | | | 8 | | | | | | | 4 | | |
| Actuated Green, G (s) | | 34.0 | 26.0 | | 34.0 | | 26.0 | 26.0 | | | 17.0 | |
| Effective Green, g (s) | | 34.0 | 26.0 | | 34.0 | | 26.0 | 26.0 | | | 17.0 | |
| Actuated g/C Ratio | | 0.38 | 0.29 | | 0.38 | | 0.29 | 0.29 | | | 0.19 | |
| Clearance Time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Grp Cap (vph) | | 697 | 419 | | 1305 | | 506 | 518 | | | 359 | |
| v/s Ratio Prot | | c0.32 | | | 0.09 | | c0.28 | 0.26 | | | | |
| v/s Ratio Perm | | | 0.13 | | | | | | | | c0.20 | |
| v/c Ratio | | 0.85 | 0.44 | | 0.25 | | 0.95 | 0.88 | | | 1.04 | |
| Uniform Delay, d1 | | 25.6 | 26.0 | | 19.2 | | 31.4 | 30.6 | | | 36.5 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 12.2 | 3.3 | | 0.5 | | 29.8 | 19.4 | | | 57.5 | |
| Delay (s) | | 37.9 | 29.3 | | 19.7 | | 61.2 | 49.9 | | | 94.0 | |
| Level of Service | | D | C | | B | | E | D | | | F | |
| Approach Delay (s) | | 33.4 | | | 19.7 | | | 55.7 | | | 94.0 | |
| Approach LOS | | C | | | B | | | E | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 47.1 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.93 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 13.0 |
| Intersection Capacity Utilization | 80.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBR | EBR2 | WBT | WBR | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Volume (vph) | 2177 | 36 | 1255 | 2 | 783 | 19 | 294 | 686 | 107 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Lane Util. Factor | 0.76 | | 0.91 | | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Frt | 0.85 | | 1.00 | | 1.00 | | 1.00 | 0.98 | |
| Flt Protected | 1.00 | | 1.00 | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3610 | | 5084 | | 3512 | | 1770 | 3430 | |
| Flt Permitted | 1.00 | | 1.00 | | 1.00 | | 0.34 | 1.00 | |
| Satd. Flow (perm) | 3610 | | 5084 | | 3512 | | 634 | 3430 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 2244 | 37 | 1294 | 2 | 807 | 20 | 303 | 707 | 110 |
| RTOR Reduction (vph) | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 |
| Lane Group Flow (vph) | 2280 | 0 | 1296 | 0 | 827 | 0 | 303 | 803 | 0 |
| Confl. Peds. (#/hr) | | 38 | | | | 68 | | | 82 |
| Confl. Bikes (#/hr) | | 90 | | | | 2 | | | 4 |
| Turn Type | custom | | | | | | custom | | |
| Protected Phases | 2 | | | | 8 | | | 4 | |
| Permitted Phases | | | 6 | | | | 7 | | |
| Actuated Green, G (s) | 46.0 | | 46.0 | | 21.0 | | 12.0 | 33.0 | |
| Effective Green, g (s) | 46.0 | | 46.0 | | 21.0 | | 12.0 | 33.0 | |
| Actuated g/C Ratio | 0.51 | | 0.51 | | 0.23 | | 0.13 | 0.37 | |
| Clearance Time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Vehicle Extension (s) | 0.2 | | 0.2 | | 0.2 | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1845 | | 2598 | | 819 | | 85 | 1258 | |
| v/s Ratio Prot | c0.63 | | | | c0.24 | | | 0.23 | |
| v/s Ratio Perm | | | 0.25 | | | | c0.48 | | |
| v/c Ratio | 1.24 | | 0.50 | | 1.01 | | 3.56 | 0.64 | |
| Uniform Delay, d1 | 22.0 | | 14.4 | | 34.5 | | 39.0 | 23.6 | |
| Progression Factor | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 110.9 | | 0.7 | | 33.9 | | 1182.8 | 0.8 | |
| Delay (s) | 132.9 | | 15.1 | | 68.4 | | 1221.8 | 24.4 | |
| Level of Service | F | | B | | E | | F | C | |
| Approach Delay (s) | | | 15.1 | | 68.4 | | | 348.3 | |
| Approach LOS | | | B | | E | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 139.3 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.51 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 104.0% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 2138 | 26 | 0 | 964 | 42 | 42 | 157 | 45 | 83 | 129 | 27 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 0.99 | | | 0.98 | | | 0.98 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.99 | | | 0.98 | |
| Satd. Flow (prot) | | 4928 | | | 4894 | | | 1737 | | | 1744 | |
| Flt Permitted | | 1.00 | | | 1.00 | | | 0.92 | | | 0.76 | |
| Satd. Flow (perm) | | 4928 | | | 4894 | | | 1604 | | | 1351 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 0 | 2227 | 27 | 0 | 1004 | 44 | 44 | 164 | 47 | 86 | 134 | 28 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 5 | 0 | 0 | 3 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 0 | 2253 | 0 | 0 | 1043 | 0 | 0 | 252 | 0 | 0 | 243 | 0 |
| Confl. Peds. (#/hr) | | | 28 | | | 36 | | | 28 | | | 23 |
| Confl. Bikes (#/hr) | | | 4 | | | 1 | | | 2 | | | 3 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | | | | | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Actuated Green, G (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Effective Green, g (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Actuated g/C Ratio | | 0.59 | | | 0.59 | | | 0.31 | | | 0.31 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 2902 | | | 2882 | | | 499 | | | 420 | |
| v/s Ratio Prot | | c0.46 | | | 0.21 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.16 | | | c0.18 | |
| v/c Ratio | | 0.78 | | | 0.36 | | | 0.50 | | | 0.58 | |
| Uniform Delay, d1 | | 14.0 | | | 9.7 | | | 25.3 | | | 26.0 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 2.1 | | | 0.4 | | | 0.3 | | | 1.2 | |
| Delay (s) | | 16.1 | | | 10.0 | | | 25.6 | | | 27.3 | |
| Level of Service | | B | | | B | | | C | | | C | |
| Approach Delay (s) | | 16.1 | | | 10.0 | | | 25.6 | | | 27.3 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 73.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 56 | 492 | 93 | 38 | 419 | 69 | 40 | 149 | 25 | 47 | 130 | 28 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.95 | | 0.99 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.98 | | | 0.98 | | | 0.98 | |
| Flt Protected | | 0.99 | 1.00 | | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 1818 | 1477 | | 3367 | | | 1773 | | | 1762 | |
| Flt Permitted | | 0.90 | 1.00 | | 0.85 | | | 0.91 | | | 0.88 | |
| Satd. Flow (perm) | | 1640 | 1477 | | 2867 | | | 1628 | | | 1576 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 63 | 553 | 104 | 43 | 471 | 78 | 45 | 167 | 28 | 53 | 146 | 31 |
| RTOR Reduction (vph) | 0 | 0 | 51 | 0 | 20 | 0 | 0 | 8 | 0 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 0 | 616 | 53 | 0 | 572 | 0 | 0 | 232 | 0 | 0 | 221 | 0 |
| Confl. Peds. (#/hr) | | | 21 | | | 29 | | | 16 | | | 47 |
| Confl. Bikes (#/hr) | | | 9 | | | 1 | | | 1 | | | |
| Heavy Vehicles (%) | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 765 | 689 | | 1338 | | | 624 | | | 604 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.38 | 0.04 | | 0.20 | | | c0.14 | | | 0.14 | |
| v/c Ratio | | 0.81 | 0.08 | | 0.43 | | | 0.37 | | | 0.37 | |
| Uniform Delay, d1 | | 13.7 | 8.9 | | 10.7 | | | 13.3 | | | 13.3 | |
| Progression Factor | | 0.70 | 0.30 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 8.2 | 0.2 | | 1.0 | | | 0.4 | | | 0.4 | |
| Delay (s) | | 17.8 | 2.8 | | 11.7 | | | 13.7 | | | 13.6 | |
| Level of Service | | B | A | | B | | | B | | | B | |
| Approach Delay (s) | | 15.6 | | | 11.7 | | | 13.7 | | | 13.6 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 82.3% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 0 | 0 | 0 | 46 | 0 | 74 | 1 | 156 | 127 | 118 | 154 | 0 |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 58 | 0 | 92 | 1 | 195 | 159 | 148 | 192 | 0 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 0 | 150 | 355 | 340 |
| Volume Left (vph) | 0 | 58 | 1 | 148 |
| Volume Right (vph) | 0 | 93 | 159 | 0 |
| Hadj (s) | 0.00 | -0.26 | -0.23 | 0.12 |
| Departure Headway (s) | 5.8 | 5.2 | 4.5 | 4.9 |
| Degree Utilization, x | 0.00 | 0.22 | 0.45 | 0.46 |
| Capacity (veh/h) | 526 | 614 | 770 | 714 |
| Control Delay (s) | 8.8 | 9.7 | 11.1 | 11.9 |
| Approach Delay (s) | 0.0 | 9.7 | 11.1 | 11.9 |
| Approach LOS | A | A | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 11.2 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 55.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 189 | 199 | 0 | 150 | 70 | 18 | 77 | 1344 | 444 | 1 | 757 | 149 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 5.1 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.91 | 1.00 | 0.97 | | | 1.00 | 0.77 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1719 | 1810 | | 3335 | 1810 | 1395 | 1719 | 3198 | | | 3438 | 1178 |
| Flt Permitted | 0.36 | 1.00 | | 0.36 | 1.00 | 1.00 | 0.95 | 1.00 | | | 0.86 | 1.00 |
| Satd. Flow (perm) | 658 | 1810 | | 1277 | 1810 | 1395 | 1719 | 3198 | | | 2971 | 1178 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 201 | 212 | 0 | 160 | 74 | 19 | 82 | 1430 | 472 | 1 | 805 | 159 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 36 | 0 | 0 | 0 | 101 |
| Lane Group Flow (vph) | 201 | 212 | 0 | 160 | 74 | 5 | 82 | 1866 | 0 | 0 | 806 | 58 |
| Confl. Peds. (#/hr) | | | 63 | | | 72 | | | 84 | | | 53 |
| Confl. Bikes (#/hr) | | | 1 | | | 2 | | | 2 | | | 2 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | custom | | | custom | | Perm | Prot | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | 3 | 8 | | | 4 | |
| Permitted Phases | 5 | | | 1 | | 6 | | | | 4 | | 4 |
| Actuated Green, G (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 25.9 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Effective Green, g (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 25.9 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Actuated g/C Ratio | 0.12 | 0.29 | | 0.12 | 0.29 | 0.29 | 0.03 | 0.42 | | | 0.37 | 0.37 |
| Clearance Time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 5.1 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 80 | 521 | | 156 | 521 | 401 | 57 | 1350 | | | 1089 | 432 |
| v/s Ratio Prot | | c0.12 | | | 0.04 | | 0.05 | c0.58 | | | | |
| v/s Ratio Perm | c0.31 | | | 0.13 | | 0.00 | | | | | 0.27 | 0.05 |
| v/c Ratio | 2.51 | 0.41 | | 1.03 | 0.14 | 0.01 | 1.44 | 1.38 | | | 0.74 | 0.13 |
| Uniform Delay, d1 | 39.5 | 25.9 | | 39.5 | 23.8 | 22.9 | 43.5 | 26.0 | | | 24.8 | 19.0 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 716.1 | 2.3 | | 79.0 | 0.6 | 0.1 | 272.4 | 176.8 | | | 2.7 | 0.1 |
| Delay (s) | 755.6 | 28.2 | | 118.5 | 24.4 | 23.0 | 315.9 | 202.8 | | | 27.5 | 19.1 |
| Level of Service | F | C | | F | C | C | F | F | | | C | B |
| Approach Delay (s) | | 382.2 | | | 83.8 | | | 207.4 | | | 26.1 | |
| Approach LOS | | F | | | F | | | F | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 170.4 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.21 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 15.1 |
| Intersection Capacity Utilization | 111.1% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 108 | 412 | 26 | 91 | 503 | 90 | 0 | 1732 | 96 | 0 | 822 | 104 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 0.95 | | | 0.91 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.98 | | | 0.99 | | | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1770 | 1842 | | 1770 | 3420 | | | 5022 | | | 3462 | |
| Flt Permitted | 0.27 | 1.00 | | 0.18 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 494 | 1842 | | 329 | 3420 | | | 5022 | | | 3462 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 116 | 443 | 28 | 98 | 541 | 97 | 0 | 1862 | 103 | 0 | 884 | 112 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 116 | 468 | 0 | 98 | 631 | 0 | 0 | 1958 | 0 | 0 | 985 | 0 |
| Confl. Peds. (#/hr) | | | 24 | | | 61 | | | 78 | | | 61 |
| Confl. Bikes (#/hr) | | | 2 | | | 2 | | | 5 | | | 5 |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | 27.2 | 27.2 | | 27.2 | 27.2 | | | 53.2 | | | 53.2 | |
| Effective Green, g (s) | 27.2 | 27.2 | | 27.2 | 27.2 | | | 53.2 | | | 53.2 | |
| Actuated g/C Ratio | 0.30 | 0.30 | | 0.30 | 0.30 | | | 0.59 | | | 0.59 | |
| Clearance Time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 149 | 557 | | 99 | 1034 | | | 2969 | | | 2046 | |
| v/s Ratio Prot | | 0.25 | | | 0.18 | | | c0.39 | | | 0.28 | |
| v/s Ratio Perm | 0.23 | | | c0.30 | | | | | | | | |
| v/c Ratio | 0.78 | 0.84 | | 0.99 | 0.61 | | | 0.66 | | | 0.48 | |
| Uniform Delay, d1 | 28.7 | 29.4 | | 31.3 | 26.9 | | | 12.3 | | | 10.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.29 | | | 1.00 | |
| Incremental Delay, d2 | 22.2 | 11.0 | | 86.3 | 1.1 | | | 1.0 | | | 0.8 | |
| Delay (s) | 50.8 | 40.4 | | 117.6 | 27.9 | | | 4.6 | | | 11.3 | |
| Level of Service | D | D | | F | C | | | A | | | B | |
| Approach Delay (s) | | 42.4 | | | 39.9 | | | 4.6 | | | 11.3 | |
| Approach LOS | | D | | | D | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.6 |
| Intersection Capacity Utilization | 102.4% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 11 | 154 | 40 | 43 | 83 | 88 | 0 | 1719 | 90 | 0 | 891 | 47 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | | 0.91 | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.93 | | 0.96 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.94 | | | 0.99 | | | 0.99 | |
| Flt Protected | | 1.00 | 1.00 | | 0.99 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 1857 | 1467 | | 1671 | | | 5028 | | | 3504 | |
| Flt Permitted | | 0.98 | 1.00 | | 0.90 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 1819 | 1467 | | 1518 | | | 5028 | | | 3504 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 12 | 167 | 43 | 47 | 90 | 96 | 0 | 1868 | 98 | 0 | 968 | 51 |
| RTOR Reduction (vph) | 0 | 0 | 33 | 0 | 14 | 0 | 0 | 6 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 0 | 179 | 10 | 0 | 219 | 0 | 0 | 1960 | 0 | 0 | 1015 | 0 |
| Confl. Peds. (#/hr) | | | 37 | | | 65 | | | 76 | | | 40 |
| Confl. Bikes (#/hr) | | | 14 | | | 2 | | | 3 | | | 5 |
| Turn Type | Perm | | Perm | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | | | | | | |
| Actuated Green, G (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Effective Green, g (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Actuated g/C Ratio | | 0.22 | 0.22 | | 0.22 | | | 0.67 | | | 0.67 | |
| Clearance Time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 408 | 329 | | 341 | | | 3380 | | | 2355 | |
| v/s Ratio Prot | | | | | | | | c0.39 | | | 0.29 | |
| v/s Ratio Perm | | 0.10 | 0.01 | | c0.14 | | | | | | | |
| v/c Ratio | | 0.44 | 0.03 | | 0.64 | | | 0.58 | | | 0.43 | |
| Uniform Delay, d1 | | 30.0 | 27.2 | | 31.6 | | | 7.9 | | | 6.8 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 0.24 | | | 0.51 | |
| Incremental Delay, d2 | | 0.8 | 0.0 | | 4.1 | | | 0.6 | | | 0.5 | |
| Delay (s) | | 30.8 | 27.3 | | 35.7 | | | 2.5 | | | 4.0 | |
| Level of Service | | C | C | | D | | | A | | | A | |
| Approach Delay (s) | | 30.1 | | | 35.7 | | | 2.5 | | | 4.0 | |
| Approach LOS | | C | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.0 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.3 |
| Intersection Capacity Utilization | 95.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 116 | 412 | 25 | 18 | 216 | 31 | 0 | 1757 | 47 | 0 | 881 | 77 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 0.91 | | | 0.95 | |
| Frpb, ped/bikes | | 0.99 | | | 0.99 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 0.99 | | | 0.98 | | | 1.00 | | | 0.99 | |
| Flt Protected | | 0.99 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 3421 | | | 3395 | | | 4982 | | | 3419 | |
| Flt Permitted | | 0.79 | | | 0.90 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 2728 | | | 3063 | | | 4982 | | | 3419 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 123 | 438 | 27 | 19 | 230 | 33 | 0 | 1869 | 50 | 0 | 937 | 82 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 5 | 0 | 0 | 3 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 0 | 584 | 0 | 0 | 277 | 0 | 0 | 1916 | 0 | 0 | 1012 | 0 |
| Confl. Peds. (#/hr) | | | 101 | | | 61 | | | 143 | | | 81 |
| Confl. Bikes (#/hr) | | | 7 | | | | | | 4 | | | 5 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 28.2 | | | 28.2 | | | 52.7 | | | 52.7 | |
| Effective Green, g (s) | | 28.2 | | | 28.2 | | | 52.7 | | | 52.7 | |
| Actuated g/C Ratio | | 0.31 | | | 0.31 | | | 0.59 | | | 0.59 | |
| Clearance Time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 855 | | | 960 | | | 2917 | | | 2002 | |
| v/s Ratio Prot | | | | | | | | c0.38 | | | 0.30 | |
| v/s Ratio Perm | | c0.21 | | | 0.09 | | | | | | | |
| v/c Ratio | | 0.68 | | | 0.29 | | | 0.66 | | | 0.51 | |
| Uniform Delay, d1 | | 27.0 | | | 23.3 | | | 12.6 | | | 11.0 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 0.78 | |
| Incremental Delay, d2 | | 4.4 | | | 0.8 | | | 1.2 | | | 0.8 | |
| Delay (s) | | 31.4 | | | 24.1 | | | 13.7 | | | 9.5 | |
| Level of Service | | C | | | C | | | B | | | A | |
| Approach Delay (s) | | 31.4 | | | 24.1 | | | 13.7 | | | 9.5 | |
| Approach LOS | | C | | | C | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.1 |
| Intersection Capacity Utilization | 80.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 146 | 1266 | 222 | 60 | 1522 | 0 | 0 | 489 | 404 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | 4.6 |
| Lane Util. Factor | | | | 1.00 | 0.86 | | | 0.91 | | | 0.86 | 0.86 |
| Frpb, ped/bikes | | | | 1.00 | 0.99 | | | 1.00 | | | 0.99 | 0.96 |
| Flpb, ped/bikes | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Frt | | | | 1.00 | 0.98 | | | 1.00 | | | 0.96 | 0.85 |
| Flt Protected | | | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | 1752 | 6168 | | | 5026 | | | 4497 | 1290 |
| Flt Permitted | | | | 0.95 | 1.00 | | | 0.86 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | 1752 | 6168 | | | 4351 | | | 4497 | 1290 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 0 | 0 | 0 | 154 | 1333 | 234 | 63 | 1602 | 0 | 0 | 515 | 425 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 5 | 5 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 154 | 1562 | 0 | 0 | 1665 | 0 | 0 | 718 | 212 |
| Confl. Peds. (#/hr) | | | 406 | | | 24 | | | 51 | | | 29 |
| Confl. Bikes (#/hr) | | | | | | | | | 1 | | | 1 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | | Prot | | | Perm | | | | | Perm |
| Protected Phases | | | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | | | 4 |
| Actuated Green, G (s) | | | | 35.7 | 35.7 | | | 44.4 | | | 44.4 | 44.4 |
| Effective Green, g (s) | | | | 35.7 | 35.7 | | | 44.4 | | | 44.4 | 44.4 |
| Actuated g/C Ratio | | | | 0.40 | 0.40 | | | 0.49 | | | 0.49 | 0.49 |
| Clearance Time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | 4.6 |
| Vehicle Extension (s) | | | | 0.2 | 0.2 | | | 0.2 | | | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | | | 695 | 2447 | | | 2146 | | | 2219 | 636 |
| v/s Ratio Prot | | | | 0.09 | c0.25 | | | | | | 0.16 | |
| v/s Ratio Perm | | | | | | | | c0.38 | | | | 0.16 |
| v/c Ratio | | | | 0.22 | 0.64 | | | 0.78 | | | 0.32 | 0.33 |
| Uniform Delay, d1 | | | | 18.0 | 21.9 | | | 18.7 | | | 13.7 | 13.8 |
| Progression Factor | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | 0.7 | 1.3 | | | 2.8 | | | 0.4 | 1.4 |
| Delay (s) | | | | 18.7 | 23.2 | | | 21.5 | | | 14.1 | 15.2 |
| Level of Service | | | | B | C | | | C | | | B | B |
| Approach Delay (s) | | 0.0 | | | 22.8 | | | 21.5 | | | 14.4 | |
| Approach LOS | | A | | | C | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.9 |
| Intersection Capacity Utilization | 85.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 573 | 17 | 10 | 512 | 22 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | | 4.0 | 5.0 | |
| Lane Util. Factor | 1.00 | | | 0.95 | 1.00 | |
| Frpb, ped/bikes | 1.00 | | | 1.00 | 0.91 | |
| Flpb, ped/bikes | 1.00 | | | 1.00 | 1.00 | |
| Frt | 1.00 | | | 1.00 | 0.96 | |
| Flt Protected | 1.00 | | | 1.00 | 0.97 | |
| Satd. Flow (prot) | 1818 | | | 3468 | 1542 | |
| Flt Permitted | 1.00 | | | 0.95 | 0.97 | |
| Satd. Flow (perm) | 1818 | | | 3280 | 1542 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 651 | 19 | 11 | 582 | 25 | 11 |
| RTOR Reduction (vph) | 1 | 0 | 0 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 669 | 0 | 0 | 593 | 26 | 0 |
| Confl. Peds. (#/hr) | | 29 | | | | 37 |
| Confl. Bikes (#/hr) | | 1 | | | | |
| Heavy Vehicles (%) | 4% | 4% | 4% | 4% | 4% | 4% |
| Turn Type | | | Perm | | | |
| Protected Phases | 2 | | | 6 | 8 | |
| Permitted Phases | | | 6 | | | |
| Actuated Green, G (s) | 47.0 | | | 47.0 | 4.0 | |
| Effective Green, g (s) | 47.0 | | | 47.0 | 4.0 | |
| Actuated g/C Ratio | 0.78 | | | 0.78 | 0.07 | |
| Clearance Time (s) | 4.0 | | | 4.0 | 5.0 | |
| Vehicle Extension (s) | 0.2 | | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1424 | | | 2569 | 103 | |
| v/s Ratio Prot | c0.37 | | | | c0.02 | |
| v/s Ratio Perm | | | | 0.18 | | |
| v/c Ratio | 0.47 | | | 0.23 | 0.25 | |
| Uniform Delay, d1 | 2.2 | | | 1.7 | 26.6 | |
| Progression Factor | 1.00 | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.1 | | | 0.2 | 0.5 | |
| Delay (s) | 3.3 | | | 1.9 | 27.0 | |
| Level of Service | A | | | A | C | |
| Approach Delay (s) | 3.3 | | | 1.9 | 27.0 | |
| Approach LOS | A | | | A | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 3.4 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.45 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 55.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 4 | 524 | 18 | 13 | 566 | 2 | 7 | 4 | 7 | 1 | 0 | 2 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 2.0 | |
| Lane Util. Factor | | 1.00 | | | 0.95 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.96 | | | 0.98 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 1.00 | | | 0.95 | | | 0.91 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.98 | | | 0.98 | |
| Satd. Flow (prot) | | 1814 | | | 3465 | | | 1627 | | | 1597 | |
| Flt Permitted | | 1.00 | | | 0.94 | | | 0.87 | | | 0.96 | |
| Satd. Flow (perm) | | 1808 | | | 3267 | | | 1448 | | | 1556 | |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 5 | 602 | 21 | 15 | 651 | 2 | 8 | 5 | 8 | 1 | 0 | 2 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 627 | 0 | 0 | 668 | 0 | 0 | 14 | 0 | 0 | 1 | 0 |
| Confl. Peds. (#/hr) | | | 46 | | | 97 | | | 64 | | | 26 |
| Confl. Bikes (#/hr) | | | 5 | | | 2 | | | | | | |
| Heavy Vehicles (%) | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 47.0 | | | 47.0 | | | 4.0 | | | 7.0 | |
| Effective Green, g (s) | | 47.0 | | | 47.0 | | | 4.0 | | | 7.0 | |
| Actuated g/C Ratio | | 0.78 | | | 0.78 | | | 0.07 | | | 0.12 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 2.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 1416 | | | 2559 | | | 97 | | | 182 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.35 | | | 0.20 | | | c0.01 | | | 0.00 | |
| v/c Ratio | | 0.44 | | | 0.26 | | | 0.14 | | | 0.01 | |
| Uniform Delay, d1 | | 2.2 | | | 1.8 | | | 26.4 | | | 23.4 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 1.0 | | | 0.2 | | | 0.7 | | | 0.0 | |
| Delay (s) | | 3.2 | | | 2.0 | | | 27.0 | | | 23.4 | |
| Level of Service | | A | | | A | | | C | | | C | |
| Approach Delay (s) | | 3.2 | | | 2.0 | | | 27.0 | | | 23.4 | |
| Approach LOS | | A | | | A | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 3.0 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.42 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 56.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1464 | 72 | 0 | 1979 | 133 | 46 | 297 | 75 | 115 | 437 | 76 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | | 0.98 | | 1.00 | 1.00 | 0.78 | 1.00 | 1.00 | 0.88 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.99 | | | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 4957 | | | 4878 | | 1752 | 1845 | 1223 | 1752 | 1845 | 1376 |
| Flt Permitted | | 1.00 | | | 1.00 | | 0.25 | 1.00 | 1.00 | 0.44 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 4957 | | | 4878 | | 465 | 1845 | 1223 | 815 | 1845 | 1376 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 1509 | 74 | 0 | 2040 | 137 | 47 | 306 | 77 | 119 | 451 | 78 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 8 | 0 | 0 | 0 | 9 | 0 | 0 | 2 |
| Lane Group Flow (vph) | 0 | 1577 | 0 | 0 | 2169 | 0 | 47 | 306 | 68 | 119 | 451 | 76 |
| Confl. Peds. (#/hr) | | | 143 | | | 164 | | | 216 | | | 93 |
| Confl. Bikes (#/hr) | | | 5 | | | 3 | | | 24 | | | 44 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | | | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Effective Green, g (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Actuated g/C Ratio | | 0.55 | | | 0.55 | | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 |
| Clearance Time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 2748 | | | 2705 | | 151 | 601 | 398 | 265 | 601 | 448 |
| v/s Ratio Prot | | 0.32 | | | c0.44 | | | 0.17 | | | c0.24 | |
| v/s Ratio Perm | | | | | | | 0.10 | | 0.06 | 0.15 | | 0.06 |
| v/c Ratio | | 0.57 | | | 0.80 | | 0.31 | 0.51 | 0.17 | 0.45 | 0.75 | 0.17 |
| Uniform Delay, d1 | | 13.1 | | | 16.1 | | 22.8 | 24.5 | 21.7 | 24.0 | 27.1 | 21.7 |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.9 | | | 2.6 | | 5.3 | 3.1 | 0.9 | 5.4 | 8.4 | 0.8 |
| Delay (s) | | 14.0 | | | 18.7 | | 28.1 | 27.6 | 22.6 | 29.4 | 35.5 | 22.5 |
| Level of Service | | B | | | B | | C | C | C | C | D | C |
| Approach Delay (s) | | 14.0 | | | 18.7 | | | 26.8 | | | 32.8 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 10.8 |
| Intersection Capacity Utilization | 98.7% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 31 | 185 | 37 | 191 | 488 | 84 | 18 | 264 | 36 | 53 | 482 | 32 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.89 | 1.00 | 1.00 | 0.93 |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.98 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3397 | | 1770 | 3436 | | 1770 | 1863 | 1407 | 1770 | 1863 | 1472 |
| Flt Permitted | | 0.86 | | 0.59 | 1.00 | | 0.32 | 1.00 | 1.00 | 0.55 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 2935 | | 1094 | 3436 | | 587 | 1863 | 1407 | 1025 | 1863 | 1472 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 33 | 195 | 39 | 201 | 514 | 88 | 19 | 278 | 38 | 56 | 507 | 34 |
| RTOR Reduction (vph) | 0 | 23 | 0 | 0 | 23 | 0 | 0 | 0 | 22 | 0 | 0 | 19 |
| Lane Group Flow (vph) | 0 | 244 | 0 | 201 | 579 | 0 | 19 | 278 | 16 | 56 | 507 | 15 |
| Confl. Peds. (#/hr) | | | 54 | | | 21 | | | 59 | | | 52 |
| Confl. Bikes (#/hr) | | | 3 | | | 7 | | | 31 | | | 48 |
| Turn Type | Perm | | | Perm | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Effective Green, g (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Actuated g/C Ratio | | 0.42 | | 0.42 | 0.42 | | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 |
| Clearance Time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | | 0.2 | | 0.2 | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 1223 | | 456 | 1432 | | 254 | 807 | 610 | 444 | 807 | 638 |
| v/s Ratio Prot | | | | | 0.17 | | | 0.15 | | | c0.27 | |
| v/s Ratio Perm | | 0.08 | | c0.18 | | | 0.03 | | 0.01 | 0.05 | | 0.01 |
| v/c Ratio | | 0.20 | | 0.44 | 0.40 | | 0.07 | 0.34 | 0.03 | 0.13 | 0.63 | 0.02 |
| Uniform Delay, d1 | | 11.1 | | 12.5 | 12.3 | | 10.0 | 11.3 | 9.7 | 10.2 | 13.2 | 9.7 |
| Progression Factor | | 1.00 | | 0.27 | 0.24 | | 1.07 | 1.03 | 1.37 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.4 | | 2.5 | 0.7 | | 0.5 | 1.0 | 0.1 | 0.6 | 3.7 | 0.1 |
| Delay (s) | | 11.5 | | 5.9 | 3.7 | | 11.2 | 12.7 | 13.5 | 10.8 | 16.9 | 9.8 |
| Level of Service | | B | | A | A | | B | B | B | B | B | A |
| Approach Delay (s) | | 11.5 | | | 4.2 | | | 12.7 | | | 15.9 | |
| Approach LOS | | B | | | A | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 97.0% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 52 | 735 | 22 | 20 | 900 | 88 | 20 | 160 | 21 | 196 | 296 | 160 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.99 | | 1.00 | 1.00 | 0.95 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | | | 0.99 | | | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3510 | | | 3476 | | | 1815 | | 1770 | 1863 | 1504 |
| Flt Permitted | | 0.78 | | | 0.93 | | | 0.95 | | 0.64 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 2746 | | | 3234 | | | 1738 | | 1189 | 1863 | 1504 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 55 | 782 | 23 | 21 | 957 | 94 | 21 | 170 | 22 | 209 | 315 | 170 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 12 | 0 | 0 | 7 | 0 | 0 | 0 | 35 |
| Lane Group Flow (vph) | 0 | 857 | 0 | 0 | 1060 | 0 | 0 | 206 | 0 | 209 | 315 | 135 |
| Confl. Peds. (#/hr) | | | 15 | | | 21 | | | 46 | | | 24 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | 34 | | | 35 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | 8 | | 8 |
| Actuated Green, G (s) | | 27.0 | | | 27.0 | | | 23.0 | | 23.0 | 23.0 | 23.0 |
| Effective Green, g (s) | | 27.0 | | | 27.0 | | | 23.0 | | 23.0 | 23.0 | 23.0 |
| Actuated g/C Ratio | | 0.45 | | | 0.45 | | | 0.38 | | 0.38 | 0.38 | 0.38 |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Grp Cap (vph) | | 1236 | | | 1455 | | | 666 | | 456 | 714 | 577 |
| v/s Ratio Prot | | | | | | | | | | | 0.17 | |
| v/s Ratio Perm | | 0.31 | | | c0.33 | | | 0.12 | | c0.18 | | 0.09 |
| v/c Ratio | | 0.69 | | | 0.73 | | | 0.31 | | 0.46 | 0.44 | 0.23 |
| Uniform Delay, d1 | | 13.2 | | | 13.5 | | | 12.9 | | 13.8 | 13.7 | 12.5 |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | 0.76 | 0.76 | 0.74 |
| Incremental Delay, d2 | | 3.2 | | | 3.2 | | | 1.2 | | 2.8 | 1.7 | 0.8 |
| Delay (s) | | 16.4 | | | 16.7 | | | 14.2 | | 13.3 | 12.1 | 10.1 |
| Level of Service | | B | | | B | | | B | | B | B | B |
| Approach Delay (s) | | 16.4 | | | 16.7 | | | 14.2 | | | 12.0 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 106.0% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 12 | 228 | 51 | 83 | 705 | 38 | 36 | 317 | 39 | 39 | 378 | 26 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.91 | | 1.00 | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1858 | 1434 | | 3488 | | | 1819 | | 1770 | 1839 | |
| Flt Permitted | | 0.95 | 1.00 | | 0.89 | | | 0.93 | | 0.44 | 1.00 | |
| Satd. Flow (perm) | | 1775 | 1434 | | 3123 | | | 1707 | | 818 | 1839 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 13 | 243 | 54 | 88 | 750 | 40 | 38 | 337 | 41 | 41 | 402 | 28 |
| RTOR Reduction (vph) | 0 | 0 | 29 | 0 | 6 | 0 | 0 | 7 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 0 | 256 | 25 | 0 | 872 | 0 | 0 | 409 | 0 | 41 | 426 | 0 |
| Confl. Peds. (#/hr) | | | 68 | | | 35 | | | 29 | | | 42 |
| Confl. Bikes (#/hr) | | | 4 | | | 6 | | | 2 | | | 3 |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | 0.38 | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 828 | 669 | | 1457 | | | 654 | | 314 | 705 | |
| v/s Ratio Prot | | | | | | | | | | | 0.23 | |
| v/s Ratio Perm | | 0.14 | 0.02 | | c0.28 | | | c0.24 | | 0.05 | | |
| v/c Ratio | | 0.31 | 0.04 | | 0.60 | | | 0.63 | | 0.13 | 0.60 | |
| Uniform Delay, d1 | | 10.0 | 8.7 | | 11.8 | | | 15.0 | | 12.0 | 14.8 | |
| Progression Factor | | 1.09 | 1.48 | | 0.25 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 1.0 | 0.1 | | 1.4 | | | 4.5 | | 0.9 | 3.8 | |
| Delay (s) | | 11.8 | 13.0 | | 4.4 | | | 19.5 | | 12.9 | 18.7 | |
| Level of Service | | B | B | | A | | | B | | B | B | |
| Approach Delay (s) | | 12.0 | | | 4.4 | | | 19.5 | | | 18.2 | |
| Approach LOS | | B | | | A | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 104.7% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 376 | 602 | 0 | 463 | 34 | 530 | 405 | 41 | 18 | 484 | 15 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | 1.00 | 1.00 | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.93 | | 0.99 | | 1.00 | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | 1.00 | 0.99 | | | 1.00 | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 1863 | 1474 | | 3481 | | 1770 | 1816 | | | 3507 | |
| Flt Permitted | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 0.64 | |
| Satd. Flow (perm) | | 1863 | 1474 | | 3481 | | 1770 | 1816 | | | 2232 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 0 | 400 | 640 | 0 | 493 | 36 | 564 | 431 | 44 | 19 | 515 | 16 |
| RTOR Reduction (vph) | 0 | 0 | 427 | 0 | 6 | 0 | 0 | 4 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 400 | 213 | 0 | 523 | 0 | 564 | 471 | 0 | 0 | 548 | 0 |
| Confl. Peds. (#/hr) | | | 64 | | | 50 | | | 68 | | | 57 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | 3 | | | 3 |
| Turn Type | | | custom | | | | Split | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | 8 | 8 | | | 4 | |
| Permitted Phases | | | 8 | | | | | | | 4 | | |
| Actuated Green, G (s) | | 30.0 | 30.0 | | 30.0 | | 30.0 | 30.0 | | | 17.0 | |
| Effective Green, g (s) | | 30.0 | 30.0 | | 30.0 | | 30.0 | 30.0 | | | 17.0 | |
| Actuated g/C Ratio | | 0.33 | 0.33 | | 0.33 | | 0.33 | 0.33 | | | 0.19 | |
| Clearance Time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Grp Cap (vph) | | 621 | 491 | | 1160 | | 590 | 605 | | | 422 | |
| v/s Ratio Prot | | c0.21 | | | 0.15 | | c0.32 | 0.26 | | | | |
| v/s Ratio Perm | | | 0.14 | | | | | | | | c0.25 | |
| v/c Ratio | | 0.64 | 0.43 | | 0.45 | | 0.96 | 0.78 | | | 1.30 | |
| Uniform Delay, d1 | | 25.5 | 23.4 | | 23.5 | | 29.4 | 27.0 | | | 36.5 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 5.1 | 2.8 | | 1.3 | | 27.6 | 9.5 | | | 150.5 | |
| Delay (s) | | 30.6 | 26.2 | | 24.8 | | 57.0 | 36.6 | | | 187.0 | |
| Level of Service | | C | C | | C | | E | D | | | F | |
| Approach Delay (s) | | 27.9 | | | 24.8 | | | 47.7 | | | 187.0 | |
| Approach LOS | | C | | | C | | | D | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 61.6 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 13.0 |
| Intersection Capacity Utilization | 79.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBR | EBR2 | WBT | WBR | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Volume (vph) | 1475 | 95 | 2276 | 4 | 634 | 31 | 275 | 783 | 256 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Lane Util. Factor | 0.76 | | 0.91 | | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | | 0.98 | | 1.00 | 0.98 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Frt | 0.85 | | 1.00 | | 0.99 | | 1.00 | 0.96 | |
| Flt Protected | 1.00 | | 1.00 | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3610 | | 5084 | | 3441 | | 1770 | 3334 | |
| Flt Permitted | 1.00 | | 1.00 | | 1.00 | | 0.39 | 1.00 | |
| Satd. Flow (perm) | 3610 | | 5084 | | 3441 | | 724 | 3334 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 1536 | 99 | 2371 | 4 | 660 | 32 | 286 | 816 | 267 |
| RTOR Reduction (vph) | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 1628 | 0 | 2375 | 0 | 692 | 0 | 286 | 1082 | 0 |
| Confl. Peds. (#/hr) | | 45 | | | | 186 | | | 89 |
| Confl. Bikes (#/hr) | | 4 | 94 | | | 1 | | | |
| Turn Type | custom | | | | | | custom | | |
| Protected Phases | 2 | | | | 8 | | | 4 | |
| Permitted Phases | | | 6 | | | | 7 | | |
| Actuated Green, G (s) | 48.0 | | 48.0 | | 19.0 | | 12.0 | 31.0 | |
| Effective Green, g (s) | 48.0 | | 48.0 | | 19.0 | | 12.0 | 31.0 | |
| Actuated g/C Ratio | 0.53 | | 0.53 | | 0.21 | | 0.13 | 0.34 | |
| Clearance Time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Vehicle Extension (s) | 0.2 | | 0.2 | | 0.2 | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1925 | | 2711 | | 726 | | 97 | 1148 | |
| v/s Ratio Prot | 0.45 | | | | 0.20 | | | c0.32 | |
| v/s Ratio Perm | | | c0.47 | | | | c0.40 | | |
| v/c Ratio | 0.85 | | 0.88 | | 0.95 | | 2.95 | 0.94 | |
| Uniform Delay, d1 | 17.9 | | 18.4 | | 35.1 | | 39.0 | 28.6 | |
| Progression Factor | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.8 | | 4.4 | | 22.3 | | 904.0 | 14.6 | |
| Delay (s) | 22.7 | | 22.7 | | 57.4 | | 943.0 | 43.2 | |
| Level of Service | C | | C | | E | | F | D | |
| Approach Delay (s) | | | 22.7 | | 57.4 | | | 231.2 | |
| Approach LOS | | | C | | E | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 73.7 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.24 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 13.0 |
| Intersection Capacity Utilization | 89.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1394 | 34 | 0 | 2021 | 42 | 52 | 105 | 54 | 60 | 235 | 54 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 1.00 | | | 0.97 | | | 0.98 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 5008 | | | 5015 | | | 1745 | | | 1781 | |
| Flt Permitted | | 1.00 | | | 1.00 | | | 0.79 | | | 0.91 | |
| Satd. Flow (perm) | | 5008 | | | 5015 | | | 1398 | | | 1628 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 0 | 1467 | 36 | 0 | 2127 | 44 | 55 | 111 | 57 | 63 | 247 | 57 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 14 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 0 | 1500 | 0 | 0 | 2169 | 0 | 0 | 209 | 0 | 0 | 362 | 0 |
| Confl. Peds. (#/hr) | | | 43 | | | 22 | | | 19 | | | 20 |
| Confl. Bikes (#/hr) | | | 7 | | | 7 | | | 2 | | | 3 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | | | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Actuated Green, G (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Effective Green, g (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Actuated g/C Ratio | | 0.59 | | | 0.59 | | | 0.31 | | | 0.31 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 2949 | | | 2953 | | | 435 | | | 506 | |
| v/s Ratio Prot | | 0.30 | | | c0.43 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.15 | | | c0.22 | |
| v/c Ratio | | 0.51 | | | 0.73 | | | 0.48 | | | 0.72 | |
| Uniform Delay, d1 | | 10.9 | | | 13.4 | | | 25.1 | | | 27.5 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 0.6 | | | 1.7 | | | 0.3 | | | 4.0 | |
| Delay (s) | | 11.5 | | | 15.1 | | | 25.4 | | | 31.5 | |
| Level of Service | | B | | | B | | | C | | | C | |
| Approach Delay (s) | | 11.5 | | | 15.1 | | | 25.4 | | | 31.5 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 70.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 22 | 244 | 86 | 40 | 794 | 78 | 54 | 128 | 34 | 45 | 202 | 52 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.92 | | 0.99 | | | 0.98 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | | 0.98 | | | 0.98 | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 1855 | 1454 | | 3461 | | | 1770 | | | 1781 | |
| Flt Permitted | | 0.90 | 1.00 | | 0.93 | | | 0.86 | | | 0.92 | |
| Satd. Flow (perm) | | 1672 | 1454 | | 3226 | | | 1549 | | | 1657 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 24 | 268 | 95 | 44 | 873 | 86 | 59 | 141 | 37 | 49 | 222 | 57 |
| RTOR Reduction (vph) | 0 | 0 | 51 | 0 | 12 | 0 | 0 | 11 | 0 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 0 | 292 | 44 | 0 | 991 | 0 | 0 | 226 | 0 | 0 | 316 | 0 |
| Confl. Peds. (#/hr) | | | 56 | | | 60 | | | 70 | | | 84 |
| Confl. Bikes (#/hr) | | | 4 | | | 2 | | | 3 | | | 2 |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 780 | 679 | | 1505 | | | 594 | | | 635 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.17 | 0.03 | | c0.31 | | | 0.15 | | | c0.19 | |
| v/c Ratio | | 0.37 | 0.07 | | 0.66 | | | 0.38 | | | 0.50 | |
| Uniform Delay, d1 | | 10.3 | 8.8 | | 12.3 | | | 13.4 | | | 14.1 | |
| Progression Factor | | 1.27 | 2.38 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 1.3 | 0.2 | | 2.3 | | | 0.4 | | | 0.6 | |
| Delay (s) | | 14.4 | 21.1 | | 14.6 | | | 13.8 | | | 14.7 | |
| Level of Service | | B | C | | B | | | B | | | B | |
| Approach Delay (s) | | 16.1 | | | 14.6 | | | 13.8 | | | 14.7 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 80.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 0 | 1 | 0 | 73 | 0 | 75 | 2 | 139 | 80 | 102 | 235 | 0 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 0 | 1 | 0 | 83 | 0 | 85 | 2 | 158 | 91 | 116 | 267 | 0 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 1 | 168 | 251 | 383 |
| Volume Left (vph) | 0 | 83 | 2 | 116 |
| Volume Right (vph) | 0 | 85 | 91 | 0 |
| Hadj (s) | 0.02 | -0.19 | -0.20 | 0.08 |
| Departure Headway (s) | 5.7 | 5.2 | 4.6 | 4.8 |
| Degree Utilization, x | 0.00 | 0.24 | 0.32 | 0.51 |
| Capacity (veh/h) | 530 | 625 | 740 | 732 |
| Control Delay (s) | 8.8 | 9.9 | 9.9 | 12.5 |
| Approach Delay (s) | 8.8 | 9.9 | 9.9 | 12.5 |
| Approach LOS | A | A | A | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 11.1 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 60.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 153 | 131 | 0 | 393 | 152 | 25 | 90 | 780 | 207 | 0 | 1253 | 236 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 4.0 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.69 | 1.00 | 0.98 | | | 1.00 | 0.55 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1736 | 1827 | | 3367 | 1827 | 1070 | 1736 | 3286 | | | 3471 | 848 |
| Flt Permitted | 0.36 | 1.00 | | 0.36 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | 664 | 1827 | | 1289 | 1827 | 1070 | 1827 | 3286 | | | 3471 | 848 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 158 | 135 | 0 | 405 | 157 | 26 | 93 | 804 | 213 | 0 | 1292 | 243 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 27 | 0 | 0 | 0 | 154 |
| Lane Group Flow (vph) | 158 | 135 | 0 | 405 | 157 | 11 | 93 | 990 | 0 | 0 | 1292 | 89 |
| Confl. Peds. (#/hr) | | | 87 | | | 210 | | | 64 | | | 108 |
| Confl. Bikes (#/hr) | | | 2 | | | 8 | | | 5 | | | 2 |
| Heavy Vehicles (%) | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% |
| Turn Type | custom | | | custom | | custom | custom | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | 5 | | | 1 | | 8 | 3 | | | 4 | | 4 |
| Actuated Green, G (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 38.0 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Effective Green, g (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 38.0 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Actuated g/C Ratio | 0.12 | 0.29 | | 0.12 | 0.29 | 0.42 | 0.03 | 0.42 | | | 0.37 | 0.37 |
| Clearance Time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 4.0 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 0.2 | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | | | 0.2 | 0.2 |
| Lane Grp Cap (vph) | 81 | 526 | | 158 | 526 | 452 | 61 | 1387 | | | 1273 | 311 |
| v/s Ratio Prot | | 0.07 | | | c0.09 | | | 0.30 | | | c0.37 | |
| v/s Ratio Perm | 0.24 | | | c0.31 | | 0.01 | c0.05 | | | | | 0.11 |
| v/c Ratio | 1.95 | 0.26 | | 2.56 | 0.30 | 0.02 | 1.52 | 0.71 | | | 1.01 | 0.29 |
| Uniform Delay, d1 | 39.5 | 24.6 | | 39.5 | 25.0 | 15.2 | 43.5 | 21.5 | | | 28.5 | 20.2 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 469.3 | 1.2 | | 721.7 | 1.4 | 0.0 | 302.9 | 1.5 | | | 29.0 | 0.2 |
| Delay (s) | 508.8 | 25.8 | | 761.2 | 26.4 | 15.2 | 346.4 | 23.0 | | | 57.5 | 20.4 |
| Level of Service | F | C | | F | C | B | F | C | | | E | C |
| Approach Delay (s) | | 286.3 | | | 532.0 | | | 50.1 | | | 51.6 | |
| Approach LOS | | F | | | F | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 150.7 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.01 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 17.1 |
| Intersection Capacity Utilization | 110.9% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 68 | 200 | 45 | 194 | 699 | 70 | 0 | 1046 | 49 | 0 | 1593 | 132 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 0.95 | | | 0.95 | | | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.99 | | | 0.99 | | | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1787 | 1816 | | 1787 | 3502 | | | 3534 | | | 5052 | |
| Flt Permitted | 0.20 | 1.00 | | 0.51 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 379 | 1816 | | 953 | 3502 | | | 3534 | | | 5052 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 71 | 208 | 47 | 202 | 728 | 73 | 0 | 1090 | 51 | 0 | 1659 | 138 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 8 | 0 | 0 | 4 | 0 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 71 | 248 | 0 | 202 | 793 | 0 | 0 | 1137 | 0 | 0 | 1787 | 0 |
| Confl. Peds. (#/hr) | | | 30 | | | 70 | | | 85 | | | 87 |
| Confl. Bikes (#/hr) | | | 4 | | | 5 | | | 7 | | | 10 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | 31.2 | 31.2 | | 31.2 | 31.2 | | | 49.2 | | | 49.2 | |
| Effective Green, g (s) | 31.2 | 31.2 | | 31.2 | 31.2 | | | 49.2 | | | 49.2 | |
| Actuated g/C Ratio | 0.35 | 0.35 | | 0.35 | 0.35 | | | 0.55 | | | 0.55 | |
| Clearance Time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 131 | 630 | | 330 | 1214 | | | 1932 | | | 2762 | |
| v/s Ratio Prot | | 0.14 | | | c0.23 | | | 0.32 | | | c0.35 | |
| v/s Ratio Perm | 0.19 | | | 0.21 | | | | | | | | |
| v/c Ratio | 0.54 | 0.39 | | 0.61 | 0.65 | | | 0.59 | | | 0.65 | |
| Uniform Delay, d1 | 23.7 | 22.2 | | 24.4 | 24.8 | | | 13.6 | | | 14.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.70 | | | 1.00 | |
| Incremental Delay, d2 | 4.5 | 0.4 | | 3.3 | 1.3 | | | 1.2 | | | 1.2 | |
| Delay (s) | 28.2 | 22.6 | | 27.7 | 26.1 | | | 24.3 | | | 15.5 | |
| Level of Service | C | C | | C | C | | | C | | | B | |
| Approach Delay (s) | | 23.9 | | | 26.4 | | | 24.3 | | | 15.5 | |
| Approach LOS | | C | | | C | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.6 |
| Intersection Capacity Utilization | 105.0% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 21 | 124 | 57 | 34 | 69 | 43 | 0 | 1045 | 46 | 0 | 1784 | 38 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | | 0.95 | | | 0.91 | |
| Frpb, ped/bikes | | 1.00 | 0.90 | | 0.98 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.96 | | | 0.99 | | | 1.00 | |
| Flt Protected | | 0.99 | 1.00 | | 0.99 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 1868 | 1435 | | 1754 | | | 3538 | | | 5112 | |
| Flt Permitted | | 0.94 | 1.00 | | 0.90 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 1775 | 1435 | | 1602 | | | 3538 | | | 5112 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 22 | 129 | 59 | 35 | 72 | 45 | 0 | 1089 | 48 | 0 | 1858 | 40 |
| RTOR Reduction (vph) | 0 | 0 | 16 | 0 | 17 | 0 | 0 | 4 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 151 | 43 | 0 | 135 | 0 | 0 | 1133 | 0 | 0 | 1896 | 0 |
| Confl. Peds. (#/hr) | | | 64 | | | 33 | | | 97 | | | 64 |
| Confl. Bikes (#/hr) | | | 8 | | | 4 | | | 3 | | | 11 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Turn Type | Perm | | Perm | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | | | | | | |
| Actuated Green, G (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Effective Green, g (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Actuated g/C Ratio | | 0.22 | 0.22 | | 0.22 | | | 0.67 | | | 0.67 | |
| Clearance Time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 398 | 322 | | 360 | | | 2378 | | | 3436 | |
| v/s Ratio Prot | | | | | | | | 0.32 | | | c0.37 | |
| v/s Ratio Perm | | c0.09 | 0.03 | | 0.08 | | | | | | | |
| v/c Ratio | | 0.38 | 0.14 | | 0.37 | | | 0.48 | | | 0.55 | |
| Uniform Delay, d1 | | 29.6 | 27.9 | | 29.6 | | | 7.1 | | | 7.7 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 0.77 | | | 0.40 | |
| Incremental Delay, d2 | | 0.6 | 0.2 | | 0.7 | | | 0.6 | | | 0.5 | |
| Delay (s) | | 30.2 | 28.1 | | 30.2 | | | 6.1 | | | 3.6 | |
| Level of Service | | C | C | | C | | | A | | | A | |
| Approach Delay (s) | | 29.6 | | | 30.2 | | | 6.1 | | | 3.6 | |
| Approach LOS | | C | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.2 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.3 |
| Intersection Capacity Utilization | 95.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 68 | 290 | 40 | 42 | 342 | 51 | 0 | 988 | 62 | 0 | 1696 | 138 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 0.95 | | | 0.91 | |
| Frpb, ped/bikes | | 0.98 | | | 0.97 | | | 0.98 | | | 0.98 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 0.98 | | | 0.98 | | | 0.99 | | | 0.99 | |
| Flt Protected | | 0.99 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 3393 | | | 3367 | | | 3444 | | | 4944 | |
| Flt Permitted | | 0.75 | | | 0.87 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 2582 | | | 2949 | | | 3444 | | | 4944 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 71 | 302 | 42 | 44 | 356 | 53 | 0 | 1029 | 65 | 0 | 1767 | 144 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 11 | 0 | 0 | 5 | 0 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 0 | 406 | 0 | 0 | 442 | 0 | 0 | 1089 | 0 | 0 | 1901 | 0 |
| Confl. Peds. (#/hr) | | | 126 | | | 164 | | | 168 | | | 118 |
| Confl. Bikes (#/hr) | | | 3 | | | 2 | | | 2 | | | 3 |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 26.2 | | | 26.2 | | | 54.7 | | | 54.7 | |
| Effective Green, g (s) | | 26.2 | | | 26.2 | | | 54.7 | | | 54.7 | |
| Actuated g/C Ratio | | 0.29 | | | 0.29 | | | 0.61 | | | 0.61 | |
| Clearance Time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 752 | | | 858 | | | 2093 | | | 3005 | |
| v/s Ratio Prot | | | | | | | | 0.32 | | | c0.38 | |
| v/s Ratio Perm | | c0.16 | | | 0.15 | | | | | | | |
| v/c Ratio | | 0.54 | | | 0.51 | | | 0.52 | | | 0.63 | |
| Uniform Delay, d1 | | 26.8 | | | 26.6 | | | 10.1 | | | 11.2 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 0.42 | |
| Incremental Delay, d2 | | 2.8 | | | 2.2 | | | 0.9 | | | 0.9 | |
| Delay (s) | | 29.6 | | | 28.8 | | | 11.1 | | | 5.6 | |
| Level of Service | | C | | | C | | | B | | | A | |
| Approach Delay (s) | | 29.6 | | | 28.8 | | | 11.1 | | | 5.6 | |
| Approach LOS | | C | | | C | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.1 |
| Intersection Capacity Utilization | 81.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 218 | 1943 | 143 | 0 | 906 | 0 | 0 | 936 | 705 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | 4.6 |
| Lane Util. Factor | | | | 1.00 | 0.86 | | | 0.91 | | | 0.86 | 0.86 |
| Frpb, ped/bikes | | | | 1.00 | 1.00 | | | 1.00 | | | 0.98 | 0.91 |
| Flpb, ped/bikes | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Frt | | | | 1.00 | 0.99 | | | 1.00 | | | 0.96 | 0.85 |
| Flt Protected | | | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | 1770 | 6323 | | | 5085 | | | 4507 | 1237 |
| Flt Permitted | | | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | 1770 | 6323 | | | 5085 | | | 4507 | 1237 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 0 | 0 | 225 | 2003 | 147 | 0 | 934 | 0 | 0 | 965 | 727 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 4 | 4 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 225 | 2142 | 0 | 0 | 934 | 0 | 0 | 1303 | 381 |
| Confl. Peds. (#/hr) | | | 418 | | | 28 | | | 67 | | | 75 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | 1 | | | |
| Turn Type | | | | Prot | | | | | | | | Perm |
| Protected Phases | | | | 1 | 6 | | | 4 | | | 4 | |
| Permitted Phases | | | | | | | | | | | | 4 |
| Actuated Green, G (s) | | | | 48.7 | 48.7 | | | 31.4 | | | 31.4 | 31.4 |
| Effective Green, g (s) | | | | 48.7 | 48.7 | | | 31.4 | | | 31.4 | 31.4 |
| Actuated g/C Ratio | | | | 0.54 | 0.54 | | | 0.35 | | | 0.35 | 0.35 |
| Clearance Time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | 4.6 |
| Vehicle Extension (s) | | | | 0.2 | 0.2 | | | 0.2 | | | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | | | 958 | 3421 | | | 1774 | | | 1572 | 432 |
| v/s Ratio Prot | | | | 0.13 | c0.34 | | | 0.18 | | | 0.29 | |
| v/s Ratio Perm | | | | | | | | | | | | c0.31 |
| v/c Ratio | | | | 0.23 | 0.63 | | | 0.53 | | | 0.83 | 0.88 |
| Uniform Delay, d1 | | | | 10.9 | 14.3 | | | 23.4 | | | 26.8 | 27.6 |
| Progression Factor | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | 0.6 | 0.9 | | | 1.1 | | | 5.2 | 22.0 |
| Delay (s) | | | | 11.4 | 15.2 | | | 24.5 | | | 32.0 | 49.6 |
| Level of Service | | | | B | B | | | C | | | C | D |
| Approach Delay (s) | | 0.0 | | | 14.9 | | | 24.5 | | | 36.0 | |
| Approach LOS | | A | | | B | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.9 |
| Intersection Capacity Utilization | 73.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 274 | 16 | 11 | 859 | 17 | 9 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | | 4.0 | 5.0 | |
| Lane Util. Factor | 1.00 | | | 0.95 | 1.00 | |
| Frpb, ped/bikes | 1.00 | | | 1.00 | 0.92 | |
| Flpb, ped/bikes | 1.00 | | | 1.00 | 1.00 | |
| Frt | 0.99 | | | 1.00 | 0.95 | |
| Flt Protected | 1.00 | | | 1.00 | 0.97 | |
| Satd. Flow (prot) | 1845 | | | 3537 | 1584 | |
| Flt Permitted | 1.00 | | | 0.95 | 0.97 | |
| Satd. Flow (perm) | 1845 | | | 3368 | 1584 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 285 | 17 | 11 | 895 | 18 | 9 |
| RTOR Reduction (vph) | 2 | 0 | 0 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 300 | 0 | 0 | 906 | 19 | 0 |
| Confl. Peds. (#/hr) | | 26 | | | | 30 |
| Confl. Bikes (#/hr) | | 1 | | | | |
| Turn Type | | | Perm | | | |
| Protected Phases | 2 | | | 6 | 8 | |
| Permitted Phases | | | 6 | | | |
| Actuated Green, G (s) | 47.0 | | | 47.0 | 4.0 | |
| Effective Green, g (s) | 47.0 | | | 47.0 | 4.0 | |
| Actuated g/C Ratio | 0.78 | | | 0.78 | 0.07 | |
| Clearance Time (s) | 4.0 | | | 4.0 | 5.0 | |
| Vehicle Extension (s) | 0.2 | | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1445 | | | 2638 | 106 | |
| v/s Ratio Prot | 0.16 | | | | c0.01 | |
| v/s Ratio Perm | | | | c0.27 | | |
| v/c Ratio | 0.21 | | | 0.34 | 0.18 | |
| Uniform Delay, d1 | 1.7 | | | 1.9 | 26.4 | |
| Progression Factor | 1.00 | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.3 | | | 0.4 | 0.3 | |
| Delay (s) | 2.0 | | | 2.3 | 26.7 | |
| Level of Service | A | | | A | C | |
| Approach Delay (s) | 2.0 | | | 2.3 | 26.7 | |
| Approach LOS | A | | | A | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 2.8 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.33 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 55.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 3 | 308 | 14 | 13 | 893 | 1 | 7 | 1 | 6 | 2 | 2 | 4 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 2.0 | |
| Lane Util. Factor | | 1.00 | | | 0.95 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.97 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 0.99 | | | 1.00 | | | 0.95 | | | 0.93 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.97 | | | 0.99 | |
| Satd. Flow (prot) | | 1847 | | | 3536 | | | 1672 | | | 1692 | |
| Flt Permitted | | 0.99 | | | 0.95 | | | 0.92 | | | 0.98 | |
| Satd. Flow (perm) | | 1837 | | | 3359 | | | 1580 | | | 1685 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 3 | 331 | 15 | 14 | 960 | 1 | 8 | 1 | 6 | 2 | 2 | 4 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 346 | 0 | 0 | 975 | 0 | 0 | 11 | 0 | 0 | 6 | 0 |
| Confl. Peds. (#/hr) | | | 32 | | | 73 | | | 30 | | | 17 |
| Confl. Bikes (#/hr) | | | 6 | | | 5 | | | | | | |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 31.0 | | | 31.0 | | | 20.0 | | | 23.0 | |
| Effective Green, g (s) | | 31.0 | | | 31.0 | | | 20.0 | | | 23.0 | |
| Actuated g/C Ratio | | 0.52 | | | 0.52 | | | 0.33 | | | 0.38 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 2.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 949 | | | 1735 | | | 527 | | | 646 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.19 | | | c0.29 | | | c0.01 | | | 0.00 | |
| v/c Ratio | | 0.36 | | | 0.56 | | | 0.02 | | | 0.01 | |
| Uniform Delay, d1 | | 8.6 | | | 9.9 | | | 13.4 | | | 11.4 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 1.1 | | | 1.3 | | | 0.0 | | | 0.0 | |
| Delay (s) | | 9.7 | | | 11.2 | | | 13.4 | | | 11.5 | |
| Level of Service | | A | | | B | | | B | | | B | |
| Approach Delay (s) | | 9.7 | | | 11.2 | | | 13.4 | | | 11.5 | |
| Approach LOS | | A | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.35 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 55.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑↱ | | | ↑↑↱ | | ↰ | ↑ | ↱ | ↰ | ↑ | ↱ |
| Volume (vph) | 0 | 2048 | 53 | 0 | 983 | 75 | 30 | 362 | 80 | 110 | 255 | 45 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | 1.00 | 1.00 | 0.77 | 1.00 | 1.00 | 0.94 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | | | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 4908 | | | 4837 | | 1719 | 1810 | 1186 | 1719 | 1810 | 1439 |
| Flt Permitted | | 1.00 | | | 1.00 | | 0.50 | 1.00 | 1.00 | 0.35 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 4908 | | | 4837 | | 907 | 1810 | 1186 | 638 | 1810 | 1439 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 2111 | 55 | 0 | 1013 | 77 | 31 | 373 | 82 | 113 | 263 | 46 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 9 | 0 | 0 | 0 | 3 | 0 | 0 | 31 |
| Lane Group Flow (vph) | 0 | 2163 | 0 | 0 | 1081 | 0 | 31 | 373 | 79 | 113 | 263 | 15 |
| Confl. Peds. (#/hr) | | | 74 | | | 61 | | | 221 | | | 35 |
| Confl. Bikes (#/hr) | | | 2 | | | 8 | | | 34 | | | 32 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | | | | | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 2 | | | 2 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Effective Green, g (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Actuated g/C Ratio | | 0.55 | | | 0.55 | | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 |
| Clearance Time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 2721 | | | 2682 | | 295 | 589 | 386 | 208 | 589 | 468 |
| v/s Ratio Prot | | c0.44 | | | 0.22 | | | c0.21 | | | 0.15 | |
| v/s Ratio Perm | | | | | | | 0.03 | | 0.07 | 0.18 | | 0.01 |
| v/c Ratio | | 0.79 | | | 0.40 | | 0.11 | 0.63 | 0.21 | 0.54 | 0.45 | 0.03 |
| Uniform Delay, d1 | | 16.0 | | | 11.5 | | 21.2 | 25.8 | 21.9 | 24.9 | 24.0 | 20.7 |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 2.5 | | | 0.5 | | 0.7 | 5.1 | 1.2 | 9.8 | 2.4 | 0.1 |
| Delay (s) | | 18.5 | | | 12.0 | | 21.9 | 30.9 | 23.1 | 34.7 | 26.4 | 20.8 |
| Level of Service | | B | | | B | | C | C | C | C | C | C |
| Approach Delay (s) | | 18.5 | | | 12.0 | | | 29.0 | | | 28.0 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 10.8 |
| Intersection Capacity Utilization | 98.0% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 43 | 469 | 23 | 67 | 265 | 61 | 17 | 445 | 118 | 79 | 245 | 14 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.88 | 1.00 | 1.00 | 0.95 |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.99 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3455 | | 1752 | 3375 | | 1752 | 1845 | 1372 | 1752 | 1845 | 1484 |
| Flt Permitted | | 0.90 | | 0.38 | 1.00 | | 0.56 | 1.00 | 1.00 | 0.33 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 3123 | | 707 | 3375 | | 1033 | 1845 | 1372 | 613 | 1845 | 1484 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 47 | 515 | 25 | 74 | 291 | 67 | 19 | 489 | 130 | 87 | 269 | 15 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 33 | 0 | 0 | 0 | 74 | 0 | 0 | 9 |
| Lane Group Flow (vph) | 0 | 582 | 0 | 74 | 325 | 0 | 19 | 489 | 56 | 87 | 269 | 7 |
| Confl. Peds. (#/hr) | | | 58 | | | 24 | | | 64 | | | 32 |
| Confl. Bikes (#/hr) | | | 4 | | | 1 | | | 41 | | | 40 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | Perm | | | Perm | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Effective Green, g (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Actuated g/C Ratio | | 0.42 | | 0.42 | 0.42 | | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 |
| Clearance Time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | | 0.2 | | 0.2 | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 1301 | | 295 | 1406 | | 448 | 800 | 595 | 266 | 800 | 643 |
| v/s Ratio Prot | | | | | 0.10 | | | c0.27 | | | 0.15 | |
| v/s Ratio Perm | | c0.19 | | 0.10 | | | 0.02 | | 0.04 | 0.14 | | 0.00 |
| v/c Ratio | | 0.45 | | 0.25 | 0.23 | | 0.04 | 0.61 | 0.09 | 0.33 | 0.34 | 0.01 |
| Uniform Delay, d1 | | 12.5 | | 11.4 | 11.3 | | 9.8 | 13.1 | 10.0 | 11.2 | 11.3 | 9.7 |
| Progression Factor | | 1.00 | | 0.93 | 0.87 | | 1.14 | 0.92 | 1.49 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 1.1 | | 1.9 | 0.4 | | 0.1 | 2.9 | 0.3 | 3.3 | 1.1 | 0.0 |
| Delay (s) | | 13.7 | | 12.5 | 10.2 | | 11.3 | 15.0 | 15.3 | 14.5 | 12.4 | 9.7 |
| Level of Service | | B | | B | B | | B | B | B | B | B | A |
| Approach Delay (s) | | 13.7 | | | 10.6 | | | 14.9 | | | 12.8 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 101.8% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 1044 | 10 | 5 | 678 | 83 | 10 | 357 | 37 | 152 | 142 | 65 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | | 0.99 | | 1.00 | 1.00 | 0.94 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | | | 0.98 | | | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3520 | | | 3462 | | | 1825 | | 1770 | 1863 | 1495 |
| Flt Permitted | | 0.80 | | | 0.95 | | | 0.99 | | 0.40 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 2841 | | | 3282 | | | 1815 | | 751 | 1863 | 1495 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 93 | 1076 | 10 | 5 | 699 | 86 | 10 | 368 | 38 | 157 | 146 | 67 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 16 | 0 | 0 | 6 | 0 | 0 | 0 | 44 |
| Lane Group Flow (vph) | 0 | 1178 | 0 | 0 | 775 | 0 | 0 | 410 | 0 | 157 | 146 | 23 |
| Confl. Peds. (#/hr) | | | 18 | | | 29 | | | 50 | | | 28 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | 32 | | | 33 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | 8 | | 8 |
| Actuated Green, G (s) | | 29.0 | | | 29.0 | | | 21.0 | | 21.0 | 21.0 | 21.0 |
| Effective Green, g (s) | | 29.0 | | | 29.0 | | | 21.0 | | 21.0 | 21.0 | 21.0 |
| Actuated g/C Ratio | | 0.48 | | | 0.48 | | | 0.35 | | 0.35 | 0.35 | 0.35 |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Grp Cap (vph) | | 1373 | | | 1586 | | | 635 | | 263 | 652 | 523 |
| v/s Ratio Prot | | | | | | | | | | | 0.08 | |
| v/s Ratio Perm | | c0.41 | | | 0.24 | | | c0.23 | | 0.21 | | 0.02 |
| v/c Ratio | | 0.86 | | | 0.49 | | | 0.65 | | 0.60 | 0.22 | 0.04 |
| Uniform Delay, d1 | | 13.7 | | | 10.5 | | | 16.4 | | 16.0 | 13.8 | 12.9 |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | 1.21 | 1.19 | 2.27 |
| Incremental Delay, d2 | | 7.1 | | | 1.1 | | | 5.0 | | 9.3 | 0.8 | 0.2 |
| Delay (s) | | 20.8 | | | 11.6 | | | 21.4 | | 28.6 | 17.2 | 29.4 |
| Level of Service | | C | | | B | | | C | | C | B | C |
| Approach Delay (s) | | 20.8 | | | 11.6 | | | 21.4 | | | 24.2 | |
| Approach LOS | | C | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 112.1% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 23 | 394 | 37 | 58 | 358 | 36 | 34 | 331 | 71 | 47 | 275 | 21 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.92 | | 0.99 | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | | 0.98 | | 1.00 | 0.99 | |
| Flt Protected | | 1.00 | 1.00 | | 0.99 | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1840 | 1445 | | 3424 | | | 1783 | | 1752 | 1821 | |
| Flt Permitted | | 0.96 | 1.00 | | 0.86 | | | 0.95 | | 0.39 | 1.00 | |
| Satd. Flow (perm) | | 1774 | 1445 | | 2947 | | | 1705 | | 711 | 1821 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 26 | 438 | 41 | 64 | 398 | 40 | 38 | 368 | 79 | 52 | 306 | 23 |
| RTOR Reduction (vph) | 0 | 0 | 22 | 0 | 11 | 0 | 0 | 12 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 0 | 464 | 19 | 0 | 491 | 0 | 0 | 473 | 0 | 52 | 325 | 0 |
| Confl. Peds. (#/hr) | | | 53 | | | 41 | | | 19 | | | 31 |
| Confl. Bikes (#/hr) | | | 4 | | | 1 | | | 3 | | | 2 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | 0.38 | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 828 | 674 | | 1375 | | | 654 | | 273 | 698 | |
| v/s Ratio Prot | | | | | | | | | | | 0.18 | |
| v/s Ratio Perm | | c0.26 | 0.01 | | 0.17 | | | c0.28 | | 0.07 | | |
| v/c Ratio | | 0.56 | 0.03 | | 0.36 | | | 0.72 | | 0.19 | 0.47 | |
| Uniform Delay, d1 | | 11.6 | 8.6 | | 10.2 | | | 15.8 | | 12.3 | 13.9 | |
| Progression Factor | | 0.66 | 0.29 | | 1.69 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 2.6 | 0.1 | | 0.6 | | | 6.8 | | 1.5 | 2.2 | |
| Delay (s) | | 10.2 | 2.6 | | 18.0 | | | 22.6 | | 13.9 | 16.1 | |
| Level of Service | | B | A | | B | | | C | | B | B | |
| Approach Delay (s) | | 9.6 | | | 18.0 | | | 22.6 | | | 15.8 | |
| Approach LOS | | A | | | B | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 104.7% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 574 | 608 | 0 | 297 | 20 | 463 | 403 | 56 | 38 | 314 | 8 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | 1.00 | 1.00 | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.93 | | 0.99 | | 1.00 | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | 1.00 | 0.98 | | | 1.00 | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 0.99 | |
| Satd. Flow (prot) | | 1845 | 1452 | | 3454 | | 1752 | 1792 | | | 3469 | |
| Flt Permitted | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 0.54 | |
| Satd. Flow (perm) | | 1845 | 1452 | | 3454 | | 1752 | 1792 | | | 1899 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 0 | 598 | 633 | 0 | 309 | 21 | 482 | 420 | 58 | 40 | 327 | 8 |
| RTOR Reduction (vph) | 0 | 0 | 450 | 0 | 6 | 0 | 0 | 6 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 598 | 183 | 0 | 324 | 0 | 482 | 472 | 0 | 0 | 373 | 0 |
| Confl. Peds. (#/hr) | | | 60 | | | 45 | | | 37 | | | 39 |
| Confl. Bikes (#/hr) | | | 1 | | | 1 | | | 2 | | | 3 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | custom | | | | Split | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | 8 | 8 | | | 4 | |
| Permitted Phases | | | 8 | | | | | | | 4 | | |
| Actuated Green, G (s) | | 34.0 | 26.0 | | 34.0 | | 26.0 | 26.0 | | | 17.0 | |
| Effective Green, g (s) | | 34.0 | 26.0 | | 34.0 | | 26.0 | 26.0 | | | 17.0 | |
| Actuated g/C Ratio | | 0.38 | 0.29 | | 0.38 | | 0.29 | 0.29 | | | 0.19 | |
| Clearance Time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Grp Cap (vph) | | 697 | 419 | | 1305 | | 506 | 518 | | | 359 | |
| v/s Ratio Prot | | c0.32 | | | 0.09 | | c0.28 | 0.26 | | | | |
| v/s Ratio Perm | | | 0.13 | | | | | | | | c0.20 | |
| v/c Ratio | | 0.86 | 0.44 | | 0.25 | | 0.95 | 0.91 | | | 1.04 | |
| Uniform Delay, d1 | | 25.8 | 26.0 | | 19.2 | | 31.4 | 30.9 | | | 36.5 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 13.0 | 3.3 | | 0.5 | | 29.8 | 22.8 | | | 58.3 | |
| Delay (s) | | 38.7 | 29.3 | | 19.7 | | 61.2 | 53.7 | | | 94.8 | |
| Level of Service | | D | C | | B | | E | D | | | F | |
| Approach Delay (s) | | 33.9 | | | 19.7 | | | 57.5 | | | 94.8 | |
| Approach LOS | | C | | | B | | | E | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 48.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.93 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 13.0 |
| Intersection Capacity Utilization | 80.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBR | EBR2 | WBT | WBR | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Volume (vph) | 2177 | 36 | 1255 | 2 | 783 | 19 | 294 | 686 | 107 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Lane Util. Factor | 0.76 | | 0.91 | | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Frt | 0.85 | | 1.00 | | 1.00 | | 1.00 | 0.98 | |
| Flt Protected | 1.00 | | 1.00 | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3610 | | 5084 | | 3512 | | 1770 | 3430 | |
| Flt Permitted | 1.00 | | 1.00 | | 1.00 | | 0.34 | 1.00 | |
| Satd. Flow (perm) | 3610 | | 5084 | | 3512 | | 634 | 3430 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 2244 | 37 | 1294 | 2 | 807 | 20 | 303 | 707 | 110 |
| RTOR Reduction (vph) | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 |
| Lane Group Flow (vph) | 2280 | 0 | 1296 | 0 | 827 | 0 | 303 | 803 | 0 |
| Confl. Peds. (#/hr) | | 38 | | | | 68 | | | 82 |
| Confl. Bikes (#/hr) | | 90 | | | | 2 | | | 4 |
| Turn Type | custom | | | | | | custom | | |
| Protected Phases | 2 | | | | 8 | | | 4 | |
| Permitted Phases | | | 6 | | | | 7 | | |
| Actuated Green, G (s) | 46.0 | | 46.0 | | 21.0 | | 12.0 | 33.0 | |
| Effective Green, g (s) | 46.0 | | 46.0 | | 21.0 | | 12.0 | 33.0 | |
| Actuated g/C Ratio | 0.51 | | 0.51 | | 0.23 | | 0.13 | 0.37 | |
| Clearance Time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Vehicle Extension (s) | 0.2 | | 0.2 | | 0.2 | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1845 | | 2598 | | 819 | | 85 | 1258 | |
| v/s Ratio Prot | c0.63 | | | | c0.24 | | | 0.23 | |
| v/s Ratio Perm | | | 0.25 | | | | c0.48 | | |
| v/c Ratio | 1.24 | | 0.50 | | 1.01 | | 3.56 | 0.64 | |
| Uniform Delay, d1 | 22.0 | | 14.4 | | 34.5 | | 39.0 | 23.6 | |
| Progression Factor | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 110.9 | | 0.7 | | 33.9 | | 1182.8 | 0.8 | |
| Delay (s) | 132.9 | | 15.1 | | 68.4 | | 1221.8 | 24.4 | |
| Level of Service | F | | B | | E | | F | C | |
| Approach Delay (s) | | | 15.1 | | 68.4 | | | 348.3 | |
| Approach LOS | | | B | | E | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 139.3 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.51 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 104.0% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 2139 | 31 | 0 | 965 | 42 | 42 | 157 | 45 | 83 | 129 | 27 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 0.99 | | | 0.98 | | | 0.98 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.99 | | | 0.98 | |
| Satd. Flow (prot) | | 4925 | | | 4894 | | | 1737 | | | 1744 | |
| Flt Permitted | | 1.00 | | | 1.00 | | | 0.92 | | | 0.76 | |
| Satd. Flow (perm) | | 4925 | | | 4894 | | | 1604 | | | 1351 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 0 | 2228 | 32 | 0 | 1005 | 44 | 44 | 164 | 47 | 86 | 134 | 28 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 5 | 0 | 0 | 3 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 0 | 2258 | 0 | 0 | 1044 | 0 | 0 | 252 | 0 | 0 | 243 | 0 |
| Confl. Peds. (#/hr) | | | 28 | | | 36 | | | 28 | | | 23 |
| Confl. Bikes (#/hr) | | | 4 | | | 1 | | | 2 | | | 3 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | | | | | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Actuated Green, G (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Effective Green, g (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Actuated g/C Ratio | | 0.59 | | | 0.59 | | | 0.31 | | | 0.31 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 2900 | | | 2882 | | | 499 | | | 420 | |
| v/s Ratio Prot | | c0.46 | | | 0.21 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.16 | | | c0.18 | |
| v/c Ratio | | 0.78 | | | 0.36 | | | 0.50 | | | 0.58 | |
| Uniform Delay, d1 | | 14.0 | | | 9.7 | | | 25.3 | | | 26.0 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 2.1 | | | 0.4 | | | 0.3 | | | 1.2 | |
| Delay (s) | | 16.2 | | | 10.0 | | | 25.6 | | | 27.3 | |
| Level of Service | | B | | | B | | | C | | | C | |
| Approach Delay (s) | | 16.2 | | | 10.0 | | | 25.6 | | | 27.3 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 73.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 58 | 494 | 95 | 52 | 434 | 69 | 43 | 150 | 28 | 47 | 131 | 32 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.95 | | 0.99 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.98 | | | 0.98 | | | 0.98 | |
| Flt Protected | | 0.99 | 1.00 | | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 1817 | 1477 | | 3369 | | | 1770 | | | 1756 | |
| Flt Permitted | | 0.89 | 1.00 | | 0.79 | | | 0.90 | | | 0.89 | |
| Satd. Flow (perm) | | 1625 | 1477 | | 2680 | | | 1616 | | | 1572 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 65 | 555 | 107 | 58 | 488 | 78 | 48 | 169 | 31 | 53 | 147 | 36 |
| RTOR Reduction (vph) | 0 | 0 | 52 | 0 | 19 | 0 | 0 | 9 | 0 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 0 | 620 | 55 | 0 | 605 | 0 | 0 | 239 | 0 | 0 | 225 | 0 |
| Confl. Peds. (#/hr) | | | 21 | | | 29 | | | 16 | | | 47 |
| Confl. Bikes (#/hr) | | | 9 | | | 1 | | | 1 | | | |
| Heavy Vehicles (%) | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 758 | 689 | | 1251 | | | 619 | | | 603 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.38 | 0.04 | | 0.23 | | | c0.15 | | | 0.14 | |
| v/c Ratio | | 0.82 | 0.08 | | 0.48 | | | 0.39 | | | 0.37 | |
| Uniform Delay, d1 | | 13.8 | 8.9 | | 11.0 | | | 13.4 | | | 13.3 | |
| Progression Factor | | 0.70 | 0.30 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 8.8 | 0.2 | | 1.3 | | | 0.4 | | | 0.4 | |
| Delay (s) | | 18.5 | 2.8 | | 12.4 | | | 13.8 | | | 13.7 | |
| Level of Service | | B | A | | B | | | B | | | B | |
| Approach Delay (s) | | 16.2 | | | 12.4 | | | 13.8 | | | 13.7 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 82.5% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✥ | | | ✥ | | | ✥ | | | ✥ | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 0 | 0 | 0 | 39 | 0 | 67 | 1 | 163 | 129 | 126 | 162 | 0 |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 49 | 0 | 84 | 1 | 204 | 161 | 158 | 202 | 0 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 0 | 133 | 366 | 360 |
| Volume Left (vph) | 0 | 49 | 1 | 158 |
| Volume Right (vph) | 0 | 84 | 161 | 0 |
| Hadj (s) | 0.00 | -0.27 | -0.23 | 0.12 |
| Departure Headway (s) | 5.9 | 5.3 | 4.5 | 4.8 |
| Degree Utilization, x | 0.00 | 0.19 | 0.46 | 0.48 |
| Capacity (veh/h) | 523 | 605 | 777 | 723 |
| Control Delay (s) | 8.9 | 9.6 | 11.2 | 12.2 |
| Approach Delay (s) | 0.0 | 9.6 | 11.2 | 12.2 |
| Approach LOS | A | A | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 11.4 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 56.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 189 | 199 | 1 | 155 | 72 | 18 | 77 | 1344 | 444 | 1 | 760 | 149 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 5.1 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.91 | 1.00 | 0.97 | | | 1.00 | 0.77 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1719 | 1808 | | 3335 | 1810 | 1395 | 1719 | 3198 | | | 3438 | 1178 |
| Flt Permitted | 0.36 | 1.00 | | 0.36 | 1.00 | 1.00 | 0.95 | 1.00 | | | 0.86 | 1.00 |
| Satd. Flow (perm) | 658 | 1808 | | 1277 | 1810 | 1395 | 1719 | 3198 | | | 2971 | 1178 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 201 | 212 | 1 | 165 | 77 | 19 | 82 | 1430 | 472 | 1 | 809 | 159 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 36 | 0 | 0 | 0 | 101 |
| Lane Group Flow (vph) | 201 | 213 | 0 | 165 | 77 | 5 | 82 | 1866 | 0 | 0 | 810 | 58 |
| Confl. Peds. (#/hr) | | | 63 | | | 72 | | | 84 | | | 53 |
| Confl. Bikes (#/hr) | | | 1 | | | 2 | | | 2 | | | 2 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | custom | | | custom | | Perm | Prot | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | 3 | 8 | | | 4 | |
| Permitted Phases | 5 | | | 1 | | 6 | | | | 4 | | 4 |
| Actuated Green, G (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 25.9 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Effective Green, g (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 25.9 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Actuated g/C Ratio | 0.12 | 0.29 | | 0.12 | 0.29 | 0.29 | 0.03 | 0.42 | | | 0.37 | 0.37 |
| Clearance Time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 5.1 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 80 | 520 | | 156 | 521 | 401 | 57 | 1350 | | | 1089 | 432 |
| v/s Ratio Prot | | c0.12 | | | 0.04 | | 0.05 | c0.58 | | | | |
| v/s Ratio Perm | c0.31 | | | 0.13 | | 0.00 | | | | | 0.27 | 0.05 |
| v/c Ratio | 2.51 | 0.41 | | 1.06 | 0.15 | 0.01 | 1.44 | 1.38 | | | 0.74 | 0.13 |
| Uniform Delay, d1 | 39.5 | 25.9 | | 39.5 | 23.8 | 22.9 | 43.5 | 26.0 | | | 24.8 | 19.0 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 716.1 | 2.4 | | 88.2 | 0.6 | 0.1 | 272.4 | 176.8 | | | 2.8 | 0.1 |
| Delay (s) | 755.6 | 28.3 | | 127.7 | 24.4 | 23.0 | 315.9 | 202.8 | | | 27.6 | 19.1 |
| Level of Service | F | C | | F | C | C | F | F | | | C | B |
| Approach Delay (s) | | 381.4 | | | 89.6 | | | 207.4 | | | 26.2 | |
| Approach LOS | | F | | | F | | | F | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 170.4 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.21 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 15.1 |
| Intersection Capacity Utilization | 111.1% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 108 | 412 | 48 | 94 | 509 | 90 | 0 | 1732 | 99 | 0 | 826 | 111 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 0.95 | | | 0.91 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.98 | | | 0.99 | | | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1770 | 1826 | | 1770 | 3421 | | | 5020 | | | 3458 | |
| Flt Permitted | 0.26 | 1.00 | | 0.15 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 486 | 1826 | | 274 | 3421 | | | 5020 | | | 3458 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 116 | 443 | 52 | 101 | 547 | 97 | 0 | 1862 | 106 | 0 | 888 | 119 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 116 | 490 | 0 | 101 | 637 | 0 | 0 | 1961 | 0 | 0 | 996 | 0 |
| Confl. Peds. (#/hr) | | | 24 | | | 61 | | | 78 | | | 61 |
| Confl. Bikes (#/hr) | | | 2 | | | 2 | | | 5 | | | 5 |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | 27.2 | 27.2 | | 27.2 | 27.2 | | | 53.2 | | | 53.2 | |
| Effective Green, g (s) | 27.2 | 27.2 | | 27.2 | 27.2 | | | 53.2 | | | 53.2 | |
| Actuated g/C Ratio | 0.30 | 0.30 | | 0.30 | 0.30 | | | 0.59 | | | 0.59 | |
| Clearance Time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 147 | 552 | | 83 | 1034 | | | 2967 | | | 2044 | |
| v/s Ratio Prot | | 0.27 | | | 0.19 | | | c0.39 | | | 0.29 | |
| v/s Ratio Perm | 0.24 | | | c0.37 | | | | | | | | |
| v/c Ratio | 0.79 | 0.89 | | 1.22 | 0.62 | | | 0.66 | | | 0.49 | |
| Uniform Delay, d1 | 28.8 | 29.9 | | 31.4 | 26.9 | | | 12.3 | | | 10.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.29 | | | 1.00 | |
| Incremental Delay, d2 | 23.9 | 15.9 | | 168.2 | 1.1 | | | 1.0 | | | 0.8 | |
| Delay (s) | 52.6 | 45.8 | | 199.6 | 28.0 | | | 4.6 | | | 11.4 | |
| Level of Service | D | D | | F | C | | | A | | | B | |
| Approach Delay (s) | | 47.1 | | | 51.3 | | | 4.6 | | | 11.4 | |
| Approach LOS | | D | | | D | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.6 |
| Intersection Capacity Utilization | 103.8% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 11 | 154 | 33 | 43 | 87 | 88 | 0 | 1722 | 98 | 0 | 898 | 69 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | | 0.91 | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.93 | | 0.96 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.95 | | | 0.99 | | | 0.99 | |
| Flt Protected | | 1.00 | 1.00 | | 0.99 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 1857 | 1467 | | 1675 | | | 5023 | | | 3488 | |
| Flt Permitted | | 0.98 | 1.00 | | 0.90 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 1819 | 1467 | | 1525 | | | 5023 | | | 3488 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 12 | 167 | 36 | 47 | 95 | 96 | 0 | 1872 | 107 | 0 | 976 | 75 |
| RTOR Reduction (vph) | 0 | 0 | 28 | 0 | 14 | 0 | 0 | 7 | 0 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 0 | 179 | 8 | 0 | 224 | 0 | 0 | 1972 | 0 | 0 | 1045 | 0 |
| Confl. Peds. (#/hr) | | | 37 | | | 65 | | | 76 | | | 40 |
| Confl. Bikes (#/hr) | | | 14 | | | 2 | | | 3 | | | 5 |
| Turn Type | Perm | | Perm | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | | | | | | |
| Actuated Green, G (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Effective Green, g (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Actuated g/C Ratio | | 0.22 | 0.22 | | 0.22 | | | 0.67 | | | 0.67 | |
| Clearance Time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 408 | 329 | | 342 | | | 3377 | | | 2345 | |
| v/s Ratio Prot | | | | | | | | c0.39 | | | 0.30 | |
| v/s Ratio Perm | | 0.10 | 0.01 | | c0.15 | | | | | | | |
| v/c Ratio | | 0.44 | 0.02 | | 0.66 | | | 0.58 | | | 0.45 | |
| Uniform Delay, d1 | | 30.0 | 27.2 | | 31.7 | | | 8.0 | | | 6.9 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 0.24 | | | 0.52 | |
| Incremental Delay, d2 | | 0.8 | 0.0 | | 4.5 | | | 0.6 | | | 0.5 | |
| Delay (s) | | 30.8 | 27.2 | | 36.2 | | | 2.5 | | | 4.1 | |
| Level of Service | | C | C | | D | | | A | | | A | |
| Approach Delay (s) | | 30.2 | | | 36.2 | | | 2.5 | | | 4.1 | |
| Approach LOS | | C | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.0 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.3 |
| Intersection Capacity Utilization | 95.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 116 | 412 | 25 | 18 | 218 | 33 | 0 | 1764 | 49 | 0 | 881 | 84 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 0.91 | | | 0.95 | |
| Frpb, ped/bikes | | 0.99 | | | 0.99 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 0.99 | | | 0.98 | | | 1.00 | | | 0.99 | |
| Flt Protected | | 0.99 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 3421 | | | 3390 | | | 4980 | | | 3412 | |
| Flt Permitted | | 0.79 | | | 0.90 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 2719 | | | 3061 | | | 4980 | | | 3412 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 123 | 438 | 27 | 19 | 232 | 35 | 0 | 1877 | 52 | 0 | 937 | 89 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 5 | 0 | 0 | 3 | 0 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 0 | 584 | 0 | 0 | 281 | 0 | 0 | 1926 | 0 | 0 | 1018 | 0 |
| Confl. Peds. (#/hr) | | | 101 | | | 61 | | | 143 | | | 81 |
| Confl. Bikes (#/hr) | | | 7 | | | | | | 4 | | | 5 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 28.2 | | | 28.2 | | | 52.7 | | | 52.7 | |
| Effective Green, g (s) | | 28.2 | | | 28.2 | | | 52.7 | | | 52.7 | |
| Actuated g/C Ratio | | 0.31 | | | 0.31 | | | 0.59 | | | 0.59 | |
| Clearance Time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 852 | | | 959 | | | 2916 | | | 1998 | |
| v/s Ratio Prot | | | | | | | | c0.39 | | | 0.30 | |
| v/s Ratio Perm | | c0.21 | | | 0.09 | | | | | | | |
| v/c Ratio | | 0.69 | | | 0.29 | | | 0.66 | | | 0.51 | |
| Uniform Delay, d1 | | 27.0 | | | 23.4 | | | 12.6 | | | 11.0 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 0.77 | |
| Incremental Delay, d2 | | 4.5 | | | 0.8 | | | 1.2 | | | 0.8 | |
| Delay (s) | | 31.5 | | | 24.1 | | | 13.8 | | | 9.3 | |
| Level of Service | | C | | | C | | | B | | | A | |
| Approach Delay (s) | | 31.5 | | | 24.1 | | | 13.8 | | | 9.3 | |
| Approach LOS | | C | | | C | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.1 |
| Intersection Capacity Utilization | 80.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 146 | 1281 | 228 | 60 | 1527 | 0 | 0 | 489 | 404 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | 4.6 |
| Lane Util. Factor | | | | 1.00 | 0.86 | | | 0.91 | | | 0.86 | 0.86 |
| Frpb, ped/bikes | | | | 1.00 | 0.99 | | | 1.00 | | | 0.99 | 0.96 |
| Flpb, ped/bikes | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Frt | | | | 1.00 | 0.98 | | | 1.00 | | | 0.96 | 0.85 |
| Flt Protected | | | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | 1752 | 6166 | | | 5026 | | | 4497 | 1290 |
| Flt Permitted | | | | 0.95 | 1.00 | | | 0.86 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | 1752 | 6166 | | | 4352 | | | 4497 | 1290 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 0 | 0 | 0 | 154 | 1348 | 240 | 63 | 1607 | 0 | 0 | 515 | 425 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 5 | 5 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 154 | 1583 | 0 | 0 | 1670 | 0 | 0 | 718 | 212 |
| Confl. Peds. (#/hr) | | | 406 | | | 24 | | | 51 | | | 29 |
| Confl. Bikes (#/hr) | | | | | | | | | 1 | | | 1 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | | Prot | | | Perm | | | | | Perm |
| Protected Phases | | | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | | | 4 |
| Actuated Green, G (s) | | | | 35.7 | 35.7 | | | 44.4 | | | 44.4 | 44.4 |
| Effective Green, g (s) | | | | 35.7 | 35.7 | | | 44.4 | | | 44.4 | 44.4 |
| Actuated g/C Ratio | | | | 0.40 | 0.40 | | | 0.49 | | | 0.49 | 0.49 |
| Clearance Time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | 4.6 |
| Vehicle Extension (s) | | | | 0.2 | 0.2 | | | 0.2 | | | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | | | 695 | 2446 | | | 2147 | | | 2219 | 636 |
| v/s Ratio Prot | | | | 0.09 | c0.26 | | | | | | 0.16 | |
| v/s Ratio Perm | | | | | | | | c0.38 | | | | 0.16 |
| v/c Ratio | | | | 0.22 | 0.65 | | | 0.78 | | | 0.32 | 0.33 |
| Uniform Delay, d1 | | | | 18.0 | 22.0 | | | 18.7 | | | 13.7 | 13.8 |
| Progression Factor | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | 0.7 | 1.3 | | | 2.9 | | | 0.4 | 1.4 |
| Delay (s) | | | | 18.7 | 23.4 | | | 21.6 | | | 14.1 | 15.2 |
| Level of Service | | | | B | C | | | C | | | B | B |
| Approach Delay (s) | | 0.0 | | | 23.0 | | | 21.6 | | | 14.4 | |
| Approach LOS | | A | | | C | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.9 |
| Intersection Capacity Utilization | 86.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 589 | 9 | 13 | 540 | 11 | 5 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | | 4.0 | 5.0 | |
| Lane Util. Factor | 1.00 | | | 0.95 | 1.00 | |
| Frpb, ped/bikes | 1.00 | | | 1.00 | 0.90 | |
| Flpb, ped/bikes | 1.00 | | | 1.00 | 1.00 | |
| Frt | 1.00 | | | 1.00 | 0.95 | |
| Flt Protected | 1.00 | | | 1.00 | 0.97 | |
| Satd. Flow (prot) | 1822 | | | 3467 | 1524 | |
| Flt Permitted | 1.00 | | | 0.94 | 0.97 | |
| Satd. Flow (perm) | 1822 | | | 3263 | 1524 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 669 | 10 | 15 | 614 | 12 | 6 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 679 | 0 | 0 | 629 | 12 | 0 |
| Confl. Peds. (#/hr) | | 29 | | | | 37 |
| Confl. Bikes (#/hr) | | 1 | | | | |
| Heavy Vehicles (%) | 4% | 4% | 4% | 4% | 4% | 4% |
| Turn Type | | | Perm | | | |
| Protected Phases | 2 | | | 6 | 8 | |
| Permitted Phases | | | 6 | | | |
| Actuated Green, G (s) | 47.0 | | | 47.0 | 4.0 | |
| Effective Green, g (s) | 47.0 | | | 47.0 | 4.0 | |
| Actuated g/C Ratio | 0.78 | | | 0.78 | 0.07 | |
| Clearance Time (s) | 4.0 | | | 4.0 | 5.0 | |
| Vehicle Extension (s) | 0.2 | | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1427 | | | 2556 | 102 | |
| v/s Ratio Prot | c0.37 | | | | c0.01 | |
| v/s Ratio Perm | | | | 0.19 | | |
| v/c Ratio | 0.48 | | | 0.25 | 0.12 | |
| Uniform Delay, d1 | 2.2 | | | 1.7 | 26.3 | |
| Progression Factor | 1.00 | | | 2.30 | 1.00 | |
| Incremental Delay, d2 | 1.1 | | | 0.2 | 0.2 | |
| Delay (s) | 3.4 | | | 4.2 | 26.5 | |
| Level of Service | A | | | A | C | |
| Approach Delay (s) | 3.4 | | | 4.2 | 26.5 | |
| Approach LOS | A | | | A | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 4.1 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.45 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 55.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 550 | 0 | 0 | 593 | 2 | 0 | 2 | 4 | 0 | 0 | 3 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 0 | 632 | 0 | 0 | 682 | 2 | 0 | 2 | 5 | 0 | 0 | 3 |
| Pedestrians | | 26 | | | 64 | | | 46 | | | 97 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 2 | | | 5 | | | 4 | | | 8 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | 268 | | | 542 | | | | | | | |
| pX, platoon unblocked | | | | 0.72 | | | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | |
| vC, conflicting volume | 781 | | | 678 | | | 1048 | 1459 | 742 | 1482 | 1458 | 465 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 781 | | | 356 | | | 871 | 1443 | 445 | 1475 | 1441 | 465 |
| tC, single (s) | 4.2 | | | 4.2 | | | 7.6 | 6.6 | 7.0 | 7.6 | 6.6 | 7.0 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 100 | | | 100 | 97 | 99 | 100 | 100 | 99 |
| cM capacity (veh/h) | 753 | | | 819 | | | 148 | 82 | 363 | 48 | 82 | 484 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 | NB 1 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 632 | 341 | 343 | 7 | 3 |
| Volume Left | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 2 | 5 | 3 |
| cSH | 753 | 819 | 1700 | 169 | 484 |
| Volume to Capacity | 0.00 | 0.00 | 0.20 | 0.04 | 0.01 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 3 | 1 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 27.2 | 12.5 |
| Lane LOS | | | | D | B |
| Approach Delay (s) | 0.0 | 0.0 | | 27.2 | 12.5 |
| Approach LOS | | | | D | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.2 | | |
| Intersection Capacity Utilization | 47.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 10 | 546 | 9 | 7 | 558 | 30 | 4 | 2 | 4 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Lane Util. Factor | | 1.00 | | | 0.95 | | | 1.00 | | | | |
| Frt | | 1.00 | | | 0.99 | | | 0.95 | | | | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.98 | | | | |
| Satd. Flow (prot) | | 1857 | | | 3510 | | | 1728 | | | | |
| Flt Permitted | | 0.99 | | | 0.95 | | | 0.98 | | | | |
| Satd. Flow (perm) | | 1836 | | | 3332 | | | 1728 | | | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 11 | 593 | 10 | 8 | 607 | 33 | 4 | 2 | 4 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 8 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 613 | 0 | 0 | 640 | 0 | 0 | 8 | 0 | 0 | 0 | 0 |
| Turn Type | Perm | | | Perm | | | Split | | | | | |
| Protected Phases | | 4 | | | 8 | | 2 | 2 | | | | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 27.1 | | | 27.1 | | | 24.9 | | | | |
| Effective Green, g (s) | | 27.1 | | | 27.1 | | | 24.9 | | | | |
| Actuated g/C Ratio | | 0.45 | | | 0.45 | | | 0.41 | | | | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | | |
| Lane Grp Cap (vph) | | 829 | | | 1505 | | | 717 | | | | |
| v/s Ratio Prot | | | | | | | | c0.00 | | | | |
| v/s Ratio Perm | | c0.33 | | | 0.19 | | | | | | | |
| v/c Ratio | | 0.74 | | | 0.43 | | | 0.01 | | | | |
| Uniform Delay, d1 | | 13.5 | | | 11.2 | | | 10.3 | | | | |
| Progression Factor | | 0.95 | | | 1.00 | | | 1.00 | | | | |
| Incremental Delay, d2 | | 3.3 | | | 0.2 | | | 0.0 | | | | |
| Delay (s) | | 16.2 | | | 11.4 | | | 10.3 | | | | |
| Level of Service | | B | | | B | | | B | | | | |
| Approach Delay (s) | | 16.2 | | | 11.4 | | | 10.3 | | | 0.0 | |
| Approach LOS | | B | | | B | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.39 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 47.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1465 | 73 | 0 | 1979 | 133 | 49 | 299 | 75 | 116 | 437 | 76 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | | 0.98 | | 1.00 | 1.00 | 0.78 | 1.00 | 1.00 | 0.88 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.99 | | | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 4956 | | | 4878 | | 1752 | 1845 | 1223 | 1752 | 1845 | 1376 |
| Flt Permitted | | 1.00 | | | 1.00 | | 0.25 | 1.00 | 1.00 | 0.44 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 4956 | | | 4878 | | 465 | 1845 | 1223 | 810 | 1845 | 1376 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 1510 | 75 | 0 | 2040 | 137 | 51 | 308 | 77 | 120 | 451 | 78 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 8 | 0 | 0 | 0 | 9 | 0 | 0 | 2 |
| Lane Group Flow (vph) | 0 | 1579 | 0 | 0 | 2169 | 0 | 51 | 308 | 68 | 120 | 451 | 76 |
| Confl. Peds. (#/hr) | | | 143 | | | 164 | | | 216 | | | 93 |
| Confl. Bikes (#/hr) | | | 5 | | | 3 | | | 24 | | | 44 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | | | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Effective Green, g (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Actuated g/C Ratio | | 0.55 | | | 0.55 | | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 |
| Clearance Time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 2748 | | | 2705 | | 151 | 601 | 398 | 264 | 601 | 448 |
| v/s Ratio Prot | | 0.32 | | | c0.44 | | | 0.17 | | | c0.24 | |
| v/s Ratio Perm | | | | | | | 0.11 | | 0.06 | 0.15 | | 0.06 |
| v/c Ratio | | 0.57 | | | 0.80 | | 0.34 | 0.51 | 0.17 | 0.45 | 0.75 | 0.17 |
| Uniform Delay, d1 | | 13.1 | | | 16.1 | | 23.0 | 24.6 | 21.7 | 24.0 | 27.1 | 21.7 |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.9 | | | 2.6 | | 6.0 | 3.1 | 0.9 | 5.6 | 8.4 | 0.8 |
| Delay (s) | | 14.0 | | | 18.7 | | 29.0 | 27.7 | 22.6 | 29.6 | 35.5 | 22.5 |
| Level of Service | | B | | | B | | C | C | C | C | D | C |
| Approach Delay (s) | | 14.0 | | | 18.7 | | | 26.9 | | | 32.8 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 10.8 |
| Intersection Capacity Utilization | 98.7% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 31 | 185 | 37 | 193 | 488 | 88 | 18 | 265 | 36 | 54 | 482 | 32 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.89 | 1.00 | 1.00 | 0.93 |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.98 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3397 | | 1770 | 3431 | | 1770 | 1863 | 1407 | 1770 | 1863 | 1472 |
| Flt Permitted | | 0.86 | | 0.59 | 1.00 | | 0.32 | 1.00 | 1.00 | 0.55 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 2933 | | 1094 | 3431 | | 587 | 1863 | 1407 | 1023 | 1863 | 1472 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 33 | 195 | 39 | 203 | 514 | 93 | 19 | 279 | 38 | 57 | 507 | 34 |
| RTOR Reduction (vph) | 0 | 23 | 0 | 0 | 25 | 0 | 0 | 0 | 22 | 0 | 0 | 19 |
| Lane Group Flow (vph) | 0 | 244 | 0 | 203 | 583 | 0 | 19 | 279 | 16 | 57 | 507 | 15 |
| Confl. Peds. (#/hr) | | | 54 | | | 21 | | | 59 | | | 52 |
| Confl. Bikes (#/hr) | | | 3 | | | 7 | | | 31 | | | 48 |
| Turn Type | Perm | | | Perm | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Effective Green, g (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Actuated g/C Ratio | | 0.42 | | 0.42 | 0.42 | | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 |
| Clearance Time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | | 0.2 | | 0.2 | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 1222 | | 456 | 1430 | | 254 | 807 | 610 | 443 | 807 | 638 |
| v/s Ratio Prot | | | | | 0.17 | | | 0.15 | | | c0.27 | |
| v/s Ratio Perm | | 0.08 | | c0.19 | | | 0.03 | | 0.01 | 0.06 | | 0.01 |
| v/c Ratio | | 0.20 | | 0.45 | 0.41 | | 0.07 | 0.35 | 0.03 | 0.13 | 0.63 | 0.02 |
| Uniform Delay, d1 | | 11.1 | | 12.5 | 12.3 | | 10.0 | 11.3 | 9.7 | 10.2 | 13.2 | 9.7 |
| Progression Factor | | 1.00 | | 0.27 | 0.24 | | 1.07 | 1.03 | 1.38 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.4 | | 2.5 | 0.7 | | 0.5 | 1.0 | 0.1 | 0.6 | 3.7 | 0.1 |
| Delay (s) | | 11.5 | | 5.9 | 3.6 | | 11.2 | 12.7 | 13.5 | 10.8 | 16.9 | 9.8 |
| Level of Service | | B | | A | A | | B | B | B | B | B | A |
| Approach Delay (s) | | 11.5 | | | 4.2 | | | 12.7 | | | 15.9 | |
| Approach LOS | | B | | | A | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 97.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 52 | 736 | 22 | 21 | 900 | 89 | 20 | 160 | 21 | 196 | 298 | 160 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.99 | | 1.00 | 1.00 | 0.95 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | | | 0.99 | | | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3510 | | | 3475 | | | 1815 | | 1770 | 1863 | 1504 |
| Flt Permitted | | 0.78 | | | 0.93 | | | 0.95 | | 0.64 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 2744 | | | 3228 | | | 1737 | | 1189 | 1863 | 1504 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 55 | 783 | 23 | 22 | 957 | 95 | 21 | 170 | 22 | 209 | 317 | 170 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 12 | 0 | 0 | 7 | 0 | 0 | 0 | 35 |
| Lane Group Flow (vph) | 0 | 858 | 0 | 0 | 1062 | 0 | 0 | 206 | 0 | 209 | 317 | 135 |
| Confl. Peds. (#/hr) | | | 15 | | | 21 | | | 46 | | | 24 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | 34 | | | 35 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | 8 | | 8 |
| Actuated Green, G (s) | | 27.0 | | | 27.0 | | | 23.0 | | 23.0 | 23.0 | 23.0 |
| Effective Green, g (s) | | 27.0 | | | 27.0 | | | 23.0 | | 23.0 | 23.0 | 23.0 |
| Actuated g/C Ratio | | 0.45 | | | 0.45 | | | 0.38 | | 0.38 | 0.38 | 0.38 |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Grp Cap (vph) | | 1235 | | | 1453 | | | 666 | | 456 | 714 | 577 |
| v/s Ratio Prot | | | | | | | | | | | 0.17 | |
| v/s Ratio Perm | | 0.31 | | | c0.33 | | | 0.12 | | c0.18 | | 0.09 |
| v/c Ratio | | 0.69 | | | 0.73 | | | 0.31 | | 0.46 | 0.44 | 0.23 |
| Uniform Delay, d1 | | 13.2 | | | 13.5 | | | 12.9 | | 13.8 | 13.7 | 12.5 |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | 0.76 | 0.76 | 0.74 |
| Incremental Delay, d2 | | 3.2 | | | 3.3 | | | 1.2 | | 2.8 | 1.7 | 0.8 |
| Delay (s) | | 16.4 | | | 16.8 | | | 14.2 | | 13.3 | 12.1 | 10.0 |
| Level of Service | | B | | | B | | | B | | B | B | B |
| Approach Delay (s) | | 16.4 | | | 16.8 | | | 14.2 | | | 12.0 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 106.1% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 12 | 229 | 51 | 91 | 712 | 39 | 36 | 317 | 40 | 39 | 378 | 26 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.91 | | 1.00 | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | | 1.00 | 1.00 | | 0.99 | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1858 | 1434 | | 3486 | | | 1817 | | 1770 | 1839 | |
| Flt Permitted | | 0.95 | 1.00 | | 0.88 | | | 0.93 | | 0.44 | 1.00 | |
| Satd. Flow (perm) | | 1773 | 1434 | | 3098 | | | 1706 | | 815 | 1839 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 13 | 244 | 54 | 97 | 757 | 41 | 38 | 337 | 43 | 41 | 402 | 28 |
| RTOR Reduction (vph) | 0 | 0 | 29 | 0 | 6 | 0 | 0 | 7 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 0 | 257 | 25 | 0 | 889 | 0 | 0 | 411 | 0 | 41 | 426 | 0 |
| Confl. Peds. (#/hr) | | | 68 | | | 35 | | | 29 | | | 42 |
| Confl. Bikes (#/hr) | | | 4 | | | 6 | | | 2 | | | 3 |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | 0.38 | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 827 | 669 | | 1446 | | | 654 | | 312 | 705 | |
| v/s Ratio Prot | | | | | | | | | | | 0.23 | |
| v/s Ratio Perm | | 0.14 | 0.02 | | c0.29 | | | c0.24 | | 0.05 | | |
| v/c Ratio | | 0.31 | 0.04 | | 0.61 | | | 0.63 | | 0.13 | 0.60 | |
| Uniform Delay, d1 | | 10.0 | 8.7 | | 12.0 | | | 15.0 | | 12.0 | 14.8 | |
| Progression Factor | | 1.08 | 1.48 | | 0.26 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 1.0 | 0.1 | | 1.5 | | | 4.5 | | 0.9 | 3.8 | |
| Delay (s) | | 11.8 | 12.9 | | 4.5 | | | 19.6 | | 12.9 | 18.7 | |
| Level of Service | | B | B | | A | | | B | | B | B | |
| Approach Delay (s) | | 12.0 | | | 4.5 | | | 19.6 | | | 18.2 | |
| Approach LOS | | B | | | A | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 105.1% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 377 | 602 | 0 | 465 | 34 | 530 | 406 | 41 | 18 | 492 | 15 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | 1.00 | 1.00 | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.93 | | 0.99 | | 1.00 | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | 1.00 | 0.99 | | | 1.00 | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 1863 | 1474 | | 3481 | | 1770 | 1816 | | | 3508 | |
| Flt Permitted | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 0.64 | |
| Satd. Flow (perm) | | 1863 | 1474 | | 3481 | | 1770 | 1816 | | | 2233 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 0 | 401 | 640 | 0 | 495 | 36 | 564 | 432 | 44 | 19 | 523 | 16 |
| RTOR Reduction (vph) | 0 | 0 | 427 | 0 | 6 | 0 | 0 | 4 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 401 | 213 | 0 | 525 | 0 | 564 | 472 | 0 | 0 | 556 | 0 |
| Confl. Peds. (#/hr) | | | 64 | | | 50 | | | 68 | | | 57 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | 3 | | | 3 |
| Turn Type | | | custom | | | | Split | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | 8 | 8 | | | 4 | |
| Permitted Phases | | | 8 | | | | | | | 4 | | |
| Actuated Green, G (s) | | 30.0 | 30.0 | | 30.0 | | 30.0 | 30.0 | | | 17.0 | |
| Effective Green, g (s) | | 30.0 | 30.0 | | 30.0 | | 30.0 | 30.0 | | | 17.0 | |
| Actuated g/C Ratio | | 0.33 | 0.33 | | 0.33 | | 0.33 | 0.33 | | | 0.19 | |
| Clearance Time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Grp Cap (vph) | | 621 | 491 | | 1160 | | 590 | 605 | | | 422 | |
| v/s Ratio Prot | | c0.22 | | | 0.15 | | c0.32 | 0.26 | | | | |
| v/s Ratio Perm | | | 0.14 | | | | | | | | c0.25 | |
| v/c Ratio | | 0.65 | 0.43 | | 0.45 | | 0.96 | 0.78 | | | 1.32 | |
| Uniform Delay, d1 | | 25.5 | 23.4 | | 23.6 | | 29.4 | 27.0 | | | 36.5 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 5.1 | 2.8 | | 1.3 | | 27.6 | 9.6 | | | 158.4 | |
| Delay (s) | | 30.6 | 26.2 | | 24.8 | | 57.0 | 36.7 | | | 194.9 | |
| Level of Service | | C | C | | C | | E | D | | | F | |
| Approach Delay (s) | | 27.9 | | | 24.8 | | | 47.7 | | | 194.9 | |
| Approach LOS | | C | | | C | | | D | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 63.3 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 13.0 |
| Intersection Capacity Utilization | 79.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBR | EBR2 | WBT | WBR | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Volume (vph) | 1475 | 95 | 2277 | 5 | 634 | 31 | 275 | 791 | 256 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Lane Util. Factor | 0.76 | | 0.91 | | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | | 0.98 | | 1.00 | 0.98 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Frt | 0.85 | | 1.00 | | 0.99 | | 1.00 | 0.96 | |
| Flt Protected | 1.00 | | 1.00 | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3610 | | 5084 | | 3441 | | 1770 | 3336 | |
| Flt Permitted | 1.00 | | 1.00 | | 1.00 | | 0.39 | 1.00 | |
| Satd. Flow (perm) | 3610 | | 5084 | | 3441 | | 724 | 3336 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 1536 | 99 | 2372 | 5 | 660 | 32 | 286 | 824 | 267 |
| RTOR Reduction (vph) | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 1628 | 0 | 2377 | 0 | 692 | 0 | 286 | 1090 | 0 |
| Confl. Peds. (#/hr) | | 45 | | | | 186 | | | 89 |
| Confl. Bikes (#/hr) | | 4 | 94 | | | 1 | | | |
| Turn Type | custom | | | | | | custom | | |
| Protected Phases | 2 | | | | 8 | | | 4 | |
| Permitted Phases | | | 6 | | | | 7 | | |
| Actuated Green, G (s) | 48.0 | | 48.0 | | 19.0 | | 12.0 | 31.0 | |
| Effective Green, g (s) | 48.0 | | 48.0 | | 19.0 | | 12.0 | 31.0 | |
| Actuated g/C Ratio | 0.53 | | 0.53 | | 0.21 | | 0.13 | 0.34 | |
| Clearance Time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Vehicle Extension (s) | 0.2 | | 0.2 | | 0.2 | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1925 | | 2711 | | 726 | | 97 | 1149 | |
| v/s Ratio Prot | 0.45 | | | | 0.20 | | | c0.33 | |
| v/s Ratio Perm | | | c0.47 | | | | c0.40 | | |
| v/c Ratio | 0.85 | | 0.88 | | 0.95 | | 2.95 | 0.95 | |
| Uniform Delay, d1 | 17.9 | | 18.4 | | 35.1 | | 39.0 | 28.7 | |
| Progression Factor | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.8 | | 4.4 | | 22.3 | | 904.0 | 15.4 | |
| Delay (s) | 22.7 | | 22.8 | | 57.4 | | 943.0 | 44.1 | |
| Level of Service | C | | C | | E | | F | D | |
| Approach Delay (s) | | | 22.8 | | 57.4 | | | 230.8 | |
| Approach LOS | | | C | | E | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 73.8 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.24 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 13.0 |
| Intersection Capacity Utilization | 89.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1395 | 35 | 0 | 2021 | 42 | 54 | 105 | 57 | 60 | 235 | 54 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 1.00 | | | 0.96 | | | 0.98 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 5007 | | | 5015 | | | 1743 | | | 1781 | |
| Flt Permitted | | 1.00 | | | 1.00 | | | 0.78 | | | 0.90 | |
| Satd. Flow (perm) | | 5007 | | | 5015 | | | 1384 | | | 1625 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 0 | 1468 | 37 | 0 | 2127 | 44 | 57 | 111 | 60 | 63 | 247 | 57 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 14 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 0 | 1502 | 0 | 0 | 2169 | 0 | 0 | 214 | 0 | 0 | 362 | 0 |
| Confl. Peds. (#/hr) | | | 43 | | | 22 | | | 19 | | | 20 |
| Confl. Bikes (#/hr) | | | 7 | | | 7 | | | 2 | | | 3 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | | | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Actuated Green, G (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Effective Green, g (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Actuated g/C Ratio | | 0.59 | | | 0.59 | | | 0.31 | | | 0.31 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 2949 | | | 2953 | | | 431 | | | 506 | |
| v/s Ratio Prot | | 0.30 | | | c0.43 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.15 | | | c0.22 | |
| v/c Ratio | | 0.51 | | | 0.73 | | | 0.50 | | | 0.72 | |
| Uniform Delay, d1 | | 10.9 | | | 13.4 | | | 25.2 | | | 27.5 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 0.6 | | | 1.7 | | | 0.3 | | | 4.0 | |
| Delay (s) | | 11.5 | | | 15.1 | | | 25.6 | | | 31.5 | |
| Level of Service | | B | | | B | | | C | | | C | |
| Approach Delay (s) | | 11.5 | | | 15.1 | | | 25.6 | | | 31.5 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 70.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 24 | 248 | 88 | 52 | 801 | 79 | 57 | 129 | 34 | 46 | 202 | 52 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.92 | | 0.99 | | | 0.98 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | | 0.98 | | | 0.98 | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 1855 | 1454 | | 3459 | | | 1770 | | | 1781 | |
| Flt Permitted | | 0.89 | 1.00 | | 0.92 | | | 0.86 | | | 0.92 | |
| Satd. Flow (perm) | | 1653 | 1454 | | 3191 | | | 1539 | | | 1650 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 26 | 273 | 97 | 57 | 880 | 87 | 63 | 142 | 37 | 51 | 222 | 57 |
| RTOR Reduction (vph) | 0 | 0 | 52 | 0 | 12 | 0 | 0 | 11 | 0 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 0 | 299 | 45 | 0 | 1012 | 0 | 0 | 231 | 0 | 0 | 318 | 0 |
| Confl. Peds. (#/hr) | | | 56 | | | 60 | | | 70 | | | 84 |
| Confl. Bikes (#/hr) | | | 4 | | | 2 | | | 3 | | | 2 |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 771 | 679 | | 1489 | | | 590 | | | 633 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.18 | 0.03 | | c0.32 | | | 0.15 | | | c0.19 | |
| v/c Ratio | | 0.39 | 0.07 | | 0.68 | | | 0.39 | | | 0.50 | |
| Uniform Delay, d1 | | 10.4 | 8.8 | | 12.5 | | | 13.4 | | | 14.1 | |
| Progression Factor | | 1.26 | 2.36 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 1.4 | 0.2 | | 2.5 | | | 0.4 | | | 0.6 | |
| Delay (s) | | 14.5 | 20.9 | | 15.0 | | | 13.9 | | | 14.8 | |
| Level of Service | | B | C | | B | | | B | | | B | |
| Approach Delay (s) | | 16.1 | | | 15.0 | | | 13.9 | | | 14.8 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 81.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✥ | | | ✥ | | | ✥ | | | ✥ | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 0 | 1 | 0 | 68 | 0 | 70 | 2 | 142 | 80 | 108 | 243 | 0 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 0 | 1 | 0 | 77 | 0 | 80 | 2 | 161 | 91 | 123 | 276 | 0 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 1 | 157 | 255 | 399 |
| Volume Left (vph) | 0 | 77 | 2 | 123 |
| Volume Right (vph) | 0 | 80 | 91 | 0 |
| Hadj (s) | 0.02 | -0.19 | -0.20 | 0.08 |
| Departure Headway (s) | 5.8 | 5.2 | 4.6 | 4.7 |
| Degree Utilization, x | 0.00 | 0.23 | 0.33 | 0.52 |
| Capacity (veh/h) | 528 | 619 | 743 | 737 |
| Control Delay (s) | 8.8 | 9.8 | 9.9 | 12.8 |
| Approach Delay (s) | 8.8 | 9.8 | 9.9 | 12.8 |
| Approach LOS | A | A | A | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 11.3 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 61.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 154 | 133 | 1 | 393 | 152 | 25 | 90 | 781 | 211 | 0 | 1253 | 236 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 4.0 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.69 | 1.00 | 0.98 | | | 1.00 | 0.55 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1736 | 1823 | | 3367 | 1827 | 1070 | 1736 | 3283 | | | 3471 | 848 |
| Flt Permitted | 0.36 | 1.00 | | 0.36 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | 664 | 1823 | | 1289 | 1827 | 1070 | 1827 | 3283 | | | 3471 | 848 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 159 | 137 | 1 | 405 | 157 | 26 | 93 | 805 | 218 | 0 | 1292 | 243 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 27 | 0 | 0 | 0 | 154 |
| Lane Group Flow (vph) | 159 | 138 | 0 | 405 | 157 | 11 | 93 | 996 | 0 | 0 | 1292 | 89 |
| Confl. Peds. (#/hr) | | | 87 | | | 210 | | | 64 | | | 108 |
| Confl. Bikes (#/hr) | | | 2 | | | 8 | | | 5 | | | 2 |
| Heavy Vehicles (%) | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% |
| Turn Type | custom | | | custom | | custom | custom | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | 5 | | | 1 | | 8 | 3 | | | 4 | | 4 |
| Actuated Green, G (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 38.0 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Effective Green, g (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 38.0 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Actuated g/C Ratio | 0.12 | 0.29 | | 0.12 | 0.29 | 0.42 | 0.03 | 0.42 | | | 0.37 | 0.37 |
| Clearance Time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 4.0 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 0.2 | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | | | 0.2 | 0.2 |
| Lane Grp Cap (vph) | 81 | 525 | | 158 | 526 | 452 | 61 | 1386 | | | 1273 | 311 |
| v/s Ratio Prot | | 0.08 | | | c0.09 | | | 0.30 | | | c0.37 | |
| v/s Ratio Perm | 0.24 | | | c0.31 | | 0.01 | c0.05 | | | | | 0.11 |
| v/c Ratio | 1.96 | 0.26 | | 2.56 | 0.30 | 0.02 | 1.52 | 0.72 | | | 1.01 | 0.29 |
| Uniform Delay, d1 | 39.5 | 24.7 | | 39.5 | 25.0 | 15.2 | 43.5 | 21.6 | | | 28.5 | 20.2 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 474.7 | 1.2 | | 721.7 | 1.4 | 0.0 | 302.9 | 1.5 | | | 29.0 | 0.2 |
| Delay (s) | 514.2 | 25.9 | | 761.2 | 26.4 | 15.2 | 346.4 | 23.1 | | | 57.5 | 20.4 |
| Level of Service | F | C | | F | C | B | F | C | | | E | C |
| Approach Delay (s) | | 287.3 | | | 532.0 | | | 50.0 | | | 51.6 | |
| Approach LOS | | F | | | F | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 150.8 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.01 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 17.1 |
| Intersection Capacity Utilization | 111.1% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 69 | 200 | 66 | 194 | 699 | 70 | 0 | 1050 | 50 | 0 | 1594 | 132 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 0.95 | | | 0.95 | | | 0.91 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.99 | | | 0.99 | | | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1787 | 1793 | | 1787 | 3502 | | | 3534 | | | 5052 | |
| Flt Permitted | 0.20 | 1.00 | | 0.48 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 379 | 1793 | | 899 | 3502 | | | 3534 | | | 5052 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 72 | 208 | 69 | 202 | 728 | 73 | 0 | 1094 | 52 | 0 | 1660 | 138 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 8 | 0 | 0 | 4 | 0 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 72 | 270 | 0 | 202 | 793 | 0 | 0 | 1142 | 0 | 0 | 1788 | 0 |
| Confl. Peds. (#/hr) | | | 30 | | | 70 | | | 85 | | | 87 |
| Confl. Bikes (#/hr) | | | 4 | | | 5 | | | 7 | | | 10 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | 31.2 | 31.2 | | 31.2 | 31.2 | | | 49.2 | | | 49.2 | |
| Effective Green, g (s) | 31.2 | 31.2 | | 31.2 | 31.2 | | | 49.2 | | | 49.2 | |
| Actuated g/C Ratio | 0.35 | 0.35 | | 0.35 | 0.35 | | | 0.55 | | | 0.55 | |
| Clearance Time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 131 | 622 | | 312 | 1214 | | | 1932 | | | 2762 | |
| v/s Ratio Prot | | 0.15 | | | c0.23 | | | 0.32 | | | c0.35 | |
| v/s Ratio Perm | 0.19 | | | 0.22 | | | | | | | | |
| v/c Ratio | 0.55 | 0.43 | | 0.65 | 0.65 | | | 0.59 | | | 0.65 | |
| Uniform Delay, d1 | 23.7 | 22.6 | | 24.8 | 24.8 | | | 13.7 | | | 14.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.69 | | | 1.00 | |
| Incremental Delay, d2 | 4.7 | 0.5 | | 4.6 | 1.3 | | | 1.2 | | | 1.2 | |
| Delay (s) | 28.4 | 23.1 | | 29.3 | 26.1 | | | 24.3 | | | 15.5 | |
| Level of Service | C | C | | C | C | | | C | | | B | |
| Approach Delay (s) | | 24.2 | | | 26.8 | | | 24.3 | | | 15.5 | |
| Approach LOS | | C | | | C | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.6 |
| Intersection Capacity Utilization | 105.0% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 23 | 124 | 52 | 34 | 70 | 43 | 0 | 1047 | 46 | 0 | 1794 | 51 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | | 0.95 | | | 0.91 | |
| Frpb, ped/bikes | | 1.00 | 0.90 | | 0.98 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.96 | | | 0.99 | | | 1.00 | |
| Flt Protected | | 0.99 | 1.00 | | 0.99 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 1867 | 1435 | | 1755 | | | 3538 | | | 5104 | |
| Flt Permitted | | 0.94 | 1.00 | | 0.90 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 1765 | 1435 | | 1603 | | | 3538 | | | 5104 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 24 | 129 | 54 | 35 | 73 | 45 | 0 | 1091 | 48 | 0 | 1869 | 53 |
| RTOR Reduction (vph) | 0 | 0 | 15 | 0 | 16 | 0 | 0 | 4 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 0 | 153 | 39 | 0 | 137 | 0 | 0 | 1135 | 0 | 0 | 1919 | 0 |
| Confl. Peds. (#/hr) | | | 64 | | | 33 | | | 97 | | | 64 |
| Confl. Bikes (#/hr) | | | 8 | | | 4 | | | 3 | | | 11 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Turn Type | Perm | | Perm | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | | | | | | |
| Actuated Green, G (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Effective Green, g (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Actuated g/C Ratio | | 0.22 | 0.22 | | 0.22 | | | 0.67 | | | 0.67 | |
| Clearance Time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 396 | 322 | | 360 | | | 2378 | | | 3431 | |
| v/s Ratio Prot | | | | | | | | 0.32 | | | c0.38 | |
| v/s Ratio Perm | | c0.09 | 0.03 | | 0.09 | | | | | | | |
| v/c Ratio | | 0.39 | 0.12 | | 0.38 | | | 0.48 | | | 0.56 | |
| Uniform Delay, d1 | | 29.6 | 27.8 | | 29.6 | | | 7.1 | | | 7.7 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 0.77 | | | 0.44 | |
| Incremental Delay, d2 | | 0.6 | 0.2 | | 0.7 | | | 0.6 | | | 0.5 | |
| Delay (s) | | 30.3 | 28.0 | | 30.3 | | | 6.1 | | | 3.9 | |
| Level of Service | | C | C | | C | | | A | | | A | |
| Approach Delay (s) | | 29.7 | | | 30.3 | | | 6.1 | | | 3.9 | |
| Approach LOS | | C | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.4 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.3 |
| Intersection Capacity Utilization | 95.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 290 | 43 | 42 | 342 | 52 | 0 | 988 | 62 | 0 | 1701 | 144 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 0.95 | | | 0.91 | |
| Frpb, ped/bikes | | 0.98 | | | 0.97 | | | 0.98 | | | 0.98 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 0.98 | | | 0.98 | | | 0.99 | | | 0.99 | |
| Flt Protected | | 0.99 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 3386 | | | 3365 | | | 3444 | | | 4939 | |
| Flt Permitted | | 0.75 | | | 0.87 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 2555 | | | 2945 | | | 3444 | | | 4939 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 73 | 302 | 45 | 44 | 356 | 54 | 0 | 1029 | 65 | 0 | 1772 | 150 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 11 | 0 | 0 | 5 | 0 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 0 | 411 | 0 | 0 | 443 | 0 | 0 | 1089 | 0 | 0 | 1911 | 0 |
| Confl. Peds. (#/hr) | | | 126 | | | 164 | | | 168 | | | 118 |
| Confl. Bikes (#/hr) | | | 3 | | | 2 | | | 2 | | | 3 |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 26.2 | | | 26.2 | | | 54.7 | | | 54.7 | |
| Effective Green, g (s) | | 26.2 | | | 26.2 | | | 54.7 | | | 54.7 | |
| Actuated g/C Ratio | | 0.29 | | | 0.29 | | | 0.61 | | | 0.61 | |
| Clearance Time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 744 | | | 857 | | | 2093 | | | 3002 | |
| v/s Ratio Prot | | | | | | | | 0.32 | | | c0.39 | |
| v/s Ratio Perm | | c0.16 | | | 0.15 | | | | | | | |
| v/c Ratio | | 0.55 | | | 0.52 | | | 0.52 | | | 0.64 | |
| Uniform Delay, d1 | | 27.0 | | | 26.6 | | | 10.1 | | | 11.3 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 0.42 | |
| Incremental Delay, d2 | | 3.0 | | | 2.2 | | | 0.9 | | | 0.9 | |
| Delay (s) | | 29.9 | | | 28.8 | | | 11.1 | | | 5.6 | |
| Level of Service | | C | | | C | | | B | | | A | |
| Approach Delay (s) | | 29.9 | | | 28.8 | | | 11.1 | | | 5.6 | |
| Approach LOS | | C | | | C | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.1 |
| Intersection Capacity Utilization | 81.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 218 | 1946 | 143 | 0 | 906 | 0 | 0 | 944 | 705 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | 4.6 |
| Lane Util. Factor | | | | 1.00 | 0.86 | | | 0.91 | | | 0.86 | 0.86 |
| Frpb, ped/bikes | | | | 1.00 | 1.00 | | | 1.00 | | | 0.98 | 0.91 |
| Flpb, ped/bikes | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Frt | | | | 1.00 | 0.99 | | | 1.00 | | | 0.96 | 0.85 |
| Flt Protected | | | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | 1770 | 6323 | | | 5085 | | | 4509 | 1237 |
| Flt Permitted | | | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | 1770 | 6323 | | | 5085 | | | 4509 | 1237 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 0 | 0 | 225 | 2006 | 147 | 0 | 934 | 0 | 0 | 973 | 727 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 4 | 4 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 225 | 2145 | 0 | 0 | 934 | 0 | 0 | 1311 | 381 |
| Confl. Peds. (#/hr) | | | 418 | | | 28 | | | 67 | | | 75 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | 1 | | | |
| Turn Type | | | | Prot | | | | | | | | Perm |
| Protected Phases | | | | 1 | 6 | | | 4 | | | 4 | |
| Permitted Phases | | | | | | | | | | | | 4 |
| Actuated Green, G (s) | | | | 48.7 | 48.7 | | | 31.4 | | | 31.4 | 31.4 |
| Effective Green, g (s) | | | | 48.7 | 48.7 | | | 31.4 | | | 31.4 | 31.4 |
| Actuated g/C Ratio | | | | 0.54 | 0.54 | | | 0.35 | | | 0.35 | 0.35 |
| Clearance Time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | 4.6 |
| Vehicle Extension (s) | | | | 0.2 | 0.2 | | | 0.2 | | | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | | | 958 | 3421 | | | 1774 | | | 1573 | 432 |
| v/s Ratio Prot | | | | 0.13 | c0.34 | | | 0.18 | | | 0.29 | |
| v/s Ratio Perm | | | | | | | | | | | | c0.31 |
| v/c Ratio | | | | 0.23 | 0.63 | | | 0.53 | | | 0.83 | 0.88 |
| Uniform Delay, d1 | | | | 10.9 | 14.3 | | | 23.4 | | | 26.9 | 27.6 |
| Progression Factor | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | 0.6 | 0.9 | | | 1.1 | | | 5.3 | 22.0 |
| Delay (s) | | | | 11.4 | 15.2 | | | 24.5 | | | 32.2 | 49.6 |
| Level of Service | | | | B | B | | | C | | | C | D |
| Approach Delay (s) | | 0.0 | | | 14.9 | | | 24.5 | | | 36.2 | |
| Approach LOS | | A | | | B | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.9 |
| Intersection Capacity Utilization | 73.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 287 | 8 | 11 | 878 | 9 | 5 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | | 4.0 | 5.0 | |
| Lane Util. Factor | 1.00 | | | 0.95 | 1.00 | |
| Frpb, ped/bikes | 1.00 | | | 1.00 | 0.91 | |
| Flpb, ped/bikes | 1.00 | | | 1.00 | 1.00 | |
| Frt | 1.00 | | | 1.00 | 0.95 | |
| Flt Protected | 1.00 | | | 1.00 | 0.97 | |
| Satd. Flow (prot) | 1854 | | | 3537 | 1570 | |
| Flt Permitted | 1.00 | | | 0.95 | 0.97 | |
| Satd. Flow (perm) | 1854 | | | 3368 | 1570 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 299 | 8 | 11 | 915 | 9 | 5 |
| RTOR Reduction (vph) | 1 | 0 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 306 | 0 | 0 | 926 | 9 | 0 |
| Confl. Peds. (#/hr) | | 26 | | | | 30 |
| Confl. Bikes (#/hr) | | 1 | | | | |
| Turn Type | | | Perm | | | |
| Protected Phases | 2 | | | 6 | 8 | |
| Permitted Phases | | | 6 | | | |
| Actuated Green, G (s) | 47.0 | | | 47.0 | 4.0 | |
| Effective Green, g (s) | 47.0 | | | 47.0 | 4.0 | |
| Actuated g/C Ratio | 0.78 | | | 0.78 | 0.07 | |
| Clearance Time (s) | 4.0 | | | 4.0 | 5.0 | |
| Vehicle Extension (s) | 0.2 | | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1452 | | | 2638 | 105 | |
| v/s Ratio Prot | 0.17 | | | | c0.01 | |
| v/s Ratio Perm | | | | c0.27 | | |
| v/c Ratio | 0.21 | | | 0.35 | 0.09 | |
| Uniform Delay, d1 | 1.7 | | | 1.9 | 26.3 | |
| Progression Factor | 1.00 | | | 2.18 | 1.00 | |
| Incremental Delay, d2 | 0.3 | | | 0.3 | 0.1 | |
| Delay (s) | 2.0 | | | 4.6 | 26.4 | |
| Level of Service | A | | | A | C | |
| Approach Delay (s) | 2.0 | | | 4.6 | 26.4 | |
| Approach LOS | A | | | A | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 4.2 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.33 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 56.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 334 | 0 | 0 | 907 | 1 | 0 | 1 | 3 | 0 | 0 | 8 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 0 | 359 | 0 | 0 | 975 | 1 | 0 | 1 | 3 | 0 | 0 | 9 |
| Pedestrians | | 17 | | | 30 | | | 32 | | | 73 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 1 | | | 3 | | | 3 | | | 6 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | 268 | | | 542 | | | | | | | |
| pX, platoon unblocked | | | | 0.86 | | | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | |
| vC, conflicting volume | 1049 | | | 391 | | | 904 | 1440 | 421 | 1442 | 1440 | 578 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1049 | | | 217 | | | 811 | 1431 | 251 | 1433 | 1430 | 578 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 100 | | | 100 | 99 | 99 | 100 | 100 | 98 |
| cM capacity (veh/h) | 619 | | | 1136 | | | 206 | 105 | 614 | 69 | 105 | 425 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 | NB 1 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 359 | 488 | 489 | 4 | 9 |
| Volume Left | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 1 | 3 | 9 |
| cSH | 619 | 1136 | 1700 | 278 | 425 |
| Volume to Capacity | 0.00 | 0.00 | 0.29 | 0.02 | 0.02 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 1 | 2 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 18.2 | 13.6 |
| Lane LOS | | | | C | B |
| Approach Delay (s) | 0.0 | 0.0 | | 18.2 | 13.6 |
| Approach LOS | | | | C | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.1 | | |
| Intersection Capacity Utilization | 41.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 5 | 331 | 7 | 7 | 893 | 15 | 4 | 1 | 3 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Lane Util. Factor | | 1.00 | | | 0.95 | | | 1.00 | | | | |
| Frt | | 1.00 | | | 1.00 | | | 0.95 | | | | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.98 | | | | |
| Satd. Flow (prot) | | 1856 | | | 3529 | | | 1725 | | | | |
| Flt Permitted | | 0.99 | | | 0.95 | | | 0.98 | | | | |
| Satd. Flow (perm) | | 1835 | | | 3362 | | | 1725 | | | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 5 | 360 | 8 | 8 | 971 | 16 | 4 | 1 | 3 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 371 | 0 | 0 | 992 | 0 | 0 | 6 | 0 | 0 | 0 | 0 |
| Turn Type | Perm | | | Perm | | | Split | | | | | |
| Protected Phases | | 4 | | | 8 | | 2 | 2 | | | | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 26.7 | | | 26.7 | | | 25.3 | | | | |
| Effective Green, g (s) | | 26.7 | | | 26.7 | | | 25.3 | | | | |
| Actuated g/C Ratio | | 0.44 | | | 0.44 | | | 0.42 | | | | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | | |
| Lane Grp Cap (vph) | | 817 | | | 1496 | | | 727 | | | | |
| v/s Ratio Prot | | | | | | | | c0.00 | | | | |
| v/s Ratio Perm | | 0.20 | | | c0.30 | | | | | | | |
| v/c Ratio | | 0.45 | | | 0.66 | | | 0.01 | | | | |
| Uniform Delay, d1 | | 11.6 | | | 13.1 | | | 10.1 | | | | |
| Progression Factor | | 0.98 | | | 1.00 | | | 1.00 | | | | |
| Incremental Delay, d2 | | 0.4 | | | 1.1 | | | 0.0 | | | | |
| Delay (s) | | 11.8 | | | 14.2 | | | 10.1 | | | | |
| Level of Service | | B | | | B | | | B | | | | |
| Approach Delay (s) | | 11.8 | | | 14.2 | | | 10.1 | | | 0.0 | |
| Approach LOS | | B | | | B | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.34 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 38.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 2309 | 55 | 0 | 1111 | 85 | 34 | 409 | 90 | 122 | 284 | 51 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | 1.00 | 1.00 | 0.77 | 1.00 | 1.00 | 0.94 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | | | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 4911 | | | 4836 | | 1719 | 1810 | 1186 | 1719 | 1810 | 1439 |
| Flt Permitted | | 1.00 | | | 1.00 | | 0.46 | 1.00 | 1.00 | 0.29 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 4911 | | | 4836 | | 832 | 1810 | 1186 | 523 | 1810 | 1439 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 2380 | 57 | 0 | 1145 | 88 | 35 | 422 | 93 | 126 | 293 | 53 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 10 | 0 | 0 | 0 | 1 | 0 | 0 | 34 |
| Lane Group Flow (vph) | 0 | 2434 | 0 | 0 | 1223 | 0 | 35 | 422 | 92 | 126 | 293 | 19 |
| Confl. Peds. (#/hr) | | | 74 | | | 61 | | | 221 | | | 35 |
| Confl. Bikes (#/hr) | | | 2 | | | 8 | | | 34 | | | 32 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | | | | | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 2 | | | 2 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Effective Green, g (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Actuated g/C Ratio | | 0.55 | | | 0.55 | | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 |
| Clearance Time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 2723 | | | 2681 | | 271 | 589 | 386 | 170 | 589 | 468 |
| v/s Ratio Prot | | c0.50 | | | 0.25 | | | 0.23 | | | 0.16 | |
| v/s Ratio Perm | | | | | | | 0.04 | | 0.08 | c0.24 | | 0.01 |
| v/c Ratio | | 0.89 | | | 0.46 | | 0.13 | 0.72 | 0.24 | 0.74 | 0.50 | 0.04 |
| Uniform Delay, d1 | | 17.7 | | | 12.0 | | 21.4 | 26.7 | 22.2 | 27.0 | 24.4 | 20.7 |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 5.0 | | | 0.6 | | 1.0 | 7.3 | 1.4 | 25.0 | 3.0 | 0.2 |
| Delay (s) | | 22.8 | | | 12.5 | | 22.4 | 34.0 | 23.6 | 51.9 | 27.4 | 20.9 |
| Level of Service | | C | | | B | | C | C | C | D | C | C |
| Approach Delay (s) | | 22.8 | | | 12.5 | | | 31.5 | | | 33.2 | |
| Approach LOS | | C | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 10.8 |
| Intersection Capacity Utilization | 103.0% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 49 | 530 | 26 | 76 | 299 | 69 | 19 | 503 | 131 | 80 | 277 | 16 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.88 | 1.00 | 1.00 | 0.95 |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.99 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3454 | | 1752 | 3375 | | 1752 | 1845 | 1372 | 1752 | 1845 | 1484 |
| Flt Permitted | | 0.89 | | 0.34 | 1.00 | | 0.52 | 1.00 | 1.00 | 0.27 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 3089 | | 620 | 3375 | | 962 | 1845 | 1372 | 500 | 1845 | 1484 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 54 | 582 | 29 | 84 | 329 | 76 | 21 | 553 | 144 | 88 | 304 | 18 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 33 | 0 | 0 | 0 | 67 | 0 | 0 | 10 |
| Lane Group Flow (vph) | 0 | 660 | 0 | 84 | 372 | 0 | 21 | 553 | 77 | 88 | 304 | 8 |
| Confl. Peds. (#/hr) | | | 58 | | | 24 | | | 64 | | | 32 |
| Confl. Bikes (#/hr) | | | 4 | | | 1 | | | 41 | | | 40 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | Perm | | | Perm | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Effective Green, g (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Actuated g/C Ratio | | 0.42 | | 0.42 | 0.42 | | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 |
| Clearance Time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | | 0.2 | | 0.2 | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 1287 | | 258 | 1406 | | 417 | 800 | 595 | 217 | 800 | 643 |
| v/s Ratio Prot | | | | | 0.11 | | | c0.30 | | | 0.16 | |
| v/s Ratio Perm | | c0.21 | | 0.14 | | | 0.02 | | 0.06 | 0.18 | | 0.01 |
| v/c Ratio | | 0.51 | | 0.33 | 0.26 | | 0.05 | 0.69 | 0.13 | 0.41 | 0.38 | 0.01 |
| Uniform Delay, d1 | | 13.0 | | 11.8 | 11.5 | | 9.8 | 13.8 | 10.2 | 11.7 | 11.5 | 9.7 |
| Progression Factor | | 1.00 | | 0.91 | 0.84 | | 1.17 | 0.96 | 1.41 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 1.5 | | 3.0 | 0.4 | | 0.2 | 3.7 | 0.3 | 5.5 | 1.4 | 0.0 |
| Delay (s) | | 14.4 | | 13.8 | 10.1 | | 11.7 | 16.9 | 14.7 | 17.2 | 12.9 | 9.7 |
| Level of Service | | B | | B | B | | B | B | B | B | B | A |
| Approach Delay (s) | | 14.4 | | | 10.7 | | | 16.3 | | | 13.7 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 104.8% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 99 | 1172 | 11 | 6 | 766 | 94 | 11 | 403 | 42 | 172 | 160 | 73 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | | 0.99 | | 1.00 | 1.00 | 0.94 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | | | 0.98 | | | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3520 | | | 3462 | | | 1825 | | 1770 | 1863 | 1495 |
| Flt Permitted | | 0.75 | | | 0.95 | | | 0.99 | | 0.36 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 2664 | | | 3273 | | | 1814 | | 668 | 1863 | 1495 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 102 | 1208 | 11 | 6 | 790 | 97 | 11 | 415 | 43 | 177 | 165 | 75 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 16 | 0 | 0 | 6 | 0 | 0 | 0 | 49 |
| Lane Group Flow (vph) | 0 | 1320 | 0 | 0 | 878 | 0 | 0 | 463 | 0 | 177 | 165 | 26 |
| Confl. Peds. (#/hr) | | | 18 | | | 29 | | | 50 | | | 28 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | 32 | | | 33 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | 8 | | 8 |
| Actuated Green, G (s) | | 29.0 | | | 29.0 | | | 21.0 | | 21.0 | 21.0 | 21.0 |
| Effective Green, g (s) | | 29.0 | | | 29.0 | | | 21.0 | | 21.0 | 21.0 | 21.0 |
| Actuated g/C Ratio | | 0.48 | | | 0.48 | | | 0.35 | | 0.35 | 0.35 | 0.35 |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Grp Cap (vph) | | 1288 | | | 1582 | | | 635 | | 234 | 652 | 523 |
| v/s Ratio Prot | | | | | | | | | | | 0.09 | |
| v/s Ratio Perm | | c0.50 | | | 0.27 | | | 0.26 | | c0.26 | | 0.02 |
| v/c Ratio | | 1.02 | | | 0.55 | | | 0.73 | | 0.76 | 0.25 | 0.05 |
| Uniform Delay, d1 | | 15.5 | | | 10.9 | | | 17.0 | | 17.2 | 13.9 | 12.9 |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | 1.18 | 1.17 | 2.29 |
| Incremental Delay, d2 | | 31.6 | | | 1.4 | | | 7.2 | | 19.2 | 0.9 | 0.2 |
| Delay (s) | | 47.1 | | | 12.3 | | | 24.2 | | 39.6 | 17.2 | 29.8 |
| Level of Service | | D | | | B | | | C | | D | B | C |
| Approach Delay (s) | | 47.1 | | | 12.3 | | | 24.2 | | | 28.9 | |
| Approach LOS | | D | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 119.2% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 26 | 436 | 42 | 66 | 405 | 41 | 33 | 374 | 75 | 52 | 310 | 24 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.92 | | 0.99 | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | | 0.98 | | 1.00 | 0.99 | |
| Flt Protected | | 1.00 | 1.00 | | 0.99 | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1839 | 1445 | | 3423 | | | 1787 | | 1752 | 1820 | |
| Flt Permitted | | 0.96 | 1.00 | | 0.81 | | | 0.95 | | 0.35 | 1.00 | |
| Satd. Flow (perm) | | 1762 | 1445 | | 2775 | | | 1712 | | 644 | 1820 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 29 | 484 | 47 | 73 | 450 | 46 | 37 | 416 | 83 | 58 | 344 | 27 |
| RTOR Reduction (vph) | 0 | 0 | 25 | 0 | 11 | 0 | 0 | 11 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 0 | 513 | 22 | 0 | 558 | 0 | 0 | 525 | 0 | 58 | 366 | 0 |
| Confl. Peds. (#/hr) | | | 53 | | | 41 | | | 19 | | | 31 |
| Confl. Bikes (#/hr) | | | 4 | | | 1 | | | 3 | | | 2 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | 0.38 | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 822 | 674 | | 1295 | | | 656 | | 247 | 698 | |
| v/s Ratio Prot | | | | | | | | | | | 0.20 | |
| v/s Ratio Perm | | c0.29 | 0.02 | | 0.20 | | | c0.31 | | 0.09 | | |
| v/c Ratio | | 0.62 | 0.03 | | 0.43 | | | 0.80 | | 0.23 | 0.52 | |
| Uniform Delay, d1 | | 12.0 | 8.7 | | 10.7 | | | 16.5 | | 12.5 | 14.3 | |
| Progression Factor | | 0.65 | 0.26 | | 1.72 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 3.2 | 0.1 | | 0.9 | | | 9.9 | | 2.2 | 2.8 | |
| Delay (s) | | 11.1 | 2.3 | | 19.3 | | | 26.4 | | 14.8 | 17.1 | |
| Level of Service | | B | A | | B | | | C | | B | B | |
| Approach Delay (s) | | 10.4 | | | 19.3 | | | 26.4 | | | 16.8 | |
| Approach LOS | | B | | | B | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 108.2% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 641 | 687 | 0 | 336 | 23 | 523 | 444 | 59 | 43 | 354 | 9 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | 1.00 | 1.00 | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.93 | | 0.99 | | 1.00 | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | 1.00 | 0.98 | | | 1.00 | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 0.99 | |
| Satd. Flow (prot) | | 1845 | 1452 | | 3453 | | 1752 | 1794 | | | 3470 | |
| Flt Permitted | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 0.54 | |
| Satd. Flow (perm) | | 1845 | 1452 | | 3453 | | 1752 | 1794 | | | 1869 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 0 | 668 | 716 | 0 | 350 | 24 | 545 | 462 | 61 | 45 | 369 | 9 |
| RTOR Reduction (vph) | 0 | 0 | 471 | 0 | 6 | 0 | 0 | 5 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 668 | 245 | 0 | 368 | 0 | 545 | 518 | 0 | 0 | 421 | 0 |
| Confl. Peds. (#/hr) | | | 60 | | | 45 | | | 37 | | | 39 |
| Confl. Bikes (#/hr) | | | 1 | | | 1 | | | 2 | | | 3 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | custom | | | | Split | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | 8 | 8 | | | 4 | |
| Permitted Phases | | | 8 | | | | | | | 4 | | |
| Actuated Green, G (s) | | 34.0 | 26.0 | | 34.0 | | 26.0 | 26.0 | | | 17.0 | |
| Effective Green, g (s) | | 34.0 | 26.0 | | 34.0 | | 26.0 | 26.0 | | | 17.0 | |
| Actuated g/C Ratio | | 0.38 | 0.29 | | 0.38 | | 0.29 | 0.29 | | | 0.19 | |
| Clearance Time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Grp Cap (vph) | | 697 | 419 | | 1304 | | 506 | 518 | | | 353 | |
| v/s Ratio Prot | | c0.36 | | | 0.11 | | c0.31 | 0.29 | | | | |
| v/s Ratio Perm | | | 0.17 | | | | | | | | c0.23 | |
| v/c Ratio | | 0.96 | 0.58 | | 0.28 | | 1.08 | 1.00 | | | 1.19 | |
| Uniform Delay, d1 | | 27.3 | 27.4 | | 19.5 | | 32.0 | 32.0 | | | 36.5 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 25.3 | 5.8 | | 0.5 | | 62.3 | 39.6 | | | 111.7 | |
| Delay (s) | | 52.6 | 33.2 | | 20.0 | | 94.3 | 71.6 | | | 148.2 | |
| Level of Service | | D | C | | C | | F | E | | | F | |
| Approach Delay (s) | | 42.6 | | | 20.0 | | | 83.2 | | | 148.2 | |
| Approach LOS | | D | | | C | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 67.1 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.05 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 13.0 |
| Intersection Capacity Utilization | 87.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBR | EBR2 | WBT | WBR | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Volume (vph) | 2460 | 41 | 1418 | 2 | 885 | 21 | 332 | 775 | 121 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Lane Util. Factor | 0.76 | | 0.91 | | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Frt | 0.85 | | 1.00 | | 1.00 | | 1.00 | 0.98 | |
| Flt Protected | 1.00 | | 1.00 | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3610 | | 5084 | | 3513 | | 1770 | 3430 | |
| Flt Permitted | 1.00 | | 1.00 | | 1.00 | | 0.33 | 1.00 | |
| Satd. Flow (perm) | 3610 | | 5084 | | 3513 | | 621 | 3430 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 2536 | 42 | 1462 | 2 | 912 | 22 | 342 | 799 | 125 |
| RTOR Reduction (vph) | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 |
| Lane Group Flow (vph) | 2577 | 0 | 1464 | 0 | 934 | 0 | 342 | 910 | 0 |
| Confl. Peds. (#/hr) | | 38 | | | | 68 | | | 82 |
| Confl. Bikes (#/hr) | | 90 | | | | 2 | | | 4 |
| Turn Type | custom | | | | | | custom | | |
| Protected Phases | 2 | | | | 8 | | | 4 | |
| Permitted Phases | | | 6 | | | | 7 | | |
| Actuated Green, G (s) | 46.0 | | 46.0 | | 21.0 | | 12.0 | 33.0 | |
| Effective Green, g (s) | 46.0 | | 46.0 | | 21.0 | | 12.0 | 33.0 | |
| Actuated g/C Ratio | 0.51 | | 0.51 | | 0.23 | | 0.13 | 0.37 | |
| Clearance Time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Vehicle Extension (s) | 0.2 | | 0.2 | | 0.2 | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1845 | | 2598 | | 820 | | 83 | 1258 | |
| v/s Ratio Prot | c0.71 | | | | c0.27 | | | 0.27 | |
| v/s Ratio Perm | | | 0.29 | | | | c0.55 | | |
| v/c Ratio | 1.40 | | 0.56 | | 1.14 | | 4.12 | 0.72 | |
| Uniform Delay, d1 | 22.0 | | 15.1 | | 34.5 | | 39.0 | 24.6 | |
| Progression Factor | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 181.8 | | 0.9 | | 77.1 | | 1432.3 | 1.8 | |
| Delay (s) | 203.8 | | 16.0 | | 111.6 | | 1471.3 | 26.3 | |
| Level of Service | F | | B | | F | | F | C | |
| Approach Delay (s) | | | 16.0 | | 111.6 | | | 416.7 | |
| Approach LOS | | | B | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 189.1 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.72 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 112.8% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 2416 | 29 | 0 | 1089 | 47 | 47 | 177 | 51 | 94 | 146 | 31 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 0.99 | | | 0.97 | | | 0.98 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.99 | | | 0.98 | |
| Satd. Flow (prot) | | 4928 | | | 4895 | | | 1736 | | | 1744 | |
| Flt Permitted | | 1.00 | | | 1.00 | | | 0.90 | | | 0.71 | |
| Satd. Flow (perm) | | 4928 | | | 4895 | | | 1578 | | | 1268 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 0 | 2517 | 30 | 0 | 1134 | 49 | 49 | 184 | 53 | 98 | 152 | 32 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 0 | 2546 | 0 | 0 | 1178 | 0 | 0 | 285 | 0 | 0 | 277 | 0 |
| Confl. Peds. (#/hr) | | | 28 | | | 36 | | | 28 | | | 23 |
| Confl. Bikes (#/hr) | | | 4 | | | 1 | | | 2 | | | 3 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | | | | | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Actuated Green, G (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Effective Green, g (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Actuated g/C Ratio | | 0.59 | | | 0.59 | | | 0.31 | | | 0.31 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 2902 | | | 2883 | | | 491 | | | 394 | |
| v/s Ratio Prot | | c0.52 | | | 0.24 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.18 | | | c0.22 | |
| v/c Ratio | | 0.88 | | | 0.41 | | | 0.58 | | | 0.70 | |
| Uniform Delay, d1 | | 15.7 | | | 10.0 | | | 26.1 | | | 27.3 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 4.1 | | | 0.4 | | | 1.0 | | | 4.6 | |
| Delay (s) | | 19.9 | | | 10.4 | | | 27.1 | | | 31.9 | |
| Level of Service | | B | | | B | | | C | | | C | |
| Approach Delay (s) | | 19.9 | | | 10.4 | | | 27.1 | | | 31.9 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 82.3% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 63 | 556 | 105 | 43 | 473 | 78 | 45 | 168 | 28 | 53 | 147 | 32 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.95 | | 0.99 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.98 | | | 0.98 | | | 0.98 | |
| Flt Protected | | 0.99 | 1.00 | | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 1818 | 1477 | | 3367 | | | 1774 | | | 1761 | |
| Flt Permitted | | 0.88 | 1.00 | | 0.78 | | | 0.90 | | | 0.87 | |
| Satd. Flow (perm) | | 1612 | 1477 | | 2629 | | | 1611 | | | 1555 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 71 | 625 | 118 | 48 | 531 | 88 | 51 | 189 | 31 | 60 | 165 | 36 |
| RTOR Reduction (vph) | 0 | 0 | 51 | 0 | 20 | 0 | 0 | 8 | 0 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 0 | 696 | 67 | 0 | 647 | 0 | 0 | 263 | 0 | 0 | 251 | 0 |
| Confl. Peds. (#/hr) | | | 21 | | | 29 | | | 16 | | | 47 |
| Confl. Bikes (#/hr) | | | 9 | | | 1 | | | 1 | | | |
| Heavy Vehicles (%) | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 752 | 689 | | 1227 | | | 618 | | | 596 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.43 | 0.05 | | 0.25 | | | c0.16 | | | 0.16 | |
| v/c Ratio | | 0.93 | 0.10 | | 0.53 | | | 0.43 | | | 0.42 | |
| Uniform Delay, d1 | | 15.0 | 8.9 | | 11.3 | | | 13.6 | | | 13.6 | |
| Progression Factor | | 0.69 | 0.30 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 17.5 | 0.3 | | 1.6 | | | 0.5 | | | 0.5 | |
| Delay (s) | | 27.9 | 3.0 | | 12.9 | | | 14.1 | | | 14.1 | |
| Level of Service | | C | A | | B | | | B | | | B | |
| Approach Delay (s) | | 24.2 | | | 12.9 | | | 14.1 | | | 14.1 | |
| Approach LOS | | C | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 86.1% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 0 | 0 | 0 | 52 | 0 | 84 | 1 | 176 | 144 | 133 | 174 | 0 |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 65 | 0 | 105 | 1 | 220 | 180 | 166 | 218 | 0 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 0 | 170 | 401 | 384 |
| Volume Left (vph) | 0 | 65 | 1 | 166 |
| Volume Right (vph) | 0 | 105 | 180 | 0 |
| Hadj (s) | 0.00 | -0.26 | -0.23 | 0.12 |
| Departure Headway (s) | 6.2 | 5.5 | 4.7 | 5.0 |
| Degree Utilization, x | 0.00 | 0.26 | 0.52 | 0.53 |
| Capacity (veh/h) | 482 | 585 | 746 | 694 |
| Control Delay (s) | 9.2 | 10.4 | 12.6 | 13.6 |
| Approach Delay (s) | 0.0 | 10.4 | 12.6 | 13.6 |
| Approach LOS | A | B | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 12.6 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 59.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 214 | 225 | 0 | 170 | 79 | 20 | 87 | 1519 | 502 | 1 | 855 | 168 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 5.1 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.91 | 1.00 | 0.97 | | | 1.00 | 0.77 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1719 | 1810 | | 3335 | 1810 | 1395 | 1719 | 3198 | | | 3438 | 1178 |
| Flt Permitted | 0.36 | 1.00 | | 0.36 | 1.00 | 1.00 | 0.95 | 1.00 | | | 0.86 | 1.00 |
| Satd. Flow (perm) | 658 | 1810 | | 1277 | 1810 | 1395 | 1719 | 3198 | | | 2971 | 1178 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 228 | 239 | 0 | 181 | 84 | 21 | 93 | 1616 | 534 | 1 | 910 | 179 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 36 | 0 | 0 | 0 | 113 |
| Lane Group Flow (vph) | 228 | 239 | 0 | 181 | 84 | 6 | 93 | 2114 | 0 | 0 | 911 | 66 |
| Confl. Peds. (#/hr) | | | 63 | | | 72 | | | 84 | | | 53 |
| Confl. Bikes (#/hr) | | | 1 | | | 2 | | | 2 | | | 2 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | custom | | | custom | | Perm | Prot | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | 3 | 8 | | | 4 | |
| Permitted Phases | 5 | | | 1 | | 6 | | | | 4 | | 4 |
| Actuated Green, G (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 25.9 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Effective Green, g (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 25.9 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Actuated g/C Ratio | 0.12 | 0.29 | | 0.12 | 0.29 | 0.29 | 0.03 | 0.42 | | | 0.37 | 0.37 |
| Clearance Time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 5.1 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 80 | 521 | | 156 | 521 | 401 | 57 | 1350 | | | 1089 | 432 |
| v/s Ratio Prot | | c0.13 | | | 0.05 | | 0.05 | c0.66 | | | | |
| v/s Ratio Perm | c0.35 | | | 0.14 | | 0.00 | | | | | 0.31 | 0.06 |
| v/c Ratio | 2.85 | 0.46 | | 1.16 | 0.16 | 0.02 | 1.63 | 1.57 | | | 0.84 | 0.15 |
| Uniform Delay, d1 | 39.5 | 26.3 | | 39.5 | 23.9 | 22.9 | 43.5 | 26.0 | | | 26.0 | 19.1 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 865.8 | 2.9 | | 121.6 | 0.7 | 0.1 | 350.4 | 258.4 | | | 5.7 | 0.2 |
| Delay (s) | 905.3 | 29.2 | | 161.1 | 24.6 | 23.0 | 393.9 | 284.4 | | | 31.8 | 19.3 |
| Level of Service | F | C | | F | C | C | F | F | | | C | B |
| Approach Delay (s) | | 456.9 | | | 110.9 | | | 288.9 | | | 29.7 | |
| Approach LOS | | F | | | F | | | F | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 226.5 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.37 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 15.1 |
| Intersection Capacity Utilization | 117.8% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | ↰ | ↱ | | ↰ | ↑↱ | | | ↑↱ | | | ↑↱ | |
| Volume (vph) | 122 | 466 | 29 | 103 | 568 | 102 | 0 | 1957 | 108 | 0 | 929 | 118 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 0.95 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.98 | | | 0.99 | | | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1770 | 1843 | | 1770 | 3420 | | | 3495 | | | 3462 | |
| Flt Permitted | 0.21 | 1.00 | | 0.15 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 394 | 1843 | | 274 | 3420 | | | 3495 | | | 3462 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 131 | 501 | 31 | 111 | 611 | 110 | 0 | 2104 | 116 | 0 | 999 | 127 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 4 | 0 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 131 | 529 | 0 | 111 | 718 | 0 | 0 | 2216 | 0 | 0 | 1115 | 0 |
| Confl. Peds. (#/hr) | | | 24 | | | 61 | | | 78 | | | 61 |
| Confl. Bikes (#/hr) | | | 2 | | | 2 | | | 5 | | | 5 |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | 27.2 | 27.2 | | 27.2 | 27.2 | | | 53.2 | | | 53.2 | |
| Effective Green, g (s) | 27.2 | 27.2 | | 27.2 | 27.2 | | | 53.2 | | | 53.2 | |
| Actuated g/C Ratio | 0.30 | 0.30 | | 0.30 | 0.30 | | | 0.59 | | | 0.59 | |
| Clearance Time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 119 | 557 | | 83 | 1034 | | | 2066 | | | 2046 | |
| v/s Ratio Prot | | 0.29 | | | 0.21 | | | c0.63 | | | 0.32 | |
| v/s Ratio Perm | 0.33 | | | c0.41 | | | | | | | | |
| v/c Ratio | 1.10 | 0.95 | | 1.34 | 0.69 | | | 1.07 | | | 0.54 | |
| Uniform Delay, d1 | 31.4 | 30.7 | | 31.4 | 27.7 | | | 18.4 | | | 11.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.41 | | | 1.00 | |
| Incremental Delay, d2 | 112.2 | 26.2 | | 213.1 | 2.0 | | | 36.7 | | | 1.0 | |
| Delay (s) | 143.6 | 56.9 | | 244.5 | 29.8 | | | 44.3 | | | 12.1 | |
| Level of Service | F | E | | F | C | | | D | | | B | |
| Approach Delay (s) | | 74.0 | | | 58.4 | | | 44.3 | | | 12.1 | |
| Approach LOS | | E | | | E | | | D | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 43.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.16 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.6 |
| Intersection Capacity Utilization | 118.9% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 12 | 174 | 45 | 49 | 94 | 99 | 0 | 1942 | 102 | 0 | 1007 | 53 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.93 | | 0.96 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.94 | | | 0.99 | | | 0.99 | |
| Flt Protected | | 1.00 | 1.00 | | 0.99 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 1857 | 1467 | | 1671 | | | 3499 | | | 3503 | |
| Flt Permitted | | 0.98 | 1.00 | | 0.82 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 1817 | 1467 | | 1388 | | | 3499 | | | 3503 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 13 | 189 | 49 | 53 | 102 | 108 | 0 | 2111 | 111 | 0 | 1095 | 58 |
| RTOR Reduction (vph) | 0 | 0 | 38 | 0 | 9 | 0 | 0 | 4 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 0 | 202 | 11 | 0 | 254 | 0 | 0 | 2218 | 0 | 0 | 1149 | 0 |
| Confl. Peds. (#/hr) | | | 37 | | | 65 | | | 76 | | | 40 |
| Confl. Bikes (#/hr) | | | 14 | | | 2 | | | 3 | | | 5 |
| Turn Type | Perm | | Perm | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | | | | | | |
| Actuated Green, G (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Effective Green, g (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Actuated g/C Ratio | | 0.22 | 0.22 | | 0.22 | | | 0.67 | | | 0.67 | |
| Clearance Time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 408 | 329 | | 312 | | | 2352 | | | 2355 | |
| v/s Ratio Prot | | | | | | | | c0.63 | | | 0.33 | |
| v/s Ratio Perm | | 0.11 | 0.01 | | c0.18 | | | | | | | |
| v/c Ratio | | 0.50 | 0.03 | | 0.82 | | | 0.94 | | | 0.49 | |
| Uniform Delay, d1 | | 30.5 | 27.3 | | 33.1 | | | 13.2 | | | 7.2 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 0.30 | | | 0.48 | |
| Incremental Delay, d2 | | 0.9 | 0.0 | | 15.0 | | | 1.1 | | | 0.6 | |
| Delay (s) | | 31.4 | 27.3 | | 48.2 | | | 5.1 | | | 4.0 | |
| Level of Service | | C | C | | D | | | A | | | A | |
| Approach Delay (s) | | 30.6 | | | 48.2 | | | 5.1 | | | 4.0 | |
| Approach LOS | | C | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.3 |
| Intersection Capacity Utilization | 102.6% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 131 | 466 | 28 | 20 | 244 | 35 | 0 | 1985 | 53 | 0 | 996 | 87 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | 0.99 | | | 0.99 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 0.99 | | | 0.98 | | | 1.00 | | | 0.99 | |
| Flt Protected | | 0.99 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 3422 | | | 3395 | | | 3467 | | | 3419 | |
| Flt Permitted | | 0.77 | | | 0.89 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 2655 | | | 3035 | | | 3467 | | | 3419 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 139 | 496 | 30 | 21 | 260 | 37 | 0 | 2112 | 56 | 0 | 1060 | 93 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 0 | 662 | 0 | 0 | 315 | 0 | 0 | 2166 | 0 | 0 | 1146 | 0 |
| Confl. Peds. (#/hr) | | | 101 | | | 61 | | | 143 | | | 81 |
| Confl. Bikes (#/hr) | | | 7 | | | | | | 4 | | | 5 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 28.2 | | | 28.2 | | | 52.7 | | | 52.7 | |
| Effective Green, g (s) | | 28.2 | | | 28.2 | | | 52.7 | | | 52.7 | |
| Actuated g/C Ratio | | 0.31 | | | 0.31 | | | 0.59 | | | 0.59 | |
| Clearance Time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 832 | | | 951 | | | 2030 | | | 2002 | |
| v/s Ratio Prot | | | | | | | | c0.62 | | | 0.34 | |
| v/s Ratio Perm | | c0.25 | | | 0.10 | | | | | | | |
| v/c Ratio | | 0.80 | | | 0.33 | | | 1.07 | | | 0.57 | |
| Uniform Delay, d1 | | 28.3 | | | 23.7 | | | 18.6 | | | 11.6 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 0.86 | |
| Incremental Delay, d2 | | 7.7 | | | 0.9 | | | 40.6 | | | 1.1 | |
| Delay (s) | | 36.0 | | | 24.6 | | | 59.3 | | | 11.1 | |
| Level of Service | | D | | | C | | | E | | | B | |
| Approach Delay (s) | | 36.0 | | | 24.6 | | | 59.3 | | | 11.1 | |
| Approach LOS | | D | | | C | | | E | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 40.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.97 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.1 |
| Intersection Capacity Utilization | 102.8% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 165 | 1431 | 251 | 68 | 1720 | 0 | 0 | 553 | 457 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | |
| Lane Util. Factor | | | | 1.00 | 0.86 | | | 0.91 | | | 0.91 | |
| Frpb, ped/bikes | | | | 1.00 | 0.99 | | | 1.00 | | | 0.98 | |
| Flpb, ped/bikes | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | | | 1.00 | 0.98 | | | 1.00 | | | 0.93 | |
| Flt Protected | | | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | 1752 | 6168 | | | 5026 | | | 4603 | |
| Flt Permitted | | | | 0.95 | 1.00 | | | 0.82 | | | 1.00 | |
| Satd. Flow (perm) | | | | 1752 | 6168 | | | 4121 | | | 4603 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 0 | 0 | 0 | 174 | 1506 | 264 | 72 | 1811 | 0 | 0 | 582 | 481 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 174 | 1767 | 0 | 0 | 1883 | 0 | 0 | 1060 | 0 |
| Confl. Peds. (#/hr) | | | 406 | | | 24 | | | 51 | | | 29 |
| Confl. Bikes (#/hr) | | | | | | | | | 1 | | | 1 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | | Prot | | | Perm | | | | | |
| Protected Phases | | | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | | | |
| Actuated Green, G (s) | | | | 35.7 | 35.7 | | | 44.4 | | | 44.4 | |
| Effective Green, g (s) | | | | 35.7 | 35.7 | | | 44.4 | | | 44.4 | |
| Actuated g/C Ratio | | | | 0.40 | 0.40 | | | 0.49 | | | 0.49 | |
| Clearance Time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | |
| Vehicle Extension (s) | | | | 0.2 | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | | | 695 | 2447 | | | 2033 | | | 2271 | |
| v/s Ratio Prot | | | | 0.10 | c0.29 | | | | | | 0.23 | |
| v/s Ratio Perm | | | | | | | | c0.46 | | | | |
| v/c Ratio | | | | 0.25 | 0.72 | | | 0.93 | | | 0.47 | |
| Uniform Delay, d1 | | | | 18.2 | 23.0 | | | 21.3 | | | 15.0 | |
| Progression Factor | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | | | 0.9 | 1.9 | | | 8.8 | | | 0.7 | |
| Delay (s) | | | | 19.0 | 24.8 | | | 30.1 | | | 15.7 | |
| Level of Service | | | | B | C | | | C | | | B | |
| Approach Delay (s) | | 0.0 | | | 24.3 | | | 30.1 | | | 15.7 | |
| Approach LOS | | A | | | C | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.9 |
| Intersection Capacity Utilization | 94.1% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 647 | 19 | 11 | 579 | 25 | 11 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | | 4.0 | 5.0 | |
| Lane Util. Factor | 1.00 | | | 0.95 | 1.00 | |
| Frpb, ped/bikes | 1.00 | | | 1.00 | 0.95 | |
| Flpb, ped/bikes | 1.00 | | | 1.00 | 1.00 | |
| Frt | 1.00 | | | 1.00 | 0.96 | |
| Flt Protected | 1.00 | | | 1.00 | 0.97 | |
| Satd. Flow (prot) | 1818 | | | 3468 | 1614 | |
| Flt Permitted | 1.00 | | | 0.94 | 0.97 | |
| Satd. Flow (perm) | 1818 | | | 3274 | 1614 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 735 | 22 | 12 | 658 | 28 | 12 |
| RTOR Reduction (vph) | 1 | 0 | 0 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 756 | 0 | 0 | 670 | 30 | 0 |
| Confl. Peds. (#/hr) | | 29 | | | | 37 |
| Confl. Bikes (#/hr) | | 1 | | | | |
| Heavy Vehicles (%) | 4% | 4% | 4% | 4% | 4% | 4% |
| Turn Type | | | Perm | | | |
| Protected Phases | 2 | | | 6 | 8 | |
| Permitted Phases | | | 6 | | | |
| Actuated Green, G (s) | 43.0 | | | 43.0 | 8.0 | |
| Effective Green, g (s) | 43.0 | | | 43.0 | 8.0 | |
| Actuated g/C Ratio | 0.72 | | | 0.72 | 0.13 | |
| Clearance Time (s) | 4.0 | | | 4.0 | 5.0 | |
| Vehicle Extension (s) | 0.2 | | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1303 | | | 2346 | 215 | |
| v/s Ratio Prot | c0.42 | | | | c0.02 | |
| v/s Ratio Perm | | | | 0.20 | | |
| v/c Ratio | 0.58 | | | 0.29 | 0.14 | |
| Uniform Delay, d1 | 4.1 | | | 3.0 | 23.0 | |
| Progression Factor | 1.00 | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.9 | | | 0.3 | 0.1 | |
| Delay (s) | 6.0 | | | 3.3 | 23.1 | |
| Level of Service | A | | | A | C | |
| Approach Delay (s) | 6.0 | | | 3.3 | 23.1 | |
| Approach LOS | A | | | A | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 5.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 59.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 5 | 592 | 20 | 15 | 640 | 2 | 8 | 5 | 8 | 1 | 0 | 2 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 2.0 | |
| Lane Util. Factor | | 1.00 | | | 0.95 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.96 | | | 0.98 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 1.00 | | | 0.95 | | | 0.91 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.98 | | | 0.98 | |
| Satd. Flow (prot) | | 1814 | | | 3465 | | | 1630 | | | 1597 | |
| Flt Permitted | | 1.00 | | | 0.94 | | | 0.88 | | | 0.96 | |
| Satd. Flow (perm) | | 1807 | | | 3258 | | | 1453 | | | 1555 | |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 6 | 680 | 23 | 17 | 736 | 2 | 9 | 6 | 9 | 1 | 0 | 2 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 708 | 0 | 0 | 755 | 0 | 0 | 16 | 0 | 0 | 1 | 0 |
| Confl. Peds. (#/hr) | | | 46 | | | 97 | | | 64 | | | 26 |
| Confl. Bikes (#/hr) | | | 5 | | | 2 | | | | | | |
| Heavy Vehicles (%) | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 47.0 | | | 47.0 | | | 4.0 | | | 7.0 | |
| Effective Green, g (s) | | 47.0 | | | 47.0 | | | 4.0 | | | 7.0 | |
| Actuated g/C Ratio | | 0.78 | | | 0.78 | | | 0.07 | | | 0.12 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 2.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 1415 | | | 2552 | | | 97 | | | 181 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.39 | | | 0.23 | | | c0.01 | | | 0.00 | |
| v/c Ratio | | 0.50 | | | 0.30 | | | 0.16 | | | 0.01 | |
| Uniform Delay, d1 | | 2.3 | | | 1.8 | | | 26.4 | | | 23.4 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 1.3 | | | 0.3 | | | 0.8 | | | 0.0 | |
| Delay (s) | | 3.6 | | | 2.1 | | | 27.2 | | | 23.4 | |
| Level of Service | | A | | | A | | | C | | | C | |
| Approach Delay (s) | | 3.6 | | | 2.1 | | | 27.2 | | | 23.4 | |
| Approach LOS | | A | | | A | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 3.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 60.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1596 | 78 | 0 | 2157 | 145 | 50 | 324 | 82 | 125 | 476 | 83 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | | 0.98 | | 1.00 | 1.00 | 0.78 | 1.00 | 1.00 | 0.88 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.99 | | | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 4958 | | | 4879 | | 1752 | 1845 | 1223 | 1752 | 1845 | 1376 |
| Flt Permitted | | 1.00 | | | 1.00 | | 0.20 | 1.00 | 1.00 | 0.40 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 4958 | | | 4879 | | 373 | 1845 | 1223 | 746 | 1845 | 1376 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 1645 | 80 | 0 | 2224 | 149 | 52 | 334 | 85 | 129 | 491 | 86 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 8 | 0 | 0 | 0 | 6 | 0 | 0 | 1 |
| Lane Group Flow (vph) | 0 | 1719 | 0 | 0 | 2365 | 0 | 52 | 334 | 79 | 129 | 491 | 85 |
| Confl. Peds. (#/hr) | | | 143 | | | 164 | | | 216 | | | 93 |
| Confl. Bikes (#/hr) | | | 5 | | | 3 | | | 24 | | | 44 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | | | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Effective Green, g (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Actuated g/C Ratio | | 0.55 | | | 0.55 | | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 |
| Clearance Time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 2749 | | | 2705 | | 121 | 601 | 398 | 243 | 601 | 448 |
| v/s Ratio Prot | | 0.35 | | | c0.48 | | | 0.18 | | | c0.27 | |
| v/s Ratio Perm | | | | | | | 0.14 | | 0.06 | 0.17 | | 0.06 |
| v/c Ratio | | 0.63 | | | 0.87 | | 0.43 | 0.56 | 0.20 | 0.53 | 0.82 | 0.19 |
| Uniform Delay, d1 | | 13.7 | | | 17.3 | | 23.8 | 25.0 | 21.9 | 24.7 | 27.9 | 21.8 |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 1.1 | | | 4.3 | | 10.8 | 3.7 | 1.1 | 8.1 | 11.7 | 0.9 |
| Delay (s) | | 14.8 | | | 21.6 | | 34.6 | 28.7 | 23.0 | 32.8 | 39.6 | 22.7 |
| Level of Service | | B | | | C | | C | C | C | C | D | C |
| Approach Delay (s) | | 14.8 | | | 21.6 | | | 28.3 | | | 36.3 | |
| Approach LOS | | B | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 10.8 |
| Intersection Capacity Utilization | 103.3% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 34 | 202 | 40 | 208 | 532 | 92 | 20 | 288 | 39 | 58 | 525 | 35 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.89 | 1.00 | 1.00 | 0.93 |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.98 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3399 | | 1770 | 3435 | | 1770 | 1863 | 1407 | 1770 | 1863 | 1472 |
| Flt Permitted | | 0.85 | | 0.57 | 1.00 | | 0.27 | 1.00 | 1.00 | 0.52 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 2899 | | 1069 | 3435 | | 505 | 1863 | 1407 | 974 | 1863 | 1472 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 36 | 213 | 42 | 219 | 560 | 97 | 21 | 303 | 41 | 61 | 553 | 37 |
| RTOR Reduction (vph) | 0 | 23 | 0 | 0 | 23 | 0 | 0 | 0 | 23 | 0 | 0 | 20 |
| Lane Group Flow (vph) | 0 | 268 | 0 | 219 | 634 | 0 | 21 | 303 | 18 | 61 | 553 | 17 |
| Confl. Peds. (#/hr) | | | 54 | | | 21 | | | 59 | | | 52 |
| Confl. Bikes (#/hr) | | | 3 | | | 7 | | | 31 | | | 48 |
| Turn Type | Perm | | | Perm | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Effective Green, g (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Actuated g/C Ratio | | 0.42 | | 0.42 | 0.42 | | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 |
| Clearance Time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | | 0.2 | | 0.2 | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 1208 | | 445 | 1431 | | 219 | 807 | 610 | 422 | 807 | 638 |
| v/s Ratio Prot | | | | | 0.18 | | | 0.16 | | | c0.30 | |
| v/s Ratio Perm | | 0.09 | | c0.20 | | | 0.04 | | 0.01 | 0.06 | | 0.01 |
| v/c Ratio | | 0.22 | | 0.49 | 0.44 | | 0.10 | 0.38 | 0.03 | 0.14 | 0.69 | 0.03 |
| Uniform Delay, d1 | | 11.2 | | 12.8 | 12.5 | | 10.1 | 11.5 | 9.8 | 10.3 | 13.7 | 9.7 |
| Progression Factor | | 1.00 | | 0.29 | 0.26 | | 1.12 | 1.08 | 1.44 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.4 | | 2.9 | 0.7 | | 0.7 | 1.1 | 0.1 | 0.7 | 4.7 | 0.1 |
| Delay (s) | | 11.7 | | 6.6 | 4.0 | | 12.1 | 13.5 | 14.1 | 11.0 | 18.4 | 9.8 |
| Level of Service | | B | | A | A | | B | B | B | B | B | A |
| Approach Delay (s) | | 11.7 | | | 4.6 | | | 13.5 | | | 17.2 | |
| Approach LOS | | B | | | A | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 101.1% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 57 | 801 | 24 | 22 | 981 | 96 | 22 | 174 | 23 | 214 | 323 | 174 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.99 | | 1.00 | 1.00 | 0.95 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | | | 0.99 | | | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3510 | | | 3476 | | | 1815 | | 1770 | 1863 | 1504 |
| Flt Permitted | | 0.73 | | | 0.93 | | | 0.95 | | 0.62 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 2564 | | | 3220 | | | 1730 | | 1147 | 1863 | 1504 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 61 | 852 | 26 | 23 | 1044 | 102 | 23 | 185 | 24 | 228 | 344 | 185 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 12 | 0 | 0 | 7 | 0 | 0 | 0 | 26 |
| Lane Group Flow (vph) | 0 | 936 | 0 | 0 | 1157 | 0 | 0 | 225 | 0 | 228 | 344 | 159 |
| Confl. Peds. (#/hr) | | | 15 | | | 21 | | | 46 | | | 24 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | 34 | | | 35 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | 8 | | 8 |
| Actuated Green, G (s) | | 27.0 | | | 27.0 | | | 23.0 | | 23.0 | 23.0 | 23.0 |
| Effective Green, g (s) | | 27.0 | | | 27.0 | | | 23.0 | | 23.0 | 23.0 | 23.0 |
| Actuated g/C Ratio | | 0.45 | | | 0.45 | | | 0.38 | | 0.38 | 0.38 | 0.38 |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Grp Cap (vph) | | 1154 | | | 1449 | | | 663 | | 440 | 714 | 577 |
| v/s Ratio Prot | | | | | | | | | | | 0.18 | |
| v/s Ratio Perm | | c0.36 | | | 0.36 | | | 0.13 | | c0.20 | | 0.11 |
| v/c Ratio | | 0.81 | | | 0.80 | | | 0.34 | | 0.52 | 0.48 | 0.28 |
| Uniform Delay, d1 | | 14.3 | | | 14.2 | | | 13.1 | | 14.2 | 14.0 | 12.8 |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | 0.80 | 0.80 | 0.82 |
| Incremental Delay, d2 | | 6.2 | | | 4.7 | | | 1.4 | | 3.4 | 1.8 | 0.9 |
| Delay (s) | | 20.5 | | | 18.8 | | | 14.5 | | 14.8 | 13.0 | 11.4 |
| Level of Service | | C | | | B | | | B | | B | B | B |
| Approach Delay (s) | | 20.5 | | | 18.8 | | | 14.5 | | | 13.1 | |
| Approach LOS | | C | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.68 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 110.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 13 | 249 | 56 | 90 | 768 | 41 | 39 | 346 | 43 | 43 | 412 | 28 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.91 | | 1.00 | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1858 | 1434 | | 3487 | | | 1818 | | 1770 | 1839 | |
| Flt Permitted | | 0.95 | 1.00 | | 0.89 | | | 0.88 | | 0.41 | 1.00 | |
| Satd. Flow (perm) | | 1764 | 1434 | | 3103 | | | 1604 | | 762 | 1839 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 14 | 265 | 60 | 96 | 817 | 44 | 41 | 368 | 46 | 46 | 438 | 30 |
| RTOR Reduction (vph) | 0 | 0 | 32 | 0 | 6 | 0 | 0 | 7 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 0 | 279 | 28 | 0 | 951 | 0 | 0 | 448 | 0 | 46 | 464 | 0 |
| Confl. Peds. (#/hr) | | | 68 | | | 35 | | | 29 | | | 42 |
| Confl. Bikes (#/hr) | | | 4 | | | 6 | | | 2 | | | 3 |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | 0.38 | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 823 | 669 | | 1448 | | | 615 | | 292 | 705 | |
| v/s Ratio Prot | | | | | | | | | | | 0.25 | |
| v/s Ratio Perm | | 0.16 | 0.02 | | c0.31 | | | c0.28 | | 0.06 | | |
| v/c Ratio | | 0.34 | 0.04 | | 0.66 | | | 0.73 | | 0.16 | 0.66 | |
| Uniform Delay, d1 | | 10.1 | 8.7 | | 12.3 | | | 15.8 | | 12.1 | 15.3 | |
| Progression Factor | | 1.08 | 1.54 | | 0.25 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 1.1 | 0.1 | | 1.7 | | | 7.4 | | 1.1 | 4.8 | |
| Delay (s) | | 12.1 | 13.5 | | 4.7 | | | 23.2 | | 13.3 | 20.0 | |
| Level of Service | | B | B | | A | | | C | | B | C | |
| Approach Delay (s) | | 12.3 | | | 4.7 | | | 23.2 | | | 19.4 | |
| Approach LOS | | B | | | A | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 110.5% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 410 | 656 | 0 | 505 | 37 | 578 | 441 | 45 | 20 | 528 | 16 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | 1.00 | 1.00 | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.93 | | 0.99 | | 1.00 | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | 1.00 | 0.99 | | | 1.00 | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 1863 | 1474 | | 3481 | | 1770 | 1816 | | | 3508 | |
| Flt Permitted | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 0.62 | |
| Satd. Flow (perm) | | 1863 | 1474 | | 3481 | | 1770 | 1816 | | | 2193 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 0 | 436 | 698 | 0 | 537 | 39 | 615 | 469 | 48 | 21 | 562 | 17 |
| RTOR Reduction (vph) | 0 | 0 | 465 | 0 | 6 | 0 | 0 | 4 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 436 | 233 | 0 | 570 | 0 | 615 | 513 | 0 | 0 | 598 | 0 |
| Confl. Peds. (#/hr) | | | 64 | | | 50 | | | 68 | | | 57 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | 3 | | | 3 |
| Turn Type | | | custom | | | | Split | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | 8 | 8 | | | 4 | |
| Permitted Phases | | | 8 | | | | | | | 4 | | |
| Actuated Green, G (s) | | 30.0 | 30.0 | | 30.0 | | 30.0 | 30.0 | | | 17.0 | |
| Effective Green, g (s) | | 30.0 | 30.0 | | 30.0 | | 30.0 | 30.0 | | | 17.0 | |
| Actuated g/C Ratio | | 0.33 | 0.33 | | 0.33 | | 0.33 | 0.33 | | | 0.19 | |
| Clearance Time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Grp Cap (vph) | | 621 | 491 | | 1160 | | 590 | 605 | | | 414 | |
| v/s Ratio Prot | | c0.23 | | | 0.16 | | c0.35 | 0.28 | | | | |
| v/s Ratio Perm | | | 0.16 | | | | | | | | c0.27 | |
| v/c Ratio | | 0.70 | 0.47 | | 0.49 | | 1.04 | 0.85 | | | 1.44 | |
| Uniform Delay, d1 | | 26.1 | 23.8 | | 23.9 | | 30.0 | 27.9 | | | 36.5 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 6.5 | 3.3 | | 1.5 | | 48.5 | 13.8 | | | 212.8 | |
| Delay (s) | | 32.6 | 27.0 | | 25.4 | | 78.5 | 41.7 | | | 249.3 | |
| Level of Service | | C | C | | C | | E | D | | | F | |
| Approach Delay (s) | | 29.2 | | | 25.4 | | | 61.7 | | | 249.3 | |
| Approach LOS | | C | | | C | | | E | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 77.6 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.00 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 13.0 |
| Intersection Capacity Utilization | 83.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBR | EBR2 | WBT | WBR | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Volume (vph) | 1608 | 104 | 2481 | 4 | 691 | 34 | 300 | 853 | 279 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Lane Util. Factor | 0.76 | | 0.91 | | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | | 0.98 | | 1.00 | 0.98 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Frt | 0.85 | | 1.00 | | 0.99 | | 1.00 | 0.96 | |
| Flt Protected | 1.00 | | 1.00 | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3610 | | 5084 | | 3441 | | 1770 | 3334 | |
| Flt Permitted | 1.00 | | 1.00 | | 1.00 | | 0.37 | 1.00 | |
| Satd. Flow (perm) | 3610 | | 5084 | | 3441 | | 680 | 3334 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 1675 | 108 | 2584 | 4 | 720 | 35 | 312 | 889 | 291 |
| RTOR Reduction (vph) | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 1776 | 0 | 2588 | 0 | 755 | 0 | 312 | 1179 | 0 |
| Confl. Peds. (#/hr) | | 45 | | | | 186 | | | 89 |
| Confl. Bikes (#/hr) | | 4 | 94 | | | 1 | | | |
| Turn Type | custom | | | | | | custom | | |
| Protected Phases | 2 | | | | 8 | | | 4 | |
| Permitted Phases | | | 6 | | | | 7 | | |
| Actuated Green, G (s) | 48.0 | | 48.0 | | 19.0 | | 12.0 | 31.0 | |
| Effective Green, g (s) | 48.0 | | 48.0 | | 19.0 | | 12.0 | 31.0 | |
| Actuated g/C Ratio | 0.53 | | 0.53 | | 0.21 | | 0.13 | 0.34 | |
| Clearance Time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Vehicle Extension (s) | 0.2 | | 0.2 | | 0.2 | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1925 | | 2711 | | 726 | | 91 | 1148 | |
| v/s Ratio Prot | 0.49 | | | | 0.22 | | | c0.35 | |
| v/s Ratio Perm | | | c0.51 | | | | c0.46 | | |
| v/c Ratio | 0.92 | | 0.95 | | 1.04 | | 3.43 | 1.03 | |
| Uniform Delay, d1 | 19.3 | | 20.0 | | 35.5 | | 39.0 | 29.5 | |
| Progression Factor | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 8.9 | | 9.5 | | 44.2 | | 1120.1 | 33.8 | |
| Delay (s) | 28.2 | | 29.5 | | 79.7 | | 1159.1 | 63.3 | |
| Level of Service | C | | C | | E | | F | E | |
| Approach Delay (s) | | | 29.5 | | 79.7 | | | 292.4 | |
| Approach LOS | | | C | | E | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 94.1 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.38 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 13.0 |
| Intersection Capacity Utilization | 96.0% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1519 | 37 | 0 | 2203 | 46 | 57 | 114 | 59 | 65 | 256 | 59 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 1.00 | | | 0.97 | | | 0.98 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 5008 | | | 5015 | | | 1745 | | | 1782 | |
| Flt Permitted | | 1.00 | | | 1.00 | | | 0.76 | | | 0.89 | |
| Satd. Flow (perm) | | 5008 | | | 5015 | | | 1339 | | | 1606 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 0 | 1599 | 39 | 0 | 2319 | 48 | 60 | 120 | 62 | 68 | 269 | 62 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 14 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 0 | 1635 | 0 | 0 | 2365 | 0 | 0 | 228 | 0 | 0 | 396 | 0 |
| Confl. Peds. (#/hr) | | | 43 | | | 22 | | | 19 | | | 20 |
| Confl. Bikes (#/hr) | | | 7 | | | 7 | | | 2 | | | 3 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | | | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Actuated Green, G (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Effective Green, g (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Actuated g/C Ratio | | 0.59 | | | 0.59 | | | 0.31 | | | 0.31 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 2949 | | | 2953 | | | 417 | | | 500 | |
| v/s Ratio Prot | | 0.33 | | | c0.47 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.17 | | | c0.25 | |
| v/c Ratio | | 0.55 | | | 0.80 | | | 0.55 | | | 0.79 | |
| Uniform Delay, d1 | | 11.3 | | | 14.4 | | | 25.7 | | | 28.3 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 0.8 | | | 2.4 | | | 0.8 | | | 7.9 | |
| Delay (s) | | 12.0 | | | 16.8 | | | 26.5 | | | 36.2 | |
| Level of Service | | B | | | B | | | C | | | D | |
| Approach Delay (s) | | 12.0 | | | 16.8 | | | 26.5 | | | 36.2 | |
| Approach LOS | | B | | | B | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 76.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 24 | 266 | 94 | 44 | 865 | 85 | 59 | 140 | 37 | 49 | 220 | 57 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.92 | | 0.99 | | | 0.98 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | | 0.98 | | | 0.98 | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 1855 | 1454 | | 3461 | | | 1769 | | | 1781 | |
| Flt Permitted | | 0.88 | 1.00 | | 0.93 | | | 0.85 | | | 0.92 | |
| Satd. Flow (perm) | | 1648 | 1454 | | 3218 | | | 1530 | | | 1644 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 26 | 292 | 103 | 48 | 951 | 93 | 65 | 154 | 41 | 54 | 242 | 63 |
| RTOR Reduction (vph) | 0 | 0 | 55 | 0 | 12 | 0 | 0 | 11 | 0 | 0 | 13 | 0 |
| Lane Group Flow (vph) | 0 | 318 | 48 | 0 | 1080 | 0 | 0 | 249 | 0 | 0 | 346 | 0 |
| Confl. Peds. (#/hr) | | | 56 | | | 60 | | | 70 | | | 84 |
| Confl. Bikes (#/hr) | | | 4 | | | 2 | | | 3 | | | 2 |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 769 | 679 | | 1502 | | | 587 | | | 630 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.19 | 0.03 | | c0.34 | | | 0.16 | | | c0.21 | |
| v/c Ratio | | 0.41 | 0.07 | | 0.72 | | | 0.42 | | | 0.55 | |
| Uniform Delay, d1 | | 10.6 | 8.8 | | 12.8 | | | 13.6 | | | 14.5 | |
| Progression Factor | | 1.30 | 2.53 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 1.6 | 0.2 | | 3.0 | | | 0.5 | | | 1.0 | |
| Delay (s) | | 15.3 | 22.5 | | 15.8 | | | 14.1 | | | 15.4 | |
| Level of Service | | B | C | | B | | | B | | | B | |
| Approach Delay (s) | | 17.1 | | | 15.8 | | | 14.1 | | | 15.4 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.64 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 84.3% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 0 | 1 | 0 | 80 | 0 | 82 | 2 | 152 | 87 | 111 | 256 | 0 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 0 | 1 | 0 | 91 | 0 | 93 | 2 | 173 | 99 | 126 | 291 | 0 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 1 | 184 | 274 | 417 |
| Volume Left (vph) | 0 | 91 | 2 | 126 |
| Volume Right (vph) | 0 | 93 | 99 | 0 |
| Hadj (s) | 0.02 | -0.19 | -0.20 | 0.08 |
| Departure Headway (s) | 6.0 | 5.4 | 4.8 | 4.9 |
| Degree Utilization, x | 0.00 | 0.27 | 0.36 | 0.56 |
| Capacity (veh/h) | 493 | 607 | 720 | 718 |
| Control Delay (s) | 9.0 | 10.4 | 10.4 | 13.9 |
| Approach Delay (s) | 9.0 | 10.4 | 10.4 | 13.9 |
| Approach LOS | A | B | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 12.1 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 64.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 167 | 143 | 0 | 428 | 166 | 27 | 98 | 850 | 226 | 0 | 1366 | 257 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 4.0 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.69 | 1.00 | 0.98 | | | 1.00 | 0.55 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1736 | 1827 | | 3367 | 1827 | 1070 | 1736 | 3285 | | | 3471 | 848 |
| Flt Permitted | 0.36 | 1.00 | | 0.36 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | 664 | 1827 | | 1289 | 1827 | 1070 | 1827 | 3285 | | | 3471 | 848 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 172 | 147 | 0 | 441 | 171 | 28 | 101 | 876 | 233 | 0 | 1408 | 265 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 27 | 0 | 0 | 0 | 168 |
| Lane Group Flow (vph) | 172 | 147 | 0 | 441 | 171 | 12 | 101 | 1082 | 0 | 0 | 1408 | 97 |
| Confl. Peds. (#/hr) | | | 87 | | | 210 | | | 64 | | | 108 |
| Confl. Bikes (#/hr) | | | 2 | | | 8 | | | 5 | | | 2 |
| Heavy Vehicles (%) | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% |
| Turn Type | custom | | | custom | | custom | custom | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | 5 | | | 1 | | 8 | 3 | | | 4 | | 4 |
| Actuated Green, G (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 38.0 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Effective Green, g (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 38.0 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Actuated g/C Ratio | 0.12 | 0.29 | | 0.12 | 0.29 | 0.42 | 0.03 | 0.42 | | | 0.37 | 0.37 |
| Clearance Time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 4.0 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 0.2 | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | | | 0.2 | 0.2 |
| Lane Grp Cap (vph) | 81 | 526 | | 158 | 526 | 452 | 61 | 1387 | | | 1273 | 311 |
| v/s Ratio Prot | | 0.08 | | | c0.09 | | | 0.33 | | | c0.41 | |
| v/s Ratio Perm | 0.26 | | | c0.34 | | 0.01 | c0.06 | | | | | 0.11 |
| v/c Ratio | 2.12 | 0.28 | | 2.79 | 0.33 | 0.03 | 1.66 | 0.78 | | | 1.11 | 0.31 |
| Uniform Delay, d1 | 39.5 | 24.8 | | 39.5 | 25.2 | 15.2 | 43.5 | 22.4 | | | 28.5 | 20.4 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 544.6 | 1.3 | | 823.4 | 1.6 | 0.0 | 356.7 | 2.7 | | | 59.5 | 0.2 |
| Delay (s) | 584.1 | 26.1 | | 862.9 | 26.8 | 15.2 | 400.2 | 25.1 | | | 88.0 | 20.6 |
| Level of Service | F | C | | F | C | B | F | C | | | F | C |
| Approach Delay (s) | | 327.0 | | | 602.4 | | | 56.4 | | | 77.4 | |
| Approach LOS | | F | | | F | | | E | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 178.9 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.10 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 17.1 |
| Intersection Capacity Utilization | 117.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 74 | 218 | 49 | 211 | 762 | 76 | 0 | 1140 | 53 | 0 | 1736 | 144 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 0.95 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.99 | | | 0.99 | | | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1787 | 1816 | | 1787 | 3502 | | | 3535 | | | 3516 | |
| Flt Permitted | 0.17 | 1.00 | | 0.48 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 311 | 1816 | | 897 | 3502 | | | 3535 | | | 3516 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 77 | 227 | 51 | 220 | 794 | 79 | 0 | 1188 | 55 | 0 | 1808 | 150 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 8 | 0 | 0 | 4 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 77 | 273 | 0 | 220 | 865 | 0 | 0 | 1239 | 0 | 0 | 1951 | 0 |
| Confl. Peds. (#/hr) | | | 30 | | | 70 | | | 85 | | | 87 |
| Confl. Bikes (#/hr) | | | 4 | | | 5 | | | 7 | | | 10 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | 31.2 | 31.2 | | 31.2 | 31.2 | | | 49.2 | | | 49.2 | |
| Effective Green, g (s) | 31.2 | 31.2 | | 31.2 | 31.2 | | | 49.2 | | | 49.2 | |
| Actuated g/C Ratio | 0.35 | 0.35 | | 0.35 | 0.35 | | | 0.55 | | | 0.55 | |
| Clearance Time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 108 | 630 | | 311 | 1214 | | | 1932 | | | 1922 | |
| v/s Ratio Prot | | 0.15 | | | 0.25 | | | 0.35 | | | c0.55 | |
| v/s Ratio Perm | c0.25 | | | 0.25 | | | | | | | | |
| v/c Ratio | 0.71 | 0.43 | | 0.71 | 0.71 | | | 0.64 | | | 1.02 | |
| Uniform Delay, d1 | 25.5 | 22.6 | | 25.4 | 25.5 | | | 14.2 | | | 20.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.66 | | | 1.00 | |
| Incremental Delay, d2 | 19.9 | 0.5 | | 7.2 | 2.0 | | | 1.4 | | | 24.4 | |
| Delay (s) | 45.4 | 23.1 | | 32.6 | 27.5 | | | 25.1 | | | 44.8 | |
| Level of Service | D | C | | C | C | | | C | | | D | |
| Approach Delay (s) | | 27.9 | | | 28.5 | | | 25.1 | | | 44.8 | |
| Approach LOS | | C | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.90 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.6 |
| Intersection Capacity Utilization | 117.0% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 23 | 135 | 62 | 37 | 75 | 47 | 0 | 1139 | 50 | 0 | 1945 | 41 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.90 | | 0.98 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.96 | | | 0.99 | | | 1.00 | |
| Flt Protected | | 0.99 | 1.00 | | 0.99 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 1868 | 1435 | | 1754 | | | 3538 | | | 3558 | |
| Flt Permitted | | 0.94 | 1.00 | | 0.89 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 1776 | 1435 | | 1588 | | | 3538 | | | 3558 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 24 | 141 | 65 | 39 | 78 | 49 | 0 | 1186 | 52 | 0 | 2026 | 43 |
| RTOR Reduction (vph) | 0 | 0 | 11 | 0 | 17 | 0 | 0 | 4 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 165 | 54 | 0 | 149 | 0 | 0 | 1234 | 0 | 0 | 2067 | 0 |
| Confl. Peds. (#/hr) | | | 64 | | | 33 | | | 97 | | | 64 |
| Confl. Bikes (#/hr) | | | 8 | | | 4 | | | 3 | | | 11 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Turn Type | Perm | | Perm | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | | | | | | |
| Actuated Green, G (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Effective Green, g (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Actuated g/C Ratio | | 0.22 | 0.22 | | 0.22 | | | 0.67 | | | 0.67 | |
| Clearance Time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 399 | 322 | | 356 | | | 2378 | | | 2392 | |
| v/s Ratio Prot | | | | | | | | 0.35 | | | c0.58 | |
| v/s Ratio Perm | | 0.09 | 0.04 | | c0.09 | | | | | | | |
| v/c Ratio | | 0.41 | 0.17 | | 0.42 | | | 0.52 | | | 0.86 | |
| Uniform Delay, d1 | | 29.8 | 28.1 | | 29.9 | | | 7.4 | | | 11.5 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 0.75 | | | 0.47 | |
| Incremental Delay, d2 | | 0.7 | 0.2 | | 0.8 | | | 0.7 | | | 1.4 | |
| Delay (s) | | 30.5 | 28.4 | | 30.7 | | | 6.3 | | | 6.7 | |
| Level of Service | | C | C | | C | | | A | | | A | |
| Approach Delay (s) | | 29.9 | | | 30.7 | | | 6.3 | | | 6.7 | |
| Approach LOS | | C | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.1 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.3 |
| Intersection Capacity Utilization | 100.6% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 74 | 316 | 44 | 46 | 373 | 56 | 0 | 1077 | 68 | 0 | 1849 | 150 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | 0.98 | | | 0.97 | | | 0.98 | | | 0.98 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 0.98 | | | 0.98 | | | 0.99 | | | 0.99 | |
| Flt Protected | | 0.99 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 3392 | | | 3367 | | | 3444 | | | 3442 | |
| Flt Permitted | | 0.72 | | | 0.86 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 2462 | | | 2913 | | | 3444 | | | 3442 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 77 | 329 | 46 | 48 | 389 | 58 | 0 | 1122 | 71 | 0 | 1926 | 156 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 11 | 0 | 0 | 5 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 0 | 446 | 0 | 0 | 484 | 0 | 0 | 1188 | 0 | 0 | 2075 | 0 |
| Confl. Peds. (#/hr) | | | 126 | | | 164 | | | 168 | | | 118 |
| Confl. Bikes (#/hr) | | | 3 | | | 2 | | | 2 | | | 3 |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 26.2 | | | 26.2 | | | 54.7 | | | 54.7 | |
| Effective Green, g (s) | | 26.2 | | | 26.2 | | | 54.7 | | | 54.7 | |
| Actuated g/C Ratio | | 0.29 | | | 0.29 | | | 0.61 | | | 0.61 | |
| Clearance Time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 717 | | | 848 | | | 2093 | | | 2092 | |
| v/s Ratio Prot | | | | | | | | 0.34 | | | c0.60 | |
| v/s Ratio Perm | | c0.18 | | | 0.17 | | | | | | | |
| v/c Ratio | | 0.62 | | | 0.57 | | | 0.57 | | | 0.99 | |
| Uniform Delay, d1 | | 27.6 | | | 27.1 | | | 10.6 | | | 17.4 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 0.38 | |
| Incremental Delay, d2 | | 4.0 | | | 2.8 | | | 1.1 | | | 12.4 | |
| Delay (s) | | 31.7 | | | 29.9 | | | 11.7 | | | 19.1 | |
| Level of Service | | C | | | C | | | B | | | B | |
| Approach Delay (s) | | 31.7 | | | 29.9 | | | 11.7 | | | 19.1 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.1 |
| Intersection Capacity Utilization | 101.3% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 238 | 2118 | 156 | 0 | 988 | 0 | 0 | 1020 | 768 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | |
| Lane Util. Factor | | | | 1.00 | 0.86 | | | 0.91 | | | 0.91 | |
| Frpb, ped/bikes | | | | 1.00 | 1.00 | | | 1.00 | | | 0.96 | |
| Flpb, ped/bikes | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | | | 1.00 | 0.99 | | | 1.00 | | | 0.94 | |
| Flt Protected | | | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | 1770 | 6323 | | | 5085 | | | 4571 | |
| Flt Permitted | | | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | 1770 | 6323 | | | 5085 | | | 4571 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 0 | 0 | 245 | 2184 | 161 | 0 | 1019 | 0 | 0 | 1052 | 792 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 245 | 2339 | 0 | 0 | 1019 | 0 | 0 | 1842 | 0 |
| Confl. Peds. (#/hr) | | | 418 | | | 28 | | | 67 | | | 75 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | 1 | | | |
| Turn Type | | | | Prot | | | | | | | | |
| Protected Phases | | | | 1 | 6 | | | 4 | | | 4 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | | | | 48.7 | 48.7 | | | 31.4 | | | 31.4 | |
| Effective Green, g (s) | | | | 48.7 | 48.7 | | | 31.4 | | | 31.4 | |
| Actuated g/C Ratio | | | | 0.54 | 0.54 | | | 0.35 | | | 0.35 | |
| Clearance Time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | |
| Vehicle Extension (s) | | | | 0.2 | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | | | 958 | 3421 | | | 1774 | | | 1595 | |
| v/s Ratio Prot | | | | 0.14 | c0.37 | | | 0.20 | | | c0.40 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | | | 0.26 | 0.68 | | | 0.57 | | | 1.46dr | |
| Uniform Delay, d1 | | | | 11.0 | 15.0 | | | 23.9 | | | 29.3 | |
| Progression Factor | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | | | 0.6 | 1.1 | | | 1.4 | | | 77.3 | |
| Delay (s) | | | | 11.6 | 16.2 | | | 25.2 | | | 106.6 | |
| Level of Service | | | | B | B | | | C | | | F | |
| Approach Delay (s) | | 0.0 | | | 15.7 | | | 25.2 | | | 106.6 | |
| Approach LOS | | A | | | B | | | C | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 48.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.9 |
| Intersection Capacity Utilization | 80.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 299 | 17 | 12 | 936 | 19 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | | 4.0 | 5.0 | |
| Lane Util. Factor | 1.00 | | | 0.95 | 1.00 | |
| Frpb, ped/bikes | 1.00 | | | 1.00 | 0.92 | |
| Flpb, ped/bikes | 1.00 | | | 1.00 | 1.00 | |
| Frt | 0.99 | | | 1.00 | 0.95 | |
| Flt Protected | 1.00 | | | 1.00 | 0.97 | |
| Satd. Flow (prot) | 1845 | | | 3537 | 1584 | |
| Flt Permitted | 1.00 | | | 0.95 | 0.97 | |
| Satd. Flow (perm) | 1845 | | | 3367 | 1584 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 311 | 18 | 12 | 975 | 20 | 10 |
| RTOR Reduction (vph) | 2 | 0 | 0 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 327 | 0 | 0 | 987 | 21 | 0 |
| Confl. Peds. (#/hr) | | 26 | | | | 30 |
| Confl. Bikes (#/hr) | | 1 | | | | |
| Turn Type | | | Perm | | | |
| Protected Phases | 2 | | | 6 | 8 | |
| Permitted Phases | | | 6 | | | |
| Actuated Green, G (s) | 47.0 | | | 47.0 | 4.0 | |
| Effective Green, g (s) | 47.0 | | | 47.0 | 4.0 | |
| Actuated g/C Ratio | 0.78 | | | 0.78 | 0.07 | |
| Clearance Time (s) | 4.0 | | | 4.0 | 5.0 | |
| Vehicle Extension (s) | 0.2 | | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1445 | | | 2637 | 106 | |
| v/s Ratio Prot | 0.18 | | | | c0.01 | |
| v/s Ratio Perm | | | | c0.29 | | |
| v/c Ratio | 0.23 | | | 0.37 | 0.19 | |
| Uniform Delay, d1 | 1.7 | | | 2.0 | 26.5 | |
| Progression Factor | 1.00 | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.4 | | | 0.4 | 0.3 | |
| Delay (s) | 2.1 | | | 2.4 | 26.8 | |
| Level of Service | A | | | A | C | |
| Approach Delay (s) | 2.1 | | | 2.4 | 26.8 | |
| Approach LOS | A | | | A | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 2.9 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.36 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 58.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 3 | 336 | 15 | 14 | 973 | 1 | 8 | 1 | 7 | 2 | 2 | 4 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 2.0 | |
| Lane Util. Factor | | 1.00 | | | 0.95 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.97 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 0.99 | | | 1.00 | | | 0.94 | | | 0.93 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.98 | | | 0.99 | |
| Satd. Flow (prot) | | 1847 | | | 3536 | | | 1660 | | | 1692 | |
| Flt Permitted | | 0.99 | | | 0.95 | | | 0.92 | | | 0.98 | |
| Satd. Flow (perm) | | 1837 | | | 3358 | | | 1569 | | | 1685 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 3 | 361 | 16 | 15 | 1046 | 1 | 9 | 1 | 8 | 2 | 2 | 4 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 378 | 0 | 0 | 1062 | 0 | 0 | 13 | 0 | 0 | 6 | 0 |
| Confl. Peds. (#/hr) | | | 32 | | | 73 | | | 30 | | | 17 |
| Confl. Bikes (#/hr) | | | 6 | | | 5 | | | | | | |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 31.0 | | | 31.0 | | | 20.0 | | | 23.0 | |
| Effective Green, g (s) | | 31.0 | | | 31.0 | | | 20.0 | | | 23.0 | |
| Actuated g/C Ratio | | 0.52 | | | 0.52 | | | 0.33 | | | 0.38 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 2.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 949 | | | 1735 | | | 523 | | | 646 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.21 | | | c0.32 | | | c0.01 | | | 0.00 | |
| v/c Ratio | | 0.40 | | | 0.61 | | | 0.02 | | | 0.01 | |
| Uniform Delay, d1 | | 8.8 | | | 10.2 | | | 13.4 | | | 11.4 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 1.2 | | | 1.6 | | | 0.0 | | | 0.0 | |
| Delay (s) | | 10.1 | | | 11.9 | | | 13.5 | | | 11.5 | |
| Level of Service | | B | | | B | | | B | | | B | |
| Approach Delay (s) | | 10.1 | | | 11.9 | | | 13.5 | | | 11.5 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.38 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 58.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 2314 | 59 | 0 | 1111 | 85 | 34 | 409 | 90 | 124 | 288 | 51 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | 1.00 | 1.00 | 0.77 | 1.00 | 1.00 | 0.94 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | | | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 4909 | | | 4836 | | 1719 | 1810 | 1186 | 1719 | 1810 | 1439 |
| Flt Permitted | | 1.00 | | | 1.00 | | 0.45 | 1.00 | 1.00 | 0.29 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 4909 | | | 4836 | | 822 | 1810 | 1186 | 523 | 1810 | 1439 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 2386 | 61 | 0 | 1145 | 88 | 35 | 422 | 93 | 128 | 297 | 53 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 10 | 0 | 0 | 0 | 1 | 0 | 0 | 34 |
| Lane Group Flow (vph) | 0 | 2444 | 0 | 0 | 1223 | 0 | 35 | 422 | 92 | 128 | 297 | 19 |
| Confl. Peds. (#/hr) | | | 74 | | | 61 | | | 221 | | | 35 |
| Confl. Bikes (#/hr) | | | 2 | | | 8 | | | 34 | | | 32 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | | | | | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 2 | | | 2 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Effective Green, g (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Actuated g/C Ratio | | 0.55 | | | 0.55 | | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 |
| Clearance Time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 2722 | | | 2681 | | 268 | 589 | 386 | 170 | 589 | 468 |
| v/s Ratio Prot | | c0.50 | | | 0.25 | | | 0.23 | | | 0.16 | |
| v/s Ratio Perm | | | | | | | 0.04 | | 0.08 | c0.24 | | 0.01 |
| v/c Ratio | | 0.90 | | | 0.46 | | 0.13 | 0.72 | 0.24 | 0.75 | 0.50 | 0.04 |
| Uniform Delay, d1 | | 17.8 | | | 12.0 | | 21.4 | 26.7 | 22.2 | 27.1 | 24.5 | 20.7 |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 5.2 | | | 0.6 | | 1.0 | 7.3 | 1.4 | 26.1 | 3.1 | 0.2 |
| Delay (s) | | 23.0 | | | 12.5 | | 22.4 | 34.0 | 23.6 | 53.2 | 27.6 | 20.9 |
| Level of Service | | C | | | B | | C | C | C | D | C | C |
| Approach Delay (s) | | 23.0 | | | 12.5 | | | 31.5 | | | 33.7 | |
| Approach LOS | | C | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 10.8 |
| Intersection Capacity Utilization | 103.2% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 49 | 530 | 26 | 76 | 299 | 69 | 19 | 503 | 133 | 88 | 277 | 16 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.88 | 1.00 | 1.00 | 0.95 |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.99 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3454 | | 1752 | 3375 | | 1752 | 1845 | 1372 | 1752 | 1845 | 1484 |
| Flt Permitted | | 0.89 | | 0.34 | 1.00 | | 0.52 | 1.00 | 1.00 | 0.27 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 3089 | | 620 | 3375 | | 962 | 1845 | 1372 | 500 | 1845 | 1484 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 54 | 582 | 29 | 84 | 329 | 76 | 21 | 553 | 146 | 97 | 304 | 18 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 33 | 0 | 0 | 0 | 67 | 0 | 0 | 10 |
| Lane Group Flow (vph) | 0 | 660 | 0 | 84 | 372 | 0 | 21 | 553 | 79 | 97 | 304 | 8 |
| Confl. Peds. (#/hr) | | | 58 | | | 24 | | | 64 | | | 32 |
| Confl. Bikes (#/hr) | | | 4 | | | 1 | | | 41 | | | 40 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | Perm | | | Perm | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Effective Green, g (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Actuated g/C Ratio | | 0.42 | | 0.42 | 0.42 | | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 |
| Clearance Time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | | 0.2 | | 0.2 | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 1287 | | 258 | 1406 | | 417 | 800 | 595 | 217 | 800 | 643 |
| v/s Ratio Prot | | | | | 0.11 | | | c0.30 | | | 0.16 | |
| v/s Ratio Perm | | c0.21 | | 0.14 | | | 0.02 | | 0.06 | 0.19 | | 0.01 |
| v/c Ratio | | 0.51 | | 0.33 | 0.26 | | 0.05 | 0.69 | 0.13 | 0.45 | 0.38 | 0.01 |
| Uniform Delay, d1 | | 13.0 | | 11.8 | 11.5 | | 9.8 | 13.8 | 10.2 | 11.9 | 11.5 | 9.7 |
| Progression Factor | | 1.00 | | 0.94 | 0.87 | | 1.17 | 0.95 | 1.40 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 1.5 | | 3.0 | 0.4 | | 0.2 | 3.7 | 0.3 | 6.5 | 1.4 | 0.0 |
| Delay (s) | | 14.4 | | 14.0 | 10.4 | | 11.7 | 16.8 | 14.7 | 18.5 | 12.9 | 9.7 |
| Level of Service | | B | | B | B | | B | B | B | B | B | A |
| Approach Delay (s) | | 14.4 | | | 11.0 | | | 16.3 | | | 14.1 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 104.8% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 101 | 1179 | 11 | 6 | 766 | 94 | 11 | 403 | 42 | 172 | 160 | 73 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | | 0.99 | | 1.00 | 1.00 | 0.94 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | | | 0.98 | | | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3520 | | | 3462 | | | 1825 | | 1770 | 1863 | 1495 |
| Flt Permitted | | 0.75 | | | 0.95 | | | 0.99 | | 0.36 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 2649 | | | 3273 | | | 1814 | | 668 | 1863 | 1495 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 104 | 1215 | 11 | 6 | 790 | 97 | 11 | 415 | 43 | 177 | 165 | 75 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 16 | 0 | 0 | 6 | 0 | 0 | 0 | 49 |
| Lane Group Flow (vph) | 0 | 1329 | 0 | 0 | 878 | 0 | 0 | 463 | 0 | 177 | 165 | 26 |
| Confl. Peds. (#/hr) | | | 18 | | | 29 | | | 50 | | | 28 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | 32 | | | 33 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | 8 | | 8 |
| Actuated Green, G (s) | | 29.0 | | | 29.0 | | | 21.0 | | 21.0 | 21.0 | 21.0 |
| Effective Green, g (s) | | 29.0 | | | 29.0 | | | 21.0 | | 21.0 | 21.0 | 21.0 |
| Actuated g/C Ratio | | 0.48 | | | 0.48 | | | 0.35 | | 0.35 | 0.35 | 0.35 |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Grp Cap (vph) | | 1280 | | | 1582 | | | 635 | | 234 | 652 | 523 |
| v/s Ratio Prot | | | | | | | | | | | 0.09 | |
| v/s Ratio Perm | | c0.50 | | | 0.27 | | | 0.26 | | c0.26 | | 0.02 |
| v/c Ratio | | 1.04 | | | 0.55 | | | 0.73 | | 0.76 | 0.25 | 0.05 |
| Uniform Delay, d1 | | 15.5 | | | 10.9 | | | 17.0 | | 17.2 | 13.9 | 12.9 |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | 1.19 | 1.17 | 2.29 |
| Incremental Delay, d2 | | 35.6 | | | 1.4 | | | 7.2 | | 19.2 | 0.9 | 0.2 |
| Delay (s) | | 51.1 | | | 12.3 | | | 24.2 | | 39.6 | 17.2 | 29.8 |
| Level of Service | | D | | | B | | | C | | D | B | C |
| Approach Delay (s) | | 51.1 | | | 12.3 | | | 24.2 | | | 29.0 | |
| Approach LOS | | D | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.92 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 119.4% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 26 | 444 | 42 | 66 | 405 | 41 | 38 | 374 | 80 | 53 | 311 | 24 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.92 | | 0.99 | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | | 0.98 | | 1.00 | 0.99 | |
| Flt Protected | | 1.00 | 1.00 | | 0.99 | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1840 | 1445 | | 3423 | | | 1783 | | 1752 | 1820 | |
| Flt Permitted | | 0.96 | 1.00 | | 0.80 | | | 0.95 | | 0.34 | 1.00 | |
| Satd. Flow (perm) | | 1763 | 1445 | | 2756 | | | 1697 | | 635 | 1820 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 29 | 493 | 47 | 73 | 450 | 46 | 42 | 416 | 89 | 59 | 346 | 27 |
| RTOR Reduction (vph) | 0 | 0 | 25 | 0 | 11 | 0 | 0 | 12 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 0 | 522 | 22 | 0 | 558 | 0 | 0 | 535 | 0 | 59 | 368 | 0 |
| Confl. Peds. (#/hr) | | | 53 | | | 41 | | | 19 | | | 31 |
| Confl. Bikes (#/hr) | | | 4 | | | 1 | | | 3 | | | 2 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | 0.38 | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 823 | 674 | | 1286 | | | 651 | | 243 | 698 | |
| v/s Ratio Prot | | | | | | | | | | | 0.20 | |
| v/s Ratio Perm | | c0.30 | 0.02 | | 0.20 | | | c0.32 | | 0.09 | | |
| v/c Ratio | | 0.63 | 0.03 | | 0.43 | | | 0.82 | | 0.24 | 0.53 | |
| Uniform Delay, d1 | | 12.1 | 8.7 | | 10.7 | | | 16.7 | | 12.6 | 14.3 | |
| Progression Factor | | 0.67 | 0.29 | | 1.77 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 3.4 | 0.1 | | 0.9 | | | 11.2 | | 2.4 | 2.8 | |
| Delay (s) | | 11.5 | 2.6 | | 19.8 | | | 27.9 | | 14.9 | 17.1 | |
| Level of Service | | B | A | | B | | | C | | B | B | |
| Approach Delay (s) | | 10.8 | | | 19.8 | | | 27.9 | | | 16.8 | |
| Approach LOS | | B | | | B | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 109.3% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 648 | 687 | 0 | 336 | 23 | 523 | 454 | 63 | 43 | 355 | 9 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | 1.00 | 1.00 | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.93 | | 0.99 | | 1.00 | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | 1.00 | 0.98 | | | 1.00 | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 0.99 | |
| Satd. Flow (prot) | | 1845 | 1452 | | 3453 | | 1752 | 1792 | | | 3470 | |
| Flt Permitted | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 0.54 | |
| Satd. Flow (perm) | | 1845 | 1452 | | 3453 | | 1752 | 1792 | | | 1869 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 0 | 675 | 716 | 0 | 350 | 24 | 545 | 473 | 66 | 45 | 370 | 9 |
| RTOR Reduction (vph) | 0 | 0 | 466 | 0 | 6 | 0 | 0 | 6 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 675 | 250 | 0 | 368 | 0 | 545 | 533 | 0 | 0 | 422 | 0 |
| Confl. Peds. (#/hr) | | | 60 | | | 45 | | | 37 | | | 39 |
| Confl. Bikes (#/hr) | | | 1 | | | 1 | | | 2 | | | 3 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | custom | | | | Split | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | 8 | 8 | | | 4 | |
| Permitted Phases | | | 8 | | | | | | | 4 | | |
| Actuated Green, G (s) | | 34.0 | 26.0 | | 34.0 | | 26.0 | 26.0 | | | 17.0 | |
| Effective Green, g (s) | | 34.0 | 26.0 | | 34.0 | | 26.0 | 26.0 | | | 17.0 | |
| Actuated g/C Ratio | | 0.38 | 0.29 | | 0.38 | | 0.29 | 0.29 | | | 0.19 | |
| Clearance Time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Grp Cap (vph) | | 697 | 419 | | 1304 | | 506 | 518 | | | 353 | |
| v/s Ratio Prot | | c0.37 | | | 0.11 | | c0.31 | 0.30 | | | | |
| v/s Ratio Perm | | | 0.17 | | | | | | | | c0.23 | |
| v/c Ratio | | 0.97 | 0.60 | | 0.28 | | 1.08 | 1.03 | | | 1.20 | |
| Uniform Delay, d1 | | 27.5 | 27.5 | | 19.5 | | 32.0 | 32.0 | | | 36.5 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 27.2 | 6.1 | | 0.5 | | 62.3 | 47.3 | | | 112.8 | |
| Delay (s) | | 54.7 | 33.6 | | 20.0 | | 94.3 | 79.3 | | | 149.3 | |
| Level of Service | | D | C | | C | | F | E | | | F | |
| Approach Delay (s) | | 43.8 | | | 20.0 | | | 86.9 | | | 149.3 | |
| Approach LOS | | D | | | C | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 69.0 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.06 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 13.0 |
| Intersection Capacity Utilization | 88.1% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBR | EBR2 | WBT | WBR | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Volume (vph) | 2460 | 41 | 1418 | 2 | 885 | 21 | 332 | 775 | 121 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Lane Util. Factor | 0.76 | | 0.91 | | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Frt | 0.85 | | 1.00 | | 1.00 | | 1.00 | 0.98 | |
| Flt Protected | 1.00 | | 1.00 | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3610 | | 5084 | | 3513 | | 1770 | 3430 | |
| Flt Permitted | 1.00 | | 1.00 | | 1.00 | | 0.33 | 1.00 | |
| Satd. Flow (perm) | 3610 | | 5084 | | 3513 | | 621 | 3430 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 2536 | 42 | 1462 | 2 | 912 | 22 | 342 | 799 | 125 |
| RTOR Reduction (vph) | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 |
| Lane Group Flow (vph) | 2577 | 0 | 1464 | 0 | 934 | 0 | 342 | 910 | 0 |
| Confl. Peds. (#/hr) | | 38 | | | | 68 | | | 82 |
| Confl. Bikes (#/hr) | | 90 | | | | 2 | | | 4 |
| Turn Type | custom | | | | | | custom | | |
| Protected Phases | 2 | | | | 8 | | | 4 | |
| Permitted Phases | | | 6 | | | | 7 | | |
| Actuated Green, G (s) | 46.0 | | 46.0 | | 21.0 | | 12.0 | 33.0 | |
| Effective Green, g (s) | 46.0 | | 46.0 | | 21.0 | | 12.0 | 33.0 | |
| Actuated g/C Ratio | 0.51 | | 0.51 | | 0.23 | | 0.13 | 0.37 | |
| Clearance Time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Vehicle Extension (s) | 0.2 | | 0.2 | | 0.2 | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1845 | | 2598 | | 820 | | 83 | 1258 | |
| v/s Ratio Prot | c0.71 | | | | c0.27 | | | 0.27 | |
| v/s Ratio Perm | | | 0.29 | | | | c0.55 | | |
| v/c Ratio | 1.40 | | 0.56 | | 1.14 | | 4.12 | 0.72 | |
| Uniform Delay, d1 | 22.0 | | 15.1 | | 34.5 | | 39.0 | 24.6 | |
| Progression Factor | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 181.8 | | 0.9 | | 77.1 | | 1432.3 | 1.8 | |
| Delay (s) | 203.8 | | 16.0 | | 111.6 | | 1471.3 | 26.3 | |
| Level of Service | F | | B | | F | | F | C | |
| Approach Delay (s) | | | 16.0 | | 111.6 | | | 416.7 | |
| Approach LOS | | | B | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 189.1 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.72 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 112.8% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 2417 | 34 | 0 | 1090 | 47 | 47 | 177 | 51 | 94 | 146 | 31 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 0.99 | | | 0.97 | | | 0.98 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.99 | | | 0.98 | |
| Satd. Flow (prot) | | 4926 | | | 4895 | | | 1736 | | | 1744 | |
| Flt Permitted | | 1.00 | | | 1.00 | | | 0.90 | | | 0.71 | |
| Satd. Flow (perm) | | 4926 | | | 4895 | | | 1578 | | | 1268 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 0 | 2518 | 35 | 0 | 1135 | 49 | 49 | 184 | 53 | 98 | 152 | 32 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 0 | 2551 | 0 | 0 | 1179 | 0 | 0 | 285 | 0 | 0 | 277 | 0 |
| Confl. Peds. (#/hr) | | | 28 | | | 36 | | | 28 | | | 23 |
| Confl. Bikes (#/hr) | | | 4 | | | 1 | | | 2 | | | 3 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | | | | | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Actuated Green, G (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Effective Green, g (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Actuated g/C Ratio | | 0.59 | | | 0.59 | | | 0.31 | | | 0.31 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 2901 | | | 2883 | | | 491 | | | 394 | |
| v/s Ratio Prot | | c0.52 | | | 0.24 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.18 | | | c0.22 | |
| v/c Ratio | | 0.88 | | | 0.41 | | | 0.58 | | | 0.70 | |
| Uniform Delay, d1 | | 15.8 | | | 10.0 | | | 26.1 | | | 27.3 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 4.2 | | | 0.4 | | | 1.0 | | | 4.6 | |
| Delay (s) | | 20.0 | | | 10.4 | | | 27.1 | | | 31.9 | |
| Level of Service | | B | | | B | | | C | | | C | |
| Approach Delay (s) | | 20.0 | | | 10.4 | | | 27.1 | | | 31.9 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 82.5% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 65 | 558 | 107 | 59 | 489 | 78 | 48 | 169 | 31 | 53 | 148 | 36 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.95 | | 0.99 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.98 | | | 0.98 | | | 0.98 | |
| Flt Protected | | 0.99 | 1.00 | | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 1817 | 1477 | | 3368 | | | 1770 | | | 1757 | |
| Flt Permitted | | 0.87 | 1.00 | | 0.72 | | | 0.89 | | | 0.87 | |
| Satd. Flow (perm) | | 1595 | 1477 | | 2432 | | | 1599 | | | 1552 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 73 | 627 | 120 | 66 | 549 | 88 | 54 | 190 | 35 | 60 | 166 | 40 |
| RTOR Reduction (vph) | 0 | 0 | 51 | 0 | 19 | 0 | 0 | 9 | 0 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 0 | 700 | 69 | 0 | 684 | 0 | 0 | 270 | 0 | 0 | 256 | 0 |
| Confl. Peds. (#/hr) | | | 21 | | | 29 | | | 16 | | | 47 |
| Confl. Bikes (#/hr) | | | 9 | | | 1 | | | 1 | | | |
| Heavy Vehicles (%) | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 744 | 689 | | 1135 | | | 613 | | | 595 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.44 | 0.05 | | 0.28 | | | c0.17 | | | 0.16 | |
| v/c Ratio | | 0.94 | 0.10 | | 0.60 | | | 0.44 | | | 0.43 | |
| Uniform Delay, d1 | | 15.2 | 9.0 | | 11.9 | | | 13.7 | | | 13.7 | |
| Progression Factor | | 0.69 | 0.31 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 19.6 | 0.3 | | 2.4 | | | 0.5 | | | 0.5 | |
| Delay (s) | | 30.1 | 3.0 | | 14.3 | | | 14.2 | | | 14.2 | |
| Level of Service | | C | A | | B | | | B | | | B | |
| Approach Delay (s) | | 26.1 | | | 14.3 | | | 14.2 | | | 14.2 | |
| Approach LOS | | C | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 86.3% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 0 | 0 | 0 | 44 | 0 | 76 | 1 | 183 | 146 | 142 | 183 | 0 |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 55 | 0 | 95 | 1 | 229 | 182 | 178 | 229 | 0 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 0 | 150 | 413 | 406 |
| Volume Left (vph) | 0 | 55 | 1 | 178 |
| Volume Right (vph) | 0 | 95 | 183 | 0 |
| Hadj (s) | 0.00 | -0.27 | -0.23 | 0.12 |
| Departure Headway (s) | 6.2 | 5.5 | 4.6 | 5.0 |
| Degree Utilization, x | 0.00 | 0.23 | 0.53 | 0.56 |
| Capacity (veh/h) | 481 | 577 | 754 | 704 |
| Control Delay (s) | 9.2 | 10.2 | 12.8 | 14.1 |
| Approach Delay (s) | 0.0 | 10.2 | 12.8 | 14.1 |
| Approach LOS | A | B | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 12.9 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 60.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 214 | 225 | 1 | 175 | 81 | 20 | 87 | 1519 | 502 | 1 | 858 | 168 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 5.1 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.91 | 1.00 | 0.97 | | | 1.00 | 0.77 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1719 | 1808 | | 3335 | 1810 | 1395 | 1719 | 3198 | | | 3438 | 1178 |
| Flt Permitted | 0.36 | 1.00 | | 0.36 | 1.00 | 1.00 | 0.95 | 1.00 | | | 0.86 | 1.00 |
| Satd. Flow (perm) | 658 | 1808 | | 1277 | 1810 | 1395 | 1719 | 3198 | | | 2971 | 1178 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 228 | 239 | 1 | 186 | 86 | 21 | 93 | 1616 | 534 | 1 | 913 | 179 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 36 | 0 | 0 | 0 | 113 |
| Lane Group Flow (vph) | 228 | 240 | 0 | 186 | 86 | 6 | 93 | 2114 | 0 | 0 | 914 | 66 |
| Confl. Peds. (#/hr) | | | 63 | | | 72 | | | 84 | | | 53 |
| Confl. Bikes (#/hr) | | | 1 | | | 2 | | | 2 | | | 2 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | custom | | | custom | | Perm | Prot | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | 3 | 8 | | | 4 | |
| Permitted Phases | 5 | | | 1 | | 6 | | | | 4 | | 4 |
| Actuated Green, G (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 25.9 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Effective Green, g (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 25.9 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Actuated g/C Ratio | 0.12 | 0.29 | | 0.12 | 0.29 | 0.29 | 0.03 | 0.42 | | | 0.37 | 0.37 |
| Clearance Time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 5.1 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 80 | 520 | | 156 | 521 | 401 | 57 | 1350 | | | 1089 | 432 |
| v/s Ratio Prot | | c0.13 | | | 0.05 | | 0.05 | c0.66 | | | | |
| v/s Ratio Perm | c0.35 | | | 0.15 | | 0.00 | | | | | 0.31 | 0.06 |
| v/c Ratio | 2.85 | 0.46 | | 1.19 | 0.17 | 0.02 | 1.63 | 1.57 | | | 0.84 | 0.15 |
| Uniform Delay, d1 | 39.5 | 26.3 | | 39.5 | 24.0 | 22.9 | 43.5 | 26.0 | | | 26.1 | 19.1 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 865.8 | 2.9 | | 133.1 | 0.7 | 0.1 | 350.4 | 258.4 | | | 5.8 | 0.2 |
| Delay (s) | 905.3 | 29.3 | | 172.6 | 24.6 | 23.0 | 393.9 | 284.4 | | | 31.9 | 19.3 |
| Level of Service | F | C | | F | C | C | F | F | | | C | B |
| Approach Delay (s) | | 456.1 | | | 118.4 | | | 288.9 | | | 29.8 | |
| Approach LOS | | F | | | F | | | F | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 226.7 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.37 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 15.1 |
| Intersection Capacity Utilization | 117.8% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 122 | 466 | 54 | 106 | 574 | 102 | 0 | 1957 | 111 | 0 | 933 | 125 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 0.95 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.98 | | | 0.99 | | | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1770 | 1827 | | 1770 | 3421 | | | 3494 | | | 3459 | |
| Flt Permitted | 0.21 | 1.00 | | 0.15 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 387 | 1827 | | 274 | 3421 | | | 3494 | | | 3459 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 131 | 501 | 58 | 114 | 617 | 110 | 0 | 2104 | 119 | 0 | 1003 | 134 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 3 | 0 | 0 | 4 | 0 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 131 | 554 | 0 | 114 | 724 | 0 | 0 | 2219 | 0 | 0 | 1126 | 0 |
| Confl. Peds. (#/hr) | | | 24 | | | 61 | | | 78 | | | 61 |
| Confl. Bikes (#/hr) | | | 2 | | | 2 | | | 5 | | | 5 |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | 27.2 | 27.2 | | 27.2 | 27.2 | | | 53.2 | | | 53.2 | |
| Effective Green, g (s) | 27.2 | 27.2 | | 27.2 | 27.2 | | | 53.2 | | | 53.2 | |
| Actuated g/C Ratio | 0.30 | 0.30 | | 0.30 | 0.30 | | | 0.59 | | | 0.59 | |
| Clearance Time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 117 | 552 | | 83 | 1034 | | | 2065 | | | 2045 | |
| v/s Ratio Prot | | 0.30 | | | 0.21 | | | c0.63 | | | 0.33 | |
| v/s Ratio Perm | 0.34 | | | c0.42 | | | | | | | | |
| v/c Ratio | 1.12 | 1.00 | | 1.37 | 0.70 | | | 1.07 | | | 0.55 | |
| Uniform Delay, d1 | 31.4 | 31.4 | | 31.4 | 27.8 | | | 18.4 | | | 11.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.42 | | | 1.00 | |
| Incremental Delay, d2 | 119.0 | 39.3 | | 227.1 | 2.1 | | | 37.4 | | | 1.1 | |
| Delay (s) | 150.4 | 70.7 | | 258.5 | 29.9 | | | 45.0 | | | 12.2 | |
| Level of Service | F | E | | F | C | | | D | | | B | |
| Approach Delay (s) | | 85.8 | | | 60.9 | | | 45.0 | | | 12.2 | |
| Approach LOS | | F | | | E | | | D | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 45.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.18 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.6 |
| Intersection Capacity Utilization | 120.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 12 | 174 | 37 | 49 | 98 | 99 | 0 | 1945 | 110 | 0 | 1115 | 78 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.93 | | 0.96 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.95 | | | 0.99 | | | 0.99 | |
| Flt Protected | | 1.00 | 1.00 | | 0.99 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 1857 | 1467 | | 1675 | | | 3496 | | | 3493 | |
| Flt Permitted | | 0.97 | 1.00 | | 0.82 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 1815 | 1467 | | 1393 | | | 3496 | | | 3493 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 13 | 189 | 40 | 53 | 107 | 108 | 0 | 2114 | 120 | 0 | 1212 | 85 |
| RTOR Reduction (vph) | 0 | 0 | 31 | 0 | 9 | 0 | 0 | 5 | 0 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 0 | 202 | 9 | 0 | 259 | 0 | 0 | 2229 | 0 | 0 | 1291 | 0 |
| Confl. Peds. (#/hr) | | | 37 | | | 65 | | | 76 | | | 40 |
| Confl. Bikes (#/hr) | | | 14 | | | 2 | | | 3 | | | 5 |
| Turn Type | Perm | | Perm | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | | | | | | |
| Actuated Green, G (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Effective Green, g (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Actuated g/C Ratio | | 0.22 | 0.22 | | 0.22 | | | 0.67 | | | 0.67 | |
| Clearance Time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 407 | 329 | | 313 | | | 2350 | | | 2348 | |
| v/s Ratio Prot | | | | | | | | c0.64 | | | 0.37 | |
| v/s Ratio Perm | | 0.11 | 0.01 | | c0.19 | | | | | | | |
| v/c Ratio | | 0.50 | 0.03 | | 0.83 | | | 0.95 | | | 0.55 | |
| Uniform Delay, d1 | | 30.5 | 27.2 | | 33.3 | | | 13.3 | | | 7.7 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 0.31 | | | 0.51 | |
| Incremental Delay, d2 | | 1.0 | 0.0 | | 16.4 | | | 1.2 | | | 0.8 | |
| Delay (s) | | 31.4 | 27.3 | | 49.6 | | | 5.3 | | | 4.7 | |
| Level of Service | | C | C | | D | | | A | | | A | |
| Approach Delay (s) | | 30.7 | | | 49.6 | | | 5.3 | | | 4.7 | |
| Approach LOS | | C | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.92 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.3 |
| Intersection Capacity Utilization | 103.0% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 131 | 466 | 28 | 20 | 246 | 37 | 0 | 1992 | 55 | 0 | 996 | 95 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | 0.99 | | | 0.99 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 0.99 | | | 0.98 | | | 1.00 | | | 0.99 | |
| Flt Protected | | 0.99 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 3422 | | | 3391 | | | 3466 | | | 3412 | |
| Flt Permitted | | 0.77 | | | 0.89 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 2647 | | | 3034 | | | 3466 | | | 3412 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 139 | 496 | 30 | 21 | 262 | 39 | 0 | 2119 | 59 | 0 | 1060 | 101 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 0 | 662 | 0 | 0 | 319 | 0 | 0 | 2176 | 0 | 0 | 1153 | 0 |
| Confl. Peds. (#/hr) | | | 101 | | | 61 | | | 143 | | | 81 |
| Confl. Bikes (#/hr) | | | 7 | | | | | | 4 | | | 5 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 28.2 | | | 28.2 | | | 52.7 | | | 52.7 | |
| Effective Green, g (s) | | 28.2 | | | 28.2 | | | 52.7 | | | 52.7 | |
| Actuated g/C Ratio | | 0.31 | | | 0.31 | | | 0.59 | | | 0.59 | |
| Clearance Time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 829 | | | 951 | | | 2030 | | | 1998 | |
| v/s Ratio Prot | | | | | | | | c0.63 | | | 0.34 | |
| v/s Ratio Perm | | c0.25 | | | 0.11 | | | | | | | |
| v/c Ratio | | 0.80 | | | 0.34 | | | 1.07 | | | 0.58 | |
| Uniform Delay, d1 | | 28.3 | | | 23.7 | | | 18.6 | | | 11.7 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 0.84 | |
| Incremental Delay, d2 | | 7.9 | | | 1.0 | | | 42.4 | | | 1.0 | |
| Delay (s) | | 36.2 | | | 24.7 | | | 61.1 | | | 10.8 | |
| Level of Service | | D | | | C | | | E | | | B | |
| Approach Delay (s) | | 36.2 | | | 24.7 | | | 61.1 | | | 10.8 | |
| Approach LOS | | D | | | C | | | E | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 41.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.98 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.1 |
| Intersection Capacity Utilization | 103.1% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 165 | 1446 | 257 | 68 | 1725 | 0 | 0 | 553 | 457 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | |
| Lane Util. Factor | | | | 1.00 | 0.86 | | | 0.91 | | | 0.91 | |
| Frpb, ped/bikes | | | | 1.00 | 0.99 | | | 1.00 | | | 0.98 | |
| Flpb, ped/bikes | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | | | 1.00 | 0.98 | | | 1.00 | | | 0.93 | |
| Flt Protected | | | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | 1752 | 6166 | | | 5026 | | | 4603 | |
| Flt Permitted | | | | 0.95 | 1.00 | | | 0.82 | | | 1.00 | |
| Satd. Flow (perm) | | | | 1752 | 6166 | | | 4122 | | | 4603 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 0 | 0 | 0 | 174 | 1522 | 271 | 72 | 1816 | 0 | 0 | 582 | 481 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 174 | 1790 | 0 | 0 | 1888 | 0 | 0 | 1061 | 0 |
| Confl. Peds. (#/hr) | | | 406 | | | 24 | | | 51 | | | 29 |
| Confl. Bikes (#/hr) | | | | | | | | | 1 | | | 1 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | | Prot | | | Perm | | | | | |
| Protected Phases | | | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | | | |
| Actuated Green, G (s) | | | | 35.7 | 35.7 | | | 44.4 | | | 44.4 | |
| Effective Green, g (s) | | | | 35.7 | 35.7 | | | 44.4 | | | 44.4 | |
| Actuated g/C Ratio | | | | 0.40 | 0.40 | | | 0.49 | | | 0.49 | |
| Clearance Time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | |
| Vehicle Extension (s) | | | | 0.2 | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | | | 695 | 2446 | | | 2034 | | | 2271 | |
| v/s Ratio Prot | | | | 0.10 | c0.29 | | | | | | 0.23 | |
| v/s Ratio Perm | | | | | | | | c0.46 | | | | |
| v/c Ratio | | | | 0.25 | 0.73 | | | 0.93 | | | 0.47 | |
| Uniform Delay, d1 | | | | 18.2 | 23.1 | | | 21.3 | | | 15.0 | |
| Progression Factor | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | | | 0.9 | 2.0 | | | 9.0 | | | 0.7 | |
| Delay (s) | | | | 19.0 | 25.1 | | | 30.3 | | | 15.7 | |
| Level of Service | | | | B | C | | | C | | | B | |
| Approach Delay (s) | | 0.0 | | | 24.5 | | | 30.3 | | | 15.7 | |
| Approach LOS | | A | | | C | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 24.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.9 |
| Intersection Capacity Utilization | 94.5% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 664 | 10 | 15 | 610 | 13 | 6 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | | 4.0 | 5.0 | |
| Lane Util. Factor | 1.00 | | | 0.95 | 1.00 | |
| Frpb, ped/bikes | 1.00 | | | 1.00 | 0.91 | |
| Flpb, ped/bikes | 1.00 | | | 1.00 | 1.00 | |
| Frt | 1.00 | | | 1.00 | 0.96 | |
| Flt Protected | 1.00 | | | 1.00 | 0.97 | |
| Satd. Flow (prot) | 1822 | | | 3467 | 1534 | |
| Flt Permitted | 1.00 | | | 0.94 | 0.97 | |
| Satd. Flow (perm) | 1822 | | | 3252 | 1534 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 755 | 11 | 17 | 693 | 15 | 7 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 766 | 0 | 0 | 710 | 15 | 0 |
| Confl. Peds. (#/hr) | | 29 | | | | 37 |
| Confl. Bikes (#/hr) | | 1 | | | | |
| Heavy Vehicles (%) | 4% | 4% | 4% | 4% | 4% | 4% |
| Turn Type | | | Perm | | | |
| Protected Phases | 2 | | | 6 | 8 | |
| Permitted Phases | | | 6 | | | |
| Actuated Green, G (s) | 47.0 | | | 47.0 | 4.0 | |
| Effective Green, g (s) | 47.0 | | | 47.0 | 4.0 | |
| Actuated g/C Ratio | 0.78 | | | 0.78 | 0.07 | |
| Clearance Time (s) | 4.0 | | | 4.0 | 5.0 | |
| Vehicle Extension (s) | 0.2 | | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1427 | | | 2547 | 102 | |
| v/s Ratio Prot | c0.42 | | | | c0.01 | |
| v/s Ratio Perm | | | | 0.22 | | |
| v/c Ratio | 0.54 | | | 0.28 | 0.15 | |
| Uniform Delay, d1 | 2.4 | | | 1.8 | 26.4 | |
| Progression Factor | 1.00 | | | 2.25 | 1.00 | |
| Incremental Delay, d2 | 1.4 | | | 0.3 | 0.3 | |
| Delay (s) | 3.9 | | | 4.3 | 26.7 | |
| Level of Service | A | | | A | C | |
| Approach Delay (s) | 3.9 | | | 4.3 | 26.7 | |
| Approach LOS | A | | | A | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 4.4 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 59.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 622 | 0 | 0 | 669 | 2 | 0 | 0 | 7 | 0 | 0 | 3 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 0 | 715 | 0 | 0 | 769 | 2 | 0 | 0 | 8 | 0 | 0 | 3 |
| Pedestrians | | 26 | | | 64 | | | 46 | | | 97 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 2 | | | 5 | | | 4 | | | 8 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | 268 | | | 542 | | | | | | | |
| pX, platoon unblocked | | | | 0.68 | | | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | |
| vC, conflicting volume | 868 | | | 761 | | | 1175 | 1629 | 825 | 1654 | 1628 | 509 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 868 | | | 408 | | | 1019 | 1691 | 502 | 1728 | 1689 | 509 |
| tC, single (s) | 4.2 | | | 4.2 | | | 7.6 | 6.6 | 7.0 | 7.6 | 6.6 | 7.0 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 100 | | | 100 | 100 | 97 | 100 | 100 | 99 |
| cM capacity (veh/h) | 698 | | | 737 | | | 108 | 54 | 314 | 29 | 54 | 454 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 | NB 1 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 715 | 384 | 387 | 8 | 3 |
| Volume Left | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 2 | 8 | 3 |
| cSH | 698 | 737 | 1700 | 314 | 454 |
| Volume to Capacity | 0.00 | 0.00 | 0.23 | 0.03 | 0.01 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 2 | 1 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 16.8 | 13.0 |
| Lane LOS | | | | C | B |
| Approach Delay (s) | 0.0 | 0.0 | | 16.8 | 13.0 |
| Approach LOS | | | | C | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.1 | | |
| Intersection Capacity Utilization | 51.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 11 | 618 | 10 | 8 | 631 | 33 | 4 | 3 | 4 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Lane Util. Factor | | 1.00 | | | 0.95 | | | 1.00 | | | | |
| Frt | | 1.00 | | | 0.99 | | | 0.95 | | | | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.98 | | | | |
| Satd. Flow (prot) | | 1857 | | | 3511 | | | 1740 | | | | |
| Flt Permitted | | 0.99 | | | 0.95 | | | 0.98 | | | | |
| Satd. Flow (perm) | | 1834 | | | 3329 | | | 1740 | | | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 12 | 672 | 11 | 9 | 686 | 36 | 4 | 3 | 4 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 8 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 694 | 0 | 0 | 723 | 0 | 0 | 9 | 0 | 0 | 0 | 0 |
| Turn Type | Perm | | | Perm | | | Split | | | | | |
| Protected Phases | | 4 | | | 8 | | 2 | 2 | | | | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 29.3 | | | 29.3 | | | 22.7 | | | | |
| Effective Green, g (s) | | 29.3 | | | 29.3 | | | 22.7 | | | | |
| Actuated g/C Ratio | | 0.49 | | | 0.49 | | | 0.38 | | | | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | | |
| Lane Grp Cap (vph) | | 896 | | | 1626 | | | 658 | | | | |
| v/s Ratio Prot | | | | | | | | c0.00 | | | | |
| v/s Ratio Perm | | c0.38 | | | 0.22 | | | | | | | |
| v/c Ratio | | 0.77 | | | 0.44 | | | 0.01 | | | | |
| Uniform Delay, d1 | | 12.6 | | | 10.0 | | | 11.7 | | | | |
| Progression Factor | | 0.96 | | | 1.00 | | | 1.00 | | | | |
| Incremental Delay, d2 | | 3.9 | | | 0.2 | | | 0.0 | | | | |
| Delay (s) | | 16.1 | | | 10.2 | | | 11.7 | | | | |
| Level of Service | | B | | | B | | | B | | | | |
| Approach Delay (s) | | 16.1 | | | 10.2 | | | 11.7 | | | 0.0 | |
| Approach LOS | | B | | | B | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 52.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

# HCM Signalized Intersection Capacity Analysis
## 1: Geary Blvd & Arguello Blvd

12/2/2011

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1597 | 79 | 0 | 2157 | 145 | 53 | 326 | 82 | 126 | 476 | 83 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | | 0.98 | | 1.00 | 1.00 | 0.78 | 1.00 | 1.00 | 0.88 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.99 | | | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 4957 | | | 4879 | | 1752 | 1845 | 1223 | 1752 | 1845 | 1376 |
| Flt Permitted | | 1.00 | | | 1.00 | | 0.20 | 1.00 | 1.00 | 0.40 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 4957 | | | 4879 | | 373 | 1845 | 1223 | 741 | 1845 | 1376 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 1646 | 81 | 0 | 2224 | 149 | 55 | 336 | 85 | 130 | 491 | 86 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 8 | 0 | 0 | 0 | 6 | 0 | 0 | 1 |
| Lane Group Flow (vph) | 0 | 1721 | 0 | 0 | 2365 | 0 | 55 | 336 | 79 | 130 | 491 | 85 |
| Confl. Peds. (#/hr) | | | 143 | | | 164 | | | 216 | | | 93 |
| Confl. Bikes (#/hr) | | | 5 | | | 3 | | | 24 | | | 44 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | | | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Effective Green, g (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Actuated g/C Ratio | | 0.55 | | | 0.55 | | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 |
| Clearance Time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 2748 | | | 2705 | | 121 | 601 | 398 | 241 | 601 | 448 |
| v/s Ratio Prot | | 0.35 | | | c0.48 | | | 0.18 | | | c0.27 | |
| v/s Ratio Perm | | | | | | | 0.15 | | 0.06 | 0.18 | | 0.06 |
| v/c Ratio | | 0.63 | | | 0.87 | | 0.45 | 0.56 | 0.20 | 0.54 | 0.82 | 0.19 |
| Uniform Delay, d1 | | 13.7 | | | 17.3 | | 24.0 | 25.0 | 21.9 | 24.8 | 27.9 | 21.8 |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 1.1 | | | 4.3 | | 11.8 | 3.7 | 1.1 | 8.4 | 11.7 | 0.9 |
| Delay (s) | | 14.8 | | | 21.6 | | 35.9 | 28.8 | 23.0 | 33.2 | 39.6 | 22.7 |
| Level of Service | | B | | | C | | D | C | C | C | D | C |
| Approach Delay (s) | | 14.8 | | | 21.6 | | | 28.5 | | | 36.4 | |
| Approach LOS | | B | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 10.8 |
| Intersection Capacity Utilization | 103.3% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 34 | 202 | 40 | 210 | 532 | 96 | 20 | 289 | 39 | 59 | 525 | 35 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.89 | 1.00 | 1.00 | 0.93 |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.98 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3399 | | 1770 | 3431 | | 1770 | 1863 | 1407 | 1770 | 1863 | 1472 |
| Flt Permitted | | 0.85 | | 0.57 | 1.00 | | 0.27 | 1.00 | 1.00 | 0.52 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 2897 | | 1069 | 3431 | | 505 | 1863 | 1407 | 972 | 1863 | 1472 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 36 | 213 | 42 | 221 | 560 | 101 | 21 | 304 | 41 | 62 | 553 | 37 |
| RTOR Reduction (vph) | 0 | 23 | 0 | 0 | 25 | 0 | 0 | 0 | 23 | 0 | 0 | 20 |
| Lane Group Flow (vph) | 0 | 268 | 0 | 221 | 637 | 0 | 21 | 304 | 18 | 62 | 553 | 17 |
| Confl. Peds. (#/hr) | | | 54 | | | 21 | | | 59 | | | 52 |
| Confl. Bikes (#/hr) | | | 3 | | | 7 | | | 31 | | | 48 |
| Turn Type | Perm | | | Perm | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Effective Green, g (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Actuated g/C Ratio | | 0.42 | | 0.42 | 0.42 | | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 |
| Clearance Time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | | 0.2 | | 0.2 | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 1207 | | 445 | 1430 | | 219 | 807 | 610 | 421 | 807 | 638 |
| v/s Ratio Prot | | | | | 0.19 | | | 0.16 | | | c0.30 | |
| v/s Ratio Perm | | 0.09 | | c0.21 | | | 0.04 | | 0.01 | 0.06 | | 0.01 |
| v/c Ratio | | 0.22 | | 0.50 | 0.45 | | 0.10 | 0.38 | 0.03 | 0.15 | 0.69 | 0.03 |
| Uniform Delay, d1 | | 11.3 | | 12.9 | 12.5 | | 10.1 | 11.5 | 9.8 | 10.3 | 13.7 | 9.7 |
| Progression Factor | | 1.00 | | 0.31 | 0.27 | | 1.13 | 1.08 | 1.44 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.4 | | 2.9 | 0.7 | | 0.7 | 1.1 | 0.1 | 0.7 | 4.7 | 0.1 |
| Delay (s) | | 11.7 | | 6.8 | 4.2 | | 12.1 | 13.5 | 14.1 | 11.0 | 18.4 | 9.8 |
| Level of Service | | B | | A | A | | B | B | B | B | B | A |
| Approach Delay (s) | | 11.7 | | | 4.8 | | | 13.5 | | | 17.2 | |
| Approach LOS | | B | | | A | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 101.9% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 57 | 802 | 24 | 23 | 981 | 97 | 22 | 174 | 23 | 214 | 325 | 174 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.99 | | 1.00 | 1.00 | 0.95 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | | | 0.99 | | | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3510 | | | 3476 | | | 1815 | | 1770 | 1863 | 1504 |
| Flt Permitted | | 0.73 | | | 0.92 | | | 0.95 | | 0.62 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 2562 | | | 3213 | | | 1729 | | 1147 | 1863 | 1504 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 61 | 853 | 26 | 24 | 1044 | 103 | 23 | 185 | 24 | 228 | 346 | 185 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 12 | 0 | 0 | 7 | 0 | 0 | 0 | 26 |
| Lane Group Flow (vph) | 0 | 937 | 0 | 0 | 1159 | 0 | 0 | 225 | 0 | 228 | 346 | 159 |
| Confl. Peds. (#/hr) | | | 15 | | | 21 | | | 46 | | | 24 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | 34 | | | 35 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | 8 | | 8 |
| Actuated Green, G (s) | | 27.0 | | | 27.0 | | | 23.0 | | 23.0 | 23.0 | 23.0 |
| Effective Green, g (s) | | 27.0 | | | 27.0 | | | 23.0 | | 23.0 | 23.0 | 23.0 |
| Actuated g/C Ratio | | 0.45 | | | 0.45 | | | 0.38 | | 0.38 | 0.38 | 0.38 |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Grp Cap (vph) | | 1153 | | | 1446 | | | 663 | | 440 | 714 | 577 |
| v/s Ratio Prot | | | | | | | | | | | 0.19 | |
| v/s Ratio Perm | | c0.37 | | | 0.36 | | | 0.13 | | c0.20 | | 0.11 |
| v/c Ratio | | 0.81 | | | 0.80 | | | 0.34 | | 0.52 | 0.48 | 0.28 |
| Uniform Delay, d1 | | 14.3 | | | 14.2 | | | 13.1 | | 14.2 | 14.0 | 12.8 |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | 0.80 | 0.80 | 0.82 |
| Incremental Delay, d2 | | 6.3 | | | 4.8 | | | 1.4 | | 3.4 | 1.9 | 0.9 |
| Delay (s) | | 20.6 | | | 19.0 | | | 14.5 | | 14.8 | 13.0 | 11.3 |
| Level of Service | | C | | | B | | | B | | B | B | B |
| Approach Delay (s) | | 20.6 | | | 19.0 | | | 14.5 | | | 13.1 | |
| Approach LOS | | C | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.68 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 110.7% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 13 | 250 | 56 | 98 | 775 | 42 | 39 | 346 | 44 | 43 | 412 | 28 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.91 | | 1.00 | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | | 1.00 | 1.00 | | 0.99 | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1858 | 1434 | | 3486 | | | 1817 | | 1770 | 1839 | |
| Flt Permitted | | 0.95 | 1.00 | | 0.88 | | | 0.88 | | 0.41 | 1.00 | |
| Satd. Flow (perm) | | 1763 | 1434 | | 3082 | | | 1603 | | 761 | 1839 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 14 | 266 | 60 | 104 | 824 | 45 | 41 | 368 | 47 | 46 | 438 | 30 |
| RTOR Reduction (vph) | 0 | 0 | 32 | 0 | 6 | 0 | 0 | 7 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 0 | 280 | 28 | 0 | 967 | 0 | 0 | 449 | 0 | 46 | 464 | 0 |
| Confl. Peds. (#/hr) | | | 68 | | | 35 | | | 29 | | | 42 |
| Confl. Bikes (#/hr) | | | 4 | | | 6 | | | 2 | | | 3 |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | 0.38 | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 823 | 669 | | 1438 | | | 614 | | 292 | 705 | |
| v/s Ratio Prot | | | | | | | | | | | 0.25 | |
| v/s Ratio Perm | | 0.16 | 0.02 | | c0.31 | | | c0.28 | | 0.06 | | |
| v/c Ratio | | 0.34 | 0.04 | | 0.67 | | | 0.73 | | 0.16 | 0.66 | |
| Uniform Delay, d1 | | 10.1 | 8.7 | | 12.4 | | | 15.9 | | 12.1 | 15.3 | |
| Progression Factor | | 1.08 | 1.54 | | 0.25 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 1.1 | 0.1 | | 1.7 | | | 7.5 | | 1.1 | 4.8 | |
| Delay (s) | | 12.1 | 13.5 | | 4.8 | | | 23.4 | | 13.3 | 20.0 | |
| Level of Service | | B | B | | A | | | C | | B | C | |
| Approach Delay (s) | | 12.3 | | | 4.8 | | | 23.4 | | | 19.4 | |
| Approach LOS | | B | | | A | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 111.0% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 411 | 656 | 0 | 507 | 37 | 578 | 442 | 45 | 20 | 536 | 16 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | 1.00 | 1.00 | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.93 | | 0.99 | | 1.00 | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | 1.00 | 0.99 | | | 1.00 | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 1863 | 1474 | | 3481 | | 1770 | 1816 | | | 3508 | |
| Flt Permitted | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 0.62 | |
| Satd. Flow (perm) | | 1863 | 1474 | | 3481 | | 1770 | 1816 | | | 2194 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 0 | 437 | 698 | 0 | 539 | 39 | 615 | 470 | 48 | 21 | 570 | 17 |
| RTOR Reduction (vph) | 0 | 0 | 465 | 0 | 6 | 0 | 0 | 4 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 437 | 233 | 0 | 572 | 0 | 615 | 514 | 0 | 0 | 606 | 0 |
| Confl. Peds. (#/hr) | | | 64 | | | 50 | | | 68 | | | 57 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | 3 | | | 3 |
| Turn Type | | | custom | | | | Split | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | 8 | 8 | | | 4 | |
| Permitted Phases | | | 8 | | | | | | | 4 | | |
| Actuated Green, G (s) | | 30.0 | 30.0 | | 30.0 | | 30.0 | 30.0 | | | 17.0 | |
| Effective Green, g (s) | | 30.0 | 30.0 | | 30.0 | | 30.0 | 30.0 | | | 17.0 | |
| Actuated g/C Ratio | | 0.33 | 0.33 | | 0.33 | | 0.33 | 0.33 | | | 0.19 | |
| Clearance Time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Grp Cap (vph) | | 621 | 491 | | 1160 | | 590 | 605 | | | 414 | |
| v/s Ratio Prot | | c0.23 | | | 0.16 | | c0.35 | 0.28 | | | | |
| v/s Ratio Perm | | | 0.16 | | | | | | | | c0.28 | |
| v/c Ratio | | 0.70 | 0.47 | | 0.49 | | 1.04 | 0.85 | | | 1.46 | |
| Uniform Delay, d1 | | 26.1 | 23.8 | | 23.9 | | 30.0 | 27.9 | | | 36.5 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 6.6 | 3.3 | | 1.5 | | 48.5 | 13.9 | | | 221.2 | |
| Delay (s) | | 32.7 | 27.0 | | 25.4 | | 78.5 | 41.8 | | | 257.7 | |
| Level of Service | | C | C | | C | | E | D | | | F | |
| Approach Delay (s) | | 29.2 | | | 25.4 | | | 61.8 | | | 257.7 | |
| Approach LOS | | C | | | C | | | E | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 79.5 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.00 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 13.0 |
| Intersection Capacity Utilization | 83.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBR | EBR2 | WBT | WBR | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Volume (vph) | 1608 | 104 | 2482 | 5 | 691 | 34 | 300 | 861 | 279 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Lane Util. Factor | 0.76 | | 0.91 | | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | | 0.98 | | 1.00 | 0.98 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Frt | 0.85 | | 1.00 | | 0.99 | | 1.00 | 0.96 | |
| Flt Protected | 1.00 | | 1.00 | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3610 | | 5084 | | 3441 | | 1770 | 3336 | |
| Flt Permitted | 1.00 | | 1.00 | | 1.00 | | 0.37 | 1.00 | |
| Satd. Flow (perm) | 3610 | | 5084 | | 3441 | | 680 | 3336 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 1675 | 108 | 2585 | 5 | 720 | 35 | 312 | 897 | 291 |
| RTOR Reduction (vph) | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 1776 | 0 | 2590 | 0 | 755 | 0 | 312 | 1187 | 0 |
| Confl. Peds. (#/hr) | | 45 | | | | 186 | | | 89 |
| Confl. Bikes (#/hr) | | 4 | 94 | | | 1 | | | |
| Turn Type | custom | | | | | | custom | | |
| Protected Phases | 2 | | | | 8 | | | 4 | |
| Permitted Phases | | | 6 | | | | 7 | | |
| Actuated Green, G (s) | 48.0 | | 48.0 | | 19.0 | | 12.0 | 31.0 | |
| Effective Green, g (s) | 48.0 | | 48.0 | | 19.0 | | 12.0 | 31.0 | |
| Actuated g/C Ratio | 0.53 | | 0.53 | | 0.21 | | 0.13 | 0.34 | |
| Clearance Time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Vehicle Extension (s) | 0.2 | | 0.2 | | 0.2 | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1925 | | 2711 | | 726 | | 91 | 1149 | |
| v/s Ratio Prot | 0.49 | | | | 0.22 | | | c0.36 | |
| v/s Ratio Perm | | | c0.51 | | | | c0.46 | | |
| v/c Ratio | 0.92 | | 0.96 | | 1.04 | | 3.43 | 1.03 | |
| Uniform Delay, d1 | 19.3 | | 20.0 | | 35.5 | | 39.0 | 29.5 | |
| Progression Factor | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 8.9 | | 9.6 | | 44.2 | | 1120.1 | 35.5 | |
| Delay (s) | 28.2 | | 29.6 | | 79.7 | | 1159.1 | 65.0 | |
| Level of Service | C | | C | | E | | F | E | |
| Approach Delay (s) | | | 29.6 | | 79.7 | | | 292.6 | |
| Approach LOS | | | C | | E | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 94.4 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.38 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 13.0 |
| Intersection Capacity Utilization | 96.1% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1520 | 38 | 0 | 2203 | 46 | 59 | 114 | 62 | 65 | 256 | 59 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 1.00 | | | 0.96 | | | 0.98 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 5007 | | | 5015 | | | 1743 | | | 1782 | |
| Flt Permitted | | 1.00 | | | 1.00 | | | 0.75 | | | 0.89 | |
| Satd. Flow (perm) | | 5007 | | | 5015 | | | 1325 | | | 1602 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 0 | 1600 | 40 | 0 | 2319 | 48 | 62 | 120 | 65 | 68 | 269 | 62 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 14 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 0 | 1637 | 0 | 0 | 2365 | 0 | 0 | 233 | 0 | 0 | 396 | 0 |
| Confl. Peds. (#/hr) | | | 43 | | | 22 | | | 19 | | | 20 |
| Confl. Bikes (#/hr) | | | 7 | | | 7 | | | 2 | | | 3 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | | | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Actuated Green, G (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Effective Green, g (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Actuated g/C Ratio | | 0.59 | | | 0.59 | | | 0.31 | | | 0.31 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 2949 | | | 2953 | | | 412 | | | 498 | |
| v/s Ratio Prot | | 0.33 | | | c0.47 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.18 | | | c0.25 | |
| v/c Ratio | | 0.56 | | | 0.80 | | | 0.56 | | | 0.80 | |
| Uniform Delay, d1 | | 11.3 | | | 14.4 | | | 25.9 | | | 28.4 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 0.8 | | | 2.4 | | | 1.1 | | | 8.0 | |
| Delay (s) | | 12.1 | | | 16.8 | | | 27.0 | | | 36.4 | |
| Level of Service | | B | | | B | | | C | | | D | |
| Approach Delay (s) | | 12.1 | | | 16.8 | | | 27.0 | | | 36.4 | |
| Approach LOS | | B | | | B | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 76.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 26 | 270 | 96 | 56 | 872 | 86 | 62 | 141 | 37 | 50 | 220 | 57 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.92 | | 0.99 | | | 0.98 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | | 0.98 | | | 0.98 | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 1854 | 1454 | | 3459 | | | 1769 | | | 1780 | |
| Flt Permitted | | 0.87 | 1.00 | | 0.92 | | | 0.85 | | | 0.91 | |
| Satd. Flow (perm) | | 1619 | 1454 | | 3179 | | | 1519 | | | 1640 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 29 | 297 | 105 | 62 | 958 | 95 | 68 | 155 | 41 | 55 | 242 | 63 |
| RTOR Reduction (vph) | 0 | 0 | 56 | 0 | 12 | 0 | 0 | 11 | 0 | 0 | 13 | 0 |
| Lane Group Flow (vph) | 0 | 326 | 49 | 0 | 1103 | 0 | 0 | 253 | 0 | 0 | 347 | 0 |
| Confl. Peds. (#/hr) | | | 56 | | | 60 | | | 70 | | | 84 |
| Confl. Bikes (#/hr) | | | 4 | | | 2 | | | 3 | | | 2 |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 756 | 679 | | 1484 | | | 582 | | | 629 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.20 | 0.03 | | c0.35 | | | 0.17 | | | c0.21 | |
| v/c Ratio | | 0.43 | 0.07 | | 0.74 | | | 0.43 | | | 0.55 | |
| Uniform Delay, d1 | | 10.7 | 8.8 | | 13.1 | | | 13.7 | | | 14.5 | |
| Progression Factor | | 1.29 | 2.50 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 1.7 | 0.2 | | 3.4 | | | 0.5 | | | 1.1 | |
| Delay (s) | | 15.5 | 22.3 | | 16.5 | | | 14.2 | | | 15.5 | |
| Level of Service | | B | C | | B | | | B | | | B | |
| Approach Delay (s) | | 17.1 | | | 16.5 | | | 14.2 | | | 15.5 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 85.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✣ | | | ✣ | | | ✣ | | | ✣ | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 0 | 1 | 0 | 75 | 0 | 77 | 2 | 155 | 87 | 117 | 264 | 0 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 0 | 1 | 0 | 85 | 0 | 88 | 2 | 176 | 99 | 133 | 300 | 0 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 1 | 173 | 277 | 433 |
| Volume Left (vph) | 0 | 85 | 2 | 133 |
| Volume Right (vph) | 0 | 88 | 99 | 0 |
| Hadj (s) | 0.02 | -0.19 | -0.20 | 0.08 |
| Departure Headway (s) | 6.0 | 5.4 | 4.8 | 4.8 |
| Degree Utilization, x | 0.00 | 0.26 | 0.37 | 0.58 |
| Capacity (veh/h) | 491 | 600 | 725 | 724 |
| Control Delay (s) | 9.0 | 10.3 | 10.5 | 14.3 |
| Approach Delay (s) | 9.0 | 10.3 | 10.5 | 14.3 |
| Approach LOS | A | B | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 12.3 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 64.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 168 | 145 | 1 | 428 | 166 | 27 | 98 | 851 | 230 | 0 | 1366 | 257 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 4.0 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.69 | 1.00 | 0.98 | | | 1.00 | 0.55 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1736 | 1824 | | 3367 | 1827 | 1070 | 1736 | 3283 | | | 3471 | 848 |
| Flt Permitted | 0.36 | 1.00 | | 0.36 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | 664 | 1824 | | 1289 | 1827 | 1070 | 1827 | 3283 | | | 3471 | 848 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 173 | 149 | 1 | 441 | 171 | 28 | 101 | 877 | 237 | 0 | 1408 | 265 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 27 | 0 | 0 | 0 | 168 |
| Lane Group Flow (vph) | 173 | 150 | 0 | 441 | 171 | 12 | 101 | 1087 | 0 | 0 | 1408 | 97 |
| Confl. Peds. (#/hr) | | | 87 | | | 210 | | | 64 | | | 108 |
| Confl. Bikes (#/hr) | | | 2 | | | 8 | | | 5 | | | 2 |
| Heavy Vehicles (%) | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% |
| Turn Type | custom | | | custom | | custom | custom | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | 5 | | | 1 | | 8 | 3 | | | 4 | | 4 |
| Actuated Green, G (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 38.0 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Effective Green, g (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 38.0 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Actuated g/C Ratio | 0.12 | 0.29 | | 0.12 | 0.29 | 0.42 | 0.03 | 0.42 | | | 0.37 | 0.37 |
| Clearance Time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 4.0 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 0.2 | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | | | 0.2 | 0.2 |
| Lane Grp Cap (vph) | 81 | 525 | | 158 | 526 | 452 | 61 | 1386 | | | 1273 | 311 |
| v/s Ratio Prot | | 0.08 | | | c0.09 | | | 0.33 | | | c0.41 | |
| v/s Ratio Perm | 0.26 | | | c0.34 | | 0.01 | c0.06 | | | | | 0.11 |
| v/c Ratio | 2.14 | 0.29 | | 2.79 | 0.33 | 0.03 | 1.66 | 0.78 | | | 1.11 | 0.31 |
| Uniform Delay, d1 | 39.5 | 24.9 | | 39.5 | 25.2 | 15.2 | 43.5 | 22.5 | | | 28.5 | 20.4 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 549.9 | 1.4 | | 823.4 | 1.6 | 0.0 | 356.7 | 2.8 | | | 59.5 | 0.2 |
| Delay (s) | 589.4 | 26.2 | | 862.9 | 26.8 | 15.2 | 400.2 | 25.2 | | | 88.0 | 20.6 |
| Level of Service | F | C | | F | C | B | F | C | | | F | C |
| Approach Delay (s) | | 327.9 | | | 602.4 | | | 56.4 | | | 77.4 | |
| Approach LOS | | F | | | F | | | E | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 179.0 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.10 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 17.1 |
| Intersection Capacity Utilization | 117.7% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 75 | 218 | 74 | 211 | 762 | 76 | 0 | 1144 | 54 | 0 | 1737 | 144 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 0.95 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.99 | | | 0.99 | | | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1787 | 1791 | | 1787 | 3502 | | | 3534 | | | 3516 | |
| Flt Permitted | 0.17 | 1.00 | | 0.44 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 311 | 1791 | | 834 | 3502 | | | 3534 | | | 3516 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 78 | 227 | 77 | 220 | 794 | 79 | 0 | 1192 | 56 | 0 | 1809 | 150 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 8 | 0 | 0 | 4 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 78 | 299 | 0 | 220 | 865 | 0 | 0 | 1244 | 0 | 0 | 1952 | 0 |
| Confl. Peds. (#/hr) | | | 30 | | | 70 | | | 85 | | | 87 |
| Confl. Bikes (#/hr) | | | 4 | | | 5 | | | 7 | | | 10 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | 31.2 | 31.2 | | 31.2 | 31.2 | | | 49.2 | | | 49.2 | |
| Effective Green, g (s) | 31.2 | 31.2 | | 31.2 | 31.2 | | | 49.2 | | | 49.2 | |
| Actuated g/C Ratio | 0.35 | 0.35 | | 0.35 | 0.35 | | | 0.55 | | | 0.55 | |
| Clearance Time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 108 | 621 | | 289 | 1214 | | | 1932 | | | 1922 | |
| v/s Ratio Prot | | 0.17 | | | 0.25 | | | 0.35 | | | c0.56 | |
| v/s Ratio Perm | 0.25 | | | c0.26 | | | | | | | | |
| v/c Ratio | 0.72 | 0.48 | | 0.76 | 0.71 | | | 0.64 | | | 1.02 | |
| Uniform Delay, d1 | 25.6 | 23.1 | | 26.1 | 25.5 | | | 14.3 | | | 20.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.65 | | | 1.00 | |
| Incremental Delay, d2 | 21.1 | 0.6 | | 11.2 | 2.0 | | | 1.5 | | | 24.5 | |
| Delay (s) | 46.7 | 23.7 | | 37.3 | 27.5 | | | 25.0 | | | 44.9 | |
| Level of Service | D | C | | D | C | | | C | | | D | |
| Approach Delay (s) | | 28.4 | | | 29.5 | | | 25.0 | | | 44.9 | |
| Approach LOS | | C | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.7 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.92 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.6 |
| Intersection Capacity Utilization | 117.0% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 25 | 135 | 56 | 37 | 76 | 47 | 0 | 1141 | 50 | 0 | 1956 | 57 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.90 | | 0.98 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.96 | | | 0.99 | | | 1.00 | |
| Flt Protected | | 0.99 | 1.00 | | 0.99 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 1867 | 1435 | | 1755 | | | 3538 | | | 3552 | |
| Flt Permitted | | 0.94 | 1.00 | | 0.89 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 1772 | 1435 | | 1588 | | | 3538 | | | 3552 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 26 | 141 | 58 | 39 | 79 | 49 | 0 | 1189 | 52 | 0 | 2038 | 59 |
| RTOR Reduction (vph) | 0 | 0 | 10 | 0 | 16 | 0 | 0 | 4 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 167 | 48 | 0 | 151 | 0 | 0 | 1237 | 0 | 0 | 2095 | 0 |
| Confl. Peds. (#/hr) | | | 64 | | | 33 | | | 97 | | | 64 |
| Confl. Bikes (#/hr) | | | 8 | | | 4 | | | 3 | | | 11 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Turn Type | Perm | | Perm | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | | | | | | |
| Actuated Green, G (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Effective Green, g (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Actuated g/C Ratio | | 0.22 | 0.22 | | 0.22 | | | 0.67 | | | 0.67 | |
| Clearance Time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 398 | 322 | | 356 | | | 2378 | | | 2388 | |
| v/s Ratio Prot | | | | | | | | 0.35 | | | c0.59 | |
| v/s Ratio Perm | | 0.09 | 0.03 | | c0.09 | | | | | | | |
| v/c Ratio | | 0.42 | 0.15 | | 0.42 | | | 0.52 | | | 0.88 | |
| Uniform Delay, d1 | | 29.9 | 28.0 | | 29.9 | | | 7.4 | | | 11.8 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 0.75 | | | 0.50 | |
| Incremental Delay, d2 | | 0.7 | 0.2 | | 0.8 | | | 0.7 | | | 1.5 | |
| Delay (s) | | 30.6 | 28.2 | | 30.7 | | | 6.3 | | | 7.4 | |
| Level of Service | | C | C | | C | | | A | | | A | |
| Approach Delay (s) | | 30.0 | | | 30.7 | | | 6.3 | | | 7.4 | |
| Approach LOS | | C | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.4 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.3 |
| Intersection Capacity Utilization | 101.4% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 76 | 316 | 47 | 46 | 373 | 57 | 0 | 1077 | 68 | 0 | 1854 | 157 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | 0.98 | | | 0.97 | | | 0.98 | | | 0.98 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 0.98 | | | 0.98 | | | 0.99 | | | 0.99 | |
| Flt Protected | | 0.99 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 3386 | | | 3365 | | | 3444 | | | 3437 | |
| Flt Permitted | | 0.71 | | | 0.86 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 2438 | | | 2902 | | | 3444 | | | 3437 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 79 | 329 | 49 | 48 | 389 | 59 | 0 | 1122 | 71 | 0 | 1931 | 164 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 11 | 0 | 0 | 5 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 0 | 451 | 0 | 0 | 485 | 0 | 0 | 1188 | 0 | 0 | 2088 | 0 |
| Confl. Peds. (#/hr) | | | 126 | | | 164 | | | 168 | | | 118 |
| Confl. Bikes (#/hr) | | | 3 | | | 2 | | | 2 | | | 3 |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 26.2 | | | 26.2 | | | 54.7 | | | 54.7 | |
| Effective Green, g (s) | | 26.2 | | | 26.2 | | | 54.7 | | | 54.7 | |
| Actuated g/C Ratio | | 0.29 | | | 0.29 | | | 0.61 | | | 0.61 | |
| Clearance Time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 710 | | | 845 | | | 2093 | | | 2089 | |
| v/s Ratio Prot | | | | | | | | 0.34 | | | c0.61 | |
| v/s Ratio Perm | | c0.19 | | | 0.17 | | | | | | | |
| v/c Ratio | | 0.64 | | | 0.57 | | | 0.57 | | | 1.00 | |
| Uniform Delay, d1 | | 27.7 | | | 27.1 | | | 10.6 | | | 17.6 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 0.37 | |
| Incremental Delay, d2 | | 4.3 | | | 2.8 | | | 1.1 | | | 13.8 | |
| Delay (s) | | 32.1 | | | 30.0 | | | 11.7 | | | 20.3 | |
| Level of Service | | C | | | C | | | B | | | C | |
| Approach Delay (s) | | 32.1 | | | 30.0 | | | 11.7 | | | 20.3 | |
| Approach LOS | | C | | | C | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.1 |
| Intersection Capacity Utilization | 101.7% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 238 | 2121 | 156 | 0 | 988 | 0 | 0 | 1028 | 768 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | |
| Lane Util. Factor | | | | 1.00 | 0.86 | | | 0.91 | | | 0.91 | |
| Frpb, ped/bikes | | | | 1.00 | 1.00 | | | 1.00 | | | 0.96 | |
| Flpb, ped/bikes | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | | | 1.00 | 0.99 | | | 1.00 | | | 0.94 | |
| Flt Protected | | | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | 1770 | 6323 | | | 5085 | | | 4573 | |
| Flt Permitted | | | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | 1770 | 6323 | | | 5085 | | | 4573 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 0 | 0 | 245 | 2187 | 161 | 0 | 1019 | 0 | 0 | 1060 | 792 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 245 | 2342 | 0 | 0 | 1019 | 0 | 0 | 1850 | 0 |
| Confl. Peds. (#/hr) | | | 418 | | | 28 | | | 67 | | | 75 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | 1 | | | |
| Turn Type | | | | Prot | | | | | | | | |
| Protected Phases | | | | 1 | 6 | | | 4 | | | 4 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | | | | 48.7 | 48.7 | | | 31.4 | | | 31.4 | |
| Effective Green, g (s) | | | | 48.7 | 48.7 | | | 31.4 | | | 31.4 | |
| Actuated g/C Ratio | | | | 0.54 | 0.54 | | | 0.35 | | | 0.35 | |
| Clearance Time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | |
| Vehicle Extension (s) | | | | 0.2 | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | | | 958 | 3421 | | | 1774 | | | 1595 | |
| v/s Ratio Prot | | | | 0.14 | c0.37 | | | 0.20 | | | c0.40 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | | | 0.26 | 0.68 | | | 0.57 | | | 1.46dr | |
| Uniform Delay, d1 | | | | 11.0 | 15.1 | | | 23.9 | | | 29.3 | |
| Progression Factor | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | | | 0.6 | 1.1 | | | 1.4 | | | 79.4 | |
| Delay (s) | | | | 11.6 | 16.2 | | | 25.2 | | | 108.7 | |
| Level of Service | | | | B | B | | | C | | | F | |
| Approach Delay (s) | | 0.0 | | | 15.8 | | | 25.2 | | | 108.7 | |
| Approach LOS | | A | | | B | | | C | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 49.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.9 |
| Intersection Capacity Utilization | 81.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 313 | 9 | 12 | 956 | 10 | 5 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | | 4.0 | 5.0 | |
| Lane Util. Factor | 1.00 | | | 0.95 | 1.00 | |
| Frpb, ped/bikes | 1.00 | | | 1.00 | 0.92 | |
| Flpb, ped/bikes | 1.00 | | | 1.00 | 1.00 | |
| Frt | 1.00 | | | 1.00 | 0.95 | |
| Flt Protected | 1.00 | | | 1.00 | 0.97 | |
| Satd. Flow (prot) | 1854 | | | 3537 | 1584 | |
| Flt Permitted | 1.00 | | | 0.95 | 0.97 | |
| Satd. Flow (perm) | 1854 | | | 3367 | 1584 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 326 | 9 | 12 | 996 | 10 | 5 |
| RTOR Reduction (vph) | 1 | 0 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 334 | 0 | 0 | 1008 | 10 | 0 |
| Confl. Peds. (#/hr) | | 26 | | | | 30 |
| Confl. Bikes (#/hr) | | 1 | | | | |
| Turn Type | | | Perm | | | |
| Protected Phases | 2 | | | 6 | 8 | |
| Permitted Phases | | | 6 | | | |
| Actuated Green, G (s) | 47.0 | | | 47.0 | 4.0 | |
| Effective Green, g (s) | 47.0 | | | 47.0 | 4.0 | |
| Actuated g/C Ratio | 0.78 | | | 0.78 | 0.07 | |
| Clearance Time (s) | 4.0 | | | 4.0 | 5.0 | |
| Vehicle Extension (s) | 0.2 | | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1452 | | | 2637 | 106 | |
| v/s Ratio Prot | 0.18 | | | | c0.01 | |
| v/s Ratio Perm | | | | c0.30 | | |
| v/c Ratio | 0.23 | | | 0.38 | 0.10 | |
| Uniform Delay, d1 | 1.7 | | | 2.0 | 26.3 | |
| Progression Factor | 1.00 | | | 2.08 | 1.00 | |
| Incremental Delay, d2 | 0.4 | | | 0.4 | 0.1 | |
| Delay (s) | 2.1 | | | 4.5 | 26.5 | |
| Level of Service | A | | | A | C | |
| Approach Delay (s) | 2.1 | | | 4.5 | 26.5 | |
| Approach LOS | A | | | A | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 4.2 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.36 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 59.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 365 | 0 | 0 | 987 | 1 | 0 | 1 | 4 | 0 | 0 | 8 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 0 | 392 | 0 | 0 | 1061 | 1 | 0 | 1 | 4 | 0 | 0 | 9 |
| Pedestrians | | 17 | | | 30 | | | 32 | | | 73 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 1 | | | 3 | | | 3 | | | 6 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | 268 | | | 542 | | | | | | | |
| pX, platoon unblocked | | | | 0.86 | | | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | |
| vC, conflicting volume | 1135 | | | 424 | | | 981 | 1560 | 454 | 1562 | 1559 | 621 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1135 | | | 242 | | | 893 | 1570 | 277 | 1573 | 1569 | 621 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 100 | | | 100 | 99 | 99 | 100 | 100 | 98 |
| cM capacity (veh/h) | 574 | | | 1100 | | | 177 | 86 | 584 | 53 | 86 | 398 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 | NB 1 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 392 | 531 | 532 | 5 | 9 |
| Volume Left | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 1 | 4 | 9 |
| cSH | 574 | 1100 | 1700 | 270 | 398 |
| Volume to Capacity | 0.00 | 0.00 | 0.31 | 0.02 | 0.02 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 2 | 2 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 18.6 | 14.2 |
| Lane LOS | | | | C | B |
| Approach Delay (s) | 0.0 | 0.0 | | 18.6 | 14.2 |
| Approach LOS | | | | C | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.2 | | |
| Intersection Capacity Utilization | 43.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 6 | 361 | 8 | 7 | 972 | 16 | 4 | 1 | 4 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Lane Util. Factor | | 1.00 | | | 0.95 | | | 1.00 | | | | |
| Frt | | 1.00 | | | 1.00 | | | 0.94 | | | | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.98 | | | | |
| Satd. Flow (prot) | | 1856 | | | 3530 | | | 1713 | | | | |
| Flt Permitted | | 0.98 | | | 0.95 | | | 0.98 | | | | |
| Satd. Flow (perm) | | 1824 | | | 3363 | | | 1713 | | | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 7 | 392 | 9 | 8 | 1057 | 17 | 4 | 1 | 4 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 406 | 0 | 0 | 1080 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Turn Type | Perm | | | Perm | | | Split | | | | | |
| Protected Phases | | 4 | | | 8 | | 2 | 2 | | | | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 28.6 | | | 28.6 | | | 23.4 | | | | |
| Effective Green, g (s) | | 28.6 | | | 28.6 | | | 23.4 | | | | |
| Actuated g/C Ratio | | 0.48 | | | 0.48 | | | 0.39 | | | | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | | |
| Lane Grp Cap (vph) | | 869 | | | 1603 | | | 668 | | | | |
| v/s Ratio Prot | | | | | | | | c0.00 | | | | |
| v/s Ratio Perm | | 0.22 | | | c0.32 | | | | | | | |
| v/c Ratio | | 0.47 | | | 0.67 | | | 0.01 | | | | |
| Uniform Delay, d1 | | 10.6 | | | 12.1 | | | 11.2 | | | | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | | |
| Incremental Delay, d2 | | 0.4 | | | 1.1 | | | 0.0 | | | | |
| Delay (s) | | 11.0 | | | 13.2 | | | 11.2 | | | | |
| Level of Service | | B | | | B | | | B | | | | |
| Approach Delay (s) | | 11.0 | | | 13.2 | | | 11.2 | | | 0.0 | |
| Approach LOS | | B | | | B | | | B | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.37 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 40.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 2656 | 64 | 0 | 1278 | 98 | 39 | 471 | 104 | 140 | 326 | 59 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | 1.00 | 1.00 | 0.77 | 1.00 | 1.00 | 0.94 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | | | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 4911 | | | 4836 | | 1719 | 1810 | 1186 | 1719 | 1810 | 1439 |
| Flt Permitted | | 1.00 | | | 1.00 | | 0.40 | 1.00 | 1.00 | 0.21 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 4911 | | | 4836 | | 726 | 1810 | 1186 | 377 | 1810 | 1439 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 2738 | 66 | 0 | 1318 | 101 | 40 | 486 | 107 | 144 | 336 | 61 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 10 | 0 | 0 | 0 | 1 | 0 | 0 | 22 |
| Lane Group Flow (vph) | 0 | 2801 | 0 | 0 | 1409 | 0 | 40 | 486 | 106 | 144 | 336 | 39 |
| Confl. Peds. (#/hr) | | | 74 | | | 61 | | | 221 | | | 35 |
| Confl. Bikes (#/hr) | | | 2 | | | 8 | | | 34 | | | 32 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | | | | | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 2 | | | 2 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Effective Green, g (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Actuated g/C Ratio | | 0.55 | | | 0.55 | | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 |
| Clearance Time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 2723 | | | 2681 | | 236 | 589 | 386 | 123 | 589 | 468 |
| v/s Ratio Prot | | c0.57 | | | 0.29 | | | 0.27 | | | 0.19 | |
| v/s Ratio Perm | | | | | | | 0.06 | | 0.09 | c0.38 | | 0.03 |
| v/c Ratio | | 1.03 | | | 0.53 | | 0.17 | 0.83 | 0.28 | 1.17 | 0.57 | 0.08 |
| Uniform Delay, d1 | | 20.1 | | | 12.6 | | 21.7 | 28.0 | 22.5 | 30.4 | 25.1 | 21.0 |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 25.1 | | | 0.7 | | 1.6 | 12.4 | 1.8 | 134.3 | 4.0 | 0.3 |
| Delay (s) | | 45.2 | | | 13.3 | | 23.2 | 40.4 | 24.2 | 164.6 | 29.1 | 21.4 |
| Level of Service | | D | | | B | | C | D | C | F | C | C |
| Approach Delay (s) | | 45.2 | | | 13.3 | | | 36.6 | | | 64.3 | |
| Approach LOS | | D | | | B | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.08 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 10.8 |
| Intersection Capacity Utilization | 110.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 56 | 610 | 30 | 87 | 345 | 79 | 22 | 579 | 151 | 92 | 319 | 18 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.88 | 1.00 | 1.00 | 0.95 |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.99 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3454 | | 1752 | 3375 | | 1752 | 1845 | 1372 | 1752 | 1845 | 1484 |
| Flt Permitted | | 0.88 | | 0.28 | 1.00 | | 0.47 | 1.00 | 1.00 | 0.19 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 3048 | | 518 | 3375 | | 870 | 1845 | 1372 | 358 | 1845 | 1484 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 62 | 670 | 33 | 96 | 379 | 87 | 24 | 636 | 166 | 101 | 351 | 20 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 33 | 0 | 0 | 0 | 50 | 0 | 0 | 11 |
| Lane Group Flow (vph) | 0 | 760 | 0 | 96 | 433 | 0 | 24 | 636 | 116 | 101 | 351 | 9 |
| Confl. Peds. (#/hr) | | | 58 | | | 24 | | | 64 | | | 32 |
| Confl. Bikes (#/hr) | | | 4 | | | 1 | | | 41 | | | 40 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | Perm | | | Perm | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Effective Green, g (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Actuated g/C Ratio | | 0.42 | | 0.42 | 0.42 | | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 |
| Clearance Time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | | 0.2 | | 0.2 | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 1270 | | 216 | 1406 | | 377 | 800 | 595 | 155 | 800 | 643 |
| v/s Ratio Prot | | | | | 0.13 | | | c0.34 | | | 0.19 | |
| v/s Ratio Perm | | c0.25 | | 0.19 | | | 0.03 | | 0.08 | 0.28 | | 0.01 |
| v/c Ratio | | 0.60 | | 0.44 | 0.31 | | 0.06 | 0.80 | 0.19 | 0.65 | 0.44 | 0.01 |
| Uniform Delay, d1 | | 13.6 | | 12.5 | 11.7 | | 9.9 | 14.7 | 10.5 | 13.4 | 11.9 | 9.7 |
| Progression Factor | | 1.00 | | 0.91 | 0.82 | | 1.22 | 0.99 | 1.31 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 2.1 | | 5.4 | 0.5 | | 0.2 | 5.2 | 0.5 | 19.3 | 1.7 | 0.0 |
| Delay (s) | | 15.7 | | 16.8 | 10.0 | | 12.3 | 19.8 | 14.2 | 32.8 | 13.6 | 9.7 |
| Level of Service | | B | | B | B | | B | B | B | C | B | A |
| Approach Delay (s) | | 15.7 | | | 11.2 | | | 18.4 | | | 17.6 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 108.8% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 114 | 1348 | 13 | 7 | 881 | 108 | 13 | 464 | 48 | 198 | 185 | 85 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | | 0.99 | | 1.00 | 1.00 | 0.94 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | | | 0.98 | | | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3520 | | | 3462 | | | 1826 | | 1770 | 1863 | 1495 |
| Flt Permitted | | 0.68 | | | 0.93 | | | 0.99 | | 0.31 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 2412 | | | 3216 | | | 1812 | | 570 | 1863 | 1495 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 118 | 1390 | 13 | 7 | 908 | 111 | 13 | 478 | 49 | 204 | 191 | 88 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 16 | 0 | 0 | 6 | 0 | 0 | 0 | 49 |
| Lane Group Flow (vph) | 0 | 1520 | 0 | 0 | 1011 | 0 | 0 | 534 | 0 | 204 | 191 | 39 |
| Confl. Peds. (#/hr) | | | 18 | | | 29 | | | 50 | | | 28 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | 32 | | | 33 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | 8 | | 8 |
| Actuated Green, G (s) | | 29.0 | | | 29.0 | | | 21.0 | | 21.0 | 21.0 | 21.0 |
| Effective Green, g (s) | | 29.0 | | | 29.0 | | | 21.0 | | 21.0 | 21.0 | 21.0 |
| Actuated g/C Ratio | | 0.48 | | | 0.48 | | | 0.35 | | 0.35 | 0.35 | 0.35 |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Grp Cap (vph) | | 1166 | | | 1554 | | | 634 | | 200 | 652 | 523 |
| v/s Ratio Prot | | | | | | | | | | | 0.10 | |
| v/s Ratio Perm | | c0.63 | | | 0.31 | | | 0.29 | | c0.36 | | 0.03 |
| v/c Ratio | | 1.30 | | | 0.65 | | | 0.84 | | 1.02 | 0.29 | 0.07 |
| Uniform Delay, d1 | | 15.5 | | | 11.7 | | | 18.0 | | 19.5 | 14.1 | 13.0 |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | 1.19 | 1.18 | 1.98 |
| Incremental Delay, d2 | | 142.9 | | | 2.1 | | | 12.9 | | 66.0 | 1.0 | 0.2 |
| Delay (s) | | 158.4 | | | 13.8 | | | 30.8 | | 89.1 | 17.7 | 25.9 |
| Level of Service | | F | | | B | | | C | | F | B | C |
| Approach Delay (s) | | 158.4 | | | 13.8 | | | 30.8 | | | 49.4 | |
| Approach LOS | | F | | | B | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 82.8 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.19 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 131.9% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 502 | 48 | 75 | 465 | 47 | 38 | 430 | 86 | 60 | 356 | 27 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.92 | | 0.99 | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | | 0.98 | | 1.00 | 0.99 | |
| Flt Protected | | 1.00 | 1.00 | | 0.99 | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1840 | 1445 | | 3424 | | | 1787 | | 1752 | 1820 | |
| Flt Permitted | | 0.95 | 1.00 | | 0.74 | | | 0.95 | | 0.30 | 1.00 | |
| Satd. Flow (perm) | | 1747 | 1445 | | 2545 | | | 1701 | | 556 | 1820 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 33 | 558 | 53 | 83 | 517 | 52 | 42 | 478 | 96 | 67 | 396 | 30 |
| RTOR Reduction (vph) | 0 | 0 | 27 | 0 | 11 | 0 | 0 | 11 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 0 | 591 | 26 | 0 | 641 | 0 | 0 | 605 | 0 | 67 | 422 | 0 |
| Confl. Peds. (#/hr) | | | 53 | | | 41 | | | 19 | | | 31 |
| Confl. Bikes (#/hr) | | | 4 | | | 1 | | | 3 | | | 2 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | 0.38 | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 815 | 674 | | 1188 | | | 652 | | 213 | 698 | |
| v/s Ratio Prot | | | | | | | | | | | 0.23 | |
| v/s Ratio Perm | | c0.34 | 0.02 | | 0.25 | | | c0.36 | | 0.12 | | |
| v/c Ratio | | 0.73 | 0.04 | | 0.54 | | | 0.93 | | 0.31 | 0.60 | |
| Uniform Delay, d1 | | 12.9 | 8.7 | | 11.4 | | | 17.7 | | 13.0 | 14.8 | |
| Progression Factor | | 0.69 | 0.29 | | 1.77 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 4.8 | 0.1 | | 1.3 | | | 21.4 | | 3.8 | 3.9 | |
| Delay (s) | | 13.6 | 2.6 | | 21.5 | | | 39.1 | | 16.8 | 18.7 | |
| Level of Service | | B | A | | C | | | D | | B | B | |
| Approach Delay (s) | | 12.7 | | | 21.5 | | | 39.1 | | | 18.4 | |
| Approach LOS | | B | | | C | | | D | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 117.2% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 737 | 790 | 0 | 386 | 26 | 602 | 511 | 68 | 49 | 407 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | 1.00 | 1.00 | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.93 | | 1.00 | | 1.00 | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | 1.00 | 0.98 | | | 1.00 | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 0.99 | |
| Satd. Flow (prot) | | 1845 | 1452 | | 3454 | | 1752 | 1794 | | | 3470 | |
| Flt Permitted | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 0.54 | |
| Satd. Flow (perm) | | 1845 | 1452 | | 3454 | | 1752 | 1794 | | | 1873 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 0 | 768 | 823 | 0 | 402 | 27 | 627 | 532 | 71 | 51 | 424 | 10 |
| RTOR Reduction (vph) | 0 | 0 | 471 | 0 | 6 | 0 | 0 | 6 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 768 | 352 | 0 | 423 | 0 | 627 | 597 | 0 | 0 | 483 | 0 |
| Confl. Peds. (#/hr) | | | 60 | | | 45 | | | 37 | | | 39 |
| Confl. Bikes (#/hr) | | | 1 | | | 1 | | | 2 | | | 3 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | custom | | | | Split | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | 8 | 8 | | | 4 | |
| Permitted Phases | | | 8 | | | | | | | 4 | | |
| Actuated Green, G (s) | | 34.0 | 26.0 | | 34.0 | | 26.0 | 26.0 | | | 17.0 | |
| Effective Green, g (s) | | 34.0 | 26.0 | | 34.0 | | 26.0 | 26.0 | | | 17.0 | |
| Actuated g/C Ratio | | 0.38 | 0.29 | | 0.38 | | 0.29 | 0.29 | | | 0.19 | |
| Clearance Time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Grp Cap (vph) | | 697 | 419 | | 1305 | | 506 | 518 | | | 354 | |
| v/s Ratio Prot | | c0.42 | | | 0.12 | | c0.36 | 0.33 | | | | |
| v/s Ratio Perm | | | 0.24 | | | | | | | | c0.26 | |
| v/c Ratio | | 1.10 | 0.84 | | 0.32 | | 1.24 | 1.15 | | | 1.37 | |
| Uniform Delay, d1 | | 28.0 | 30.0 | | 19.9 | | 32.0 | 32.0 | | | 36.5 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 65.4 | 17.9 | | 0.7 | | 123.7 | 89.1 | | | 181.7 | |
| Delay (s) | | 93.4 | 48.0 | | 20.5 | | 155.7 | 121.1 | | | 218.2 | |
| Level of Service | | F | D | | C | | F | F | | | F | |
| Approach Delay (s) | | 69.9 | | | 20.5 | | | 138.7 | | | 218.2 | |
| Approach LOS | | E | | | C | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 106.2 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.21 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 13.0 |
| Intersection Capacity Utilization | 97.1% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBR | EBR2 | WBT | WBR | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Volume (vph) | 2830 | 47 | 1632 | 3 | 1018 | 25 | 382 | 892 | 139 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Lane Util. Factor | 0.76 | | 0.91 | | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Frt | 0.85 | | 1.00 | | 1.00 | | 1.00 | 0.98 | |
| Flt Protected | 1.00 | | 1.00 | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3610 | | 5084 | | 3512 | | 1770 | 3431 | |
| Flt Permitted | 1.00 | | 1.00 | | 1.00 | | 0.33 | 1.00 | |
| Satd. Flow (perm) | 3610 | | 5084 | | 3512 | | 621 | 3431 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 2918 | 48 | 1682 | 3 | 1049 | 26 | 394 | 920 | 143 |
| RTOR Reduction (vph) | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 2965 | 0 | 1685 | 0 | 1075 | 0 | 394 | 1055 | 0 |
| Confl. Peds. (#/hr) | | 38 | | | | 68 | | | 82 |
| Confl. Bikes (#/hr) | | 90 | | | | 2 | | | 4 |
| Turn Type | custom | | | | | | custom | | |
| Protected Phases | 2 | | | | 8 | | | 4 | |
| Permitted Phases | | | 6 | | | | 7 | | |
| Actuated Green, G (s) | 46.0 | | 46.0 | | 21.0 | | 12.0 | 33.0 | |
| Effective Green, g (s) | 46.0 | | 46.0 | | 21.0 | | 12.0 | 33.0 | |
| Actuated g/C Ratio | 0.51 | | 0.51 | | 0.23 | | 0.13 | 0.37 | |
| Clearance Time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Vehicle Extension (s) | 0.2 | | 0.2 | | 0.2 | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1845 | | 2598 | | 819 | | 83 | 1258 | |
| v/s Ratio Prot | c0.82 | | | | c0.31 | | | 0.31 | |
| v/s Ratio Perm | | | 0.33 | | | | c0.63 | | |
| v/c Ratio | 1.61 | | 0.65 | | 1.31 | | 4.75 | 0.84 | |
| Uniform Delay, d1 | 22.0 | | 16.1 | | 34.5 | | 39.0 | 26.1 | |
| Progression Factor | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 275.6 | | 1.3 | | 149.4 | | 1713.2 | 4.8 | |
| Delay (s) | 297.6 | | 17.4 | | 183.9 | | 1752.2 | 30.9 | |
| Level of Service | F | | B | | F | | F | C | |
| Approach Delay (s) | | | 17.4 | | 183.9 | | | 496.4 | |
| Approach LOS | | | B | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 255.2 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.98 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 128.1% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 2779 | 34 | 0 | 1253 | 55 | 55 | 204 | 59 | 108 | 168 | 35 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 0.99 | | | 0.98 | | | 0.98 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.99 | | | 0.98 | |
| Satd. Flow (prot) | | 4928 | | | 4895 | | | 1736 | | | 1745 | |
| Flt Permitted | | 1.00 | | | 1.00 | | | 0.88 | | | 0.66 | |
| Satd. Flow (perm) | | 4928 | | | 4895 | | | 1535 | | | 1171 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 0 | 2895 | 35 | 0 | 1305 | 57 | 57 | 212 | 61 | 112 | 175 | 36 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 0 | 2929 | 0 | 0 | 1357 | 0 | 0 | 329 | 0 | 0 | 318 | 0 |
| Confl. Peds. (#/hr) | | | 28 | | | 36 | | | 28 | | | 23 |
| Confl. Bikes (#/hr) | | | 4 | | | 1 | | | 2 | | | 3 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | | | | | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Actuated Green, G (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Effective Green, g (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Actuated g/C Ratio | | 0.59 | | | 0.59 | | | 0.31 | | | 0.31 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 2902 | | | 2883 | | | 478 | | | 364 | |
| v/s Ratio Prot | | c0.59 | | | 0.28 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.21 | | | c0.27 | |
| v/c Ratio | | 1.01 | | | 0.47 | | | 0.69 | | | 0.87 | |
| Uniform Delay, d1 | | 18.5 | | | 10.5 | | | 27.2 | | | 29.3 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 19.0 | | | 0.6 | | | 3.3 | | | 19.6 | |
| Delay (s) | | 37.5 | | | 11.1 | | | 30.5 | | | 48.9 | |
| Level of Service | | D | | | B | | | C | | | D | |
| Approach Delay (s) | | 37.5 | | | 11.1 | | | 30.5 | | | 48.9 | |
| Approach LOS | | D | | | B | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 30.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.96 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 93.3% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 73 | 640 | 121 | 49 | 545 | 90 | 52 | 194 | 33 | 61 | 169 | 36 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.95 | | 0.99 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.98 | | | 0.98 | | | 0.98 | |
| Flt Protected | | 0.99 | 1.00 | | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 1818 | 1477 | | 3368 | | | 1773 | | | 1762 | |
| Flt Permitted | | 0.86 | 1.00 | | 0.68 | | | 0.89 | | | 0.87 | |
| Satd. Flow (perm) | | 1570 | 1477 | | 2301 | | | 1596 | | | 1554 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 82 | 719 | 136 | 55 | 612 | 101 | 58 | 218 | 37 | 69 | 190 | 40 |
| RTOR Reduction (vph) | 0 | 0 | 51 | 0 | 20 | 0 | 0 | 8 | 0 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 0 | 801 | 85 | 0 | 748 | 0 | 0 | 305 | 0 | 0 | 290 | 0 |
| Confl. Peds. (#/hr) | | | 21 | | | 29 | | | 16 | | | 47 |
| Confl. Bikes (#/hr) | | | 9 | | | 1 | | | 1 | | | |
| Heavy Vehicles (%) | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 733 | 689 | | 1074 | | | 612 | | | 596 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.51 | 0.06 | | 0.33 | | | c0.19 | | | 0.19 | |
| v/c Ratio | | 1.09 | 0.12 | | 0.70 | | | 0.50 | | | 0.49 | |
| Uniform Delay, d1 | | 16.0 | 9.1 | | 12.6 | | | 14.1 | | | 14.0 | |
| Progression Factor | | 0.67 | 0.31 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 59.0 | 0.3 | | 3.7 | | | 0.6 | | | 0.6 | |
| Delay (s) | | 69.7 | 3.1 | | 16.4 | | | 14.7 | | | 14.6 | |
| Level of Service | | E | A | | B | | | B | | | B | |
| Approach Delay (s) | | 60.0 | | | 16.4 | | | 14.7 | | | 14.6 | |
| Approach LOS | | E | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 93.3% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✥ | | | ✥ | | | ✥ | | | ✥ | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 0 | 0 | 0 | 60 | 0 | 96 | 1 | 203 | 165 | 153 | 200 | 0 |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 75 | 0 | 120 | 1 | 254 | 206 | 191 | 250 | 0 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 0 | 195 | 461 | 441 |
| Volume Left (vph) | 0 | 75 | 1 | 191 |
| Volume Right (vph) | 0 | 120 | 206 | 0 |
| Hadj (s) | 0.00 | -0.26 | -0.23 | 0.12 |
| Departure Headway (s) | 6.6 | 5.8 | 4.9 | 5.2 |
| Degree Utilization, x | 0.00 | 0.31 | 0.63 | 0.64 |
| Capacity (veh/h) | 442 | 553 | 706 | 667 |
| Control Delay (s) | 9.6 | 11.5 | 15.8 | 17.1 |
| Approach Delay (s) | 0.0 | 11.5 | 15.8 | 17.1 |
| Approach LOS | A | B | C | C |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 15.5 | | |
| HCM Level of Service | C | | |
| Intersection Capacity Utilization | 65.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 246 | 259 | 0 | 195 | 91 | 23 | 100 | 1747 | 577 | 1 | 984 | 194 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 5.1 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.91 | 1.00 | 0.97 | | | 1.00 | 0.77 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1719 | 1810 | | 3335 | 1810 | 1395 | 1719 | 3198 | | | 3438 | 1178 |
| Flt Permitted | 0.36 | 1.00 | | 0.36 | 1.00 | 1.00 | 0.95 | 1.00 | | | 0.86 | 1.00 |
| Satd. Flow (perm) | 658 | 1810 | | 1277 | 1810 | 1395 | 1719 | 3198 | | | 2971 | 1178 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 262 | 276 | 0 | 207 | 97 | 24 | 106 | 1859 | 614 | 1 | 1047 | 206 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 36 | 0 | 0 | 0 | 130 |
| Lane Group Flow (vph) | 262 | 276 | 0 | 207 | 97 | 13 | 106 | 2437 | 0 | 0 | 1048 | 76 |
| Confl. Peds. (#/hr) | | | 63 | | | 72 | | | 84 | | | 53 |
| Confl. Bikes (#/hr) | | | 1 | | | 2 | | | 2 | | | 2 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | custom | | | custom | | Perm | Prot | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | 3 | 8 | | | 4 | |
| Permitted Phases | 5 | | | 1 | | 6 | | | | 4 | | 4 |
| Actuated Green, G (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 25.9 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Effective Green, g (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 25.9 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Actuated g/C Ratio | 0.12 | 0.29 | | 0.12 | 0.29 | 0.29 | 0.03 | 0.42 | | | 0.37 | 0.37 |
| Clearance Time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 5.1 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 80 | 521 | | 156 | 521 | 401 | 57 | 1350 | | | 1089 | 432 |
| v/s Ratio Prot | | c0.15 | | | 0.05 | | 0.06 | c0.76 | | | | |
| v/s Ratio Perm | c0.40 | | | 0.16 | | 0.01 | | | | | 0.35 | 0.06 |
| v/c Ratio | 3.27 | 0.53 | | 1.33 | 0.19 | 0.03 | 1.86 | 1.81 | | | 0.96 | 0.17 |
| Uniform Delay, d1 | 39.5 | 26.9 | | 39.5 | 24.1 | 23.0 | 43.5 | 26.0 | | | 27.9 | 19.3 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 1055.2 | 3.8 | | 184.5 | 0.8 | 0.1 | 446.1 | 365.4 | | | 18.8 | 0.2 |
| Delay (s) | 1094.7 | 30.8 | | 224.0 | 24.9 | 23.2 | 489.6 | 391.4 | | | 46.7 | 19.5 |
| Level of Service | F | C | | F | C | C | F | F | | | D | B |
| Approach Delay (s) | | 548.9 | | | 150.4 | | | 395.4 | | | 42.2 | |
| Approach LOS | | F | | | F | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 301.6 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.58 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 15.1 |
| Intersection Capacity Utilization | 129.3% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 536 | 34 | 118 | 654 | 117 | 0 | 2252 | 125 | 0 | 1069 | 135 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 0.95 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.98 | | | 0.99 | | | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1770 | 1842 | | 1770 | 3420 | | | 3495 | | | 3463 | |
| Flt Permitted | 0.15 | 1.00 | | 0.15 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 277 | 1842 | | 274 | 3420 | | | 3495 | | | 3463 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 151 | 576 | 37 | 127 | 703 | 126 | 0 | 2422 | 134 | 0 | 1149 | 145 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 151 | 610 | 0 | 127 | 828 | 0 | 0 | 2552 | 0 | 0 | 1283 | 0 |
| Confl. Peds. (#/hr) | | | 24 | | | 61 | | | 78 | | | 61 |
| Confl. Bikes (#/hr) | | | 2 | | | 2 | | | 5 | | | 5 |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | 27.2 | 27.2 | | 27.2 | 27.2 | | | 53.2 | | | 53.2 | |
| Effective Green, g (s) | 27.2 | 27.2 | | 27.2 | 27.2 | | | 53.2 | | | 53.2 | |
| Actuated g/C Ratio | 0.30 | 0.30 | | 0.30 | 0.30 | | | 0.59 | | | 0.59 | |
| Clearance Time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 84 | 557 | | 83 | 1034 | | | 2066 | | | 2047 | |
| v/s Ratio Prot | | 0.33 | | | 0.24 | | | c0.73 | | | 0.37 | |
| v/s Ratio Perm | c0.55 | | | 0.46 | | | | | | | | |
| v/c Ratio | 1.80 | 1.10 | | 1.53 | 0.80 | | | 1.23 | | | 0.63 | |
| Uniform Delay, d1 | 31.4 | 31.4 | | 31.4 | 28.9 | | | 18.4 | | | 12.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.46 | | | 1.00 | |
| Incremental Delay, d2 | 402.0 | 66.8 | | 290.0 | 4.5 | | | 106.2 | | | 1.5 | |
| Delay (s) | 433.4 | 98.2 | | 321.4 | 33.4 | | | 114.6 | | | 13.4 | |
| Level of Service | F | F | | F | C | | | F | | | B | |
| Approach Delay (s) | | 164.5 | | | 71.7 | | | 114.6 | | | 13.4 | |
| Approach LOS | | F | | | E | | | F | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 90.6 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.43 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.6 |
| Intersection Capacity Utilization | 131.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 14 | 200 | 52 | 56 | 108 | 114 | 0 | 2235 | 117 | 0 | 1158 | 61 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.93 | | 0.96 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.94 | | | 0.99 | | | 0.99 | |
| Flt Protected | | 1.00 | 1.00 | | 0.99 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 1857 | 1467 | | 1671 | | | 3499 | | | 3504 | |
| Flt Permitted | | 0.96 | 1.00 | | 0.72 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 1796 | 1467 | | 1213 | | | 3499 | | | 3504 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 15 | 217 | 57 | 61 | 117 | 124 | 0 | 2429 | 127 | 0 | 1259 | 66 |
| RTOR Reduction (vph) | 0 | 0 | 44 | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 0 | 232 | 13 | 0 | 298 | 0 | 0 | 2552 | 0 | 0 | 1321 | 0 |
| Confl. Peds. (#/hr) | | | 37 | | | 65 | | | 76 | | | 40 |
| Confl. Bikes (#/hr) | | | 14 | | | 2 | | | 3 | | | 5 |
| Turn Type | Perm | | Perm | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | | | | | | |
| Actuated Green, G (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Effective Green, g (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Actuated g/C Ratio | | 0.22 | 0.22 | | 0.22 | | | 0.67 | | | 0.67 | |
| Clearance Time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 403 | 329 | | 272 | | | 2352 | | | 2355 | |
| v/s Ratio Prot | | | | | | | | c0.73 | | | 0.38 | |
| v/s Ratio Perm | | 0.13 | 0.01 | | c0.25 | | | | | | | |
| v/c Ratio | | 0.58 | 0.04 | | 1.10 | | | 1.08 | | | 0.56 | |
| Uniform Delay, d1 | | 31.1 | 27.3 | | 34.9 | | | 14.8 | | | 7.8 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 0.37 | | | 0.45 | |
| Incremental Delay, d2 | | 2.0 | 0.0 | | 82.7 | | | 39.1 | | | 0.7 | |
| Delay (s) | | 33.1 | 27.4 | | 117.6 | | | 44.5 | | | 4.2 | |
| Level of Service | | C | C | | F | | | D | | | A | |
| Approach Delay (s) | | 31.9 | | | 117.6 | | | 44.5 | | | 4.2 | |
| Approach LOS | | C | | | F | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 36.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.09 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.3 |
| Intersection Capacity Utilization | 112.0% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 151 | 536 | 33 | 23 | 281 | 40 | 0 | 2284 | 61 | 0 | 1145 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | 0.99 | | | 0.99 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 0.99 | | | 0.98 | | | 1.00 | | | 0.99 | |
| Flt Protected | | 0.99 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 3421 | | | 3394 | | | 3467 | | | 3419 | |
| Flt Permitted | | 0.74 | | | 0.84 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 2557 | | | 2869 | | | 3467 | | | 3419 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 161 | 570 | 35 | 24 | 299 | 43 | 0 | 2430 | 65 | 0 | 1218 | 106 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 0 | 762 | 0 | 0 | 365 | 0 | 0 | 2493 | 0 | 0 | 1317 | 0 |
| Confl. Peds. (#/hr) | | | 101 | | | 61 | | | 143 | | | 81 |
| Confl. Bikes (#/hr) | | | 7 | | | | | | 4 | | | 5 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 28.2 | | | 28.2 | | | 52.7 | | | 52.7 | |
| Effective Green, g (s) | | 28.2 | | | 28.2 | | | 52.7 | | | 52.7 | |
| Actuated g/C Ratio | | 0.31 | | | 0.31 | | | 0.59 | | | 0.59 | |
| Clearance Time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 801 | | | 899 | | | 2030 | | | 2002 | |
| v/s Ratio Prot | | | | | | | | c0.72 | | | 0.39 | |
| v/s Ratio Perm | | c0.30 | | | 0.13 | | | | | | | |
| v/c Ratio | | 0.95 | | | 0.41 | | | 1.23 | | | 0.66 | |
| Uniform Delay, d1 | | 30.2 | | | 24.3 | | | 18.6 | | | 12.6 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 0.96 | |
| Incremental Delay, d2 | | 21.9 | | | 1.4 | | | 107.2 | | | 1.4 | |
| Delay (s) | | 52.1 | | | 25.7 | | | 125.8 | | | 13.5 | |
| Level of Service | | D | | | C | | | F | | | B | |
| Approach Delay (s) | | 52.1 | | | 25.7 | | | 125.8 | | | 13.5 | |
| Approach LOS | | D | | | C | | | F | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 77.0 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.13 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.1 |
| Intersection Capacity Utilization | 114.0% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 190 | 1646 | 289 | 78 | 1979 | 0 | 0 | 636 | 525 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | |
| Lane Util. Factor | | | | 1.00 | 0.86 | | | 0.91 | | | 0.91 | |
| Frpb, ped/bikes | | | | 1.00 | 0.99 | | | 1.00 | | | 0.98 | |
| Flpb, ped/bikes | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | | | 1.00 | 0.98 | | | 1.00 | | | 0.93 | |
| Flt Protected | | | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | 1752 | 6168 | | | 5026 | | | 4602 | |
| Flt Permitted | | | | 0.95 | 1.00 | | | 0.77 | | | 1.00 | |
| Satd. Flow (perm) | | | | 1752 | 6168 | | | 3901 | | | 4602 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 0 | 0 | 0 | 200 | 1733 | 304 | 82 | 2083 | 0 | 0 | 669 | 553 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 200 | 2036 | 0 | 0 | 2165 | 0 | 0 | 1221 | 0 |
| Confl. Peds. (#/hr) | | | 406 | | | 24 | | | 51 | | | 29 |
| Confl. Bikes (#/hr) | | | | | | | | | 1 | | | 1 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | | Prot | | | Perm | | | | | |
| Protected Phases | | | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | | | |
| Actuated Green, G (s) | | | | 35.7 | 35.7 | | | 44.4 | | | 44.4 | |
| Effective Green, g (s) | | | | 35.7 | 35.7 | | | 44.4 | | | 44.4 | |
| Actuated g/C Ratio | | | | 0.40 | 0.40 | | | 0.49 | | | 0.49 | |
| Clearance Time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | |
| Vehicle Extension (s) | | | | 0.2 | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | | | 695 | 2447 | | | 1924 | | | 2270 | |
| v/s Ratio Prot | | | | 0.11 | c0.33 | | | | | | 0.27 | |
| v/s Ratio Perm | | | | | | | | c0.55 | | | | |
| v/c Ratio | | | | 0.29 | 0.83 | | | 1.13 | | | 0.54 | |
| Uniform Delay, d1 | | | | 18.5 | 24.4 | | | 22.8 | | | 15.7 | |
| Progression Factor | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | | | 1.0 | 3.5 | | | 63.8 | | | 0.9 | |
| Delay (s) | | | | 19.5 | 27.9 | | | 86.6 | | | 16.6 | |
| Level of Service | | | | B | C | | | F | | | B | |
| Approach Delay (s) | | 0.0 | | | 27.2 | | | 86.6 | | | 16.6 | |
| Approach LOS | | A | | | C | | | F | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 47.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.99 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.9 |
| Intersection Capacity Utilization | 106.2% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 745 | 22 | 13 | 666 | 29 | 13 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | | 4.0 | 5.0 | |
| Lane Util. Factor | 1.00 | | | 0.95 | 1.00 | |
| Frpb, ped/bikes | 1.00 | | | 1.00 | 0.95 | |
| Flpb, ped/bikes | 1.00 | | | 1.00 | 1.00 | |
| Frt | 1.00 | | | 1.00 | 0.96 | |
| Flt Protected | 1.00 | | | 1.00 | 0.97 | |
| Satd. Flow (prot) | 1818 | | | 3468 | 1609 | |
| Flt Permitted | 1.00 | | | 0.94 | 0.97 | |
| Satd. Flow (perm) | 1818 | | | 3257 | 1609 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 847 | 25 | 15 | 757 | 33 | 15 |
| RTOR Reduction (vph) | 1 | 0 | 0 | 0 | 13 | 0 |
| Lane Group Flow (vph) | 871 | 0 | 0 | 772 | 35 | 0 |
| Confl. Peds. (#/hr) | | 29 | | | | 37 |
| Confl. Bikes (#/hr) | | 1 | | | | |
| Heavy Vehicles (%) | 4% | 4% | 4% | 4% | 4% | 4% |
| Turn Type | | | Perm | | | |
| Protected Phases | 2 | | | 6 | 8 | |
| Permitted Phases | | | 6 | | | |
| Actuated Green, G (s) | 43.0 | | | 43.0 | 8.0 | |
| Effective Green, g (s) | 43.0 | | | 43.0 | 8.0 | |
| Actuated g/C Ratio | 0.72 | | | 0.72 | 0.13 | |
| Clearance Time (s) | 4.0 | | | 4.0 | 5.0 | |
| Vehicle Extension (s) | 0.2 | | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1303 | | | 2334 | 215 | |
| v/s Ratio Prot | c0.48 | | | | c0.02 | |
| v/s Ratio Perm | | | | 0.24 | | |
| v/c Ratio | 0.67 | | | 0.33 | 0.16 | |
| Uniform Delay, d1 | 4.6 | | | 3.2 | 23.0 | |
| Progression Factor | 1.00 | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.7 | | | 0.4 | 0.1 | |
| Delay (s) | 7.4 | | | 3.5 | 23.2 | |
| Level of Service | A | | | A | C | |
| Approach Delay (s) | 7.4 | | | 3.5 | 23.2 | |
| Approach LOS | A | | | A | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.1 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 64.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 5 | 681 | 23 | 17 | 736 | 3 | 9 | 5 | 9 | 1 | 0 | 3 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 2.0 | |
| Lane Util. Factor | | 1.00 | | | 0.95 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.96 | | | 0.97 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 1.00 | | | 0.95 | | | 0.90 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.98 | | | 0.99 | |
| Satd. Flow (prot) | | 1815 | | | 3464 | | | 1625 | | | 1579 | |
| Flt Permitted | | 1.00 | | | 0.93 | | | 0.87 | | | 0.97 | |
| Satd. Flow (perm) | | 1807 | | | 3241 | | | 1444 | | | 1547 | |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 6 | 783 | 26 | 20 | 846 | 3 | 10 | 6 | 10 | 1 | 0 | 3 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 0 | 814 | 0 | 0 | 869 | 0 | 0 | 17 | 0 | 0 | 1 | 0 |
| Confl. Peds. (#/hr) | | | 46 | | | 97 | | | 64 | | | 26 |
| Confl. Bikes (#/hr) | | | 5 | | | 2 | | | | | | |
| Heavy Vehicles (%) | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 47.0 | | | 47.0 | | | 4.0 | | | 7.0 | |
| Effective Green, g (s) | | 47.0 | | | 47.0 | | | 4.0 | | | 7.0 | |
| Actuated g/C Ratio | | 0.78 | | | 0.78 | | | 0.07 | | | 0.12 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 2.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 1415 | | | 2539 | | | 96 | | | 180 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.45 | | | 0.27 | | | c0.01 | | | 0.00 | |
| v/c Ratio | | 0.58 | | | 0.34 | | | 0.17 | | | 0.01 | |
| Uniform Delay, d1 | | 2.6 | | | 1.9 | | | 26.4 | | | 23.4 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 1.7 | | | 0.4 | | | 0.9 | | | 0.0 | |
| Delay (s) | | 4.3 | | | 2.3 | | | 27.3 | | | 23.4 | |
| Level of Service | | A | | | A | | | C | | | C | |
| Approach Delay (s) | | 4.3 | | | 2.3 | | | 27.3 | | | 23.4 | |
| Approach LOS | | A | | | A | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 3.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 65.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1771 | 87 | 0 | 2395 | 161 | 56 | 359 | 91 | 139 | 529 | 92 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | | 0.98 | | 1.00 | 1.00 | 0.78 | 1.00 | 1.00 | 0.88 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.99 | | | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 4957 | | | 4878 | | 1752 | 1845 | 1223 | 1752 | 1845 | 1376 |
| Flt Permitted | | 1.00 | | | 1.00 | | 0.14 | 1.00 | 1.00 | 0.36 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 4957 | | | 4878 | | 252 | 1845 | 1223 | 657 | 1845 | 1376 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 1826 | 90 | 0 | 2469 | 166 | 58 | 370 | 94 | 143 | 545 | 95 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 8 | 0 | 0 | 0 | 4 | 0 | 0 | 1 |
| Lane Group Flow (vph) | 0 | 1910 | 0 | 0 | 2627 | 0 | 58 | 370 | 90 | 143 | 545 | 94 |
| Confl. Peds. (#/hr) | | | 143 | | | 164 | | | 216 | | | 93 |
| Confl. Bikes (#/hr) | | | 5 | | | 3 | | | 24 | | | 44 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | | | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Effective Green, g (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Actuated g/C Ratio | | 0.55 | | | 0.55 | | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 |
| Clearance Time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 2748 | | | 2705 | | 82 | 601 | 398 | 214 | 601 | 448 |
| v/s Ratio Prot | | 0.39 | | | c0.54 | | | 0.20 | | | c0.30 | |
| v/s Ratio Perm | | | | | | | 0.23 | | 0.07 | 0.22 | | 0.07 |
| v/c Ratio | | 0.70 | | | 0.97 | | 0.71 | 0.62 | 0.23 | 0.67 | 0.91 | 0.21 |
| Uniform Delay, d1 | | 14.5 | | | 19.4 | | 26.6 | 25.6 | 22.1 | 26.2 | 29.0 | 22.0 |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 1.5 | | | 11.7 | | 40.6 | 4.7 | 1.3 | 15.4 | 19.8 | 1.1 |
| Delay (s) | | 16.0 | | | 31.1 | | 67.2 | 30.3 | 23.4 | 41.5 | 48.8 | 23.0 |
| Level of Service | | B | | | C | | E | C | C | D | D | C |
| Approach Delay (s) | | 16.0 | | | 31.1 | | | 33.1 | | | 44.4 | |
| Approach LOS | | B | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.95 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 10.8 |
| Intersection Capacity Utilization | 111.1% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 38 | 224 | 45 | 231 | 590 | 102 | 22 | 319 | 44 | 64 | 583 | 39 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.89 | 1.00 | 1.00 | 0.93 |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.98 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3398 | | 1770 | 3435 | | 1770 | 1863 | 1407 | 1770 | 1863 | 1472 |
| Flt Permitted | | 0.83 | | 0.56 | 1.00 | | 0.21 | 1.00 | 1.00 | 0.49 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 2848 | | 1036 | 3435 | | 399 | 1863 | 1407 | 908 | 1863 | 1472 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 40 | 236 | 47 | 243 | 621 | 107 | 23 | 336 | 46 | 67 | 614 | 41 |
| RTOR Reduction (vph) | 0 | 23 | 0 | 0 | 23 | 0 | 0 | 0 | 26 | 0 | 0 | 20 |
| Lane Group Flow (vph) | 0 | 300 | 0 | 243 | 705 | 0 | 23 | 336 | 20 | 67 | 614 | 21 |
| Confl. Peds. (#/hr) | | | 54 | | | 21 | | | 59 | | | 52 |
| Confl. Bikes (#/hr) | | | 3 | | | 7 | | | 31 | | | 48 |
| Turn Type | Perm | | | Perm | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Effective Green, g (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Actuated g/C Ratio | | 0.42 | | 0.42 | 0.42 | | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 |
| Clearance Time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | | 0.2 | | 0.2 | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 1187 | | 432 | 1431 | | 173 | 807 | 610 | 393 | 807 | 638 |
| v/s Ratio Prot | | | | | 0.21 | | | 0.18 | | | c0.33 | |
| v/s Ratio Perm | | 0.11 | | c0.23 | | | 0.06 | | 0.01 | 0.07 | | 0.01 |
| v/c Ratio | | 0.25 | | 0.56 | 0.49 | | 0.13 | 0.42 | 0.03 | 0.17 | 0.76 | 0.03 |
| Uniform Delay, d1 | | 11.4 | | 13.3 | 12.8 | | 10.2 | 11.8 | 9.8 | 10.4 | 14.4 | 9.8 |
| Progression Factor | | 1.00 | | 0.32 | 0.28 | | 1.16 | 1.12 | 1.47 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.5 | | 3.4 | 0.8 | | 1.3 | 1.3 | 0.1 | 0.9 | 6.7 | 0.1 |
| Delay (s) | | 11.9 | | 7.7 | 4.4 | | 13.1 | 14.5 | 14.4 | 11.3 | 21.1 | 9.9 |
| Level of Service | | B | | A | A | | B | B | B | B | C | A |
| Approach Delay (s) | | 11.9 | | | 5.2 | | | 14.4 | | | 19.5 | |
| Approach LOS | | B | | | A | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 106.1% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 63 | 889 | 27 | 24 | 1089 | 106 | 24 | 194 | 25 | 237 | 358 | 194 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.99 | | 1.00 | 1.00 | 0.95 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | | | 0.99 | | | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3510 | | | 3476 | | | 1815 | | 1770 | 1863 | 1504 |
| Flt Permitted | | 0.67 | | | 0.92 | | | 0.94 | | 0.59 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 2359 | | | 3196 | | | 1718 | | 1091 | 1863 | 1504 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 67 | 946 | 29 | 26 | 1159 | 113 | 26 | 206 | 27 | 252 | 381 | 206 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 12 | 0 | 0 | 7 | 0 | 0 | 0 | 18 |
| Lane Group Flow (vph) | 0 | 1039 | 0 | 0 | 1286 | 0 | 0 | 252 | 0 | 252 | 381 | 188 |
| Confl. Peds. (#/hr) | | | 15 | | | 21 | | | 46 | | | 24 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | 34 | | | 35 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | 8 | | 8 |
| Actuated Green, G (s) | | 27.0 | | | 27.0 | | | 23.0 | | 23.0 | 23.0 | 23.0 |
| Effective Green, g (s) | | 27.0 | | | 27.0 | | | 23.0 | | 23.0 | 23.0 | 23.0 |
| Actuated g/C Ratio | | 0.45 | | | 0.45 | | | 0.38 | | 0.38 | 0.38 | 0.38 |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Grp Cap (vph) | | 1062 | | | 1438 | | | 659 | | 418 | 714 | 577 |
| v/s Ratio Prot | | | | | | | | | | | 0.20 | |
| v/s Ratio Perm | | c0.44 | | | 0.40 | | | 0.15 | | c0.23 | | 0.13 |
| v/c Ratio | | 0.98 | | | 0.89 | | | 0.38 | | 0.60 | 0.53 | 0.33 |
| Uniform Delay, d1 | | 16.2 | | | 15.2 | | | 13.4 | | 14.8 | 14.3 | 13.0 |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | 0.83 | 0.83 | 0.86 |
| Incremental Delay, d2 | | 22.8 | | | 8.9 | | | 1.7 | | 4.6 | 2.1 | 1.1 |
| Delay (s) | | 39.0 | | | 24.1 | | | 15.1 | | 16.9 | 14.0 | 12.3 |
| Level of Service | | D | | | C | | | B | | B | B | B |
| Approach Delay (s) | | 39.0 | | | 24.1 | | | 15.1 | | | 14.5 | |
| Approach LOS | | D | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.6 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 116.7% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 15 | 276 | 62 | 100 | 853 | 46 | 44 | 384 | 47 | 47 | 457 | 31 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.91 | | 1.00 | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1858 | 1434 | | 3487 | | | 1819 | | 1770 | 1840 | |
| Flt Permitted | | 0.94 | 1.00 | | 0.88 | | | 0.76 | | 0.37 | 1.00 | |
| Satd. Flow (perm) | | 1743 | 1434 | | 3078 | | | 1396 | | 697 | 1840 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 16 | 294 | 66 | 106 | 907 | 49 | 47 | 409 | 50 | 50 | 486 | 33 |
| RTOR Reduction (vph) | 0 | 0 | 35 | 0 | 6 | 0 | 0 | 7 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 0 | 310 | 31 | 0 | 1056 | 0 | 0 | 499 | 0 | 50 | 515 | 0 |
| Confl. Peds. (#/hr) | | | 68 | | | 35 | | | 29 | | | 42 |
| Confl. Bikes (#/hr) | | | 4 | | | 6 | | | 2 | | | 3 |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | 0.38 | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 813 | 669 | | 1436 | | | 535 | | 267 | 705 | |
| v/s Ratio Prot | | | | | | | | | | | 0.28 | |
| v/s Ratio Perm | | 0.18 | 0.02 | | c0.34 | | | c0.36 | | 0.07 | | |
| v/c Ratio | | 0.38 | 0.05 | | 0.74 | | | 0.93 | | 0.19 | 0.73 | |
| Uniform Delay, d1 | | 10.4 | 8.7 | | 13.0 | | | 17.8 | | 12.3 | 15.8 | |
| Progression Factor | | 1.08 | 1.57 | | 0.24 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 1.3 | 0.1 | | 2.1 | | | 25.4 | | 1.5 | 6.6 | |
| Delay (s) | | 12.5 | 13.8 | | 5.2 | | | 43.2 | | 13.8 | 22.4 | |
| Level of Service | | B | B | | A | | | D | | B | C | |
| Approach Delay (s) | | 12.8 | | | 5.2 | | | 43.2 | | | 21.6 | |
| Approach LOS | | B | | | A | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 118.3% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 455 | 728 | 0 | 560 | 41 | 641 | 490 | 50 | 22 | 586 | 18 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | 1.00 | 1.00 | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.93 | | 0.99 | | 1.00 | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | 1.00 | 0.99 | | | 1.00 | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 1863 | 1474 | | 3480 | | 1770 | 1816 | | | 3508 | |
| Flt Permitted | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 0.61 | |
| Satd. Flow (perm) | | 1863 | 1474 | | 3480 | | 1770 | 1816 | | | 2156 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 0 | 484 | 774 | 0 | 596 | 44 | 682 | 521 | 53 | 23 | 623 | 19 |
| RTOR Reduction (vph) | 0 | 0 | 465 | 0 | 6 | 0 | 0 | 4 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 484 | 309 | 0 | 634 | 0 | 682 | 570 | 0 | 0 | 663 | 0 |
| Confl. Peds. (#/hr) | | | 64 | | | 50 | | | 68 | | | 57 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | 3 | | | 3 |
| Turn Type | | | custom | | | | Split | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | 8 | 8 | | | 4 | |
| Permitted Phases | | | 8 | | | | | | | 4 | | |
| Actuated Green, G (s) | | 30.0 | 30.0 | | 30.0 | | 30.0 | 30.0 | | | 17.0 | |
| Effective Green, g (s) | | 30.0 | 30.0 | | 30.0 | | 30.0 | 30.0 | | | 17.0 | |
| Actuated g/C Ratio | | 0.33 | 0.33 | | 0.33 | | 0.33 | 0.33 | | | 0.19 | |
| Clearance Time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Grp Cap (vph) | | 621 | 491 | | 1160 | | 590 | 605 | | | 407 | |
| v/s Ratio Prot | | c0.26 | | | 0.18 | | c0.39 | 0.31 | | | | |
| v/s Ratio Perm | | | 0.21 | | | | | | | | c0.31 | |
| v/c Ratio | | 0.78 | 0.63 | | 0.55 | | 1.16 | 0.94 | | | 1.63 | |
| Uniform Delay, d1 | | 27.0 | 25.3 | | 24.5 | | 30.0 | 29.2 | | | 36.5 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 9.4 | 6.0 | | 1.9 | | 88.2 | 24.8 | | | 293.6 | |
| Delay (s) | | 36.4 | 31.3 | | 26.3 | | 118.2 | 54.0 | | | 330.1 | |
| Level of Service | | D | C | | C | | F | D | | | F | |
| Approach Delay (s) | | 33.2 | | | 26.3 | | | 88.8 | | | 330.1 | |
| Approach LOS | | C | | | C | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 102.1 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.11 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 13.0 |
| Intersection Capacity Utilization | 88.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBR | EBR2 | WBT | WBR | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Volume (vph) | 1785 | 115 | 2754 | 5 | 767 | 38 | 333 | 947 | 310 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Lane Util. Factor | 0.76 | | 0.91 | | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | | 0.98 | | 1.00 | 0.98 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Frt | 0.85 | | 1.00 | | 0.99 | | 1.00 | 0.96 | |
| Flt Protected | 1.00 | | 1.00 | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3610 | | 5084 | | 3438 | | 1770 | 3334 | |
| Flt Permitted | 1.00 | | 1.00 | | 1.00 | | 0.34 | 1.00 | |
| Satd. Flow (perm) | 3610 | | 5084 | | 3438 | | 626 | 3334 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 1859 | 120 | 2869 | 5 | 799 | 40 | 347 | 986 | 323 |
| RTOR Reduction (vph) | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 1974 | 0 | 2874 | 0 | 839 | 0 | 347 | 1308 | 0 |
| Confl. Peds. (#/hr) | | 45 | | | | 186 | | | 89 |
| Confl. Bikes (#/hr) | | 4 | 94 | | | 1 | | | |
| Turn Type | custom | | | | | | custom | | |
| Protected Phases | 2 | | | | 8 | | | 4 | |
| Permitted Phases | | | 6 | | | | 7 | | |
| Actuated Green, G (s) | 48.0 | | 48.0 | | 19.0 | | 12.0 | 31.0 | |
| Effective Green, g (s) | 48.0 | | 48.0 | | 19.0 | | 12.0 | 31.0 | |
| Actuated g/C Ratio | 0.53 | | 0.53 | | 0.21 | | 0.13 | 0.34 | |
| Clearance Time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Vehicle Extension (s) | 0.2 | | 0.2 | | 0.2 | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1925 | | 2711 | | 726 | | 83 | 1148 | |
| v/s Ratio Prot | 0.55 | | | | 0.24 | | | c0.39 | |
| v/s Ratio Perm | | | c0.57 | | | | c0.55 | | |
| v/c Ratio | 1.03 | | 1.06 | | 1.16 | | 4.18 | 1.14 | |
| Uniform Delay, d1 | 21.0 | | 21.0 | | 35.5 | | 39.0 | 29.5 | |
| Progression Factor | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 27.3 | | 35.9 | | 85.2 | | 1459.3 | 73.8 | |
| Delay (s) | 48.3 | | 56.9 | | 120.7 | | 1498.3 | 103.3 | |
| Level of Service | D | | E | | F | | F | F | |
| Approach Delay (s) | | | 56.9 | | 120.7 | | | 395.6 | |
| Approach LOS | | | E | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 138.2 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.58 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 13.0 |
| Intersection Capacity Utilization | 105.4% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

# HCM Signalized Intersection Capacity Analysis
## 7: Geary Blvd & Parker Ave

12/2/2011

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1687 | 41 | 0 | 2445 | 51 | 63 | 127 | 65 | 73 | 284 | 65 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 1.00 | | | 0.97 | | | 0.98 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 5008 | | | 5015 | | | 1746 | | | 1782 | |
| Flt Permitted | | 1.00 | | | 1.00 | | | 0.72 | | | 0.87 | |
| Satd. Flow (perm) | | 5008 | | | 5015 | | | 1270 | | | 1562 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 0 | 1776 | 43 | 0 | 2574 | 54 | 66 | 134 | 68 | 77 | 299 | 68 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 10 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 1816 | 0 | 0 | 2626 | 0 | 0 | 258 | 0 | 0 | 443 | 0 |
| Confl. Peds. (#/hr) | | | 43 | | | 22 | | | 19 | | | 20 |
| Confl. Bikes (#/hr) | | | 7 | | | 7 | | | 2 | | | 3 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | | | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Actuated Green, G (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Effective Green, g (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Actuated g/C Ratio | | 0.59 | | | 0.59 | | | 0.31 | | | 0.31 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 2949 | | | 2953 | | | 395 | | | 486 | |
| v/s Ratio Prot | | 0.36 | | | c0.52 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.20 | | | c0.28 | |
| v/c Ratio | | 0.62 | | | 0.89 | | | 0.65 | | | 0.91 | |
| Uniform Delay, d1 | | 11.9 | | | 16.0 | | | 26.8 | | | 29.8 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 1.0 | | | 4.5 | | | 3.0 | | | 20.8 | |
| Delay (s) | | 12.9 | | | 20.4 | | | 29.8 | | | 50.6 | |
| Level of Service | | B | | | C | | | C | | | D | |
| Approach Delay (s) | | 12.9 | | | 20.4 | | | 29.8 | | | 50.6 | |
| Approach LOS | | B | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.90 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 83.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 27 | 295 | 104 | 48 | 961 | 94 | 65 | 155 | 41 | 54 | 244 | 63 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.92 | | 0.99 | | | 0.98 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | | 0.98 | | | 0.98 | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 1855 | 1454 | | 3461 | | | 1769 | | | 1781 | |
| Flt Permitted | | 0.82 | 1.00 | | 0.92 | | | 0.83 | | | 0.91 | |
| Satd. Flow (perm) | | 1526 | 1454 | | 3206 | | | 1495 | | | 1634 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 30 | 324 | 114 | 53 | 1056 | 103 | 71 | 170 | 45 | 59 | 268 | 69 |
| RTOR Reduction (vph) | 0 | 0 | 61 | 0 | 12 | 0 | 0 | 11 | 0 | 0 | 13 | 0 |
| Lane Group Flow (vph) | 0 | 354 | 53 | 0 | 1200 | 0 | 0 | 275 | 0 | 0 | 383 | 0 |
| Confl. Peds. (#/hr) | | | 56 | | | 60 | | | 70 | | | 84 |
| Confl. Bikes (#/hr) | | | 4 | | | 2 | | | 3 | | | 2 |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 712 | 679 | | 1496 | | | 573 | | | 626 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.23 | 0.04 | | c0.37 | | | 0.18 | | | c0.23 | |
| v/c Ratio | | 0.50 | 0.08 | | 0.80 | | | 0.48 | | | 0.61 | |
| Uniform Delay, d1 | | 11.1 | 8.9 | | 13.6 | | | 14.0 | | | 14.9 | |
| Progression Factor | | 1.33 | 2.74 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 2.4 | 0.2 | | 4.6 | | | 0.6 | | | 1.8 | |
| Delay (s) | | 17.1 | 24.4 | | 18.3 | | | 14.6 | | | 16.7 | |
| Level of Service | | B | C | | B | | | B | | | B | |
| Approach Delay (s) | | 18.9 | | | 18.3 | | | 14.6 | | | 16.7 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.72 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 89.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✥ | | | ✥ | | | ✥ | | | ✥ | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 0 | 1 | 0 | 88 | 0 | 91 | 2 | 168 | 97 | 123 | 284 | 0 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 0 | 1 | 0 | 100 | 0 | 103 | 2 | 191 | 110 | 140 | 323 | 0 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 1 | 203 | 303 | 463 |
| Volume Left (vph) | 0 | 100 | 2 | 140 |
| Volume Right (vph) | 0 | 103 | 110 | 0 |
| Hadj (s) | 0.02 | -0.19 | -0.20 | 0.08 |
| Departure Headway (s) | 6.3 | 5.6 | 4.9 | 5.0 |
| Degree Utilization, x | 0.00 | 0.31 | 0.42 | 0.64 |
| Capacity (veh/h) | 458 | 583 | 697 | 702 |
| Control Delay (s) | 9.3 | 11.1 | 11.4 | 16.4 |
| Approach Delay (s) | 9.3 | 11.1 | 11.4 | 16.4 |
| Approach LOS | A | B | B | C |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 13.7 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 68.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 185 | 159 | 0 | 476 | 184 | 30 | 109 | 944 | 250 | 0 | 1516 | 286 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 4.0 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.69 | 1.00 | 0.98 | | | 1.00 | 0.55 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1736 | 1827 | | 3367 | 1827 | 1070 | 1736 | 3286 | | | 3471 | 848 |
| Flt Permitted | 0.36 | 1.00 | | 0.36 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | 664 | 1827 | | 1289 | 1827 | 1070 | 1827 | 3286 | | | 3471 | 848 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 191 | 164 | 0 | 491 | 190 | 31 | 112 | 973 | 258 | 0 | 1563 | 295 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 27 | 0 | 0 | 0 | 187 |
| Lane Group Flow (vph) | 191 | 164 | 0 | 491 | 190 | 13 | 112 | 1204 | 0 | 0 | 1563 | 108 |
| Confl. Peds. (#/hr) | | | 87 | | | 210 | | | 64 | | | 108 |
| Confl. Bikes (#/hr) | | | 2 | | | 8 | | | 5 | | | 2 |
| Heavy Vehicles (%) | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% |
| Turn Type | custom | | | custom | | custom | custom | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | 5 | | | 1 | | 8 | 3 | | | 4 | | 4 |
| Actuated Green, G (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 38.0 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Effective Green, g (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 38.0 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Actuated g/C Ratio | 0.12 | 0.29 | | 0.12 | 0.29 | 0.42 | 0.03 | 0.42 | | | 0.37 | 0.37 |
| Clearance Time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 4.0 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 0.2 | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | | | 0.2 | 0.2 |
| Lane Grp Cap (vph) | 81 | 526 | | 158 | 526 | 452 | 61 | 1387 | | | 1273 | 311 |
| v/s Ratio Prot | | 0.09 | | | c0.10 | | | 0.37 | | | c0.45 | |
| v/s Ratio Perm | 0.29 | | | c0.38 | | 0.01 | c0.06 | | | | | 0.13 |
| v/c Ratio | 2.36 | 0.31 | | 3.11 | 0.36 | 0.03 | 1.84 | 0.87 | | | 1.23 | 0.35 |
| Uniform Delay, d1 | 39.5 | 25.1 | | 39.5 | 25.5 | 15.2 | 43.5 | 23.7 | | | 28.5 | 20.7 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 647.5 | 1.5 | | 964.9 | 1.9 | 0.0 | 432.6 | 5.8 | | | 109.6 | 0.2 |
| Delay (s) | 687.0 | 26.6 | | 1004.4 | 27.4 | 15.2 | 476.1 | 29.5 | | | 138.1 | 20.9 |
| Level of Service | F | C | | F | C | B | F | C | | | F | C |
| Approach Delay (s) | | 381.9 | | | 700.6 | | | 66.8 | | | 119.5 | |
| Approach LOS | | F | | | F | | | E | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 221.7 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.22 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 17.1 |
| Intersection Capacity Utilization | 126.5% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 82 | 242 | 54 | 235 | 846 | 85 | 0 | 1266 | 59 | 0 | 1928 | 160 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 0.95 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 0.99 | | | 0.99 | | | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1787 | 1817 | | 1787 | 3501 | | | 3535 | | | 3516 | |
| Flt Permitted | 0.13 | 1.00 | | 0.44 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 241 | 1817 | | 824 | 3501 | | | 3535 | | | 3516 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 85 | 252 | 56 | 245 | 881 | 89 | 0 | 1319 | 61 | 0 | 2008 | 167 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 8 | 0 | 0 | 4 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 85 | 305 | 0 | 245 | 962 | 0 | 0 | 1376 | 0 | 0 | 2168 | 0 |
| Confl. Peds. (#/hr) | | | 30 | | | 70 | | | 85 | | | 87 |
| Confl. Bikes (#/hr) | | | 4 | | | 5 | | | 7 | | | 10 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | 31.2 | 31.2 | | 31.2 | 31.2 | | | 49.2 | | | 49.2 | |
| Effective Green, g (s) | 31.2 | 31.2 | | 31.2 | 31.2 | | | 49.2 | | | 49.2 | |
| Actuated g/C Ratio | 0.35 | 0.35 | | 0.35 | 0.35 | | | 0.55 | | | 0.55 | |
| Clearance Time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 84 | 630 | | 286 | 1214 | | | 1932 | | | 1922 | |
| v/s Ratio Prot | | 0.17 | | | 0.27 | | | 0.39 | | | c0.62 | |
| v/s Ratio Perm | c0.35 | | | 0.30 | | | | | | | | |
| v/c Ratio | 1.01 | 0.48 | | 0.86 | 0.79 | | | 0.71 | | | 1.13 | |
| Uniform Delay, d1 | 29.4 | 23.1 | | 27.3 | 26.5 | | | 15.1 | | | 20.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.58 | | | 1.00 | |
| Incremental Delay, d2 | 101.5 | 0.6 | | 21.5 | 3.6 | | | 1.9 | | | 65.0 | |
| Delay (s) | 130.9 | 23.7 | | 48.8 | 30.1 | | | 25.7 | | | 85.4 | |
| Level of Service | F | C | | D | C | | | C | | | F | |
| Approach Delay (s) | | 46.9 | | | 33.9 | | | 25.7 | | | 85.4 | |
| Approach LOS | | D | | | C | | | C | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 54.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.09 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.6 |
| Intersection Capacity Utilization | 123.4% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 25 | 150 | 69 | 41 | 83 | 52 | 0 | 1264 | 56 | 0 | 2159 | 46 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.90 | | 0.98 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.96 | | | 0.99 | | | 1.00 | |
| Flt Protected | | 0.99 | 1.00 | | 0.99 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 1868 | 1435 | | 1754 | | | 3538 | | | 3558 | |
| Flt Permitted | | 0.95 | 1.00 | | 0.89 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 1780 | 1435 | | 1575 | | | 3538 | | | 3558 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 26 | 156 | 72 | 43 | 86 | 54 | 0 | 1317 | 58 | 0 | 2249 | 48 |
| RTOR Reduction (vph) | 0 | 0 | 6 | 0 | 17 | 0 | 0 | 4 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 182 | 66 | 0 | 166 | 0 | 0 | 1371 | 0 | 0 | 2295 | 0 |
| Confl. Peds. (#/hr) | | | 64 | | | 33 | | | 97 | | | 64 |
| Confl. Bikes (#/hr) | | | 8 | | | 4 | | | 3 | | | 11 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Turn Type | Perm | | Perm | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | | | | | | |
| Actuated Green, G (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Effective Green, g (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Actuated g/C Ratio | | 0.22 | 0.22 | | 0.22 | | | 0.67 | | | 0.67 | |
| Clearance Time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 400 | 322 | | 354 | | | 2378 | | | 2392 | |
| v/s Ratio Prot | | | | | | | | 0.39 | | | c0.65 | |
| v/s Ratio Perm | | 0.10 | 0.05 | | c0.11 | | | | | | | |
| v/c Ratio | | 0.46 | 0.20 | | 0.47 | | | 0.58 | | | 0.96 | |
| Uniform Delay, d1 | | 30.1 | 28.4 | | 30.2 | | | 7.9 | | | 13.6 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 0.78 | | | 0.54 | |
| Incremental Delay, d2 | | 0.8 | 0.3 | | 1.0 | | | 0.8 | | | 1.5 | |
| Delay (s) | | 31.0 | 28.7 | | 31.2 | | | 7.0 | | | 8.9 | |
| Level of Service | | C | C | | C | | | A | | | A | |
| Approach Delay (s) | | 30.3 | | | 31.2 | | | 7.0 | | | 8.9 | |
| Approach LOS | | C | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.3 |
| Intersection Capacity Utilization | 106.7% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 82 | 351 | 48 | 51 | 414 | 62 | 0 | 1195 | 75 | 0 | 2052 | 167 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | 0.98 | | | 0.97 | | | 0.98 | | | 0.98 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 0.99 | | | 0.98 | | | 0.99 | | | 0.99 | |
| Flt Protected | | 0.99 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 3395 | | | 3365 | | | 3444 | | | 3441 | |
| Flt Permitted | | 0.68 | | | 0.82 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 2316 | | | 2772 | | | 3444 | | | 3441 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 85 | 366 | 50 | 53 | 431 | 65 | 0 | 1245 | 78 | 0 | 2138 | 174 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 11 | 0 | 0 | 5 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 0 | 497 | 0 | 0 | 538 | 0 | 0 | 1318 | 0 | 0 | 2305 | 0 |
| Confl. Peds. (#/hr) | | | 126 | | | 164 | | | 168 | | | 118 |
| Confl. Bikes (#/hr) | | | 3 | | | 2 | | | 2 | | | 3 |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 26.2 | | | 26.2 | | | 54.7 | | | 54.7 | |
| Effective Green, g (s) | | 26.2 | | | 26.2 | | | 54.7 | | | 54.7 | |
| Actuated g/C Ratio | | 0.29 | | | 0.29 | | | 0.61 | | | 0.61 | |
| Clearance Time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 674 | | | 807 | | | 2093 | | | 2091 | |
| v/s Ratio Prot | | | | | | | | 0.38 | | | c0.67 | |
| v/s Ratio Perm | | c0.21 | | | 0.19 | | | | | | | |
| v/c Ratio | | 0.74 | | | 0.67 | | | 0.63 | | | 1.10 | |
| Uniform Delay, d1 | | 28.8 | | | 28.1 | | | 11.2 | | | 17.6 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 0.35 | |
| Incremental Delay, d2 | | 7.1 | | | 4.3 | | | 1.4 | | | 49.3 | |
| Delay (s) | | 35.9 | | | 32.4 | | | 12.7 | | | 55.5 | |
| Level of Service | | D | | | C | | | B | | | E | |
| Approach Delay (s) | | 35.9 | | | 32.4 | | | 12.7 | | | 55.5 | |
| Approach LOS | | D | | | C | | | B | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 38.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.98 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.1 |
| Intersection Capacity Utilization | 107.4% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 264 | 2351 | 173 | 0 | 1096 | 0 | 0 | 1133 | 853 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | |
| Lane Util. Factor | | | | 1.00 | 0.86 | | | 0.91 | | | 0.91 | |
| Frpb, ped/bikes | | | | 1.00 | 1.00 | | | 1.00 | | | 0.96 | |
| Flpb, ped/bikes | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | | | 1.00 | 0.99 | | | 1.00 | | | 0.94 | |
| Flt Protected | | | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | 1770 | 6323 | | | 5085 | | | 4571 | |
| Flt Permitted | | | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | 1770 | 6323 | | | 5085 | | | 4571 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 0 | 0 | 272 | 2424 | 178 | 0 | 1130 | 0 | 0 | 1168 | 879 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 272 | 2599 | 0 | 0 | 1130 | 0 | 0 | 2046 | 0 |
| Confl. Peds. (#/hr) | | | 418 | | | 28 | | | 67 | | | 75 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | 1 | | | |
| Turn Type | | | | Prot | | | | | | | | |
| Protected Phases | | | | 1 | 6 | | | 4 | | | 4 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | | | | 48.7 | 48.7 | | | 31.4 | | | 31.4 | |
| Effective Green, g (s) | | | | 48.7 | 48.7 | | | 31.4 | | | 31.4 | |
| Actuated g/C Ratio | | | | 0.54 | 0.54 | | | 0.35 | | | 0.35 | |
| Clearance Time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | |
| Vehicle Extension (s) | | | | 0.2 | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | | | 958 | 3421 | | | 1774 | | | 1595 | |
| v/s Ratio Prot | | | | 0.15 | c0.41 | | | 0.22 | | | c0.45 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | | | 0.28 | 0.76 | | | 0.64 | | | 1.62dr | |
| Uniform Delay, d1 | | | | 11.2 | 16.1 | | | 24.5 | | | 29.3 | |
| Progression Factor | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | | | 0.7 | 1.6 | | | 1.8 | | | 132.1 | |
| Delay (s) | | | | 11.9 | 17.7 | | | 26.3 | | | 161.4 | |
| Level of Service | | | | B | B | | | C | | | F | |
| Approach Delay (s) | | 0.0 | | | 17.2 | | | 26.3 | | | 161.4 | |
| Approach LOS | | A | | | B | | | C | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 67.7 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.96 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.9 |
| Intersection Capacity Utilization | 88.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 332 | 19 | 13 | 1039 | 21 | 11 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | | 4.0 | 5.0 | |
| Lane Util. Factor | 1.00 | | | 0.95 | 1.00 | |
| Frpb, ped/bikes | 1.00 | | | 1.00 | 0.92 | |
| Flpb, ped/bikes | 1.00 | | | 1.00 | 1.00 | |
| Frt | 0.99 | | | 1.00 | 0.95 | |
| Flt Protected | 1.00 | | | 1.00 | 0.97 | |
| Satd. Flow (prot) | 1845 | | | 3537 | 1584 | |
| Flt Permitted | 1.00 | | | 0.95 | 0.97 | |
| Satd. Flow (perm) | 1845 | | | 3364 | 1584 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 346 | 20 | 14 | 1082 | 22 | 11 |
| RTOR Reduction (vph) | 2 | 0 | 0 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 364 | 0 | 0 | 1096 | 23 | 0 |
| Confl. Peds. (#/hr) | | 26 | | | | 30 |
| Confl. Bikes (#/hr) | | 1 | | | | |
| Turn Type | | | Perm | | | |
| Protected Phases | 2 | | | 6 | 8 | |
| Permitted Phases | | | 6 | | | |
| Actuated Green, G (s) | 47.0 | | | 47.0 | 4.0 | |
| Effective Green, g (s) | 47.0 | | | 47.0 | 4.0 | |
| Actuated g/C Ratio | 0.78 | | | 0.78 | 0.07 | |
| Clearance Time (s) | 4.0 | | | 4.0 | 5.0 | |
| Vehicle Extension (s) | 0.2 | | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1445 | | | 2635 | 106 | |
| v/s Ratio Prot | 0.20 | | | | c0.01 | |
| v/s Ratio Perm | | | | c0.33 | | |
| v/c Ratio | 0.25 | | | 0.42 | 0.21 | |
| Uniform Delay, d1 | 1.8 | | | 2.1 | 26.5 | |
| Progression Factor | 1.00 | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.4 | | | 0.5 | 0.4 | |
| Delay (s) | 2.2 | | | 2.6 | 26.9 | |
| Level of Service | A | | | A | C | |
| Approach Delay (s) | 2.2 | | | 2.6 | 26.9 | |
| Approach LOS | A | | | A | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 3.0 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.40 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 62.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 4 | 373 | 17 | 16 | 1081 | 1 | 8 | 1 | 7 | 2 | 2 | 5 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 2.0 | |
| Lane Util. Factor | | 1.00 | | | 0.95 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.97 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 0.99 | | | 1.00 | | | 0.94 | | | 0.93 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.98 | | | 0.99 | |
| Satd. Flow (prot) | | 1847 | | | 3536 | | | 1660 | | | 1679 | |
| Flt Permitted | | 0.99 | | | 0.95 | | | 0.92 | | | 0.98 | |
| Satd. Flow (perm) | | 1831 | | | 3354 | | | 1568 | | | 1672 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 4 | 401 | 18 | 17 | 1162 | 1 | 9 | 1 | 8 | 2 | 2 | 5 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 0 | 420 | 0 | 0 | 1180 | 0 | 0 | 13 | 0 | 0 | 6 | 0 |
| Confl. Peds. (#/hr) | | | 32 | | | 73 | | | 30 | | | 17 |
| Confl. Bikes (#/hr) | | | 6 | | | 5 | | | | | | |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 31.0 | | | 31.0 | | | 20.0 | | | 23.0 | |
| Effective Green, g (s) | | 31.0 | | | 31.0 | | | 20.0 | | | 23.0 | |
| Actuated g/C Ratio | | 0.52 | | | 0.52 | | | 0.33 | | | 0.38 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 2.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 946 | | | 1733 | | | 523 | | | 641 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.23 | | | c0.35 | | | c0.01 | | | 0.00 | |
| v/c Ratio | | 0.44 | | | 0.68 | | | 0.02 | | | 0.01 | |
| Uniform Delay, d1 | | 9.1 | | | 10.8 | | | 13.4 | | | 11.4 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 1.5 | | | 2.2 | | | 0.0 | | | 0.0 | |
| Delay (s) | | 10.6 | | | 13.0 | | | 13.5 | | | 11.5 | |
| Level of Service | | B | | | B | | | B | | | B | |
| Approach Delay (s) | | 10.6 | | | 13.0 | | | 13.5 | | | 11.5 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 12.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.42 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 62.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 2661 | 68 | 0 | 1278 | 98 | 39 | 471 | 104 | 142 | 330 | 59 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | 1.00 | 1.00 | 0.77 | 1.00 | 1.00 | 0.94 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | | | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 4909 | | | 4836 | | 1719 | 1810 | 1186 | 1719 | 1810 | 1439 |
| Flt Permitted | | 1.00 | | | 1.00 | | 0.40 | 1.00 | 1.00 | 0.21 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 4909 | | | 4836 | | 717 | 1810 | 1186 | 377 | 1810 | 1439 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 2743 | 70 | 0 | 1318 | 101 | 40 | 486 | 107 | 146 | 340 | 61 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 10 | 0 | 0 | 0 | 1 | 0 | 0 | 22 |
| Lane Group Flow (vph) | 0 | 2810 | 0 | 0 | 1409 | 0 | 40 | 486 | 106 | 146 | 340 | 39 |
| Confl. Peds. (#/hr) | | | 74 | | | 61 | | | 221 | | | 35 |
| Confl. Bikes (#/hr) | | | 2 | | | 8 | | | 34 | | | 32 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | | | | | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 2 | | | 2 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Effective Green, g (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Actuated g/C Ratio | | 0.55 | | | 0.55 | | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 |
| Clearance Time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 2722 | | | 2681 | | 233 | 589 | 386 | 123 | 589 | 468 |
| v/s Ratio Prot | | c0.57 | | | 0.29 | | | 0.27 | | | 0.19 | |
| v/s Ratio Perm | | | | | | | 0.06 | | 0.09 | c0.39 | | 0.03 |
| v/c Ratio | | 1.03 | | | 0.53 | | 0.17 | 0.83 | 0.28 | 1.19 | 0.58 | 0.08 |
| Uniform Delay, d1 | | 20.1 | | | 12.6 | | 21.7 | 28.0 | 22.5 | 30.4 | 25.2 | 21.0 |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 26.2 | | | 0.7 | | 1.6 | 12.4 | 1.8 | 140.0 | 4.1 | 0.3 |
| Delay (s) | | 46.3 | | | 13.3 | | 23.3 | 40.4 | 24.2 | 170.3 | 29.3 | 21.4 |
| Level of Service | | D | | | B | | C | D | C | F | C | C |
| Approach Delay (s) | | 46.3 | | | 13.3 | | | 36.6 | | | 66.1 | |
| Approach LOS | | D | | | B | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 38.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.09 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 10.8 |
| Intersection Capacity Utilization | 110.8% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 56 | 610 | 30 | 87 | 345 | 79 | 22 | 579 | 153 | 100 | 319 | 18 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.88 | 1.00 | 1.00 | 0.95 |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.99 | | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3454 | | 1752 | 3375 | | 1752 | 1845 | 1372 | 1752 | 1845 | 1484 |
| Flt Permitted | | 0.88 | | 0.28 | 1.00 | | 0.47 | 1.00 | 1.00 | 0.19 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 3048 | | 518 | 3375 | | 870 | 1845 | 1372 | 358 | 1845 | 1484 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 62 | 670 | 33 | 96 | 379 | 87 | 24 | 636 | 168 | 110 | 351 | 20 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 33 | 0 | 0 | 0 | 50 | 0 | 0 | 11 |
| Lane Group Flow (vph) | 0 | 760 | 0 | 96 | 433 | 0 | 24 | 636 | 118 | 110 | 351 | 9 |
| Confl. Peds. (#/hr) | | | 58 | | | 24 | | | 64 | | | 32 |
| Confl. Bikes (#/hr) | | | 4 | | | 1 | | | 41 | | | 40 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | Perm | | | Perm | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Effective Green, g (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Actuated g/C Ratio | | 0.42 | | 0.42 | 0.42 | | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 |
| Clearance Time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | | 0.2 | | 0.2 | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 1270 | | 216 | 1406 | | 377 | 800 | 595 | 155 | 800 | 643 |
| v/s Ratio Prot | | | | | 0.13 | | | c0.34 | | | 0.19 | |
| v/s Ratio Perm | | c0.25 | | 0.19 | | | 0.03 | | 0.09 | 0.31 | | 0.01 |
| v/c Ratio | | 0.60 | | 0.44 | 0.31 | | 0.06 | 0.80 | 0.20 | 0.71 | 0.44 | 0.01 |
| Uniform Delay, d1 | | 13.6 | | 12.5 | 11.7 | | 9.9 | 14.7 | 10.5 | 13.9 | 11.9 | 9.7 |
| Progression Factor | | 1.00 | | 0.92 | 0.84 | | 1.23 | 0.99 | 1.30 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 2.1 | | 5.3 | 0.5 | | 0.2 | 5.1 | 0.5 | 24.0 | 1.7 | 0.0 |
| Delay (s) | | 15.7 | | 16.9 | 10.2 | | 12.3 | 19.7 | 14.2 | 37.9 | 13.6 | 9.7 |
| Level of Service | | B | | B | B | | B | B | B | D | B | A |
| Approach Delay (s) | | 15.7 | | | 11.4 | | | 18.4 | | | 19.0 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.70 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 108.8% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 116 | 1355 | 13 | 7 | 881 | 108 | 13 | 464 | 48 | 198 | 185 | 85 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 0.99 | | | 0.99 | | 1.00 | 1.00 | 0.94 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | | | 0.98 | | | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3520 | | | 3462 | | | 1826 | | 1770 | 1863 | 1495 |
| Flt Permitted | | 0.68 | | | 0.92 | | | 0.99 | | 0.31 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 2399 | | | 3201 | | | 1812 | | 570 | 1863 | 1495 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 120 | 1397 | 13 | 7 | 908 | 111 | 13 | 478 | 49 | 204 | 191 | 88 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 16 | 0 | 0 | 6 | 0 | 0 | 0 | 49 |
| Lane Group Flow (vph) | 0 | 1529 | 0 | 0 | 1011 | 0 | 0 | 534 | 0 | 204 | 191 | 39 |
| Confl. Peds. (#/hr) | | | 18 | | | 29 | | | 50 | | | 28 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | 32 | | | 33 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | 8 | | 8 |
| Actuated Green, G (s) | | 29.0 | | | 29.0 | | | 21.0 | | 21.0 | 21.0 | 21.0 |
| Effective Green, g (s) | | 29.0 | | | 29.0 | | | 21.0 | | 21.0 | 21.0 | 21.0 |
| Actuated g/C Ratio | | 0.48 | | | 0.48 | | | 0.35 | | 0.35 | 0.35 | 0.35 |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Grp Cap (vph) | | 1160 | | | 1547 | | | 634 | | 200 | 652 | 523 |
| v/s Ratio Prot | | | | | | | | | | | 0.10 | |
| v/s Ratio Perm | | c0.64 | | | 0.32 | | | 0.29 | | c0.36 | | 0.03 |
| v/c Ratio | | 1.32 | | | 0.65 | | | 0.84 | | 1.02 | 0.29 | 0.07 |
| Uniform Delay, d1 | | 15.5 | | | 11.7 | | | 18.0 | | 19.5 | 14.1 | 13.0 |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | 1.19 | 1.18 | 1.98 |
| Incremental Delay, d2 | | 149.3 | | | 2.2 | | | 12.9 | | 66.0 | 1.0 | 0.2 |
| Delay (s) | | 164.8 | | | 13.9 | | | 30.8 | | 89.1 | 17.7 | 25.9 |
| Level of Service | | F | | | B | | | C | | F | B | C |
| Approach Delay (s) | | 164.8 | | | 13.9 | | | 30.8 | | | 49.4 | |
| Approach LOS | | F | | | B | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 85.7 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.19 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 132.1% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 30 | 510 | 48 | 75 | 465 | 47 | 43 | 430 | 91 | 61 | 357 | 27 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.92 | | 0.99 | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | | 0.98 | | 1.00 | 0.99 | |
| Flt Protected | | 1.00 | 1.00 | | 0.99 | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1840 | 1445 | | 3424 | | | 1784 | | 1752 | 1820 | |
| Flt Permitted | | 0.95 | 1.00 | | 0.73 | | | 0.92 | | 0.30 | 1.00 | |
| Satd. Flow (perm) | | 1749 | 1445 | | 2525 | | | 1640 | | 549 | 1820 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 33 | 567 | 53 | 83 | 517 | 52 | 48 | 478 | 101 | 68 | 397 | 30 |
| RTOR Reduction (vph) | 0 | 0 | 27 | 0 | 11 | 0 | 0 | 12 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 0 | 600 | 26 | 0 | 641 | 0 | 0 | 615 | 0 | 68 | 423 | 0 |
| Confl. Peds. (#/hr) | | | 53 | | | 41 | | | 19 | | | 31 |
| Confl. Bikes (#/hr) | | | 4 | | | 1 | | | 3 | | | 2 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | 0.38 | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 816 | 674 | | 1178 | | | 629 | | 210 | 698 | |
| v/s Ratio Prot | | | | | | | | | | | 0.23 | |
| v/s Ratio Perm | | c0.34 | 0.02 | | 0.25 | | | c0.38 | | 0.12 | | |
| v/c Ratio | | 0.74 | 0.04 | | 0.54 | | | 0.98 | | 0.32 | 0.61 | |
| Uniform Delay, d1 | | 13.0 | 8.7 | | 11.4 | | | 18.3 | | 13.0 | 14.9 | |
| Progression Factor | | 0.72 | 0.31 | | 1.77 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 5.0 | 0.1 | | 1.1 | | | 30.9 | | 4.1 | 3.9 | |
| Delay (s) | | 14.3 | 2.8 | | 21.4 | | | 49.2 | | 17.1 | 18.7 | |
| Level of Service | | B | A | | C | | | D | | B | B | |
| Approach Delay (s) | | 13.4 | | | 21.4 | | | 49.2 | | | 18.5 | |
| Approach LOS | | B | | | C | | | D | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 118.3% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 744 | 790 | 0 | 386 | 26 | 602 | 521 | 72 | 49 | 408 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | 1.00 | 1.00 | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.93 | | 1.00 | | 1.00 | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | 1.00 | 0.98 | | | 1.00 | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 0.99 | |
| Satd. Flow (prot) | | 1845 | 1452 | | 3454 | | 1752 | 1792 | | | 3470 | |
| Flt Permitted | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 0.54 | |
| Satd. Flow (perm) | | 1845 | 1452 | | 3454 | | 1752 | 1792 | | | 1873 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 0 | 775 | 823 | 0 | 402 | 27 | 627 | 543 | 75 | 51 | 425 | 10 |
| RTOR Reduction (vph) | 0 | 0 | 467 | 0 | 6 | 0 | 0 | 6 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 775 | 356 | 0 | 423 | 0 | 627 | 612 | 0 | 0 | 484 | 0 |
| Confl. Peds. (#/hr) | | | 60 | | | 45 | | | 37 | | | 39 |
| Confl. Bikes (#/hr) | | | 1 | | | 1 | | | 2 | | | 3 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | custom | | | | Split | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | 8 | 8 | | | 4 | |
| Permitted Phases | | | 8 | | | | | | | 4 | | |
| Actuated Green, G (s) | | 34.0 | 26.0 | | 34.0 | | 26.0 | 26.0 | | | 17.0 | |
| Effective Green, g (s) | | 34.0 | 26.0 | | 34.0 | | 26.0 | 26.0 | | | 17.0 | |
| Actuated g/C Ratio | | 0.38 | 0.29 | | 0.38 | | 0.29 | 0.29 | | | 0.19 | |
| Clearance Time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Grp Cap (vph) | | 697 | 419 | | 1305 | | 506 | 518 | | | 354 | |
| v/s Ratio Prot | | c0.42 | | | 0.12 | | c0.36 | 0.34 | | | | |
| v/s Ratio Perm | | | 0.24 | | | | | | | | c0.26 | |
| v/c Ratio | | 1.11 | 0.85 | | 0.32 | | 1.24 | 1.18 | | | 1.37 | |
| Uniform Delay, d1 | | 28.0 | 30.2 | | 19.9 | | 32.0 | 32.0 | | | 36.5 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 69.1 | 18.9 | | 0.7 | | 123.7 | 100.4 | | | 182.9 | |
| Delay (s) | | 97.1 | 49.1 | | 20.5 | | 155.7 | 132.4 | | | 219.4 | |
| Level of Service | | F | D | | C | | F | F | | | F | |
| Approach Delay (s) | | 72.3 | | | 20.5 | | | 144.1 | | | 219.4 | |
| Approach LOS | | E | | | C | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 109.2 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.21 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 13.0 |
| Intersection Capacity Utilization | 97.5% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBR | EBR2 | WBT | WBR | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Volume (vph) | 2830 | 47 | 1632 | 3 | 1018 | 25 | 382 | 892 | 139 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Lane Util. Factor | 0.76 | | 0.91 | | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Frt | 0.85 | | 1.00 | | 1.00 | | 1.00 | 0.98 | |
| Flt Protected | 1.00 | | 1.00 | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3610 | | 5084 | | 3512 | | 1770 | 3431 | |
| Flt Permitted | 1.00 | | 1.00 | | 1.00 | | 0.33 | 1.00 | |
| Satd. Flow (perm) | 3610 | | 5084 | | 3512 | | 621 | 3431 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 2918 | 48 | 1682 | 3 | 1049 | 26 | 394 | 920 | 143 |
| RTOR Reduction (vph) | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 2965 | 0 | 1685 | 0 | 1075 | 0 | 394 | 1055 | 0 |
| Confl. Peds. (#/hr) | | 38 | | | | 68 | | | 82 |
| Confl. Bikes (#/hr) | | 90 | | | | 2 | | | 4 |
| Turn Type | custom | | | | | | custom | | |
| Protected Phases | 2 | | | | 8 | | | 4 | |
| Permitted Phases | | | 6 | | | | 7 | | |
| Actuated Green, G (s) | 46.0 | | 46.0 | | 21.0 | | 12.0 | 33.0 | |
| Effective Green, g (s) | 46.0 | | 46.0 | | 21.0 | | 12.0 | 33.0 | |
| Actuated g/C Ratio | 0.51 | | 0.51 | | 0.23 | | 0.13 | 0.37 | |
| Clearance Time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Vehicle Extension (s) | 0.2 | | 0.2 | | 0.2 | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1845 | | 2598 | | 819 | | 83 | 1258 | |
| v/s Ratio Prot | c0.82 | | | | c0.31 | | | 0.31 | |
| v/s Ratio Perm | | | 0.33 | | | | c0.63 | | |
| v/c Ratio | 1.61 | | 0.65 | | 1.31 | | 4.75 | 0.84 | |
| Uniform Delay, d1 | 22.0 | | 16.1 | | 34.5 | | 39.0 | 26.1 | |
| Progression Factor | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 275.6 | | 1.3 | | 149.4 | | 1713.2 | 4.8 | |
| Delay (s) | 297.6 | | 17.4 | | 183.9 | | 1752.2 | 30.9 | |
| Level of Service | F | | B | | F | | F | C | |
| Approach Delay (s) | | | 17.4 | | 183.9 | | | 496.4 | |
| Approach LOS | | | B | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 255.2 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.98 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 128.1% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 2780 | 39 | 0 | 1254 | 55 | 55 | 204 | 59 | 108 | 168 | 35 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 0.99 | | | 0.98 | | | 0.98 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.99 | | | 0.98 | |
| Satd. Flow (prot) | | 4925 | | | 4895 | | | 1736 | | | 1745 | |
| Flt Permitted | | 1.00 | | | 1.00 | | | 0.88 | | | 0.66 | |
| Satd. Flow (perm) | | 4925 | | | 4895 | | | 1535 | | | 1171 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 0 | 2896 | 41 | 0 | 1306 | 57 | 57 | 212 | 61 | 112 | 175 | 36 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 0 | 2935 | 0 | 0 | 1358 | 0 | 0 | 329 | 0 | 0 | 318 | 0 |
| Confl. Peds. (#/hr) | | | 28 | | | 36 | | | 28 | | | 23 |
| Confl. Bikes (#/hr) | | | 4 | | | 1 | | | 2 | | | 3 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | | | | | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Actuated Green, G (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Effective Green, g (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Actuated g/C Ratio | | 0.59 | | | 0.59 | | | 0.31 | | | 0.31 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 2900 | | | 2883 | | | 478 | | | 364 | |
| v/s Ratio Prot | | c0.60 | | | 0.28 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.21 | | | c0.27 | |
| v/c Ratio | | 1.01 | | | 0.47 | | | 0.69 | | | 0.87 | |
| Uniform Delay, d1 | | 18.5 | | | 10.5 | | | 27.2 | | | 29.3 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 19.8 | | | 0.6 | | | 3.3 | | | 19.6 | |
| Delay (s) | | 38.3 | | | 11.1 | | | 30.5 | | | 48.9 | |
| Level of Service | | D | | | B | | | C | | | D | |
| Approach Delay (s) | | 38.3 | | | 11.1 | | | 30.5 | | | 48.9 | |
| Approach LOS | | D | | | B | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.96 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 93.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 75 | 642 | 123 | 67 | 562 | 90 | 55 | 195 | 36 | 61 | 170 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.95 | | 0.99 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.98 | | | 0.98 | | | 0.98 | |
| Flt Protected | | 0.99 | 1.00 | | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 1817 | 1477 | | 3369 | | | 1770 | | | 1758 | |
| Flt Permitted | | 0.84 | 1.00 | | 0.63 | | | 0.89 | | | 0.87 | |
| Satd. Flow (perm) | | 1541 | 1477 | | 2124 | | | 1591 | | | 1551 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 84 | 721 | 138 | 75 | 631 | 101 | 62 | 219 | 40 | 69 | 191 | 45 |
| RTOR Reduction (vph) | 0 | 0 | 51 | 0 | 19 | 0 | 0 | 9 | 0 | 0 | 10 | 0 |
| Lane Group Flow (vph) | 0 | 805 | 87 | 0 | 788 | 0 | 0 | 312 | 0 | 0 | 295 | 0 |
| Confl. Peds. (#/hr) | | | 21 | | | 29 | | | 16 | | | 47 |
| Confl. Bikes (#/hr) | | | 9 | | | 1 | | | 1 | | | |
| Heavy Vehicles (%) | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 719 | 689 | | 991 | | | 610 | | | 595 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.52 | 0.06 | | 0.37 | | | c0.20 | | | 0.19 | |
| v/c Ratio | | 1.12 | 0.13 | | 0.80 | | | 0.51 | | | 0.49 | |
| Uniform Delay, d1 | | 16.0 | 9.1 | | 13.6 | | | 14.2 | | | 14.1 | |
| Progression Factor | | 0.67 | 0.31 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 69.0 | 0.3 | | 6.6 | | | 0.7 | | | 0.7 | |
| Delay (s) | | 79.6 | 3.1 | | 20.2 | | | 14.9 | | | 14.7 | |
| Level of Service | | E | A | | C | | | B | | | B | |
| Approach Delay (s) | | 68.4 | | | 20.2 | | | 14.9 | | | 14.7 | |
| Approach LOS | | E | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 93.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 0 | 0 | 0 | 51 | 0 | 87 | 1 | 210 | 167 | 163 | 210 | 0 |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 64 | 0 | 109 | 1 | 262 | 209 | 204 | 262 | 0 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 0 | 173 | 473 | 466 |
| Volume Left (vph) | 0 | 64 | 1 | 204 |
| Volume Right (vph) | 0 | 109 | 209 | 0 |
| Hadj (s) | 0.00 | -0.27 | -0.23 | 0.12 |
| Departure Headway (s) | 6.6 | 5.9 | 4.8 | 5.2 |
| Degree Utilization, x | 0.00 | 0.28 | 0.64 | 0.67 |
| Capacity (veh/h) | 450 | 544 | 716 | 678 |
| Control Delay (s) | 9.6 | 11.1 | 15.9 | 18.0 |
| Approach Delay (s) | 0.0 | 11.1 | 15.9 | 18.0 |
| Approach LOS | A | B | C | C |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 16.1 | | |
| HCM Level of Service | C | | |
| Intersection Capacity Utilization | 66.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 246 | 259 | 1 | 200 | 93 | 23 | 100 | 1747 | 577 | 1 | 987 | 194 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 5.1 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.91 | 1.00 | 0.97 | | | 1.00 | 0.77 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1719 | 1808 | | 3335 | 1810 | 1395 | 1719 | 3198 | | | 3438 | 1178 |
| Flt Permitted | 0.36 | 1.00 | | 0.36 | 1.00 | 1.00 | 0.95 | 1.00 | | | 0.86 | 1.00 |
| Satd. Flow (perm) | 658 | 1808 | | 1277 | 1810 | 1395 | 1719 | 3198 | | | 2971 | 1178 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 262 | 276 | 1 | 213 | 99 | 24 | 106 | 1859 | 614 | 1 | 1050 | 206 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 36 | 0 | 0 | 0 | 130 |
| Lane Group Flow (vph) | 262 | 277 | 0 | 213 | 99 | 13 | 106 | 2437 | 0 | 0 | 1051 | 76 |
| Confl. Peds. (#/hr) | | | 63 | | | 72 | | | 84 | | | 53 |
| Confl. Bikes (#/hr) | | | 1 | | | 2 | | | 2 | | | 2 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | custom | | | custom | | Perm | Prot | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | 3 | 8 | | | 4 | |
| Permitted Phases | 5 | | | 1 | | 6 | | | | 4 | | 4 |
| Actuated Green, G (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 25.9 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Effective Green, g (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 25.9 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Actuated g/C Ratio | 0.12 | 0.29 | | 0.12 | 0.29 | 0.29 | 0.03 | 0.42 | | | 0.37 | 0.37 |
| Clearance Time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 5.1 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 80 | 520 | | 156 | 521 | 401 | 57 | 1350 | | | 1089 | 432 |
| v/s Ratio Prot | | c0.15 | | | 0.05 | | 0.06 | c0.76 | | | | |
| v/s Ratio Perm | c0.40 | | | 0.17 | | 0.01 | | | | | 0.35 | 0.06 |
| v/c Ratio | 3.27 | 0.53 | | 1.37 | 0.19 | 0.03 | 1.86 | 1.81 | | | 0.97 | 0.17 |
| Uniform Delay, d1 | 39.5 | 27.0 | | 39.5 | 24.1 | 23.0 | 43.5 | 26.0 | | | 27.9 | 19.3 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 1055.2 | 3.9 | | 199.9 | 0.8 | 0.1 | 446.1 | 365.4 | | | 19.2 | 0.2 |
| Delay (s) | 1094.7 | 30.8 | | 239.4 | 25.0 | 23.2 | 489.6 | 391.4 | | | 47.2 | 19.5 |
| Level of Service | F | C | | F | C | C | F | F | | | D | B |
| Approach Delay (s) | | 548.0 | | | 160.8 | | | 395.4 | | | 42.6 | |
| Approach LOS | | F | | | F | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 302.0 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.58 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 15.1 |
| Intersection Capacity Utilization | 129.3% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 140 | 536 | 64 | 121 | 660 | 117 | 0 | 2252 | 128 | 0 | 1073 | 142 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 0.95 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 0.99 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.98 | | | 0.99 | | | 0.98 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1770 | 1826 | | 1770 | 3421 | | | 3494 | | | 3459 | |
| Flt Permitted | 0.15 | 1.00 | | 0.15 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 274 | 1826 | | 274 | 3421 | | | 3494 | | | 3459 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 151 | 576 | 69 | 130 | 710 | 126 | 0 | 2422 | 138 | 0 | 1154 | 153 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 151 | 640 | 0 | 130 | 835 | 0 | 0 | 2556 | 0 | 0 | 1296 | 0 |
| Confl. Peds. (#/hr) | | | 24 | | | 61 | | | 78 | | | 61 |
| Confl. Bikes (#/hr) | | | 2 | | | 2 | | | 5 | | | 5 |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | 27.2 | 27.2 | | 27.2 | 27.2 | | | 53.2 | | | 53.2 | |
| Effective Green, g (s) | 27.2 | 27.2 | | 27.2 | 27.2 | | | 53.2 | | | 53.2 | |
| Actuated g/C Ratio | 0.30 | 0.30 | | 0.30 | 0.30 | | | 0.59 | | | 0.59 | |
| Clearance Time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 83 | 552 | | 83 | 1034 | | | 2065 | | | 2045 | |
| v/s Ratio Prot | | 0.35 | | | 0.24 | | | c0.73 | | | 0.37 | |
| v/s Ratio Perm | c0.55 | | | 0.47 | | | | | | | | |
| v/c Ratio | 1.82 | 1.16 | | 1.57 | 0.81 | | | 1.24 | | | 0.63 | |
| Uniform Delay, d1 | 31.4 | 31.4 | | 31.4 | 29.0 | | | 18.4 | | | 12.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.46 | | | 1.00 | |
| Incremental Delay, d2 | 411.8 | 90.6 | | 304.9 | 4.7 | | | 107.3 | | | 1.5 | |
| Delay (s) | 443.2 | 122.0 | | 336.3 | 33.7 | | | 115.7 | | | 13.5 | |
| Level of Service | F | F | | F | C | | | F | | | B | |
| Approach Delay (s) | | 182.9 | | | 74.4 | | | 115.7 | | | 13.5 | |
| Approach LOS | | F | | | E | | | F | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 94.4 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.44 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.6 |
| Intersection Capacity Utilization | 133.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 14 | 200 | 42 | 56 | 112 | 114 | 0 | 2238 | 125 | 0 | 1168 | 88 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.93 | | 0.96 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.95 | | | 0.99 | | | 0.99 | |
| Flt Protected | | 1.00 | 1.00 | | 0.99 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 1857 | 1467 | | 1674 | | | 3497 | | | 3489 | |
| Flt Permitted | | 0.96 | 1.00 | | 0.72 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 1793 | 1467 | | 1217 | | | 3497 | | | 3489 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 15 | 217 | 46 | 61 | 122 | 124 | 0 | 2433 | 136 | 0 | 1270 | 96 |
| RTOR Reduction (vph) | 0 | 0 | 36 | 0 | 4 | 0 | 0 | 5 | 0 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 0 | 232 | 10 | 0 | 303 | 0 | 0 | 2564 | 0 | 0 | 1360 | 0 |
| Confl. Peds. (#/hr) | | | 37 | | | 65 | | | 76 | | | 40 |
| Confl. Bikes (#/hr) | | | 14 | | | 2 | | | 3 | | | 5 |
| Turn Type | Perm | | Perm | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | | | | | | |
| Actuated Green, G (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Effective Green, g (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Actuated g/C Ratio | | 0.22 | 0.22 | | 0.22 | | | 0.67 | | | 0.67 | |
| Clearance Time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 402 | 329 | | 273 | | | 2351 | | | 2345 | |
| v/s Ratio Prot | | | | | | | | c0.73 | | | 0.39 | |
| v/s Ratio Perm | | 0.13 | 0.01 | | c0.25 | | | | | | | |
| v/c Ratio | | 0.58 | 0.03 | | 1.11 | | | 1.09 | | | 0.58 | |
| Uniform Delay, d1 | | 31.1 | 27.3 | | 34.9 | | | 14.8 | | | 7.9 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 0.36 | | | 0.46 | |
| Incremental Delay, d2 | | 2.0 | 0.0 | | 87.4 | | | 41.7 | | | 0.7 | |
| Delay (s) | | 33.1 | 27.3 | | 122.3 | | | 47.0 | | | 4.3 | |
| Level of Service | | C | C | | F | | | D | | | A | |
| Approach Delay (s) | | 32.1 | | | 122.3 | | | 47.0 | | | 4.3 | |
| Approach LOS | | C | | | F | | | D | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 38.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.10 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.3 |
| Intersection Capacity Utilization | 112.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 151 | 536 | 33 | 23 | 283 | 42 | 0 | 2291 | 63 | 0 | 1145 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | 0.99 | | | 0.99 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 0.99 | | | 0.98 | | | 1.00 | | | 0.99 | |
| Flt Protected | | 0.99 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 3421 | | | 3391 | | | 3466 | | | 3411 | |
| Flt Permitted | | 0.74 | | | 0.84 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 2550 | | | 2868 | | | 3466 | | | 3411 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 161 | 570 | 35 | 24 | 301 | 45 | 0 | 2437 | 67 | 0 | 1218 | 117 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 8 | 0 |
| Lane Group Flow (vph) | 0 | 762 | 0 | 0 | 369 | 0 | 0 | 2502 | 0 | 0 | 1327 | 0 |
| Confl. Peds. (#/hr) | | | 101 | | | 61 | | | 143 | | | 81 |
| Confl. Bikes (#/hr) | | | 7 | | | | | | 4 | | | 5 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 28.2 | | | 28.2 | | | 52.7 | | | 52.7 | |
| Effective Green, g (s) | | 28.2 | | | 28.2 | | | 52.7 | | | 52.7 | |
| Actuated g/C Ratio | | 0.31 | | | 0.31 | | | 0.59 | | | 0.59 | |
| Clearance Time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 799 | | | 899 | | | 2030 | | | 1997 | |
| v/s Ratio Prot | | | | | | | | c0.72 | | | 0.39 | |
| v/s Ratio Perm | | c0.30 | | | 0.13 | | | | | | | |
| v/c Ratio | | 0.95 | | | 0.41 | | | 1.23 | | | 0.66 | |
| Uniform Delay, d1 | | 30.3 | | | 24.3 | | | 18.6 | | | 12.7 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 0.94 | |
| Incremental Delay, d2 | | 22.3 | | | 1.4 | | | 109.1 | | | 1.4 | |
| Delay (s) | | 52.6 | | | 25.7 | | | 127.8 | | | 13.3 | |
| Level of Service | | D | | | C | | | F | | | B | |
| Approach Delay (s) | | 52.6 | | | 25.7 | | | 127.8 | | | 13.3 | |
| Approach LOS | | D | | | C | | | F | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 77.9 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.14 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.1 |
| Intersection Capacity Utilization | 114.3% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 190 | 1661 | 295 | 78 | 1984 | 0 | 0 | 636 | 525 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | |
| Lane Util. Factor | | | | 1.00 | 0.86 | | | 0.91 | | | 0.91 | |
| Frpb, ped/bikes | | | | 1.00 | 0.99 | | | 1.00 | | | 0.98 | |
| Flpb, ped/bikes | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | | | 1.00 | 0.98 | | | 1.00 | | | 0.93 | |
| Flt Protected | | | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | 1752 | 6166 | | | 5026 | | | 4602 | |
| Flt Permitted | | | | 0.95 | 1.00 | | | 0.77 | | | 1.00 | |
| Satd. Flow (perm) | | | | 1752 | 6166 | | | 3902 | | | 4602 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 0 | 0 | 0 | 200 | 1748 | 311 | 82 | 2088 | 0 | 0 | 669 | 553 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 200 | 2058 | 0 | 0 | 2170 | 0 | 0 | 1221 | 0 |
| Confl. Peds. (#/hr) | | | 406 | | | 24 | | | 51 | | | 29 |
| Confl. Bikes (#/hr) | | | | | | | | | 1 | | | 1 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | | Prot | | | Perm | | | | | |
| Protected Phases | | | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | | | |
| Actuated Green, G (s) | | | | 35.7 | 35.7 | | | 44.4 | | | 44.4 | |
| Effective Green, g (s) | | | | 35.7 | 35.7 | | | 44.4 | | | 44.4 | |
| Actuated g/C Ratio | | | | 0.40 | 0.40 | | | 0.49 | | | 0.49 | |
| Clearance Time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | |
| Vehicle Extension (s) | | | | 0.2 | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | | | 695 | 2446 | | | 1925 | | | 2270 | |
| v/s Ratio Prot | | | | 0.11 | c0.33 | | | | | | 0.27 | |
| v/s Ratio Perm | | | | | | | | c0.56 | | | | |
| v/c Ratio | | | | 0.29 | 0.84 | | | 1.13 | | | 0.54 | |
| Uniform Delay, d1 | | | | 18.5 | 24.6 | | | 22.8 | | | 15.7 | |
| Progression Factor | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | | | 1.0 | 3.7 | | | 64.6 | | | 0.9 | |
| Delay (s) | | | | 19.5 | 28.3 | | | 87.4 | | | 16.6 | |
| Level of Service | | | | B | C | | | F | | | B | |
| Approach Delay (s) | | 0.0 | | | 27.5 | | | 87.4 | | | 16.6 | |
| Approach LOS | | A | | | C | | | F | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 48.2 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.00 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.9 |
| Intersection Capacity Utilization | 106.6% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 763 | 11 | 17 | 700 | 15 | 7 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | | 4.0 | 5.0 | |
| Lane Util. Factor | 1.00 | | | 0.95 | 1.00 | |
| Frpb, ped/bikes | 1.00 | | | 1.00 | 0.91 | |
| Flpb, ped/bikes | 1.00 | | | 1.00 | 1.00 | |
| Frt | 1.00 | | | 1.00 | 0.96 | |
| Flt Protected | 1.00 | | | 1.00 | 0.97 | |
| Satd. Flow (prot) | 1823 | | | 3467 | 1533 | |
| Flt Permitted | 1.00 | | | 0.93 | 0.97 | |
| Satd. Flow (perm) | 1823 | | | 3239 | 1533 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 867 | 12 | 19 | 795 | 17 | 8 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 879 | 0 | 0 | 814 | 18 | 0 |
| Confl. Peds. (#/hr) | | 29 | | | | 37 |
| Confl. Bikes (#/hr) | | 1 | | | | |
| Heavy Vehicles (%) | 4% | 4% | 4% | 4% | 4% | 4% |
| Turn Type | | | Perm | | | |
| Protected Phases | 2 | | | 6 | 8 | |
| Permitted Phases | | | 6 | | | |
| Actuated Green, G (s) | 47.0 | | | 47.0 | 4.0 | |
| Effective Green, g (s) | 47.0 | | | 47.0 | 4.0 | |
| Actuated g/C Ratio | 0.78 | | | 0.78 | 0.07 | |
| Clearance Time (s) | 4.0 | | | 4.0 | 5.0 | |
| Vehicle Extension (s) | 0.2 | | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1428 | | | 2537 | 102 | |
| v/s Ratio Prot | c0.48 | | | | c0.01 | |
| v/s Ratio Perm | | | | 0.25 | | |
| v/c Ratio | 0.62 | | | 0.32 | 0.17 | |
| Uniform Delay, d1 | 2.7 | | | 1.9 | 26.4 | |
| Progression Factor | 1.00 | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 2.0 | | | 0.3 | 0.3 | |
| Delay (s) | 4.7 | | | 2.2 | 26.7 | |
| Level of Service | A | | | A | C | |
| Approach Delay (s) | 4.7 | | | 2.2 | 26.7 | |
| Approach LOS | A | | | A | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 3.8 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 65.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 714 | 0 | 0 | 767 | 3 | 0 | 0 | 8 | 0 | 0 | 4 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 0 | 821 | 0 | 0 | 882 | 3 | 0 | 0 | 9 | 0 | 0 | 5 |
| Pedestrians | | 26 | | | 64 | | | 46 | | | 97 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 2 | | | 5 | | | 4 | | | 8 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | 268 | | | 542 | | | | | | | |
| pX, platoon unblocked | | | | 0.58 | | | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | |
| vC, conflicting volume | 982 | | | 867 | | | 1338 | 1849 | 931 | 1874 | 1847 | 566 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 982 | | | 399 | | | 1218 | 2106 | 510 | 2151 | 2103 | 566 |
| tC, single (s) | 4.2 | | | 4.2 | | | 7.6 | 6.6 | 7.0 | 7.6 | 6.6 | 7.0 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 100 | | | 100 | 100 | 97 | 100 | 100 | 99 |
| cM capacity (veh/h) | 631 | | | 632 | | | 65 | 25 | 263 | 12 | 25 | 416 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 | NB 1 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 821 | 441 | 444 | 9 | 5 |
| Volume Left | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 3 | 9 | 5 |
| cSH | 631 | 632 | 1700 | 263 | 416 |
| Volume to Capacity | 0.00 | 0.00 | 0.26 | 0.03 | 0.01 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 3 | 1 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 19.2 | 13.7 |
| Lane LOS | | | | C | B |
| Approach Delay (s) | 0.0 | 0.0 | | 19.2 | 13.7 |
| Approach LOS | | | | C | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.1 | | |
| Intersection Capacity Utilization | 56.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 12 | 709 | 12 | 9 | 726 | 36 | 5 | 3 | 5 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Lane Util. Factor | | 1.00 | | | 0.95 | | | 1.00 | | | | |
| Frt | | 1.00 | | | 0.99 | | | 0.95 | | | | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.98 | | | | |
| Satd. Flow (prot) | | 1857 | | | 3512 | | | 1733 | | | | |
| Flt Permitted | | 0.98 | | | 0.95 | | | 0.98 | | | | |
| Satd. Flow (perm) | | 1829 | | | 3325 | | | 1733 | | | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 13 | 771 | 13 | 10 | 789 | 39 | 5 | 3 | 5 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 8 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 796 | 0 | 0 | 830 | 0 | 0 | 10 | 0 | 0 | 0 | 0 |
| Turn Type | Perm | | | Perm | | | Split | | | | | |
| Protected Phases | | 4 | | | 8 | | 2 | 2 | | | | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 20.9 | | | 20.9 | | | 16.1 | | | | |
| Effective Green, g (s) | | 20.9 | | | 20.9 | | | 16.1 | | | | |
| Actuated g/C Ratio | | 0.46 | | | 0.46 | | | 0.36 | | | | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | | |
| Lane Grp Cap (vph) | | 849 | | | 1544 | | | 620 | | | | |
| v/s Ratio Prot | | | | | | | | c0.01 | | | | |
| v/s Ratio Perm | | c0.44 | | | 0.25 | | | | | | | |
| v/c Ratio | | 0.94 | | | 0.54 | | | 0.02 | | | | |
| Uniform Delay, d1 | | 11.4 | | | 8.6 | | | 9.3 | | | | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | | |
| Incremental Delay, d2 | | 17.4 | | | 0.4 | | | 0.0 | | | | |
| Delay (s) | | 28.9 | | | 9.0 | | | 9.4 | | | | |
| Level of Service | | C | | | A | | | A | | | | |
| Approach Delay (s) | | 28.9 | | | 9.0 | | | 9.4 | | | 0.0 | |
| Approach LOS | | C | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 45.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 57.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1772 | 88 | 0 | 2395 | 161 | 59 | 361 | 91 | 140 | 529 | 92 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Lane Util. Factor | | 0.91 | | | 0.91 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | | 0.98 | | 1.00 | 1.00 | 0.78 | 1.00 | 1.00 | 0.88 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.99 | | | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 4956 | | | 4878 | | 1752 | 1845 | 1223 | 1752 | 1845 | 1376 |
| Flt Permitted | | 1.00 | | | 1.00 | | 0.14 | 1.00 | 1.00 | 0.35 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 4956 | | | 4878 | | 252 | 1845 | 1223 | 653 | 1845 | 1376 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 1827 | 91 | 0 | 2469 | 166 | 61 | 372 | 94 | 144 | 545 | 95 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 8 | 0 | 0 | 0 | 4 | 0 | 0 | 1 |
| Lane Group Flow (vph) | 0 | 1912 | 0 | 0 | 2627 | 0 | 61 | 372 | 90 | 144 | 545 | 94 |
| Confl. Peds. (#/hr) | | | 143 | | | 164 | | | 216 | | | 93 |
| Confl. Bikes (#/hr) | | | 5 | | | 3 | | | 24 | | | 44 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | | | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Effective Green, g (s) | | 49.9 | | | 49.9 | | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| Actuated g/C Ratio | | 0.55 | | | 0.55 | | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 |
| Clearance Time (s) | | 5.1 | | | 5.1 | | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 2748 | | | 2705 | | 82 | 601 | 398 | 213 | 601 | 448 |
| v/s Ratio Prot | | 0.39 | | | c0.54 | | | 0.20 | | | c0.30 | |
| v/s Ratio Perm | | | | | | | 0.24 | | 0.07 | 0.22 | | 0.07 |
| v/c Ratio | | 0.70 | | | 0.97 | | 0.74 | 0.62 | 0.23 | 0.68 | 0.91 | 0.21 |
| Uniform Delay, d1 | | 14.5 | | | 19.4 | | 27.0 | 25.6 | 22.1 | 26.2 | 29.0 | 22.0 |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 1.5 | | | 11.7 | | 45.7 | 4.7 | 1.3 | 15.9 | 19.8 | 1.1 |
| Delay (s) | | 16.0 | | | 31.1 | | 72.7 | 30.4 | 23.4 | 42.1 | 48.8 | 23.0 |
| Level of Service | | B | | | C | | E | C | C | D | D | C |
| Approach Delay (s) | | 16.0 | | | 31.1 | | | 34.0 | | | 44.5 | |
| Approach LOS | | B | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 28.2 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.95 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 10.8 |
| Intersection Capacity Utilization | 111.1% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 38 | 224 | 45 | 233 | 590 | 106 | 22 | 320 | 44 | 65 | 583 | 39 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.89 | 1.00 | 1.00 | 0.93 |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.98 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3398 | | 1770 | 3431 | | 1770 | 1863 | 1407 | 1770 | 1863 | 1472 |
| Flt Permitted | | 0.83 | | 0.56 | 1.00 | | 0.21 | 1.00 | 1.00 | 0.49 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 2846 | | 1036 | 3431 | | 399 | 1863 | 1407 | 906 | 1863 | 1472 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 40 | 236 | 47 | 245 | 621 | 112 | 23 | 337 | 46 | 68 | 614 | 41 |
| RTOR Reduction (vph) | 0 | 23 | 0 | 0 | 25 | 0 | 0 | 0 | 26 | 0 | 0 | 20 |
| Lane Group Flow (vph) | 0 | 300 | 0 | 245 | 709 | 0 | 23 | 337 | 20 | 68 | 614 | 21 |
| Confl. Peds. (#/hr) | | | 54 | | | 21 | | | 59 | | | 52 |
| Confl. Bikes (#/hr) | | | 3 | | | 7 | | | 31 | | | 48 |
| Turn Type | Perm | | | Perm | | | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Effective Green, g (s) | | 25.0 | | 25.0 | 25.0 | | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 |
| Actuated g/C Ratio | | 0.42 | | 0.42 | 0.42 | | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 |
| Clearance Time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | | 0.2 | | 0.2 | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 1186 | | 432 | 1430 | | 173 | 807 | 610 | 393 | 807 | 638 |
| v/s Ratio Prot | | | | | 0.21 | | | 0.18 | | | c0.33 | |
| v/s Ratio Perm | | 0.11 | | c0.24 | | | 0.06 | | 0.01 | 0.08 | | 0.01 |
| v/c Ratio | | 0.25 | | 0.57 | 0.50 | | 0.13 | 0.42 | 0.03 | 0.17 | 0.76 | 0.03 |
| Uniform Delay, d1 | | 11.4 | | 13.4 | 12.9 | | 10.2 | 11.8 | 9.8 | 10.4 | 14.4 | 9.8 |
| Progression Factor | | 1.00 | | 0.33 | 0.29 | | 1.15 | 1.12 | 1.47 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.5 | | 3.3 | 0.8 | | 1.3 | 1.3 | 0.1 | 1.0 | 6.7 | 0.1 |
| Delay (s) | | 11.9 | | 7.8 | 4.5 | | 13.1 | 14.5 | 14.4 | 11.4 | 21.1 | 9.9 |
| Level of Service | | B | | A | A | | B | B | B | B | C | A |
| Approach Delay (s) | | 11.9 | | | 5.4 | | | 14.4 | | | 19.5 | |
| Approach LOS | | B | | | A | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.67 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 106.9% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 63 | 890 | 27 | 25 | 1089 | 107 | 24 | 194 | 25 | 237 | 360 | 194 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.99 | | 1.00 | 1.00 | 0.95 |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | | | 0.99 | | | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 3510 | | | 3476 | | | 1815 | | 1770 | 1863 | 1504 |
| Flt Permitted | | 0.67 | | | 0.92 | | | 0.94 | | 0.59 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 2357 | | | 3189 | | | 1717 | | 1091 | 1863 | 1504 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 67 | 947 | 29 | 27 | 1159 | 114 | 26 | 206 | 27 | 252 | 383 | 206 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 12 | 0 | 0 | 7 | 0 | 0 | 0 | 18 |
| Lane Group Flow (vph) | 0 | 1040 | 0 | 0 | 1288 | 0 | 0 | 252 | 0 | 252 | 383 | 188 |
| Confl. Peds. (#/hr) | | | 15 | | | 21 | | | 46 | | | 24 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | 34 | | | 35 |
| Turn Type | Perm | | | Perm | | | Perm | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | 8 | | 8 |
| Actuated Green, G (s) | | 27.0 | | | 27.0 | | | 23.0 | | 23.0 | 23.0 | 23.0 |
| Effective Green, g (s) | | 27.0 | | | 27.0 | | | 23.0 | | 23.0 | 23.0 | 23.0 |
| Actuated g/C Ratio | | 0.45 | | | 0.45 | | | 0.38 | | 0.38 | 0.38 | 0.38 |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | 5.0 | 5.0 | 5.0 |
| Lane Grp Cap (vph) | | 1061 | | | 1435 | | | 658 | | 418 | 714 | 577 |
| v/s Ratio Prot | | | | | | | | | | | 0.21 | |
| v/s Ratio Perm | | c0.44 | | | 0.40 | | | 0.15 | | c0.23 | | 0.13 |
| v/c Ratio | | 0.98 | | | 0.90 | | | 0.38 | | 0.60 | 0.54 | 0.33 |
| Uniform Delay, d1 | | 16.2 | | | 15.2 | | | 13.4 | | 14.8 | 14.4 | 13.0 |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | 0.83 | 0.83 | 0.86 |
| Incremental Delay, d2 | | 23.2 | | | 9.2 | | | 1.7 | | 4.6 | 2.1 | 1.1 |
| Delay (s) | | 39.4 | | | 24.4 | | | 15.1 | | 16.9 | 14.0 | 12.3 |
| Level of Service | | D | | | C | | | B | | B | B | B |
| Approach Delay (s) | | 39.4 | | | 24.4 | | | 15.1 | | | 14.4 | |
| Approach LOS | | D | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 116.7% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 15 | 277 | 62 | 108 | 860 | 47 | 44 | 384 | 48 | 47 | 457 | 31 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.91 | | 1.00 | | | 0.99 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | | 1.00 | 1.00 | | 0.99 | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1858 | 1434 | | 3486 | | | 1818 | | 1770 | 1840 | |
| Flt Permitted | | 0.93 | 1.00 | | 0.87 | | | 0.76 | | 0.37 | 1.00 | |
| Satd. Flow (perm) | | 1741 | 1434 | | 3054 | | | 1395 | | 696 | 1840 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 16 | 295 | 66 | 115 | 915 | 50 | 47 | 409 | 51 | 50 | 486 | 33 |
| RTOR Reduction (vph) | 0 | 0 | 35 | 0 | 6 | 0 | 0 | 7 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 0 | 311 | 31 | 0 | 1074 | 0 | 0 | 500 | 0 | 50 | 515 | 0 |
| Confl. Peds. (#/hr) | | | 68 | | | 35 | | | 29 | | | 42 |
| Confl. Bikes (#/hr) | | | 4 | | | 6 | | | 2 | | | 3 |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | 23.0 | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | 0.38 | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | 5.0 | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 812 | 669 | | 1425 | | | 535 | | 267 | 705 | |
| v/s Ratio Prot | | | | | | | | | | | 0.28 | |
| v/s Ratio Perm | | 0.18 | 0.02 | | c0.35 | | | c0.36 | | 0.07 | | |
| v/c Ratio | | 0.38 | 0.05 | | 0.75 | | | 0.93 | | 0.19 | 0.73 | |
| Uniform Delay, d1 | | 10.4 | 8.7 | | 13.2 | | | 17.8 | | 12.3 | 15.8 | |
| Progression Factor | | 1.08 | 1.57 | | 0.25 | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 1.4 | 0.1 | | 2.2 | | | 25.7 | | 1.5 | 6.6 | |
| Delay (s) | | 12.6 | 13.8 | | 5.4 | | | 43.5 | | 13.8 | 22.4 | |
| Level of Service | | B | B | | A | | | D | | B | C | |
| Approach Delay (s) | | 12.8 | | | 5.4 | | | 43.5 | | | 21.6 | |
| Approach LOS | | B | | | A | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 17.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 118.9% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 456 | 728 | 0 | 562 | 41 | 641 | 491 | 50 | 22 | 594 | 18 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | 1.00 | 1.00 | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.93 | | 0.99 | | 1.00 | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | 1.00 | 0.99 | | | 1.00 | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 1863 | 1474 | | 3480 | | 1770 | 1816 | | | 3508 | |
| Flt Permitted | | 1.00 | 1.00 | | 1.00 | | 0.95 | 1.00 | | | 0.61 | |
| Satd. Flow (perm) | | 1863 | 1474 | | 3480 | | 1770 | 1816 | | | 2156 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 0 | 485 | 774 | 0 | 598 | 44 | 682 | 522 | 53 | 23 | 632 | 19 |
| RTOR Reduction (vph) | 0 | 0 | 465 | 0 | 6 | 0 | 0 | 4 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 485 | 309 | 0 | 636 | 0 | 682 | 571 | 0 | 0 | 672 | 0 |
| Confl. Peds. (#/hr) | | | 64 | | | 50 | | | 68 | | | 57 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | 3 | | | 3 |
| Turn Type | | | custom | | | | Split | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | 8 | 8 | | | 4 | |
| Permitted Phases | | | 8 | | | | | | | 4 | | |
| Actuated Green, G (s) | | 30.0 | 30.0 | | 30.0 | | 30.0 | 30.0 | | | 17.0 | |
| Effective Green, g (s) | | 30.0 | 30.0 | | 30.0 | | 30.0 | 30.0 | | | 17.0 | |
| Actuated g/C Ratio | | 0.33 | 0.33 | | 0.33 | | 0.33 | 0.33 | | | 0.19 | |
| Clearance Time (s) | | 5.0 | 4.0 | | 5.0 | | 4.0 | 4.0 | | | 4.0 | |
| Lane Grp Cap (vph) | | 621 | 491 | | 1160 | | 590 | 605 | | | 407 | |
| v/s Ratio Prot | | c0.26 | | | 0.18 | | c0.39 | 0.31 | | | | |
| v/s Ratio Perm | | | 0.21 | | | | | | | | c0.31 | |
| v/c Ratio | | 0.78 | 0.63 | | 0.55 | | 1.16 | 0.94 | | | 1.65 | |
| Uniform Delay, d1 | | 27.0 | 25.3 | | 24.5 | | 30.0 | 29.2 | | | 36.5 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 9.4 | 6.0 | | 1.9 | | 88.2 | 25.1 | | | 303.3 | |
| Delay (s) | | 36.5 | 31.3 | | 26.3 | | 118.2 | 54.3 | | | 339.8 | |
| Level of Service | | D | C | | C | | F | D | | | F | |
| Approach Delay (s) | | 33.3 | | | 26.3 | | | 88.9 | | | 339.8 | |
| Approach LOS | | C | | | C | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 104.3 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.12 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 13.0 |
| Intersection Capacity Utilization | 89.1% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBR | EBR2 | WBT | WBR | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Volume (vph) | 1785 | 115 | 2755 | 6 | 767 | 38 | 333 | 955 | 310 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Lane Util. Factor | 0.76 | | 0.91 | | 0.95 | | 1.00 | 0.95 | |
| Frpb, ped/bikes | 1.00 | | 1.00 | | 0.98 | | 1.00 | 0.98 | |
| Flpb, ped/bikes | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Frt | 0.85 | | 1.00 | | 0.99 | | 1.00 | 0.96 | |
| Flt Protected | 1.00 | | 1.00 | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3610 | | 5084 | | 3438 | | 1770 | 3336 | |
| Flt Permitted | 1.00 | | 1.00 | | 1.00 | | 0.34 | 1.00 | |
| Satd. Flow (perm) | 3610 | | 5084 | | 3438 | | 626 | 3336 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 1859 | 120 | 2870 | 6 | 799 | 40 | 347 | 995 | 323 |
| RTOR Reduction (vph) | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 1974 | 0 | 2876 | 0 | 839 | 0 | 347 | 1317 | 0 |
| Confl. Peds. (#/hr) | | 45 | | | | 186 | | | 89 |
| Confl. Bikes (#/hr) | | 4 | 94 | | | 1 | | | |
| Turn Type | custom | | | | | | custom | | |
| Protected Phases | 2 | | | | 8 | | | 4 | |
| Permitted Phases | | | 6 | | | | 7 | | |
| Actuated Green, G (s) | 48.0 | | 48.0 | | 19.0 | | 12.0 | 31.0 | |
| Effective Green, g (s) | 48.0 | | 48.0 | | 19.0 | | 12.0 | 31.0 | |
| Actuated g/C Ratio | 0.53 | | 0.53 | | 0.21 | | 0.13 | 0.34 | |
| Clearance Time (s) | 5.0 | | 5.0 | | 4.0 | | 2.0 | 6.0 | |
| Vehicle Extension (s) | 0.2 | | 0.2 | | 0.2 | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1925 | | 2711 | | 726 | | 83 | 1149 | |
| v/s Ratio Prot | 0.55 | | | | 0.24 | | | c0.39 | |
| v/s Ratio Perm | | | c0.57 | | | | c0.55 | | |
| v/c Ratio | 1.03 | | 1.06 | | 1.16 | | 4.18 | 1.15 | |
| Uniform Delay, d1 | 21.0 | | 21.0 | | 35.5 | | 39.0 | 29.5 | |
| Progression Factor | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 27.3 | | 36.2 | | 85.2 | | 1459.3 | 76.5 | |
| Delay (s) | 48.3 | | 57.2 | | 120.7 | | 1498.3 | 106.0 | |
| Level of Service | D | | E | | F | | F | F | |
| Approach Delay (s) | | | 57.2 | | 120.7 | | | 396.2 | |
| Approach LOS | | | E | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 138.7 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.59 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 13.0 |
| Intersection Capacity Utilization | 105.4% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1688 | 42 | 0 | 2445 | 51 | 65 | 127 | 68 | 73 | 284 | 65 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 0.91 | | | 0.91 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | | 0.99 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 1.00 | | | 0.96 | | | 0.98 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 5008 | | | 5015 | | | 1743 | | | 1782 | |
| Flt Permitted | | 1.00 | | | 1.00 | | | 0.71 | | | 0.87 | |
| Satd. Flow (perm) | | 5008 | | | 5015 | | | 1258 | | | 1557 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 0 | 1777 | 44 | 0 | 2574 | 54 | 68 | 134 | 72 | 77 | 299 | 68 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 10 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 1818 | 0 | 0 | 2626 | 0 | 0 | 264 | 0 | 0 | 443 | 0 |
| Confl. Peds. (#/hr) | | | 43 | | | 22 | | | 19 | | | 20 |
| Confl. Bikes (#/hr) | | | 7 | | | 7 | | | 2 | | | 3 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | | | | | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Actuated Green, G (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Effective Green, g (s) | | 53.0 | | | 53.0 | | | 28.0 | | | 28.0 | |
| Actuated g/C Ratio | | 0.59 | | | 0.59 | | | 0.31 | | | 0.31 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 2949 | | | 2953 | | | 391 | | | 484 | |
| v/s Ratio Prot | | 0.36 | | | c0.52 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.21 | | | c0.28 | |
| v/c Ratio | | 0.62 | | | 0.89 | | | 0.68 | | | 0.91 | |
| Uniform Delay, d1 | | 11.9 | | | 16.0 | | | 27.0 | | | 29.8 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 1.0 | | | 4.5 | | | 3.6 | | | 21.4 | |
| Delay (s) | | 12.9 | | | 20.4 | | | 30.7 | | | 51.3 | |
| Level of Service | | B | | | C | | | C | | | D | |
| Approach Delay (s) | | 12.9 | | | 20.4 | | | 30.7 | | | 51.3 | |
| Approach LOS | | B | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.90 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 83.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 29 | 299 | 106 | 62 | 969 | 95 | 68 | 156 | 41 | 55 | 244 | 63 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 0.95 | | | 1.00 | | | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.92 | | 0.99 | | | 0.98 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | | 0.98 | | | 0.98 | |
| Flt Protected | | 1.00 | 1.00 | | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 1855 | 1454 | | 3460 | | | 1769 | | | 1781 | |
| Flt Permitted | | 0.78 | 1.00 | | 0.91 | | | 0.82 | | | 0.91 | |
| Satd. Flow (perm) | | 1460 | 1454 | | 3165 | | | 1476 | | | 1633 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 32 | 329 | 116 | 68 | 1065 | 104 | 75 | 171 | 45 | 60 | 268 | 69 |
| RTOR Reduction (vph) | 0 | 0 | 62 | 0 | 11 | 0 | 0 | 11 | 0 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 0 | 361 | 54 | 0 | 1226 | 0 | 0 | 280 | 0 | 0 | 385 | 0 |
| Confl. Peds. (#/hr) | | | 56 | | | 60 | | | 70 | | | 84 |
| Confl. Bikes (#/hr) | | | 4 | | | 2 | | | 3 | | | 2 |
| Turn Type | Perm | | Perm | Perm | | | Perm | | | Perm | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | | 8 | | |
| Actuated Green, G (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Effective Green, g (s) | | 28.0 | 28.0 | | 28.0 | | | 23.0 | | | 23.0 | |
| Actuated g/C Ratio | | 0.47 | 0.47 | | 0.47 | | | 0.38 | | | 0.38 | |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 681 | 679 | | 1477 | | | 566 | | | 626 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.25 | 0.04 | | c0.39 | | | 0.19 | | | c0.24 | |
| v/c Ratio | | 0.53 | 0.08 | | 0.83 | | | 0.49 | | | 0.61 | |
| Uniform Delay, d1 | | 11.3 | 8.9 | | 13.9 | | | 14.1 | | | 14.9 | |
| Progression Factor | | 1.31 | 2.71 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 2.8 | 0.2 | | 5.5 | | | 0.7 | | | 1.8 | |
| Delay (s) | | 17.7 | 24.2 | | 19.5 | | | 14.8 | | | 16.7 | |
| Level of Service | | B | C | | B | | | B | | | B | |
| Approach Delay (s) | | 19.3 | | | 19.5 | | | 14.8 | | | 16.7 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 18.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 90.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 0 | 1 | 0 | 82 | 0 | 85 | 2 | 171 | 97 | 130 | 293 | 0 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 0 | 1 | 0 | 93 | 0 | 97 | 2 | 194 | 110 | 148 | 333 | 0 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 1 | 190 | 307 | 481 |
| Volume Left (vph) | 0 | 93 | 2 | 148 |
| Volume Right (vph) | 0 | 97 | 110 | 0 |
| Hadj (s) | 0.02 | -0.19 | -0.20 | 0.08 |
| Departure Headway (s) | 6.3 | 5.6 | 4.9 | 5.0 |
| Degree Utilization, x | 0.00 | 0.30 | 0.42 | 0.66 |
| Capacity (veh/h) | 471 | 576 | 701 | 708 |
| Control Delay (s) | 9.3 | 11.0 | 11.4 | 17.1 |
| Approach Delay (s) | 9.3 | 11.0 | 11.4 | 17.1 |
| Approach LOS | A | B | B | C |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 14.1 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 69.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 186 | 161 | 1 | 476 | 184 | 30 | 109 | 945 | 254 | 0 | 1516 | 286 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 4.0 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | | | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.69 | 1.00 | 0.98 | | | 1.00 | 0.55 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1736 | 1824 | | 3367 | 1827 | 1070 | 1736 | 3284 | | | 3471 | 848 |
| Flt Permitted | 0.36 | 1.00 | | 0.36 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | 664 | 1824 | | 1289 | 1827 | 1070 | 1827 | 3284 | | | 3471 | 848 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 192 | 166 | 1 | 491 | 190 | 31 | 112 | 974 | 262 | 0 | 1563 | 295 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 27 | 0 | 0 | 0 | 187 |
| Lane Group Flow (vph) | 192 | 167 | 0 | 491 | 190 | 13 | 112 | 1209 | 0 | 0 | 1563 | 108 |
| Confl. Peds. (#/hr) | | | 87 | | | 210 | | | 64 | | | 108 |
| Confl. Bikes (#/hr) | | | 2 | | | 8 | | | 5 | | | 2 |
| Heavy Vehicles (%) | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% | 4% |
| Turn Type | custom | | | custom | | custom | custom | | | Perm | | Perm |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | 5 | | | 1 | | 8 | 3 | | | 4 | | 4 |
| Actuated Green, G (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 38.0 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Effective Green, g (s) | 11.0 | 25.9 | | 11.0 | 25.9 | 38.0 | 3.0 | 38.0 | | | 33.0 | 33.0 |
| Actuated g/C Ratio | 0.12 | 0.29 | | 0.12 | 0.29 | 0.42 | 0.03 | 0.42 | | | 0.37 | 0.37 |
| Clearance Time (s) | 6.0 | 5.1 | | 6.0 | 5.1 | 4.0 | 2.0 | 4.0 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 0.2 | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | | | 0.2 | 0.2 |
| Lane Grp Cap (vph) | 81 | 525 | | 158 | 526 | 452 | 61 | 1387 | | | 1273 | 311 |
| v/s Ratio Prot | | 0.09 | | | c0.10 | | | 0.37 | | | c0.45 | |
| v/s Ratio Perm | 0.29 | | | c0.38 | | 0.01 | c0.06 | | | | | 0.13 |
| v/c Ratio | 2.37 | 0.32 | | 3.11 | 0.36 | 0.03 | 1.84 | 0.87 | | | 1.23 | 0.35 |
| Uniform Delay, d1 | 39.5 | 25.1 | | 39.5 | 25.5 | 15.2 | 43.5 | 23.8 | | | 28.5 | 20.7 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 653.0 | 1.6 | | 964.9 | 1.9 | 0.0 | 432.6 | 6.1 | | | 109.6 | 0.2 |
| Delay (s) | 692.5 | 26.7 | | 1004.4 | 27.4 | 15.2 | 476.1 | 29.9 | | | 138.1 | 20.9 |
| Level of Service | F | C | | F | C | B | F | C | | | F | C |
| Approach Delay (s) | | 382.8 | | | 700.6 | | | 66.9 | | | 119.5 | |
| Approach LOS | | F | | | F | | | E | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 221.8 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.22 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 17.1 |
| Intersection Capacity Utilization | 126.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 83 | 242 | 81 | 235 | 846 | 85 | 0 | 1270 | 60 | 0 | 1929 | 160 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 0.95 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 0.99 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.96 | | 1.00 | 0.99 | | | 0.99 | | | 0.99 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | 1787 | 1793 | | 1787 | 3501 | | | 3534 | | | 3516 | |
| Flt Permitted | 0.13 | 1.00 | | 0.40 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | 241 | 1793 | | 758 | 3501 | | | 3534 | | | 3516 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 86 | 252 | 84 | 245 | 881 | 89 | 0 | 1323 | 62 | 0 | 2009 | 167 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 8 | 0 | 0 | 4 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 86 | 333 | 0 | 245 | 962 | 0 | 0 | 1381 | 0 | 0 | 2169 | 0 |
| Confl. Peds. (#/hr) | | | 30 | | | 70 | | | 85 | | | 87 |
| Confl. Bikes (#/hr) | | | 4 | | | 5 | | | 7 | | | 10 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | 31.2 | 31.2 | | 31.2 | 31.2 | | | 49.2 | | | 49.2 | |
| Effective Green, g (s) | 31.2 | 31.2 | | 31.2 | 31.2 | | | 49.2 | | | 49.2 | |
| Actuated g/C Ratio | 0.35 | 0.35 | | 0.35 | 0.35 | | | 0.55 | | | 0.55 | |
| Clearance Time (s) | 4.8 | 4.8 | | 4.8 | 4.8 | | | 4.8 | | | 4.8 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 84 | 622 | | 263 | 1214 | | | 1932 | | | 1922 | |
| v/s Ratio Prot | | 0.19 | | | 0.27 | | | 0.39 | | | c0.62 | |
| v/s Ratio Perm | c0.36 | | | 0.32 | | | | | | | | |
| v/c Ratio | 1.02 | 0.54 | | 0.93 | 0.79 | | | 0.71 | | | 1.13 | |
| Uniform Delay, d1 | 29.4 | 23.6 | | 28.4 | 26.5 | | | 15.2 | | | 20.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.57 | | | 1.00 | |
| Incremental Delay, d2 | 104.9 | 0.9 | | 37.4 | 3.6 | | | 1.9 | | | 65.2 | |
| Delay (s) | 134.3 | 24.5 | | 65.7 | 30.1 | | | 25.7 | | | 85.6 | |
| Level of Service | F | C | | E | C | | | C | | | F | |
| Approach Delay (s) | | 46.9 | | | 37.3 | | | 25.7 | | | 85.6 | |
| Approach LOS | | D | | | D | | | C | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 55.2 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.09 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.6 |
| Intersection Capacity Utilization | 123.4% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 27 | 150 | 62 | 41 | 84 | 52 | 0 | 1266 | 56 | 0 | 2171 | 63 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.90 | | 0.98 | | | 1.00 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.96 | | | 0.99 | | | 1.00 | |
| Flt Protected | | 0.99 | 1.00 | | 0.99 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 1867 | 1435 | | 1756 | | | 3538 | | | 3552 | |
| Flt Permitted | | 0.94 | 1.00 | | 0.89 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 1770 | 1435 | | 1577 | | | 3538 | | | 3552 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 28 | 156 | 65 | 43 | 88 | 54 | 0 | 1319 | 58 | 0 | 2261 | 66 |
| RTOR Reduction (vph) | 0 | 0 | 6 | 0 | 16 | 0 | 0 | 4 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 0 | 184 | 59 | 0 | 169 | 0 | 0 | 1373 | 0 | 0 | 2325 | 0 |
| Confl. Peds. (#/hr) | | | 64 | | | 33 | | | 97 | | | 64 |
| Confl. Bikes (#/hr) | | | 8 | | | 4 | | | 3 | | | 11 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Turn Type | Perm | | Perm | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | | | | | | |
| Actuated Green, G (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Effective Green, g (s) | | 20.2 | 20.2 | | 20.2 | | | 60.5 | | | 60.5 | |
| Actuated g/C Ratio | | 0.22 | 0.22 | | 0.22 | | | 0.67 | | | 0.67 | |
| Clearance Time (s) | | 4.8 | 4.8 | | 4.8 | | | 4.5 | | | 4.5 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 397 | 322 | | 354 | | | 2378 | | | 2388 | |
| v/s Ratio Prot | | | | | | | | 0.39 | | | c0.65 | |
| v/s Ratio Perm | | 0.10 | 0.04 | | c0.11 | | | | | | | |
| v/c Ratio | | 0.46 | 0.18 | | 0.48 | | | 0.58 | | | 0.97 | |
| Uniform Delay, d1 | | 30.2 | 28.2 | | 30.3 | | | 7.9 | | | 14.0 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 0.78 | | | 0.57 | |
| Incremental Delay, d2 | | 0.9 | 0.3 | | 1.0 | | | 0.8 | | | 2.1 | |
| Delay (s) | | 31.1 | 28.5 | | 31.3 | | | 7.0 | | | 10.1 | |
| Level of Service | | C | C | | C | | | A | | | B | |
| Approach Delay (s) | | 30.4 | | | 31.3 | | | 7.0 | | | 10.1 | |
| Approach LOS | | C | | | C | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.3 |
| Intersection Capacity Utilization | 107.6% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 84 | 351 | 51 | 51 | 414 | 63 | 0 | 1195 | 75 | 0 | 2057 | 175 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Lane Util. Factor | | 0.95 | | | 0.95 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | 0.98 | | | 0.97 | | | 0.98 | | | 0.98 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 0.98 | | | 0.98 | | | 0.99 | | | 0.99 | |
| Flt Protected | | 0.99 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | 3389 | | | 3363 | | | 3444 | | | 3437 | |
| Flt Permitted | | 0.67 | | | 0.82 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | 2286 | | | 2760 | | | 3444 | | | 3437 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 88 | 366 | 53 | 53 | 431 | 66 | 0 | 1245 | 78 | 0 | 2143 | 182 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 12 | 0 | 0 | 5 | 0 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 0 | 503 | 0 | 0 | 538 | 0 | 0 | 1318 | 0 | 0 | 2318 | 0 |
| Confl. Peds. (#/hr) | | | 126 | | | 164 | | | 168 | | | 118 |
| Confl. Bikes (#/hr) | | | 3 | | | 2 | | | 2 | | | 3 |
| Turn Type | Perm | | | Perm | | | | | | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 26.2 | | | 26.2 | | | 54.7 | | | 54.7 | |
| Effective Green, g (s) | | 26.2 | | | 26.2 | | | 54.7 | | | 54.7 | |
| Actuated g/C Ratio | | 0.29 | | | 0.29 | | | 0.61 | | | 0.61 | |
| Clearance Time (s) | | 4.8 | | | 4.8 | | | 4.3 | | | 4.3 | |
| Vehicle Extension (s) | | 0.2 | | | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | 665 | | | 803 | | | 2093 | | | 2089 | |
| v/s Ratio Prot | | | | | | | | 0.38 | | | c0.67 | |
| v/s Ratio Perm | | c0.22 | | | 0.19 | | | | | | | |
| v/c Ratio | | 0.76 | | | 0.67 | | | 0.63 | | | 1.11 | |
| Uniform Delay, d1 | | 29.0 | | | 28.1 | | | 11.2 | | | 17.6 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 0.35 | |
| Incremental Delay, d2 | | 7.9 | | | 4.4 | | | 1.4 | | | 52.1 | |
| Delay (s) | | 36.9 | | | 32.5 | | | 12.7 | | | 58.3 | |
| Level of Service | | D | | | C | | | B | | | E | |
| Approach Delay (s) | | 36.9 | | | 32.5 | | | 12.7 | | | 58.3 | |
| Approach LOS | | D | | | C | | | B | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 40.1 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 1.00 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.1 |
| Intersection Capacity Utilization | 107.9% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 0 | 0 | 264 | 2354 | 173 | 0 | 1096 | 0 | 0 | 1141 | 853 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | |
| Lane Util. Factor | | | | 1.00 | 0.86 | | | 0.91 | | | 0.91 | |
| Frpb, ped/bikes | | | | 1.00 | 1.00 | | | 1.00 | | | 0.96 | |
| Flpb, ped/bikes | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | | | 1.00 | 0.99 | | | 1.00 | | | 0.94 | |
| Flt Protected | | | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (prot) | | | | 1770 | 6323 | | | 5085 | | | 4573 | |
| Flt Permitted | | | | 0.95 | 1.00 | | | 1.00 | | | 1.00 | |
| Satd. Flow (perm) | | | | 1770 | 6323 | | | 5085 | | | 4573 | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 0 | 0 | 272 | 2427 | 178 | 0 | 1130 | 0 | 0 | 1176 | 879 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 272 | 2602 | 0 | 0 | 1130 | 0 | 0 | 2054 | 0 |
| Confl. Peds. (#/hr) | | | 418 | | | 28 | | | 67 | | | 75 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | 1 | | | |
| Turn Type | | | | Prot | | | | | | | | |
| Protected Phases | | | | 1 | 6 | | | 4 | | | 4 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | | | | 48.7 | 48.7 | | | 31.4 | | | 31.4 | |
| Effective Green, g (s) | | | | 48.7 | 48.7 | | | 31.4 | | | 31.4 | |
| Actuated g/C Ratio | | | | 0.54 | 0.54 | | | 0.35 | | | 0.35 | |
| Clearance Time (s) | | | | 5.3 | 5.3 | | | 4.6 | | | 4.6 | |
| Vehicle Extension (s) | | | | 0.2 | 0.2 | | | 0.2 | | | 0.2 | |
| Lane Grp Cap (vph) | | | | 958 | 3421 | | | 1774 | | | 1595 | |
| v/s Ratio Prot | | | | 0.15 | c0.41 | | | 0.22 | | | c0.45 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | | | | 0.28 | 0.76 | | | 0.64 | | | 1.62dr | |
| Uniform Delay, d1 | | | | 11.2 | 16.1 | | | 24.5 | | | 29.3 | |
| Progression Factor | | | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | | | 0.7 | 1.6 | | | 1.8 | | | 134.3 | |
| Delay (s) | | | | 11.9 | 17.7 | | | 26.3 | | | 163.6 | |
| Level of Service | | | | B | B | | | C | | | F | |
| Approach Delay (s) | | 0.0 | | | 17.2 | | | 26.3 | | | 163.6 | |
| Approach LOS | | A | | | B | | | C | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 68.5 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.97 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 9.9 |
| Intersection Capacity Utilization | 88.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 347 | 10 | 13 | 1061 | 11 | 6 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | | 4.0 | 5.0 | |
| Lane Util. Factor | 1.00 | | | 0.95 | 1.00 | |
| Frpb, ped/bikes | 1.00 | | | 1.00 | 0.92 | |
| Flpb, ped/bikes | 1.00 | | | 1.00 | 1.00 | |
| Frt | 1.00 | | | 1.00 | 0.95 | |
| Flt Protected | 1.00 | | | 1.00 | 0.97 | |
| Satd. Flow (prot) | 1854 | | | 3537 | 1573 | |
| Flt Permitted | 1.00 | | | 0.95 | 0.97 | |
| Satd. Flow (perm) | 1854 | | | 3364 | 1573 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 361 | 10 | 14 | 1105 | 11 | 6 |
| RTOR Reduction (vph) | 1 | 0 | 0 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 370 | 0 | 0 | 1119 | 11 | 0 |
| Confl. Peds. (#/hr) | | 26 | | | | 30 |
| Confl. Bikes (#/hr) | | 1 | | | | |
| Turn Type | | | Perm | | | |
| Protected Phases | 2 | | | 6 | 8 | |
| Permitted Phases | | | 6 | | | |
| Actuated Green, G (s) | 47.0 | | | 47.0 | 4.0 | |
| Effective Green, g (s) | 47.0 | | | 47.0 | 4.0 | |
| Actuated g/C Ratio | 0.78 | | | 0.78 | 0.07 | |
| Clearance Time (s) | 4.0 | | | 4.0 | 5.0 | |
| Vehicle Extension (s) | 0.2 | | | 0.2 | 0.2 | |
| Lane Grp Cap (vph) | 1452 | | | 2635 | 105 | |
| v/s Ratio Prot | 0.20 | | | | c0.01 | |
| v/s Ratio Perm | | | | c0.33 | | |
| v/c Ratio | 0.26 | | | 0.42 | 0.11 | |
| Uniform Delay, d1 | 1.8 | | | 2.1 | 26.3 | |
| Progression Factor | 1.00 | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.4 | | | 0.5 | 0.2 | |
| Delay (s) | 2.2 | | | 2.6 | 26.5 | |
| Level of Service | A | | | A | C | |
| Approach Delay (s) | 2.2 | | | 2.6 | 26.5 | |
| Approach LOS | A | | | A | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 2.8 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.40 | | |
| Actuated Cycle Length (s) | 60.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 62.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 405 | 0 | 0 | 1097 | 1 | 0 | 0 | 5 | 0 | 0 | 9 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 0 | 435 | 0 | 0 | 1180 | 1 | 0 | 0 | 5 | 0 | 0 | 10 |
| Pedestrians | | 17 | | | 30 | | | 32 | | | 73 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 1 | | | 3 | | | 3 | | | 6 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | 268 | | | 542 | | | | | | | |
| pX, platoon unblocked | | | | 0.81 | | | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | |
| vC, conflicting volume | 1254 | | | 467 | | | 1084 | 1721 | 497 | 1724 | 1721 | 680 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1254 | | | 224 | | | 986 | 1773 | 261 | 1777 | 1773 | 680 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 100 | | | 100 | 100 | 99 | 100 | 100 | 97 |
| cM capacity (veh/h) | 517 | | | 1057 | | | 143 | 61 | 567 | 36 | 61 | 364 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 | NB 1 | SB 1 |
|---|---|---|---|---|---|
| Volume Total | 435 | 590 | 591 | 5 | 10 |
| Volume Left | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 1 | 5 | 10 |
| cSH | 517 | 1057 | 1700 | 567 | 364 |
| Volume to Capacity | 0.00 | 0.00 | 0.35 | 0.01 | 0.03 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 1 | 2 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 11.4 | 15.2 |
| Lane LOS | | | | B | C |
| Approach Delay (s) | 0.0 | 0.0 | | 11.4 | 15.2 |
| Approach LOS | | | | B | C |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.1 | | |
| Intersection Capacity Utilization | 46.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 6 | 401 | 9 | 8 | 1080 | 18 | 4 | 1 | 4 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Lane Util. Factor | | 1.00 | | | 0.95 | | | 1.00 | | | | |
| Frt | | 1.00 | | | 1.00 | | | 0.94 | | | | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.98 | | | | |
| Satd. Flow (prot) | | 1856 | | | 3529 | | | 1713 | | | | |
| Flt Permitted | | 0.98 | | | 0.95 | | | 0.98 | | | | |
| Satd. Flow (perm) | | 1815 | | | 3359 | | | 1713 | | | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 7 | 436 | 10 | 9 | 1174 | 20 | 4 | 1 | 4 | 0 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 451 | 0 | 0 | 1200 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Turn Type | Perm | | | Perm | | | Split | | | | | |
| Protected Phases | | 4 | | | 8 | | 2 | 2 | | | | |
| Permitted Phases | 4 | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 16.0 | | | 16.0 | | | 16.0 | | | | |
| Effective Green, g (s) | | 16.0 | | | 16.0 | | | 16.0 | | | | |
| Actuated g/C Ratio | | 0.40 | | | 0.40 | | | 0.40 | | | | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | | |
| Lane Grp Cap (vph) | | 726 | | | 1344 | | | 685 | | | | |
| v/s Ratio Prot | | | | | | | | c0.00 | | | | |
| v/s Ratio Perm | | 0.25 | | | c0.36 | | | | | | | |
| v/c Ratio | | 0.62 | | | 0.89 | | | 0.01 | | | | |
| Uniform Delay, d1 | | 9.6 | | | 11.2 | | | 7.2 | | | | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | | |
| Incremental Delay, d2 | | 1.7 | | | 7.9 | | | 0.0 | | | | |
| Delay (s) | | 11.2 | | | 19.1 | | | 7.3 | | | | |
| Level of Service | | B | | | B | | | A | | | | |
| Approach Delay (s) | | 11.2 | | | 19.1 | | | 7.3 | | | 0.0 | |
| Approach LOS | | B | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.45 | | |
| Actuated Cycle Length (s) | 40.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 44.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

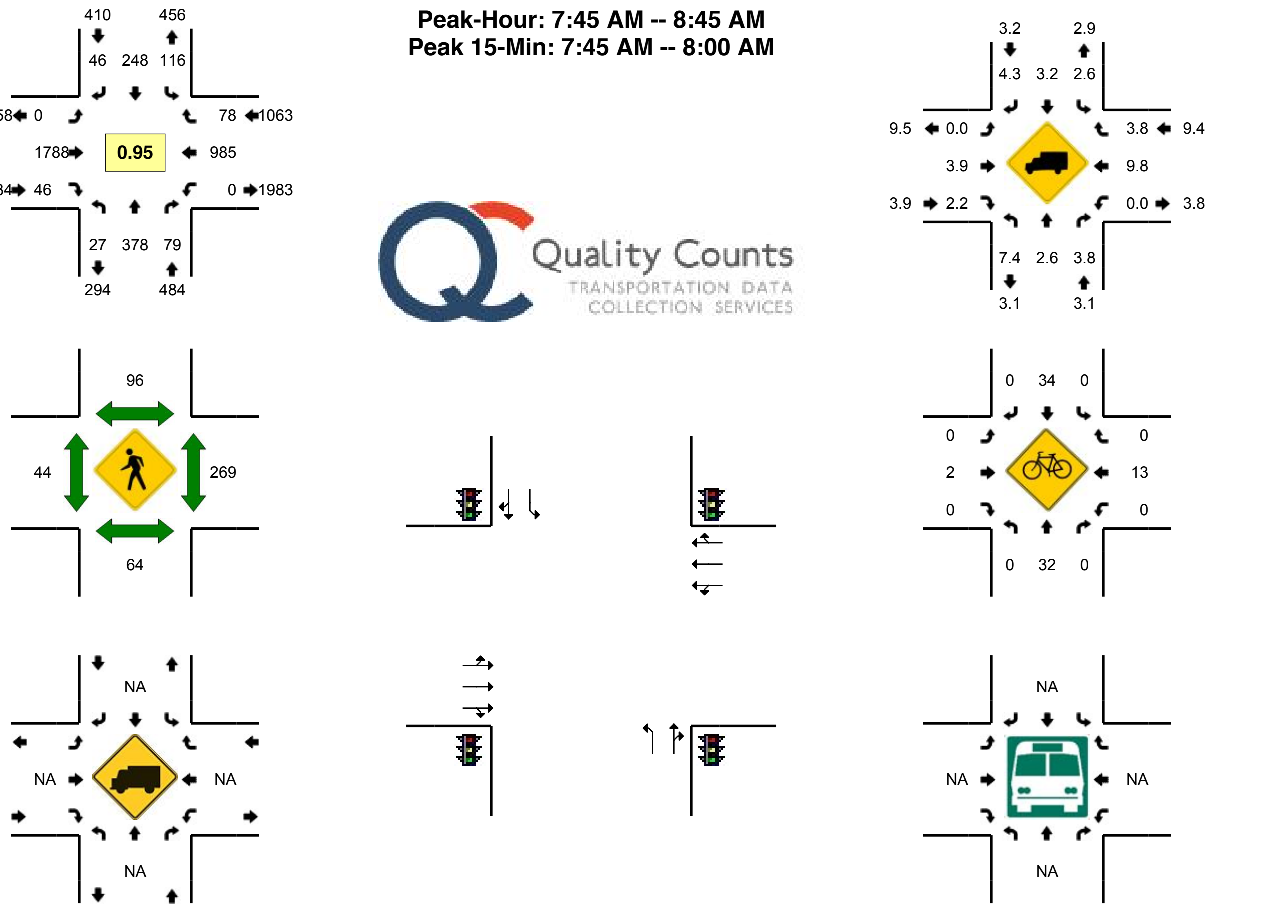
# APPENDIX D: DATA COLLECTION

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

**LOCATION:** Arguello Blvd -- Geary Blvd | **QC JOB #:** 10652701

**CITY/STATE:** San Francisco, CA | **DATE:** Thu, Sep 15 2011

**Peak-Hour: 7:45 AM -- 8:45 AM**
**Peak 15-Min: 7:45 AM -- 8:00 AM**




| 5-Min Count Period Beginning At | Arguello Blvd (Northbound) | | | | Arguello Blvd (Southbound) | | | | Geary Blvd (Eastbound) | | | | Geary Blvd (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 2 | 14 | 1 | 0 | 5 | 8 | 0 | 0 | 0 | 78 | 1 | 0 | 0 | 32 | 4 | 0 | 145 | |
| 7:05 AM | 3 | 13 | 6 | 0 | 5 | 8 | 0 | 0 | 0 | 99 | 0 | 0 | 0 | 31 | 4 | 0 | 169 | |
| 7:10 AM | 2 | 12 | 3 | 0 | 3 | 6 | 0 | 0 | 0 | 127 | 5 | 0 | 0 | 43 | 5 | 0 | 206 | |
| 7:15 AM | 2 | 13 | 4 | 0 | 4 | 6 | 3 | 0 | 0 | 159 | 8 | 0 | 0 | 39 | 1 | 0 | 239 | |
| 7:20 AM | 3 | 25 | 7 | 0 | 5 | 6 | 3 | 0 | 0 | 131 | 5 | 0 | 0 | 63 | 4 | 0 | 252 | |
| 7:25 AM | 0 | 25 | 2 | 0 | 7 | 10 | 0 | 0 | 0 | 185 | 0 | 0 | 0 | 46 | 5 | 0 | 280 | |
| 7:30 AM | 3 | 27 | 7 | 0 | 3 | 16 | 0 | 0 | 0 | 163 | 7 | 0 | 0 | 58 | 5 | 0 | 289 | |
| 7:35 AM | 4 | 22 | 15 | 0 | 6 | 15 | 1 | 0 | 0 | 153 | 5 | 0 | 0 | 57 | 4 | 0 | 282 | |
| 7:40 AM | 1 | 31 | 8 | 0 | 4 | 16 | 5 | 0 | 0 | 168 | 8 | 0 | 0 | 81 | 4 | 0 | 326 | |
| 7:45 AM | 0 | 24 | 12 | 0 | 9 | 16 | 4 | 0 | 0 | 165 | 2 | 0 | 0 | 83 | 2 | 0 | 317 | |
| 7:50 AM | 1 | 36 | 10 | 0 | 10 | 40 | 0 | 0 | 0 | 158 | 1 | 0 | 0 | 90 | 7 | 0 | 353 | |
| 7:55 AM | 1 | 23 | 8 | 0 | 10 | 25 | 2 | 0 | 0 | 158 | 5 | 0 | 0 | 85 | 7 | 0 | 324 | 3182 |
| 8:00 AM | 1 | 38 | 5 | 0 | 5 | 18 | 2 | 0 | 0 | 130 | 6 | 0 | 0 | 89 | 5 | 0 | 299 | 3336 |
| 8:05 AM | 2 | 41 | 5 | 0 | 14 | 19 | 2 | 0 | 0 | 141 | 2 | 0 | 0 | 58 | 3 | 0 | 287 | 3454 |
| 8:10 AM | 0 | 28 | 9 | 0 | 9 | 20 | 4 | 0 | 0 | 166 | 3 | 0 | 0 | 97 | 6 | 0 | 342 | 3590 |
| 8:15 AM | 2 | 30 | 1 | 0 | 8 | 23 | 8 | 0 | 0 | 135 | 2 | 0 | 0 | 74 | 9 | 0 | 292 | 3643 |
| 8:20 AM | 6 | 30 | 6 | 0 | 8 | 18 | 7 | 0 | 0 | 137 | 5 | 0 | 0 | 83 | 6 | 0 | 306 | 3697 |
| 8:25 AM | 1 | 22 | 8 | 0 | 11 | 14 | 4 | 0 | 0 | 186 | 1 | 0 | 0 | 71 | 8 | 0 | 326 | 3743 |
| 8:30 AM | 5 | 28 | 6 | 0 | 14 | 18 | 8 | 0 | 0 | 109 | 10 | 0 | 0 | 86 | 10 | 0 | 294 | 3748 |
| 8:35 AM | 4 | 40 | 3 | 0 | 12 | 19 | 4 | 0 | 0 | 129 | 7 | 0 | 0 | 85 | 4 | 0 | 307 | 3773 |
| 8:40 AM | 4 | 38 | 6 | 0 | 6 | 18 | 1 | 0 | 0 | 174 | 2 | 0 | 0 | 84 | 11 | 0 | 344 | 3791 |
| 8:45 AM | 2 | 38 | 7 | 0 | 9 | 26 | 5 | 0 | 0 | 114 | 11 | 0 | 0 | 75 | 11 | 0 | 298 | 3772 |
| 8:50 AM | 4 | 42 | 8 | 0 | 10 | 14 | 7 | 0 | 0 | 156 | 3 | 0 | 0 | 84 | 13 | 0 | 341 | 3760 |
| 8:55 AM | 2 | 37 | 3 | 0 | 8 | 18 | 5 | 0 | 0 | 154 | 5 | 0 | 0 | 75 | 11 | 0 | 318 | 3754 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 8 | 332 | 120 | 0 | 116 | 324 | 24 | 0 | 0 | 1924 | 32 | 0 | 0 | 1032 | 64 | 0 | 3976 |
| Heavy Trucks | 0 | 12 | 8 | | 0 | 4 | 0 | | 0 | 64 | 0 | | 0 | 120 | 0 | | 208 |
| Pedestrians | | 84 | | | | 52 | | | | 40 | | | | 196 | | | 372 |
| Bicycles | 0 | 11 | 0 | | 0 | 21 | 0 | | 0 | 1 | 0 | | 0 | 13 | 0 | | 46 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

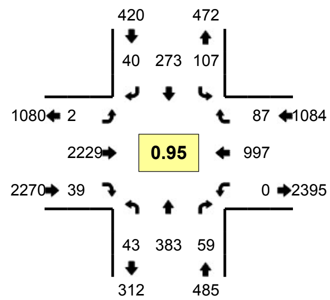
*Comments:*

Report generated on 9/23/2011 11:46 AM

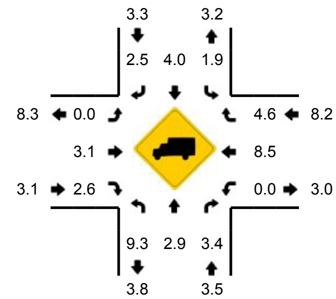
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

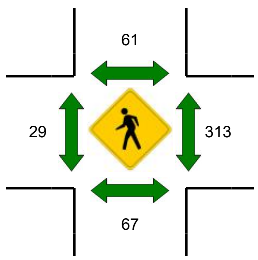
**LOCATION:** Arguello Blvd -- Geary Blvd | **QC JOB #:** 10652702

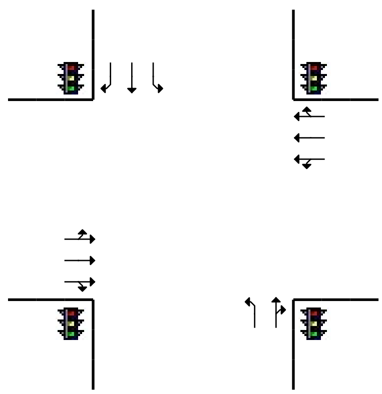
**CITY/STATE:** San Francisco, CA | **DATE:** Thu, Sep 08 2011

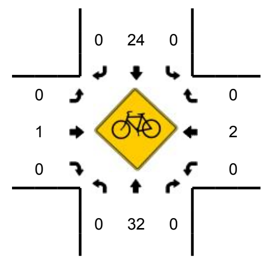


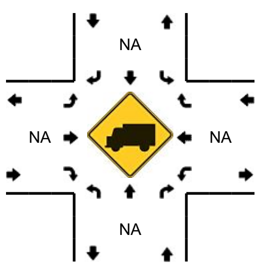

**Peak-Hour: 7:55 AM -- 8:55 AM**
**Peak 15-Min: 8:40 AM -- 8:55 AM**

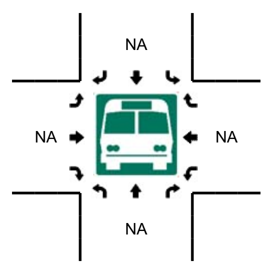





| 5-Min Count Period Beginning At | Arguello Blvd (Northbound) | | | | Arguello Blvd (Southbound) | | | | Geary Blvd (Eastbound) | | | | Geary Blvd (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 1 | 14 | 2 | 0 | 9 | 5 | 2 | 0 | 0 | 89 | 1 | 0 | 0 | 31 | 2 | 0 | 156 | |
| 7:05 AM | 1 | 8 | 3 | 0 | 4 | 7 | 1 | 0 | 0 | 99 | 3 | 0 | 0 | 57 | 9 | 0 | 192 | |
| 7:10 AM | 1 | 11 | 1 | 0 | 6 | 7 | 2 | 0 | 0 | 116 | 1 | 0 | 0 | 40 | 8 | 0 | 193 | |
| 7:15 AM | 0 | 12 | 2 | 0 | 0 | 7 | 0 | 0 | 1 | 154 | 3 | 0 | 0 | 52 | 5 | 0 | 236 | |
| 7:20 AM | 2 | 12 | 4 | 0 | 4 | 4 | 3 | 0 | 0 | 121 | 0 | 0 | 0 | 55 | 1 | 0 | 206 | |
| 7:25 AM | 2 | 30 | 5 | 0 | 11 | 12 | 2 | 0 | 0 | 137 | 4 | 0 | 0 | 56 | 3 | 0 | 262 | |
| 7:30 AM | 3 | 24 | 11 | 0 | 6 | 9 | 3 | 0 | 0 | 170 | 3 | 0 | 0 | 38 | 4 | 0 | 271 | |
| 7:35 AM | 2 | 17 | 9 | 0 | 3 | 6 | 5 | 0 | 0 | 201 | 1 | 0 | 0 | 74 | 6 | 0 | 324 | |
| 7:40 AM | 5 | 29 | 14 | 0 | 10 | 17 | 2 | 0 | 1 | 157 | 6 | 0 | 0 | 76 | 7 | 0 | 324 | |
| 7:45 AM | 2 | 23 | 6 | 0 | 7 | 14 | 2 | 0 | 1 | 204 | 5 | 0 | 0 | 85 | 6 | 0 | 355 | |
| 7:50 AM | 1 | 16 | 9 | 0 | 7 | 26 | 3 | 0 | 0 | 208 | 1 | 0 | 0 | 67 | 11 | 0 | 349 | |
| 7:55 AM | 4 | 39 | 7 | 0 | 11 | 33 | 6 | 0 | 0 | 172 | 1 | 0 | 0 | 80 | 4 | 0 | 357 | 3225 |
| 8:00 AM | 2 | 26 | 8 | 0 | 8 | 32 | 2 | 0 | 0 | 200 | 4 | 0 | 0 | 79 | 3 | 0 | 364 | 3433 |
| 8:05 AM | 3 | 22 | 3 | 0 | 8 | 18 | 3 | 0 | 0 | 172 | 0 | 0 | 0 | 86 | 5 | 0 | 320 | 3561 |
| 8:10 AM | 3 | 45 | 1 | 0 | 10 | 24 | 6 | 0 | 1 | 174 | 3 | 0 | 0 | 61 | 8 | 0 | 336 | 3704 |
| 8:15 AM | 1 | 25 | 7 | 0 | 4 | 13 | 3 | 0 | 0 | 198 | 2 | 0 | 0 | 107 | 5 | 0 | 365 | 3833 |
| 8:20 AM | 1 | 30 | 3 | 0 | 6 | 21 | 1 | 0 | 0 | 204 | 9 | 0 | 0 | 64 | 4 | 0 | 343 | 3970 |
| 8:25 AM | 5 | 40 | 4 | 0 | 11 | 15 | 2 | 0 | 0 | 172 | 5 | 0 | 0 | 95 | 7 | 0 | 356 | 4064 |
| 8:30 AM | 4 | 31 | 7 | 0 | 7 | 19 | 3 | 0 | 0 | 210 | 2 | 0 | 0 | 93 | 8 | 0 | 384 | 4177 |
| 8:35 AM | 4 | 17 | 7 | 0 | 11 | 18 | 5 | 0 | 1 | 176 | 5 | 0 | 0 | 65 | 9 | 0 | 318 | 4171 |
| 8:40 AM | 8 | 49 | 3 | 0 | 9 | 30 | 2 | 0 | 0 | 168 | 2 | 0 | 0 | 84 | 8 | 0 | 363 | 4210 |
| 8:45 AM | 2 | 27 | 4 | 0 | 15 | 26 | 2 | 0 | 0 | 194 | 4 | 0 | 0 | 100 | 12 | 0 | 386 | 4241 |
| 8:50 AM | 6 | 32 | 5 | 0 | 7 | 24 | 5 | 0 | 0 | 189 | 2 | 0 | 0 | 83 | 14 | 0 | 367 | 4259 |
| 8:55 AM | 3 | 46 | 10 | 0 | 7 | 26 | 5 | 0 | 0 | 162 | 5 | 0 | 0 | 66 | 14 | 0 | 344 | 4246 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 64 | 432 | 48 | 0 | 124 | 320 | 36 | 0 | 0 | 2204 | 32 | 0 | 0 | 1068 | 136 | 0 | 4464 |
| Heavy Trucks | 4 | 16 | 0 | | 4 | 16 | 0 | | 0 | 76 | 0 | | 0 | 80 | 8 | | 204 |
| Pedestrians | | 24 | | | | 116 | | | | 40 | | | | 528 | | | 708 |
| Bicycles | 0 | 7 | 0 | | 0 | 3 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 10 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

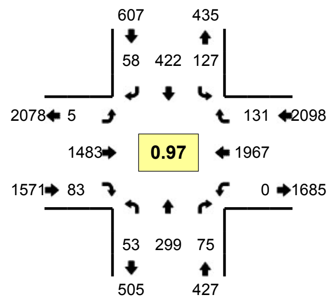
*Comments:*

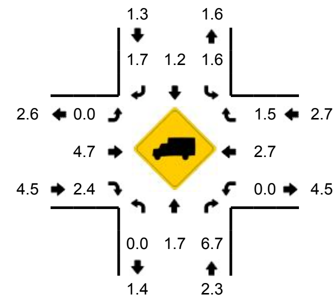
Report generated on 9/23/2011 11:46 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

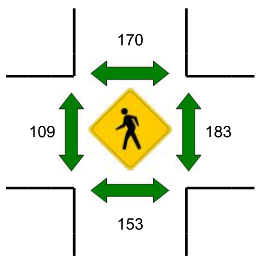
Type of peak hour being reported: Intersection Peak — Method for determining peak hour: Total Entering Volume

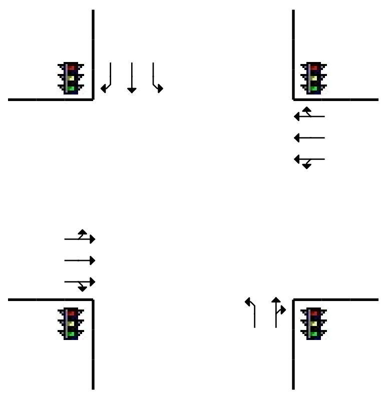
**LOCATION:** Arguello Blvd -- Geary Blvd — **QC JOB #:** 10652703
**CITY/STATE:** San Francisco, CA — **DATE:** Thu, Sep 15 2011

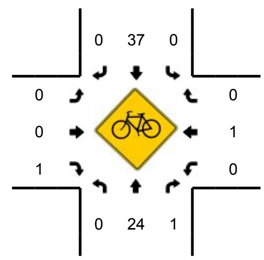
**Peak-Hour: 4:55 PM -- 5:55 PM**
**Peak 15-Min: 5:20 PM -- 5:35 PM**

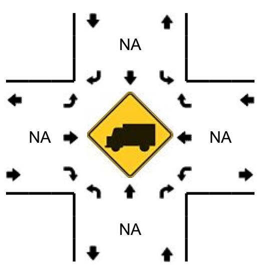


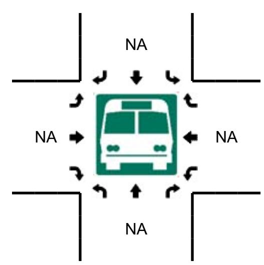






| 5-Min Count Period Beginning At | Arguello Blvd (Northbound) | | | | Arguello Blvd (Southbound) | | | | Geary Blvd (Eastbound) | | | | Geary Blvd (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 2 | 17 | 8 | 0 | 7 | 29 | 7 | 0 | 0 | 152 | 3 | 0 | 0 | 134 | 8 | 0 | 367 | |
| 4:05 PM | 4 | 21 | 6 | 0 | 10 | 33 | 11 | 0 | 0 | 105 | 5 | 0 | 0 | 128 | 8 | 0 | 331 | |
| 4:10 PM | 5 | 21 | 8 | 0 | 6 | 28 | 2 | 0 | 0 | 119 | 4 | 0 | 0 | 148 | 13 | 0 | 354 | |
| 4:15 PM | 3 | 12 | 4 | 0 | 6 | 35 | 5 | 0 | 0 | 120 | 8 | 0 | 0 | 159 | 13 | 0 | 365 | |
| 4:20 PM | 6 | 18 | 5 | 0 | 14 | 44 | 13 | 0 | 0 | 120 | 3 | 0 | 0 | 106 | 10 | 0 | 339 | |
| 4:25 PM | 2 | 14 | 11 | 0 | 9 | 26 | 2 | 0 | 0 | 145 | 5 | 0 | 0 | 146 | 15 | 0 | 375 | |
| 4:30 PM | 3 | 20 | 6 | 0 | 7 | 21 | 6 | 0 | 0 | 111 | 2 | 0 | 1 | 131 | 13 | 0 | 321 | |
| 4:35 PM | 4 | 27 | 14 | 0 | 14 | 43 | 9 | 0 | 0 | 122 | 6 | 0 | 0 | 125 | 11 | 0 | 375 | |
| 4:40 PM | 3 | 26 | 7 | 0 | 7 | 26 | 7 | 0 | 0 | 133 | 7 | 0 | 0 | 152 | 15 | 0 | 383 | |
| 4:45 PM | 10 | 25 | 6 | 0 | 4 | 28 | 6 | 0 | 0 | 143 | 8 | 0 | 0 | 167 | 15 | 0 | 412 | |
| 4:50 PM | 2 | 22 | 7 | 0 | 15 | 33 | 10 | 0 | 0 | 80 | 8 | 0 | 0 | 126 | 8 | 0 | 311 | |
| 4:55 PM | 6 | 27 | 7 | 0 | 14 | 27 | 8 | 0 | 0 | 133 | 10 | 0 | 0 | 149 | 13 | 0 | 394 | 4327 |
| 5:00 PM | 2 | 21 | 5 | 0 | 12 | 24 | 4 | 0 | 0 | 111 | 9 | 0 | 0 | 179 | 14 | 0 | 381 | 4341 |
| 5:05 PM | 4 | 30 | 6 | 0 | 13 | 41 | 6 | 0 | 0 | 116 | 3 | 0 | 0 | 128 | 5 | 0 | 352 | 4362 |
| 5:10 PM | 4 | 21 | 7 | 0 | 12 | 35 | 5 | 0 | 0 | 130 | 7 | 0 | 0 | 157 | 6 | 0 | 384 | 4392 |
| 5:15 PM | 5 | 19 | 9 | 0 | 8 | 24 | 6 | 0 | 0 | 129 | 9 | 0 | 0 | 165 | 14 | 0 | 388 | 4415 |
| 5:20 PM | 5 | 38 | 8 | 0 | 12 | 41 | 8 | 0 | 0 | 118 | 13 | 0 | 0 | 163 | 11 | 0 | 417 | 4493 |
| 5:25 PM | 4 | 18 | 8 | 0 | 8 | 35 | 2 | 0 | 5 | 131 | 9 | 0 | 0 | 170 | 11 | 0 | 401 | 4519 |
| 5:30 PM | 2 | 26 | 4 | 0 | 11 | 32 | 4 | 0 | 0 | 109 | 5 | 0 | 0 | 190 | 15 | 0 | 398 | 4596 |
| 5:35 PM | 5 | 30 | 2 | 0 | 12 | 47 | 3 | 0 | 0 | 121 | 3 | 0 | 0 | 162 | 8 | 0 | 393 | 4614 |
| 5:40 PM | 8 | 23 | 10 | 0 | 10 | 32 | 3 | 0 | 0 | 123 | 5 | 0 | 0 | 173 | 11 | 0 | 398 | 4629 |
| 5:45 PM | 3 | 19 | 4 | 0 | 6 | 37 | 5 | 0 | 0 | 131 | 4 | 0 | 0 | 177 | 14 | 0 | 400 | 4617 |
| 5:50 PM | 5 | 27 | 5 | 0 | 9 | 47 | 4 | 0 | 0 | 131 | 6 | 0 | 0 | 154 | 9 | 0 | 397 | 4703 |
| 5:55 PM | 2 | 18 | 9 | 0 | 11 | 33 | 9 | 0 | 0 | 125 | 5 | 0 | 0 | 148 | 13 | 0 | 373 | 4682 |

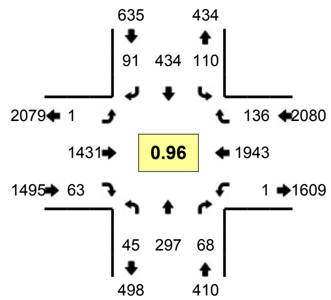
| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 44 | 328 | 80 | 0 | 124 | 432 | 56 | 0 | 20 | 1432 | 108 | 0 | 0 | 2092 | 148 | 0 | 4864 |
| Heavy Trucks | 0 | 8 | 4 | | 4 | 4 | 0 | | 0 | 72 | 0 | | 0 | 40 | 4 | | 136 |
| Pedestrians | | 216 | | | | 176 | | | | 136 | | | | 152 | | | 680 |
| Bicycles | 0 | 3 | 0 | | 0 | 8 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 11 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

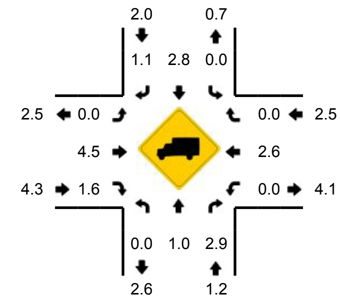
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

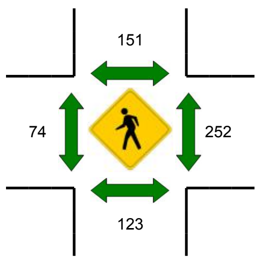
**LOCATION:** Arguello Blvd -- Geary Blvd | **QC JOB #:** 10652704

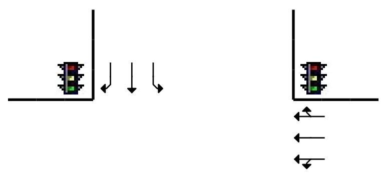
**CITY/STATE:** San Francisco, CA | **DATE:** Thu, Sep 08 2011

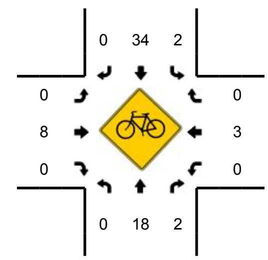


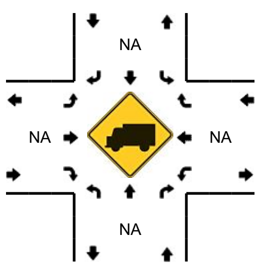

**Peak-Hour: 4:55 PM -- 5:55 PM**
**Peak 15-Min: 5:35 PM -- 5:50 PM**

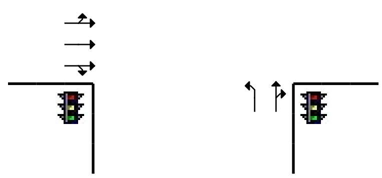


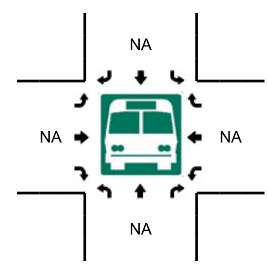







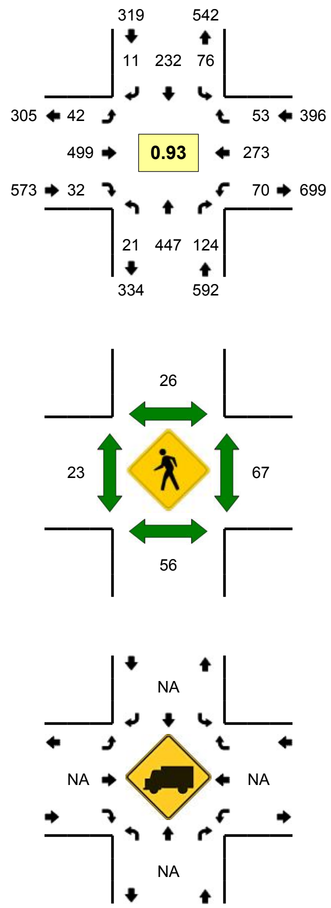

| 5-Min Count Period Beginning At | Arguello Blvd (Northbound) Left | Thru | Right | U | Arguello Blvd (Southbound) Left | Thru | Right | U | Geary Blvd (Eastbound) Left | Thru | Right | U | Geary Blvd (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4:00 PM | 9 | 9 | 6 | 0 | 9 | 40 | 6 | 0 | 0 | 126 | 7 | 0 | 0 | 125 | 8 | 0 | 345 | |
| 4:05 PM | 2 | 9 | 6 | 0 | 7 | 32 | 4 | 0 | 1 | 128 | 8 | 0 | 0 | 133 | 12 | 0 | 342 | |
| 4:10 PM | 4 | 22 | 5 | 0 | 5 | 32 | 4 | 0 | 0 | 84 | 4 | 0 | 0 | 159 | 10 | 0 | 329 | |
| 4:15 PM | 6 | 18 | 8 | 0 | 11 | 38 | 7 | 0 | 0 | 130 | 6 | 0 | 1 | 151 | 5 | 0 | 381 | |
| 4:20 PM | 6 | 16 | 9 | 0 | 6 | 26 | 3 | 0 | 1 | 120 | 12 | 0 | 0 | 157 | 9 | 0 | 365 | |
| 4:25 PM | 2 | 20 | 7 | 0 | 9 | 32 | 8 | 0 | 0 | 102 | 7 | 0 | 1 | 112 | 9 | 0 | 309 | |
| 4:30 PM | 10 | 19 | 9 | 0 | 13 | 29 | 9 | 0 | 0 | 117 | 4 | 0 | 0 | 140 | 13 | 0 | 363 | |
| 4:35 PM | 3 | 25 | 8 | 0 | 8 | 29 | 7 | 0 | 0 | 122 | 2 | 0 | 0 | 153 | 8 | 0 | 365 | |
| 4:40 PM | 3 | 25 | 8 | 0 | 8 | 37 | 9 | 0 | 0 | 124 | 7 | 0 | 0 | 118 | 10 | 0 | 349 | |
| 4:45 PM | 6 | 17 | 15 | 0 | 14 | 36 | 7 | 0 | 0 | 120 | 4 | 0 | 0 | 140 | 6 | 0 | 365 | |
| 4:50 PM | 6 | 19 | 14 | 0 | 13 | 29 | 5 | 0 | 1 | 140 | 7 | 0 | 0 | 143 | 7 | 0 | 384 | |
| 4:55 PM | 6 | 34 | 8 | 0 | 14 | 36 | 9 | 0 | 0 | 109 | 3 | 0 | 0 | 145 | 13 | 0 | 377 | 4274 |
| 5:00 PM | 6 | 21 | 8 | 0 | 7 | 37 | 10 | 0 | 0 | 127 | 5 | 0 | 0 | 147 | 15 | 0 | 383 | 4312 |
| 5:05 PM | 2 | 17 | 4 | 0 | 8 | 31 | 9 | 0 | 0 | 110 | 9 | 0 | 0 | 147 | 9 | 0 | 346 | 4316 |
| 5:10 PM | 2 | 27 | 3 | 0 | 7 | 43 | 6 | 0 | 0 | 112 | 2 | 0 | 0 | 149 | 7 | 0 | 358 | 4345 |
| 5:15 PM | 3 | 28 | 4 | 0 | 14 | 44 | 7 | 0 | 0 | 123 | 8 | 0 | 0 | 156 | 12 | 0 | 399 | 4363 |
| 5:20 PM | 4 | 21 | 6 | 0 | 9 | 29 | 6 | 0 | 0 | 137 | 3 | 0 | 0 | 189 | 10 | 0 | 414 | 4412 |
| 5:25 PM | 4 | 34 | 9 | 0 | 10 | 45 | 4 | 0 | 0 | 102 | 4 | 0 | 0 | 154 | 7 | 0 | 373 | 4476 |
| 5:30 PM | 2 | 22 | 2 | 0 | 8 | 38 | 5 | 0 | 1 | 108 | 3 | 0 | 0 | 169 | 10 | 0 | 368 | 4481 |
| 5:35 PM | 3 | 23 | 7 | 0 | 11 | 32 | 7 | 0 | 0 | 147 | 9 | 0 | 0 | 193 | 17 | 0 | 449 | 4565 |
| 5:40 PM | 2 | 26 | 6 | 0 | 4 | 35 | 16 | 0 | 0 | 122 | 5 | 0 | 1 | 136 | 12 | 0 | 365 | 4581 |
| 5:45 PM | 4 | 22 | 7 | 0 | 10 | 37 | 5 | 0 | 0 | 121 | 5 | 0 | 0 | 163 | 11 | 0 | 385 | 4601 |
| 5:50 PM | 7 | 22 | 4 | 0 | 8 | 27 | 7 | 0 | 0 | 113 | 7 | 0 | 0 | 195 | 13 | 0 | 403 | 4620 |
| 5:55 PM | 3 | 34 | 11 | 0 | 8 | 40 | 8 | 0 | 0 | 99 | 4 | 0 | 1 | 155 | 10 | 0 | 373 | 4616 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 36 | 284 | 80 | 0 | 100 | 416 | 112 | 0 | 0 | 1560 | 76 | 0 | 4 | 1968 | 160 | 0 | 4796 |
| Heavy Trucks | 0 | 0 | 4 | | 0 | 12 | 0 | | 0 | 56 | 0 | | 0 | 64 | 0 | | 136 |
| Pedestrians | | 128 | | | | 156 | | | | 92 | | | | 256 | | | 632 |
| Bicycles | 0 | 5 | 0 | | 0 | 10 | 0 | | 0 | 1 | 0 | | 0 | 2 | 0 | | 18 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

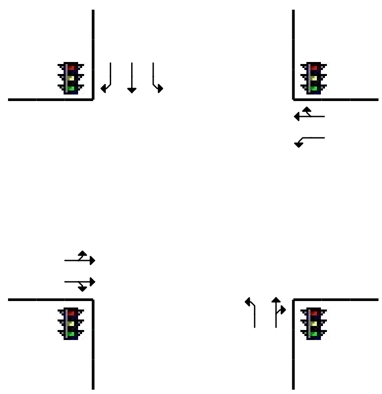
*Comments:*

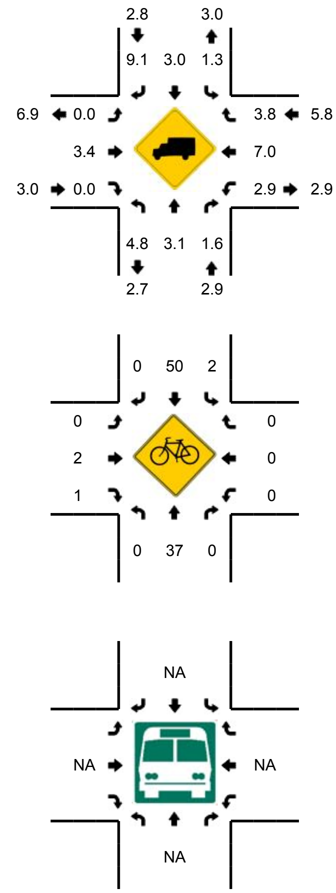
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

**LOCATION:** Arguello Blvd -- Turk Blvd | **QC JOB #:** 10652705
**CITY/STATE:** San Francisco, CA | **DATE:** Mon, Sep 12 2011




**Peak-Hour: 7:45 AM -- 8:45 AM**
**Peak 15-Min: 7:50 AM -- 8:05 AM**






| 5-Min Count Period Beginning At | Arguello Blvd (Northbound) | | | | Arguello Blvd (Southbound) | | | | Turk Blvd (Eastbound) | | | | Turk Blvd (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 0 | 10 | 4 | 0 | 2 | 10 | 0 | 0 | 3 | 5 | 4 | 0 | 1 | 4 | 1 | 0 | 44 | |
| 7:05 AM | 0 | 22 | 3 | 0 | 0 | 6 | 0 | 0 | 0 | 9 | 2 | 0 | 2 | 11 | 0 | 0 | 55 | |
| 7:10 AM | 2 | 17 | 4 | 0 | 0 | 11 | 1 | 0 | 1 | 8 | 0 | 0 | 1 | 11 | 2 | 0 | 58 | |
| 7:15 AM | 0 | 8 | 3 | 0 | 2 | 9 | 0 | 0 | 1 | 9 | 0 | 0 | 2 | 12 | 4 | 0 | 50 | |
| 7:20 AM | 2 | 25 | 7 | 0 | 4 | 5 | 1 | 0 | 2 | 9 | 0 | 0 | 1 | 8 | 3 | 0 | 67 | |
| 7:25 AM | 0 | 35 | 7 | 0 | 3 | 6 | 1 | 0 | 1 | 18 | 0 | 0 | 6 | 14 | 0 | 0 | 91 | |
| 7:30 AM | 2 | 23 | 7 | 0 | 4 | 11 | 2 | 0 | 3 | 17 | 4 | 0 | 4 | 22 | 4 | 0 | 103 | |
| 7:35 AM | 0 | 23 | 2 | 0 | 7 | 13 | 0 | 0 | 5 | 26 | 3 | 0 | 9 | 16 | 10 | 0 | 114 | |
| 7:40 AM | 1 | 37 | 7 | 0 | 6 | 14 | 1 | 0 | 2 | 34 | 1 | 0 | 7 | 23 | 2 | 0 | 135 | |
| 7:45 AM | 1 | 34 | 12 | 0 | 7 | 17 | 0 | 0 | 1 | 48 | 6 | 0 | 8 | 21 | 1 | 0 | 156 | |
| 7:50 AM | 1 | 45 | 15 | 0 | 8 | 17 | 2 | 0 | 6 | 46 | 3 | 0 | 4 | 21 | 6 | 0 | 174 | |
| 7:55 AM | 2 | 34 | 9 | 0 | 5 | 24 | 1 | 0 | 4 | 30 | 3 | 0 | 8 | 32 | 8 | 0 | 160 | 1207 |
| 8:00 AM | 4 | 42 | 9 | 0 | 8 | 28 | 1 | 0 | 3 | 41 | 1 | 0 | 8 | 22 | 2 | 0 | 169 | 1332 |
| 8:05 AM | 2 | 33 | 9 | 0 | 2 | 17 | 0 | 0 | 4 | 32 | 3 | 0 | 4 | 20 | 6 | 0 | 132 | 1409 |
| 8:10 AM | 2 | 32 | 13 | 0 | 4 | 16 | 2 | 0 | 2 | 45 | 1 | 0 | 9 | 18 | 3 | 0 | 147 | 1498 |
| 8:15 AM | 1 | 29 | 9 | 0 | 7 | 23 | 0 | 0 | 2 | 54 | 0 | 0 | 6 | 22 | 6 | 0 | 159 | 1607 |
| 8:20 AM | 0 | 28 | 14 | 0 | 7 | 15 | 1 | 0 | 1 | 43 | 3 | 0 | 1 | 21 | 8 | 0 | 142 | 1682 |
| 8:25 AM | 2 | 36 | 10 | 0 | 10 | 15 | 2 | 0 | 4 | 42 | 1 | 0 | 6 | 21 | 4 | 0 | 153 | 1744 |
| 8:30 AM | 2 | 41 | 14 | 0 | 6 | 16 | 1 | 0 | 5 | 32 | 1 | 0 | 6 | 29 | 1 | 0 | 154 | 1795 |
| 8:35 AM | 2 | 49 | 1 | 0 | 5 | 24 | 0 | 0 | 4 | 47 | 5 | 0 | 5 | 17 | 6 | 0 | 165 | 1846 |
| 8:40 AM | 2 | 44 | 9 | 0 | 7 | 20 | 1 | 0 | 6 | 39 | 5 | 0 | 5 | 29 | 2 | 0 | 169 | 1880 |
| 8:45 AM | 2 | 43 | 6 | 0 | 5 | 17 | 2 | 0 | 4 | 37 | 1 | 0 | 5 | 16 | 0 | 0 | 138 | 1862 |
| 8:50 AM | 4 | 49 | 11 | 0 | 8 | 20 | 0 | 0 | 4 | 42 | 6 | 0 | 3 | 23 | 11 | 0 | 181 | 1869 |
| 8:55 AM | 5 | 37 | 9 | 0 | 6 | 21 | 4 | 0 | 8 | 26 | 2 | 0 | 3 | 14 | 2 | 0 | 137 | 1846 |

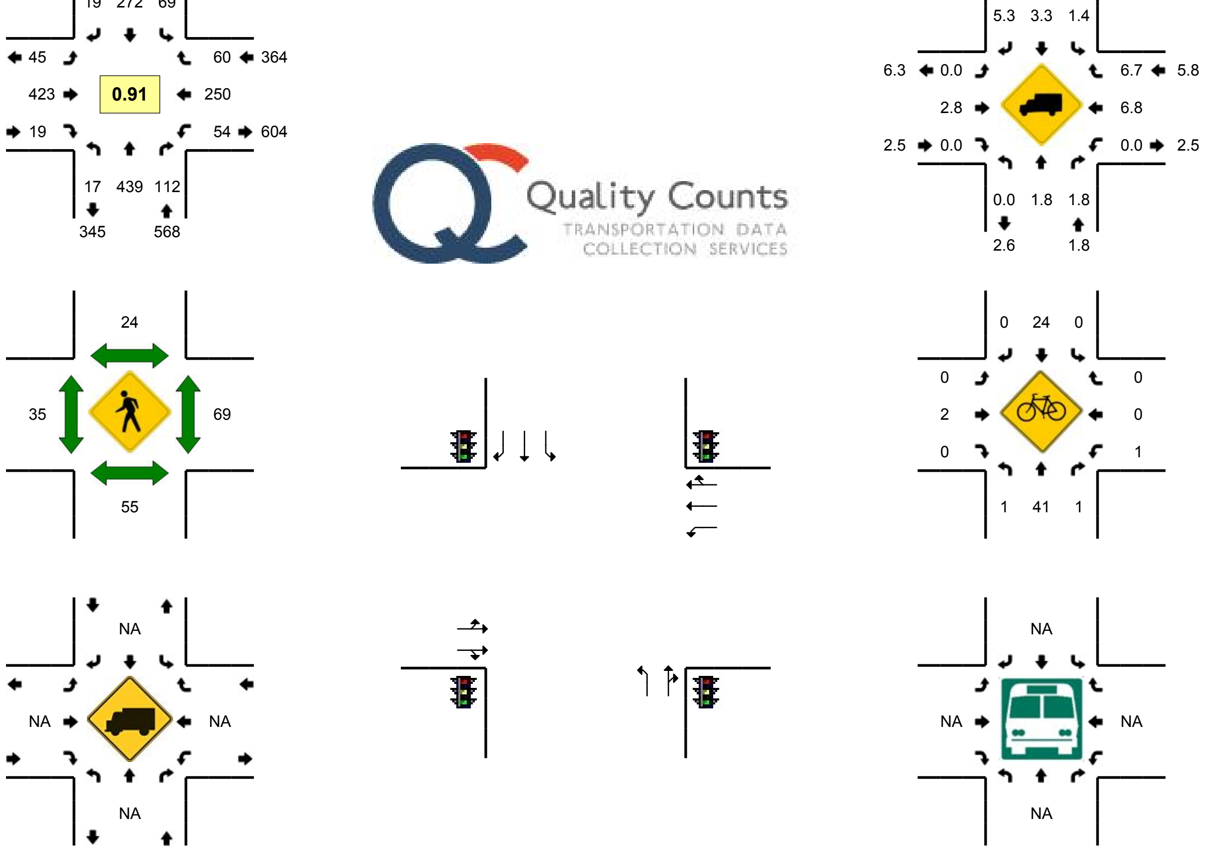
| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 28 | 484 | 132 | 0 | 84 | 276 | 16 | 0 | 52 | 468 | 28 | 0 | 80 | 300 | 64 | 0 | 2012 |
| Heavy Trucks | 0 | 20 | 4 | | 4 | 4 | 0 | | 0 | 16 | 0 | | 8 | 12 | 4 | | 72 |
| Pedestrians | | 84 | | | | 48 | | | | 28 | | | | 56 | | | 216 |
| Bicycles | 0 | 9 | 0 | | 0 | 34 | 0 | | 0 | 1 | 0 | | 0 | 0 | 0 | | 44 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

Type of peak hour being reported: Intersection Peak — Method for determining peak hour: Total Entering Volume

**LOCATION:** Arguello Blvd -- Turk Blvd — **QC JOB #:** 10652706
**CITY/STATE:** San Francisco, CA — **DATE:** Thu, Sep 08 2011

**Peak-Hour: 7:50 AM -- 8:50 AM**
**Peak 15-Min: 7:50 AM -- 8:05 AM**




| 5-Min Count Period Beginning At | Arguello Blvd (Northbound) Left | Thru | Right | U | Arguello Blvd (Southbound) Left | Thru | Right | U | Turk Blvd (Eastbound) Left | Thru | Right | U | Turk Blvd (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7:00 AM | 1 | 18 | 3 | 0 | 1 | 4 | 2 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 1 | 0 | 34 | |
| 7:05 AM | 0 | 12 | 6 | 0 | 4 | 10 | 2 | 0 | 1 | 10 | 1 | 0 | 3 | 1 | 0 | 0 | 50 | |
| 7:10 AM | 0 | 11 | 2 | 0 | 1 | 8 | 2 | 0 | 2 | 10 | 1 | 0 | 4 | 0 | 1 | 0 | 42 | |
| 7:15 AM | 1 | 20 | 4 | 0 | 3 | 7 | 0 | 0 | 1 | 16 | 0 | 0 | 3 | 4 | 0 | 0 | 59 | |
| 7:20 AM | 1 | 29 | 5 | 0 | 0 | 9 | 0 | 0 | 2 | 12 | 0 | 0 | 5 | 2 | 4 | 0 | 69 | |
| 7:25 AM | 1 | 36 | 7 | 0 | 3 | 9 | 0 | 0 | 2 | 11 | 0 | 0 | 4 | 1 | 3 | 0 | 77 | |
| 7:30 AM | 1 | 28 | 10 | 0 | 4 | 12 | 2 | 0 | 3 | 23 | 1 | 0 | 4 | 16 | 6 | 0 | 110 | |
| 7:35 AM | 0 | 40 | 2 | 0 | 2 | 10 | 1 | 0 | 0 | 26 | 1 | 0 | 9 | 11 | 6 | 1 | 109 | |
| 7:40 AM | 1 | 34 | 9 | 0 | 3 | 22 | 0 | 0 | 3 | 29 | 1 | 0 | 7 | 21 | 6 | 0 | 136 | |
| 7:45 AM | 0 | 34 | 8 | 0 | 7 | 13 | 2 | 0 | 5 | 37 | 2 | 0 | 7 | 22 | 6 | 0 | 143 | |
| 7:50 AM | 1 | 34 | 19 | 0 | 7 | 28 | 1 | 0 | 3 | 47 | 2 | 0 | 7 | 30 | 9 | 0 | 188 | |
| 7:55 AM | 1 | 39 | 9 | 0 | 9 | 19 | 4 | 0 | 2 | 29 | 3 | 0 | 5 | 21 | 5 | 0 | 146 | 1163 |
| 8:00 AM | 0 | 29 | 12 | 0 | 9 | 33 | 0 | 0 | 6 | 37 | 1 | 0 | 3 | 19 | 6 | 0 | 155 | 1284 |
| 8:05 AM | 1 | 39 | 6 | 0 | 6 | 17 | 1 | 0 | 1 | 32 | 1 | 0 | 5 | 11 | 3 | 0 | 123 | 1357 |
| 8:10 AM | 2 | 39 | 13 | 0 | 8 | 21 | 0 | 0 | 4 | 39 | 1 | 0 | 6 | 19 | 1 | 0 | 153 | 1468 |
| 8:15 AM | 2 | 36 | 7 | 0 | 1 | 17 | 0 | 0 | 5 | 42 | 1 | 0 | 7 | 16 | 3 | 0 | 137 | 1546 |
| 8:20 AM | 1 | 33 | 13 | 0 | 2 | 23 | 0 | 0 | 1 | 40 | 1 | 0 | 3 | 25 | 11 | 0 | 153 | 1630 |
| 8:25 AM | 0 | 38 | 2 | 0 | 5 | 20 | 3 | 0 | 5 | 33 | 2 | 0 | 3 | 29 | 7 | 0 | 147 | 1700 |
| 8:30 AM | 5 | 41 | 5 | 0 | 7 | 24 | 4 | 0 | 6 | 31 | 1 | 0 | 6 | 19 | 2 | 0 | 151 | 1741 |
| 8:35 AM | 0 | 41 | 5 | 0 | 1 | 20 | 1 | 0 | 4 | 35 | 1 | 0 | 1 | 25 | 8 | 0 | 142 | 1774 |
| 8:40 AM | 4 | 34 | 8 | 0 | 7 | 28 | 1 | 0 | 3 | 25 | 1 | 0 | 5 | 18 | 2 | 0 | 136 | 1774 |
| 8:45 AM | 0 | 36 | 13 | 0 | 7 | 22 | 4 | 0 | 5 | 33 | 4 | 0 | 3 | 18 | 3 | 0 | 148 | 1779 |
| 8:50 AM | 1 | 39 | 11 | 0 | 4 | 26 | 0 | 0 | 5 | 22 | 5 | 0 | 4 | 12 | 6 | 0 | 135 | 1726 |
| 8:55 AM | 0 | 40 | 8 | 0 | 6 | 17 | 1 | 0 | 3 | 33 | 2 | 0 | 5 | 18 | 7 | 0 | 140 | 1720 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 8 | 408 | 160 | 0 | 100 | 320 | 20 | 0 | 44 | 452 | 24 | 0 | 60 | 280 | 80 | 0 | 1956 |
| Heavy Trucks | 0 | 16 | 8 | | 0 | 12 | 0 | | 0 | 12 | 0 | | 0 | 16 | 4 | | 68 |
| Pedestrians | | 48 | | | | 16 | | | | 36 | | | | 80 | | | 180 |
| Bicycles | 0 | 7 | 0 | | 0 | 4 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 11 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

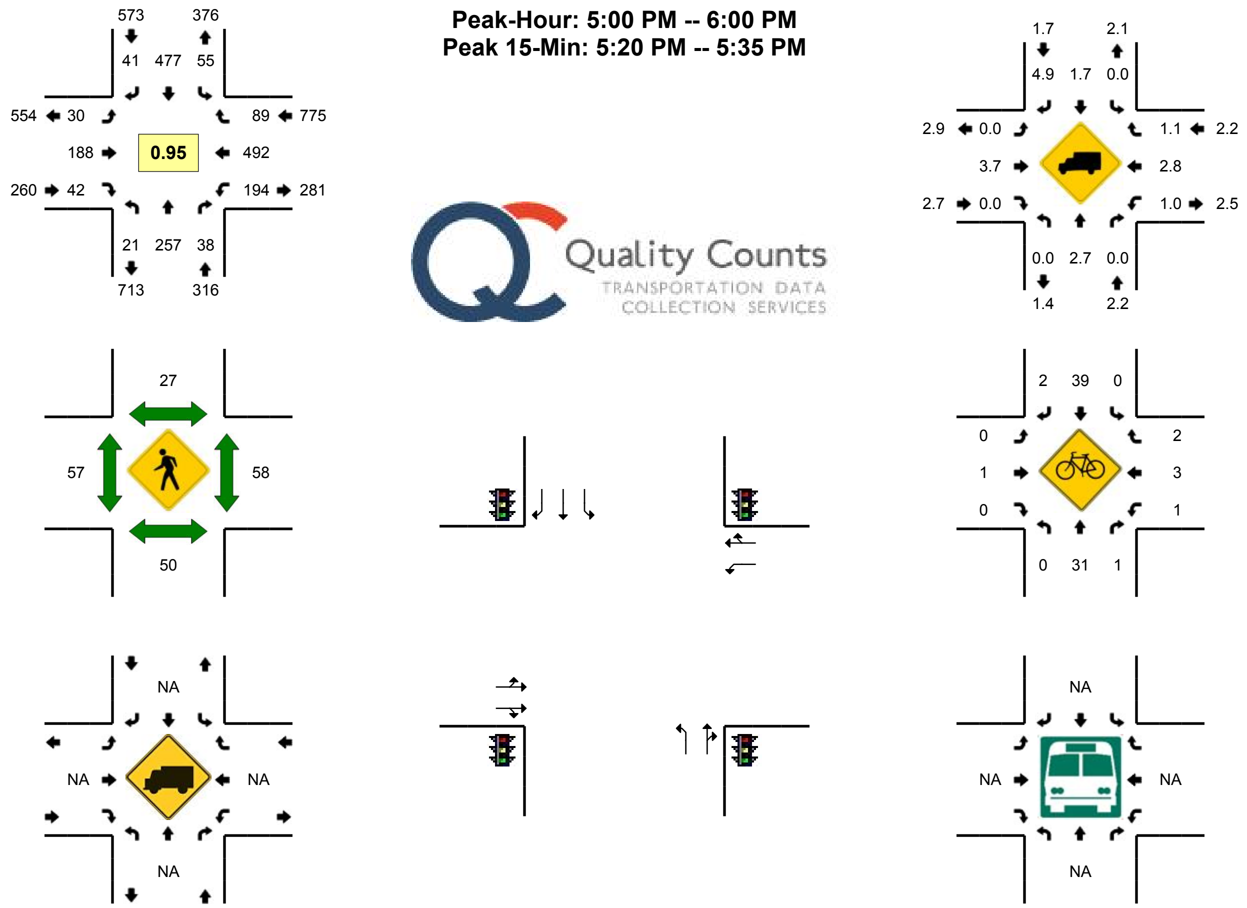
*Comments:*

Type of peak hour being reported: Intersection Peak — Method for determining peak hour: Total Entering Volume

**LOCATION:** Arguello Blvd -- Turk Blvd — **QC JOB #:** 10652707

**CITY/STATE:** San Francisco, CA — **DATE:** Thu, Sep 15 2011

**Peak-Hour: 5:00 PM -- 6:00 PM**
**Peak 15-Min: 5:20 PM -- 5:35 PM**



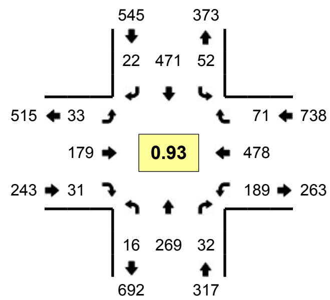

| 5-Min Count Period Beginning At | Arguello Blvd (Northbound) Left | Thru | Right | U | Arguello Blvd (Southbound) Left | Thru | Right | U | Turk Blvd (Eastbound) Left | Thru | Right | U | Turk Blvd (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4:00 PM | 1 | 30 | 2 | 0 | 4 | 32 | 0 | 0 | 4 | 27 | 3 | 0 | 7 | 24 | 6 | 0 | 140 | |
| 4:05 PM | 2 | 11 | 2 | 0 | 4 | 32 | 1 | 0 | 1 | 9 | 2 | 0 | 4 | 34 | 7 | 0 | 109 | |
| 4:10 PM | 1 | 23 | 6 | 0 | 2 | 35 | 3 | 0 | 2 | 13 | 0 | 0 | 6 | 19 | 6 | 0 | 116 | |
| 4:15 PM | 2 | 16 | 1 | 0 | 6 | 28 | 1 | 0 | 2 | 8 | 4 | 0 | 7 | 25 | 2 | 0 | 102 | |
| 4:20 PM | 1 | 22 | 3 | 0 | 2 | 42 | 2 | 0 | 4 | 14 | 2 | 0 | 9 | 25 | 6 | 0 | 132 | |
| 4:25 PM | 1 | 12 | 4 | 0 | 3 | 36 | 0 | 0 | 4 | 30 | 18 | 0 | 11 | 34 | 15 | 0 | 168 | |
| 4:30 PM | 0 | 21 | 2 | 0 | 4 | 20 | 1 | 0 | 2 | 8 | 2 | 0 | 15 | 26 | 9 | 0 | 110 | |
| 4:35 PM | 1 | 21 | 3 | 0 | 8 | 34 | 2 | 0 | 4 | 14 | 0 | 0 | 10 | 32 | 10 | 0 | 139 | |
| 4:40 PM | 1 | 19 | 4 | 0 | 6 | 35 | 4 | 0 | 1 | 15 | 6 | 0 | 6 | 34 | 3 | 0 | 134 | |
| 4:45 PM | 3 | 29 | 7 | 0 | 1 | 27 | 0 | 0 | 3 | 15 | 4 | 0 | 16 | 32 | 10 | 0 | 147 | |
| 4:50 PM | 2 | 15 | 7 | 0 | 4 | 31 | 0 | 0 | 0 | 12 | 2 | 0 | 12 | 38 | 7 | 0 | 130 | |
| 4:55 PM | 0 | 27 | 3 | 0 | 1 | 25 | 6 | 0 | 2 | 10 | 0 | 0 | 10 | 32 | 8 | 0 | 124 | 1551 |
| 5:00 PM | 0 | 26 | 3 | 0 | 3 | 29 | 1 | 0 | 1 | 14 | 3 | 0 | 12 | 24 | 5 | 0 | 121 | 1532 |
| 5:05 PM | 0 | 26 | 6 | 0 | 4 | 37 | 4 | 0 | 3 | 16 | 2 | 0 | 12 | 43 | 5 | 0 | 158 | 1581 |
| 5:10 PM | 3 | 24 | 3 | 0 | 6 | 37 | 3 | 0 | 4 | 12 | 4 | 0 | 19 | 41 | 4 | 0 | 160 | 1625 |
| 5:15 PM | 4 | 16 | 4 | 0 | 3 | 32 | 6 | 0 | 4 | 16 | 5 | 0 | 21 | 38 | 9 | 0 | 158 | 1681 |
| 5:20 PM | 3 | 27 | 2 | 0 | 7 | 40 | 6 | 0 | 1 | 13 | 6 | 0 | 20 | 48 | 10 | 0 | 183 | 1732 |
| 5:25 PM | 2 | 17 | 3 | 0 | 2 | 43 | 5 | 0 | 5 | 14 | 2 | 0 | 18 | 40 | 7 | 0 | 158 | 1722 |
| 5:30 PM | 3 | 19 | 1 | 0 | 6 | 40 | 1 | 0 | 2 | 17 | 4 | 0 | 14 | 44 | 12 | 0 | 163 | 1775 |
| 5:35 PM | 1 | 22 | 3 | 0 | 8 | 38 | 1 | 0 | 3 | 17 | 3 | 0 | 14 | 53 | 5 | 0 | 168 | 1804 |
| 5:40 PM | 2 | 24 | 5 | 0 | 3 | 41 | 1 | 0 | 3 | 16 | 3 | 0 | 19 | 41 | 5 | 0 | 163 | 1833 |
| 5:45 PM | 1 | 20 | 3 | 0 | 5 | 42 | 1 | 0 | 1 | 15 | 4 | 0 | 15 | 41 | 6 | 0 | 154 | 1840 |
| 5:50 PM | 2 | 18 | 3 | 0 | 3 | 46 | 3 | 0 | 2 | 19 | 3 | 0 | 11 | 38 | 8 | 0 | 156 | 1866 |
| 5:55 PM | 0 | 18 | 2 | 0 | 5 | 52 | 9 | 0 | 1 | 19 | 3 | 0 | 19 | 41 | 13 | 0 | 182 | 1924 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 32 | 252 | 24 | 0 | 60 | 492 | 48 | 0 | 32 | 176 | 48 | 0 | 208 | 528 | 116 | 0 | 2016 |
| Heavy Trucks | 0 | 4 | 0 | | 0 | 4 | 4 | | 0 | 4 | 0 | | 8 | 16 | 0 | | 40 |
| Pedestrians | | 56 | | | | 16 | | | | 52 | | | | 48 | | | 172 |
| Bicycles | 0 | 7 | 1 | | 0 | 12 | 1 | | 0 | 0 | 0 | | 0 | 0 | 1 | | 22 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

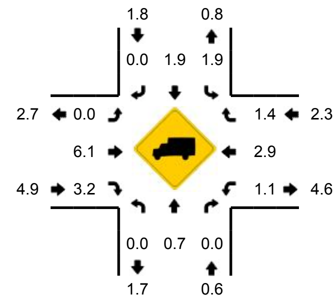
*Comments:*

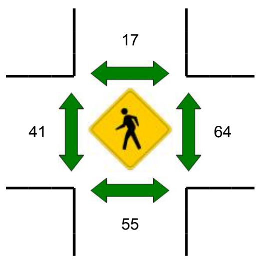
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

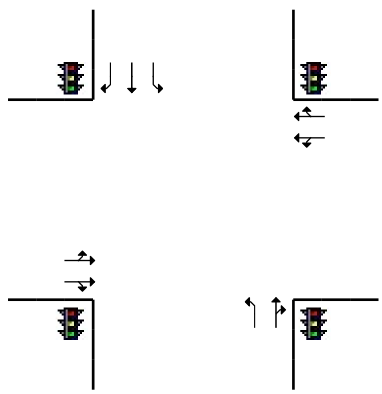
**LOCATION:** Arguello Blvd -- Turk Blvd | **QC JOB #:** 10652708
**CITY/STATE:** San Francisco, CA | **DATE:** Thu, Sep 08 2011

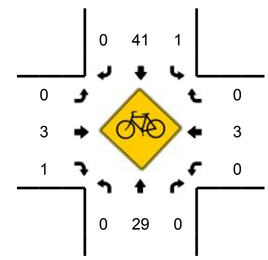


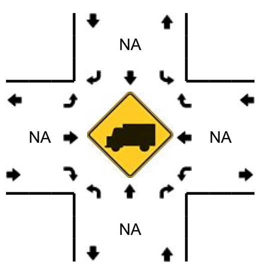

**Peak-Hour: 4:55 PM -- 5:55 PM**
**Peak 15-Min: 5:10 PM -- 5:25 PM**

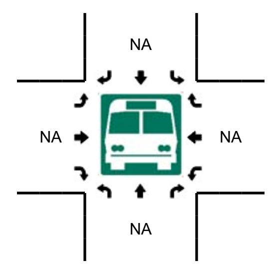




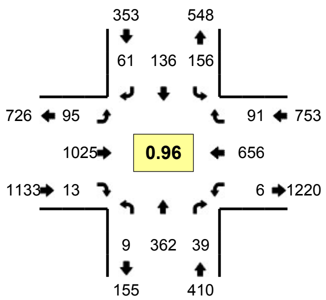

| 5-Min Count Period Beginning At | Arguello Blvd (Northbound) Left | Thru | Right | U | Arguello Blvd (Southbound) Left | Thru | Right | U | Turk Blvd (Eastbound) Left | Thru | Right | U | Turk Blvd (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4:00 PM | 0 | 19 | 3 | 0 | 7 | 40 | 3 | 0 | 0 | 17 | 3 | 0 | 9 | 26 | 8 | 0 | 135 | |
| 4:05 PM | 0 | 13 | 2 | 0 | 3 | 23 | 5 | 0 | 2 | 11 | 4 | 0 | 9 | 22 | 6 | 0 | 100 | |
| 4:10 PM | 1 | 19 | 7 | 0 | 2 | 33 | 6 | 0 | 7 | 15 | 3 | 0 | 8 | 24 | 3 | 0 | 128 | |
| 4:15 PM | 2 | 12 | 3 | 0 | 8 | 35 | 1 | 0 | 4 | 12 | 2 | 0 | 14 | 17 | 10 | 0 | 120 | |
| 4:20 PM | 2 | 23 | 2 | 0 | 6 | 29 | 2 | 0 | 1 | 21 | 2 | 0 | 7 | 25 | 9 | 0 | 129 | |
| 4:25 PM | 1 | 24 | 1 | 0 | 2 | 31 | 3 | 0 | 3 | 12 | 3 | 0 | 18 | 33 | 12 | 0 | 143 | |
| 4:30 PM | 1 | 21 | 2 | 0 | 7 | 31 | 2 | 0 | 1 | 12 | 2 | 0 | 8 | 21 | 10 | 0 | 118 | |
| 4:35 PM | 4 | 21 | 3 | 0 | 4 | 29 | 2 | 0 | 4 | 12 | 3 | 0 | 17 | 43 | 12 | 0 | 154 | |
| 4:40 PM | 0 | 11 | 5 | 0 | 8 | 33 | 5 | 0 | 1 | 12 | 2 | 0 | 9 | 28 | 4 | 0 | 118 | |
| 4:45 PM | 4 | 25 | 5 | 0 | 2 | 37 | 3 | 0 | 2 | 20 | 2 | 0 | 11 | 32 | 7 | 0 | 150 | |
| 4:50 PM | 1 | 19 | 4 | 0 | 5 | 31 | 4 | 0 | 4 | 12 | 2 | 0 | 14 | 39 | 12 | 0 | 147 | |
| 4:55 PM | 2 | 26 | 2 | 0 | 5 | 28 | 2 | 0 | 4 | 11 | 2 | 0 | 20 | 34 | 4 | 0 | 140 | 1582 |
| 5:00 PM | 1 | 28 | 1 | 0 | 4 | 34 | 2 | 0 | 2 | 11 | 2 | 0 | 16 | 31 | 6 | 0 | 138 | 1585 |
| 5:05 PM | 2 | 17 | 1 | 0 | 3 | 41 | 2 | 0 | 1 | 15 | 3 | 0 | 11 | 38 | 7 | 0 | 141 | 1626 |
| 5:10 PM | 2 | 20 | 4 | 0 | 5 | 50 | 0 | 0 | 2 | 16 | 0 | 0 | 14 | 50 | 4 | 0 | 167 | 1665 |
| 5:15 PM | 3 | 30 | 3 | 0 | 3 | 43 | 1 | 0 | 4 | 14 | 6 | 0 | 13 | 39 | 5 | 0 | 164 | 1709 |
| 5:20 PM | 0 | 23 | 2 | 0 | 3 | 38 | 1 | 0 | 2 | 19 | 2 | 0 | 22 | 46 | 6 | 0 | 164 | 1744 |
| 5:25 PM | 0 | 18 | 2 | 0 | 7 | 42 | 4 | 0 | 5 | 16 | 4 | 0 | 7 | 41 | 4 | 0 | 150 | 1751 |
| 5:30 PM | 0 | 27 | 6 | 0 | 6 | 36 | 0 | 0 | 2 | 17 | 3 | 0 | 15 | 43 | 10 | 0 | 165 | 1798 |
| 5:35 PM | 3 | 24 | 4 | 1 | 4 | 37 | 3 | 0 | 1 | 11 | 4 | 0 | 14 | 36 | 2 | 0 | 144 | 1788 |
| 5:40 PM | 0 | 20 | 4 | 0 | 3 | 44 | 2 | 0 | 5 | 15 | 1 | 0 | 16 | 41 | 7 | 0 | 158 | 1828 |
| 5:45 PM | 0 | 18 | 2 | 0 | 6 | 42 | 4 | 0 | 2 | 20 | 2 | 0 | 25 | 39 | 4 | 0 | 164 | 1842 |
| 5:50 PM | 2 | 18 | 1 | 0 | 3 | 36 | 1 | 0 | 3 | 14 | 2 | 0 | 16 | 40 | 12 | 0 | 148 | 1843 |
| 5:55 PM | 0 | 24 | 3 | 0 | 4 | 35 | 2 | 0 | 2 | 10 | 3 | 0 | 15 | 32 | 10 | 0 | 140 | 1843 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 20 | 292 | 36 | 0 | 44 | 524 | 8 | 0 | 32 | 196 | 32 | 0 | 196 | 540 | 60 | 0 | 1980 |
| Heavy Trucks | 0 | 0 | 0 | | 4 | 8 | 0 | | 0 | 4 | 0 | | 8 | 12 | 0 | | 36 |
| Pedestrians | | 44 | | | | 12 | | | | 48 | | | | 68 | | | 172 |
| Bicycles | 0 | 12 | 0 | | 0 | 5 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 17 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

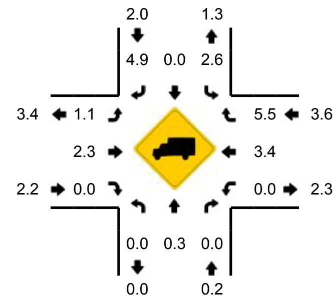
*Comments:*

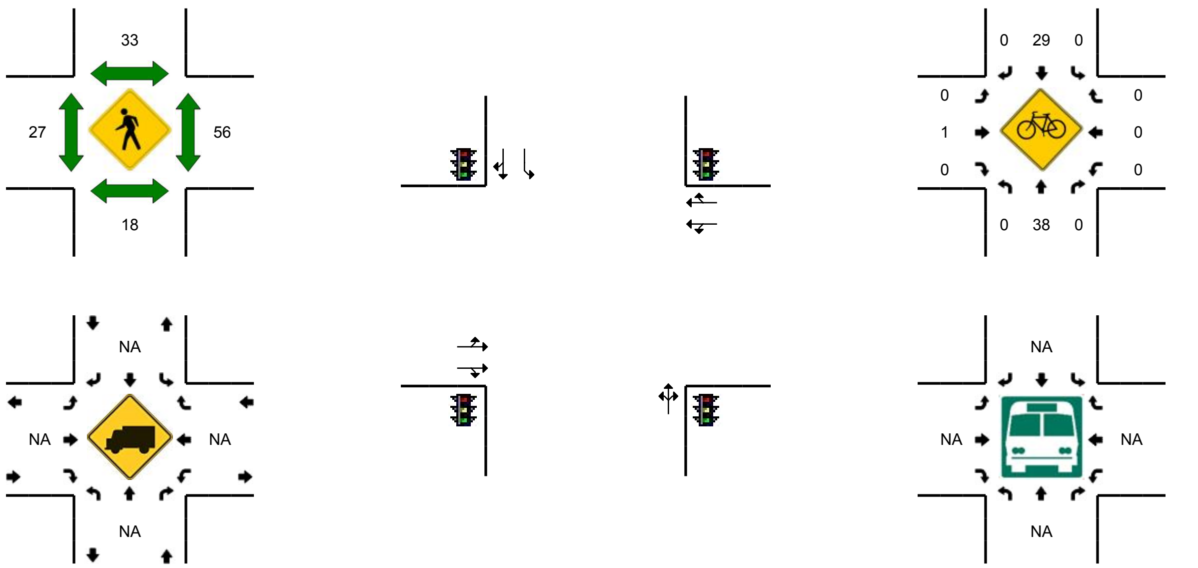
Type of peak hour being reported: Intersection Peak    Method for determining peak hour: Total Entering Volume

**LOCATION:** Arguello Blvd -- Fulton St    **QC JOB #:** 10652709
**CITY/STATE:** San Francisco, CA    **DATE:** Wed, Sep 14 2011




**Peak-Hour: 7:40 AM -- 8:40 AM**
**Peak 15-Min: 8:00 AM -- 8:15 AM**



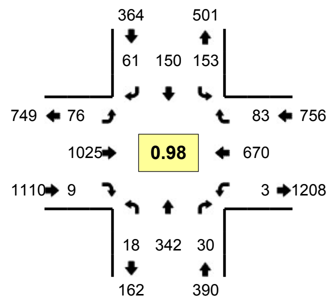

| 5-Min Count Period Beginning At | Arguello Blvd (Northbound) Left | Thru | Right | U | Arguello Blvd (Southbound) Left | Thru | Right | U | Fulton St (Eastbound) Left | Thru | Right | U | Fulton St (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7:00 AM | 0 | 12 | 3 | 0 | 6 | 4 | 5 | 0 | 3 | 43 | 0 | 0 | 0 | 21 | 2 | 0 | 99 | |
| 7:05 AM | 0 | 7 | 0 | 0 | 14 | 0 | 3 | 0 | 5 | 35 | 0 | 0 | 0 | 21 | 5 | 0 | 90 | |
| 7:10 AM | 0 | 10 | 0 | 0 | 8 | 1 | 1 | 0 | 9 | 41 | 0 | 0 | 0 | 31 | 3 | 0 | 104 | |
| 7:15 AM | 1 | 14 | 0 | 0 | 4 | 3 | 2 | 0 | 8 | 51 | 1 | 0 | 0 | 37 | 3 | 0 | 124 | |
| 7:20 AM | 0 | 12 | 2 | 0 | 4 | 5 | 2 | 0 | 10 | 58 | 1 | 0 | 0 | 41 | 2 | 0 | 137 | |
| 7:25 AM | 0 | 17 | 5 | 0 | 4 | 7 | 3 | 0 | 10 | 53 | 0 | 0 | 0 | 47 | 2 | 0 | 148 | |
| 7:30 AM | 0 | 19 | 3 | 0 | 12 | 3 | 3 | 0 | 5 | 85 | 0 | 0 | 0 | 45 | 2 | 0 | 177 | |
| 7:35 AM | 0 | 24 | 1 | 0 | 14 | 6 | 5 | 0 | 8 | 84 | 0 | 0 | 1 | 52 | 8 | 0 | 203 | |
| 7:40 AM | 1 | 28 | 2 | 0 | 12 | 11 | 5 | 0 | 7 | 100 | 0 | 0 | 1 | 50 | 6 | 0 | 223 | |
| 7:45 AM | 0 | 27 | 5 | 0 | 13 | 11 | 4 | 0 | 14 | 63 | 1 | 0 | 0 | 48 | 8 | 0 | 194 | |
| 7:50 AM | 1 | 36 | 4 | 0 | 7 | 11 | 5 | 0 | 10 | 89 | 6 | 0 | 1 | 53 | 4 | 0 | 227 | |
| 7:55 AM | 1 | 32 | 4 | 0 | 14 | 15 | 6 | 0 | 5 | 96 | 0 | 0 | 1 | 46 | 10 | 0 | 230 | 1956 |
| 8:00 AM | 1 | 32 | 5 | 0 | 12 | 14 | 6 | 0 | 12 | 89 | 0 | 0 | 1 | 50 | 8 | 0 | 230 | 2087 |
| 8:05 AM | 0 | 34 | 4 | 0 | 15 | 13 | 5 | 0 | 9 | 72 | 1 | 0 | 0 | 53 | 7 | 0 | 213 | 2210 |
| 8:10 AM | 0 | 37 | 3 | 0 | 13 | 11 | 3 | 0 | 5 | 98 | 0 | 0 | 1 | 66 | 10 | 0 | 247 | 2353 |
| 8:15 AM | 1 | 26 | 3 | 0 | 13 | 14 | 3 | 0 | 5 | 89 | 0 | 0 | 1 | 52 | 5 | 0 | 212 | 2441 |
| 8:20 AM | 0 | 35 | 3 | 0 | 11 | 8 | 7 | 0 | 8 | 88 | 0 | 0 | 0 | 59 | 10 | 0 | 229 | 2533 |
| 8:25 AM | 0 | 21 | 2 | 0 | 17 | 8 | 7 | 0 | 5 | 72 | 1 | 0 | 0 | 57 | 3 | 0 | 193 | 2578 |
| 8:30 AM | 1 | 29 | 4 | 0 | 15 | 8 | 7 | 0 | 6 | 87 | 3 | 0 | 0 | 56 | 9 | 0 | 225 | 2626 |
| 8:35 AM | 3 | 25 | 0 | 0 | 14 | 12 | 3 | 0 | 9 | 82 | 1 | 0 | 0 | 66 | 11 | 0 | 226 | 2649 |
| 8:40 AM | 1 | 24 | 0 | 0 | 10 | 9 | 4 | 0 | 7 | 69 | 4 | 0 | 0 | 57 | 6 | 0 | 191 | 2617 |
| 8:45 AM | 2 | 30 | 5 | 0 | 16 | 6 | 7 | 0 | 11 | 79 | 2 | 0 | 0 | 59 | 9 | 0 | 226 | 2649 |
| 8:50 AM | 1 | 27 | 4 | 0 | 14 | 7 | 2 | 0 | 9 | 75 | 3 | 0 | 0 | 60 | 10 | 0 | 212 | 2634 |
| 8:55 AM | 1 | 28 | 0 | 0 | 12 | 10 | 4 | 0 | 8 | 73 | 4 | 0 | 0 | 57 | 10 | 0 | 207 | 2611 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 4 | 412 | 48 | 0 | 160 | 152 | 56 | 0 | 104 | 1036 | 4 | 0 | 8 | 676 | 100 | 0 | 2760 |
| Heavy Trucks | 0 | 0 | 0 | | 8 | 0 | 4 | | 0 | 20 | 0 | | 0 | 24 | 0 | | 56 |
| Pedestrians | | 28 | | | | 44 | | | | 32 | | | | 44 | | | 148 |
| Bicycles | 0 | 10 | 0 | | 0 | 8 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 18 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

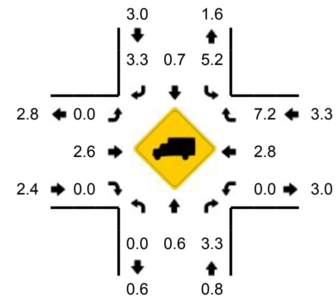
*Comments:*

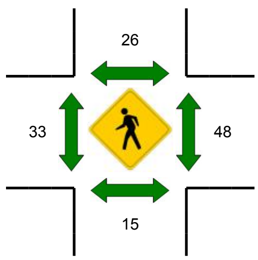
Type of peak hour being reported: Intersection Peak — Method for determining peak hour: Total Entering Volume

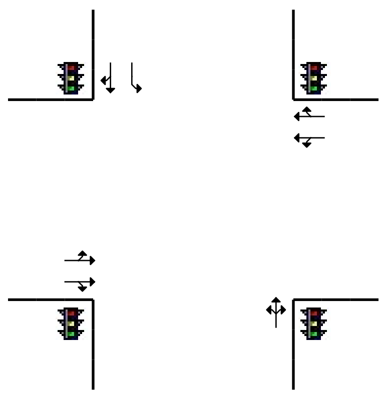
**LOCATION:** Arguello Blvd -- Fulton St — **QC JOB #:** 10652710
**CITY/STATE:** San Francisco, CA — **DATE:** Thu, Sep 08 2011

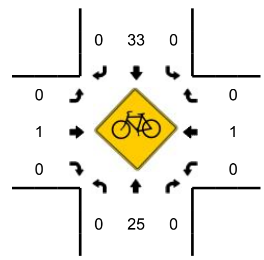


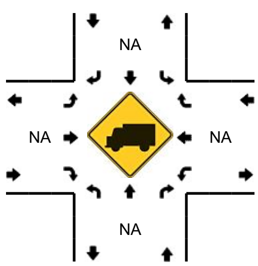

**Peak-Hour: 7:50 AM -- 8:50 AM**
**Peak 15-Min: 7:50 AM -- 8:05 AM**

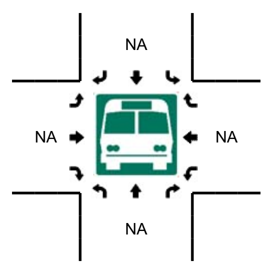




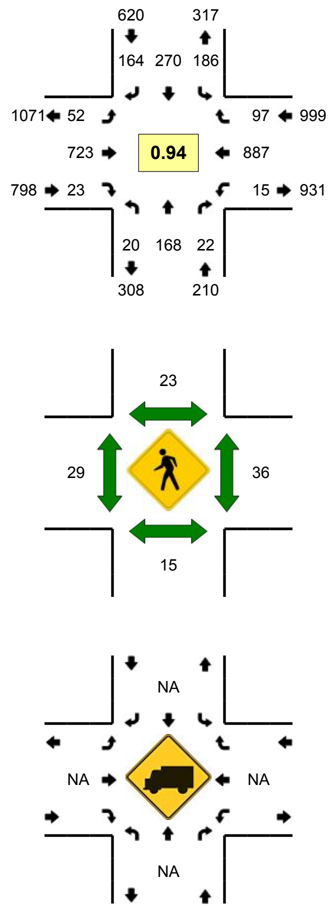

| 5-Min Count Period Beginning At | Arguello Blvd (Northbound) | | | | Arguello Blvd (Southbound) | | | | Fulton St (Eastbound) | | | | Fulton St (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 1 | 11 | 1 | 0 | 6 | 1 | 4 | 0 | 4 | 38 | 1 | 0 | 1 | 24 | 3 | 0 | 95 | |
| 7:05 AM | 0 | 12 | 0 | 0 | 7 | 4 | 8 | 0 | 4 | 55 | 0 | 0 | 0 | 32 | 1 | 0 | 123 | |
| 7:10 AM | 0 | 8 | 0 | 0 | 9 | 2 | 3 | 0 | 5 | 52 | 0 | 0 | 0 | 29 | 4 | 0 | 112 | |
| 7:15 AM | 0 | 12 | 1 | 0 | 8 | 3 | 4 | 0 | 6 | 59 | 0 | 0 | 0 | 46 | 4 | 0 | 143 | |
| 7:20 AM | 0 | 21 | 4 | 0 | 8 | 3 | 2 | 0 | 7 | 65 | 0 | 0 | 0 | 39 | 6 | 0 | 155 | |
| 7:25 AM | 0 | 23 | 4 | 0 | 3 | 9 | 3 | 0 | 7 | 53 | 0 | 0 | 0 | 44 | 4 | 0 | 150 | |
| 7:30 AM | 0 | 18 | 3 | 0 | 8 | 5 | 6 | 0 | 10 | 74 | 0 | 0 | 0 | 33 | 4 | 0 | 161 | |
| 7:35 AM | 0 | 28 | 3 | 0 | 8 | 8 | 11 | 0 | 9 | 85 | 0 | 0 | 0 | 39 | 6 | 0 | 197 | |
| 7:40 AM | 1 | 26 | 2 | 0 | 12 | 8 | 8 | 0 | 4 | 94 | 0 | 0 | 0 | 59 | 4 | 0 | 218 | |
| 7:45 AM | 1 | 25 | 6 | 0 | 12 | 8 | 8 | 0 | 10 | 76 | 0 | 0 | 0 | 67 | 5 | 0 | 218 | |
| 7:50 AM | 1 | 32 | 6 | 0 | 15 | 13 | 7 | 0 | 11 | 81 | 1 | 0 | 0 | 64 | 5 | 0 | 236 | |
| 7:55 AM | 2 | 34 | 1 | 0 | 11 | 13 | 3 | 0 | 4 | 69 | 1 | 0 | 1 | 61 | 4 | 0 | 204 | 2012 |
| 8:00 AM | 2 | 29 | 2 | 0 | 11 | 19 | 2 | 0 | 5 | 95 | 0 | 0 | 1 | 56 | 8 | 0 | 230 | 2147 |
| 8:05 AM | 0 | 30 | 3 | 0 | 11 | 13 | 5 | 0 | 3 | 93 | 1 | 0 | 0 | 50 | 7 | 0 | 216 | 2240 |
| 8:10 AM | 0 | 32 | 3 | 0 | 11 | 7 | 4 | 0 | 5 | 87 | 1 | 0 | 0 | 41 | 7 | 0 | 198 | 2326 |
| 8:15 AM | 1 | 37 | 2 | 0 | 8 | 17 | 7 | 0 | 6 | 96 | 0 | 0 | 0 | 62 | 8 | 0 | 244 | 2427 |
| 8:20 AM | 1 | 24 | 2 | 0 | 13 | 13 | 7 | 0 | 9 | 92 | 2 | 0 | 0 | 51 | 8 | 0 | 222 | 2494 |
| 8:25 AM | 0 | 21 | 1 | 0 | 14 | 8 | 6 | 0 | 7 | 80 | 0 | 0 | 1 | 44 | 5 | 0 | 187 | 2531 |
| 8:30 AM | 2 | 22 | 4 | 0 | 15 | 17 | 6 | 0 | 6 | 75 | 1 | 0 | 0 | 64 | 3 | 0 | 215 | 2585 |
| 8:35 AM | 0 | 29 | 3 | 0 | 11 | 8 | 4 | 0 | 9 | 84 | 0 | 0 | 0 | 63 | 9 | 0 | 220 | 2608 |
| 8:40 AM | 2 | 23 | 1 | 0 | 17 | 11 | 6 | 0 | 3 | 83 | 0 | 0 | 0 | 55 | 10 | 0 | 211 | 2601 |
| 8:45 AM | 7 | 29 | 2 | 0 | 16 | 11 | 4 | 0 | 8 | 90 | 2 | 0 | 0 | 59 | 9 | 0 | 237 | 2620 |
| 8:50 AM | 1 | 35 | 2 | 0 | 16 | 12 | 7 | 0 | 11 | 63 | 1 | 0 | 0 | 55 | 4 | 0 | 207 | 2591 |
| 8:55 AM | 0 | 23 | 6 | 0 | 11 | 11 | 4 | 0 | 13 | 63 | 1 | 0 | 1 | 50 | 16 | 0 | 199 | 2586 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 20 | 380 | 36 | 0 | 148 | 180 | 48 | 0 | 80 | 980 | 8 | 0 | 8 | 724 | 68 | 0 | 2680 |
| Heavy Trucks | 0 | 4 | 4 | | 8 | 4 | 0 | | 0 | 28 | 0 | | 0 | 12 | 8 | | 68 |
| Pedestrians | | 8 | | | | 20 | | | | 36 | | | | 36 | | | 100 |
| Bicycles | 0 | 3 | 0 | | 0 | 9 | 0 | | 0 | 1 | 0 | | 0 | 0 | 0 | | 13 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

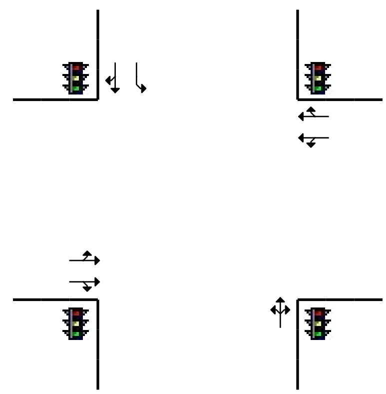
*Comments:*

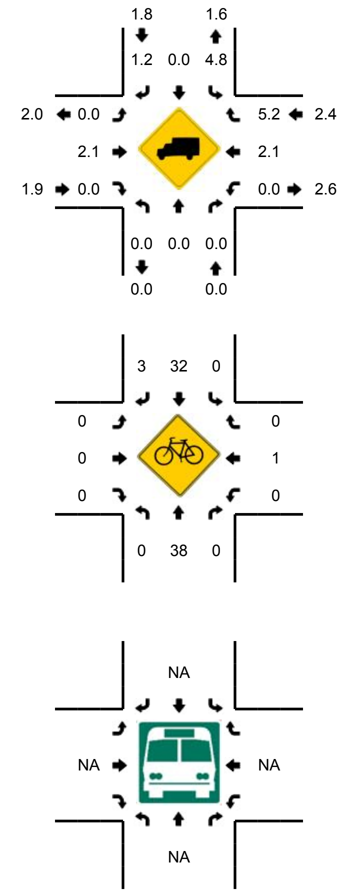
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

**LOCATION:** Arguello Blvd -- Fulton St | **QC JOB #:** 10652711
**CITY/STATE:** San Francisco, CA | **DATE:** Wed, Sep 14 2011




**Peak-Hour: 4:50 PM -- 5:50 PM**
**Peak 15-Min: 5:10 PM -- 5:25 PM**






| 5-Min Count Period Beginning At | Arguello Blvd (Northbound) Left | Thru | Right | U | Arguello Blvd (Southbound) Left | Thru | Right | U | Fulton St (Eastbound) Left | Thru | Right | U | Fulton St (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4:00 PM | 2 | 7 | 3 | 0 | 10 | 12 | 14 | 0 | 5 | 53 | 1 | 0 | 2 | 68 | 5 | 0 | 182 | |
| 4:05 PM | 4 | 9 | 2 | 0 | 18 | 14 | 8 | 0 | 2 | 48 | 1 | 0 | 0 | 48 | 8 | 0 | 162 | |
| 4:10 PM | 0 | 11 | 2 | 0 | 19 | 16 | 8 | 0 | 2 | 61 | 0 | 0 | 1 | 56 | 9 | 0 | 185 | |
| 4:15 PM | 1 | 11 | 3 | 0 | 14 | 20 | 14 | 0 | 4 | 57 | 0 | 0 | 1 | 71 | 2 | 0 | 198 | |
| 4:20 PM | 0 | 11 | 2 | 0 | 10 | 16 | 16 | 0 | 4 | 60 | 2 | 0 | 2 | 52 | 10 | 0 | 185 | |
| 4:25 PM | 3 | 11 | 3 | 0 | 11 | 13 | 6 | 0 | 3 | 50 | 0 | 0 | 2 | 64 | 7 | 0 | 173 | |
| 4:30 PM | 0 | 8 | 2 | 0 | 8 | 13 | 12 | 0 | 5 | 67 | 2 | 0 | 0 | 63 | 5 | 0 | 185 | |
| 4:35 PM | 3 | 10 | 1 | 0 | 17 | 21 | 10 | 0 | 5 | 66 | 2 | 0 | 2 | 66 | 3 | 0 | 206 | |
| 4:40 PM | 2 | 9 | 3 | 0 | 20 | 15 | 9 | 0 | 2 | 56 | 2 | 0 | 1 | 67 | 7 | 0 | 193 | |
| 4:45 PM | 0 | 8 | 2 | 0 | 14 | 17 | 10 | 0 | 3 | 59 | 2 | 0 | 2 | 63 | 9 | 0 | 189 | |
| 4:50 PM | 2 | 10 | 3 | 0 | 17 | 16 | 16 | 0 | 2 | 68 | 4 | 0 | 0 | 67 | 11 | 0 | 216 | |
| 4:55 PM | 2 | 17 | 3 | 0 | 11 | 15 | 10 | 0 | 5 | 69 | 0 | 0 | 0 | 74 | 9 | 0 | 215 | 2289 |
| 5:00 PM | 1 | 14 | 1 | 0 | 16 | 20 | 10 | 0 | 4 | 62 | 2 | 0 | 0 | 87 | 3 | 0 | 220 | 2327 |
| 5:05 PM | 2 | 13 | 2 | 0 | 12 | 26 | 10 | 0 | 5 | 60 | 1 | 0 | 2 | 60 | 11 | 0 | 204 | 2369 |
| 5:10 PM | 1 | 11 | 2 | 0 | 17 | 25 | 24 | 0 | 9 | 57 | 2 | 0 | 2 | 84 | 6 | 0 | 240 | 2424 |
| 5:15 PM | 1 | 11 | 2 | 0 | 21 | 26 | 17 | 0 | 4 | 64 | 3 | 0 | 0 | 82 | 3 | 0 | 234 | 2460 |
| 5:20 PM | 5 | 13 | 1 | 0 | 14 | 22 | 10 | 0 | 7 | 64 | 0 | 0 | 1 | 72 | 12 | 0 | 221 | 2496 |
| 5:25 PM | 1 | 16 | 1 | 0 | 19 | 27 | 9 | 0 | 4 | 80 | 3 | 0 | 0 | 69 | 9 | 0 | 238 | 2561 |
| 5:30 PM | 1 | 15 | 3 | 0 | 18 | 25 | 12 | 0 | 4 | 47 | 2 | 0 | 1 | 75 | 4 | 0 | 207 | 2583 |
| 5:35 PM | 2 | 13 | 1 | 0 | 13 | 22 | 15 | 0 | 1 | 51 | 2 | 0 | 1 | 74 | 8 | 0 | 203 | 2580 |
| 5:40 PM | 1 | 18 | 2 | 0 | 12 | 23 | 15 | 0 | 5 | 54 | 2 | 0 | 5 | 64 | 10 | 0 | 211 | 2598 |
| 5:45 PM | 1 | 17 | 1 | 0 | 16 | 23 | 16 | 0 | 2 | 47 | 2 | 0 | 3 | 79 | 11 | 0 | 218 | 2627 |
| 5:50 PM | 2 | 11 | 0 | 0 | 18 | 18 | 15 | 0 | 5 | 46 | 4 | 0 | 3 | 64 | 8 | 0 | 194 | 2605 |
| 5:55 PM | 2 | 17 | 0 | 0 | 9 | 16 | 18 | 0 | 3 | 58 | 4 | 0 | 0 | 67 | 8 | 0 | 202 | 2592 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 28 | 140 | 20 | 0 | 208 | 292 | 204 | 0 | 80 | 740 | 20 | 0 | 12 | 952 | 84 | 0 | 2780 |
| Heavy Trucks | 0 | 0 | 0 | | 8 | 0 | 4 | | 0 | 24 | 0 | | 0 | 20 | 8 | | 64 |
| Pedestrians | | 24 | | | | 16 | | | | 44 | | | | 40 | | | 124 |
| Bicycles | 0 | 15 | 0 | | 0 | 9 | 1 | | 0 | 0 | 0 | | 0 | 1 | 0 | | 26 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

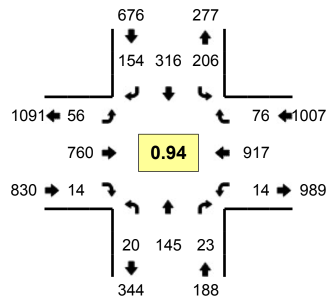
*Comments:*

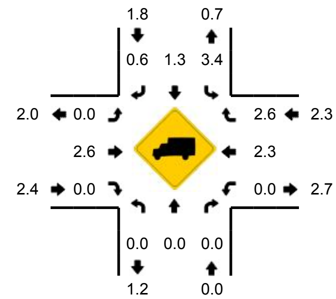
Report generated on 9/23/2011 11:46 AM

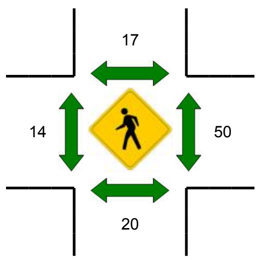
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

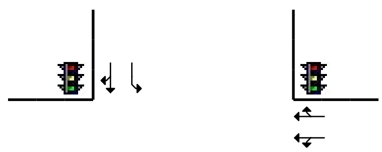
**LOCATION:** Arguello Blvd -- Fulton St | **QC JOB #:** 10652712
**CITY/STATE:** San Francisco, CA | **DATE:** Thu, Sep 08 2011

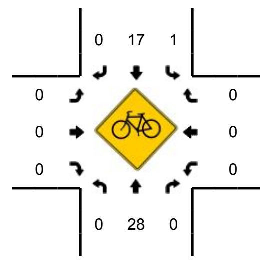
**Peak-Hour: 4:50 PM -- 5:50 PM**
**Peak 15-Min: 5:15 PM -- 5:30 PM**

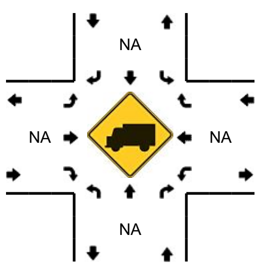


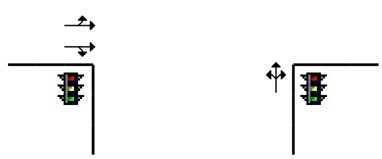



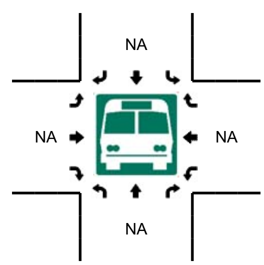








| 5-Min Count Period Beginning At | Arguello Blvd (Northbound) Left | Thru | Right | U | Arguello Blvd (Southbound) Left | Thru | Right | U | Fulton St (Eastbound) Left | Thru | Right | U | Fulton St (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4:00 PM | 0 | 11 | 2 | 0 | 13 | 14 | 7 | 0 | 5 | 53 | 0 | 0 | 1 | 63 | 6 | 0 | 175 | |
| 4:05 PM | 2 | 7 | 1 | 0 | 8 | 16 | 10 | 0 | 2 | 47 | 0 | 0 | 0 | 69 | 5 | 0 | 167 | |
| 4:10 PM | 2 | 15 | 3 | 0 | 13 | 20 | 12 | 0 | 3 | 56 | 2 | 0 | 1 | 51 | 6 | 0 | 184 | |
| 4:15 PM | 3 | 9 | 2 | 0 | 12 | 21 | 9 | 0 | 2 | 38 | 1 | 0 | 2 | 52 | 7 | 0 | 158 | |
| 4:20 PM | 4 | 11 | 0 | 0 | 16 | 10 | 13 | 0 | 3 | 62 | 3 | 0 | 2 | 74 | 11 | 0 | 209 | |
| 4:25 PM | 1 | 12 | 2 | 0 | 13 | 19 | 14 | 0 | 2 | 63 | 1 | 0 | 0 | 52 | 7 | 0 | 186 | |
| 4:30 PM | 2 | 9 | 1 | 0 | 13 | 20 | 9 | 0 | 6 | 42 | 0 | 0 | 1 | 71 | 10 | 0 | 184 | |
| 4:35 PM | 3 | 14 | 1 | 0 | 19 | 15 | 11 | 0 | 8 | 55 | 2 | 0 | 1 | 67 | 4 | 0 | 200 | |
| 4:40 PM | 3 | 14 | 4 | 0 | 16 | 16 | 8 | 0 | 2 | 68 | 2 | 0 | 2 | 69 | 9 | 0 | 213 | |
| 4:45 PM | 0 | 16 | 1 | 0 | 15 | 19 | 5 | 0 | 4 | 66 | 0 | 0 | 2 | 80 | 3 | 0 | 211 | |
| 4:50 PM | 4 | 14 | 0 | 0 | 17 | 15 | 18 | 0 | 6 | 46 | 1 | 0 | 0 | 73 | 4 | 0 | 198 | |
| 4:55 PM | 0 | 9 | 0 | 0 | 11 | 19 | 17 | 0 | 5 | 69 | 1 | 0 | 2 | 76 | 8 | 0 | 217 | 2302 |
| 5:00 PM | 2 | 10 | 1 | 0 | 18 | 20 | 9 | 0 | 3 | 63 | 1 | 0 | 0 | 67 | 7 | 0 | 201 | 2328 |
| 5:05 PM | 3 | 14 | 1 | 0 | 17 | 18 | 9 | 0 | 10 | 62 | 1 | 0 | 0 | 75 | 7 | 0 | 217 | 2378 |
| 5:10 PM | 1 | 12 | 3 | 0 | 18 | 29 | 9 | 0 | 5 | 60 | 3 | 0 | 3 | 72 | 4 | 0 | 219 | 2413 |
| 5:15 PM | 2 | 18 | 3 | 0 | 20 | 29 | 13 | 0 | 4 | 62 | 0 | 0 | 3 | 82 | 10 | 0 | 246 | 2501 |
| 5:20 PM | 0 | 12 | 2 | 0 | 21 | 33 | 12 | 0 | 7 | 72 | 1 | 0 | 1 | 74 | 7 | 0 | 242 | 2534 |
| 5:25 PM | 3 | 11 | 2 | 0 | 24 | 31 | 6 | 0 | 1 | 69 | 1 | 0 | 3 | 73 | 6 | 0 | 230 | 2578 |
| 5:30 PM | 1 | 13 | 2 | 0 | 12 | 30 | 8 | 0 | 6 | 62 | 2 | 0 | 0 | 97 | 7 | 0 | 240 | 2634 |
| 5:35 PM | 2 | 12 | 6 | 0 | 16 | 34 | 10 | 0 | 0 | 71 | 0 | 0 | 1 | 69 | 1 | 0 | 222 | 2656 |
| 5:40 PM | 1 | 15 | 2 | 0 | 15 | 30 | 20 | 0 | 5 | 66 | 3 | 0 | 0 | 91 | 5 | 0 | 253 | 2696 |
| 5:45 PM | 1 | 5 | 1 | 0 | 17 | 28 | 23 | 0 | 4 | 58 | 0 | 0 | 1 | 68 | 10 | 0 | 216 | 2701 |
| 5:50 PM | 3 | 13 | 1 | 0 | 14 | 13 | 16 | 0 | 1 | 60 | 2 | 0 | 5 | 63 | 7 | 0 | 198 | 2701 |
| 5:55 PM | 0 | 13 | 2 | 0 | 10 | 18 | 11 | 0 | 4 | 61 | 3 | 0 | 4 | 76 | 10 | 0 | 212 | 2696 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 20 | 164 | 28 | 0 | 260 | 372 | 124 | 0 | 48 | 812 | 8 | 0 | 28 | 916 | 92 | 0 | 2872 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 8 | 4 | | 0 | 12 | 0 | | 0 | 12 | 4 | | 40 |
| Pedestrians | | 32 | | | | 12 | | | | 12 | | | | 68 | | | 124 |
| Bicycles | 0 | 4 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 4 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

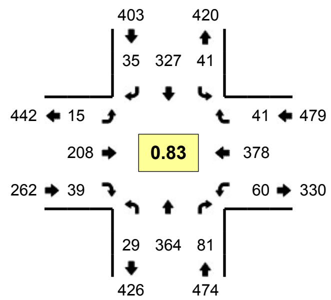
*Comments:*

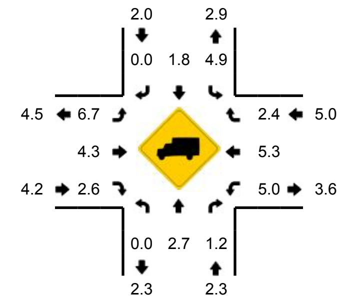
Report generated on 9/23/2011 11:46 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

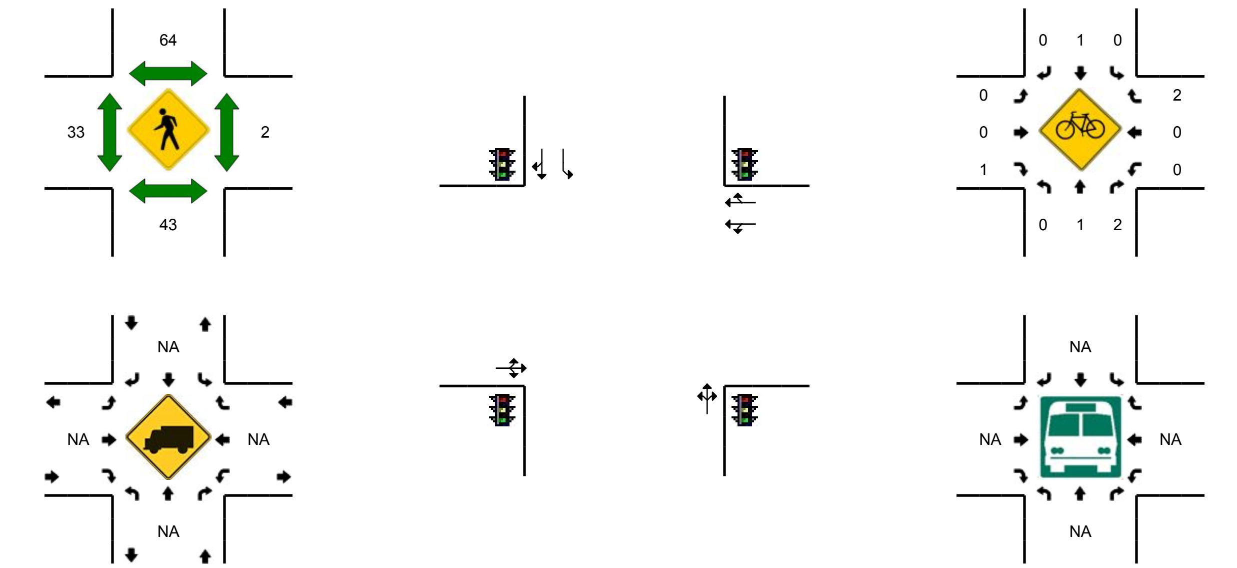
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

**LOCATION:** Stanyan St -- Turk Blvd | **QC JOB #:** 10652713
**CITY/STATE:** San Francisco, CA | **DATE:** Thu, Sep 15 2011

**Peak-Hour: 7:35 AM -- 8:35 AM**
**Peak 15-Min: 7:55 AM -- 8:10 AM**



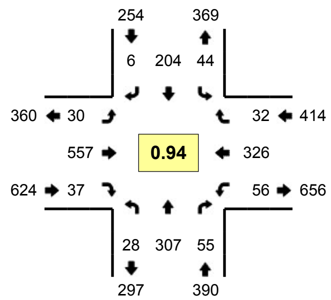

| 5-Min Count Period Beginning At | Stanyan St (Northbound) Left | Thru | Right | U | Stanyan St (Southbound) Left | Thru | Right | U | Turk Blvd (Eastbound) Left | Thru | Right | U | Turk Blvd (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7:00 AM | 1 | 14 | 2 | 0 | 3 | 29 | 5 | 0 | 2 | 22 | 1 | 0 | 6 | 9 | 1 | 0 | 95 | |
| 7:05 AM | 0 | 6 | 0 | 0 | 1 | 15 | 5 | 0 | 1 | 21 | 1 | 0 | 0 | 11 | 0 | 0 | 61 | |
| 7:10 AM | 1 | 15 | 1 | 0 | 5 | 26 | 5 | 0 | 0 | 14 | 5 | 0 | 1 | 13 | 0 | 0 | 86 | |
| 7:15 AM | 0 | 12 | 3 | 0 | 0 | 35 | 2 | 0 | 1 | 16 | 2 | 0 | 2 | 15 | 1 | 0 | 89 | |
| 7:20 AM | 2 | 21 | 2 | 0 | 1 | 20 | 7 | 0 | 1 | 17 | 3 | 0 | 2 | 12 | 0 | 0 | 88 | |
| 7:25 AM | 0 | 15 | 2 | 0 | 2 | 22 | 3 | 0 | 1 | 15 | 2 | 0 | 3 | 16 | 1 | 0 | 82 | |
| 7:30 AM | 1 | 21 | 3 | 0 | 2 | 28 | 3 | 0 | 1 | 17 | 2 | 0 | 1 | 24 | 2 | 0 | 105 | |
| 7:35 AM | 0 | 29 | 7 | 0 | 2 | 24 | 1 | 0 | 2 | 22 | 2 | 0 | 2 | 26 | 3 | 0 | 120 | |
| 7:40 AM | 1 | 25 | 4 | 0 | 3 | 29 | 1 | 0 | 2 | 23 | 5 | 0 | 2 | 26 | 4 | 0 | 125 | |
| 7:45 AM | 1 | 26 | 4 | 0 | 1 | 29 | 4 | 0 | 2 | 16 | 3 | 0 | 2 | 32 | 0 | 0 | 120 | |
| 7:50 AM | 1 | 25 | 7 | 0 | 2 | 27 | 3 | 0 | 0 | 22 | 2 | 0 | 2 | 30 | 5 | 0 | 126 | |
| 7:55 AM | 0 | 29 | 8 | 0 | 5 | 27 | 5 | 0 | 0 | 11 | 3 | 0 | 3 | 33 | 1 | 0 | 125 | 1222 |
| 8:00 AM | 2 | 28 | 5 | 0 | 1 | 36 | 1 | 0 | 1 | 16 | 3 | 0 | 4 | 30 | 2 | 0 | 129 | 1256 |
| 8:05 AM | 16 | 62 | 16 | 0 | 2 | 19 | 4 | 0 | 1 | 13 | 3 | 0 | 26 | 63 | 9 | 0 | 234 | 1429 |
| 8:10 AM | 0 | 29 | 5 | 0 | 5 | 19 | 5 | 0 | 2 | 17 | 2 | 0 | 3 | 25 | 5 | 0 | 117 | 1460 |
| 8:15 AM | 1 | 26 | 4 | 0 | 2 | 35 | 2 | 0 | 0 | 16 | 5 | 0 | 4 | 21 | 1 | 0 | 117 | 1488 |
| 8:20 AM | 3 | 26 | 7 | 0 | 7 | 27 | 3 | 0 | 3 | 22 | 3 | 0 | 5 | 28 | 4 | 0 | 138 | 1538 |
| 8:25 AM | 3 | 29 | 7 | 0 | 7 | 29 | 2 | 0 | 1 | 16 | 5 | 0 | 7 | 25 | 4 | 0 | 135 | 1591 |
| 8:30 AM | 1 | 30 | 7 | 0 | 4 | 26 | 4 | 0 | 1 | 14 | 3 | 0 | 0 | 39 | 3 | 0 | 132 | 1618 |
| 8:35 AM | 2 | 20 | 4 | 0 | 3 | 25 | 0 | 0 | 0 | 21 | 5 | 0 | 5 | 18 | 3 | 0 | 106 | 1604 |
| 8:40 AM | 4 | 28 | 8 | 0 | 1 | 23 | 3 | 0 | 2 | 18 | 4 | 0 | 5 | 30 | 3 | 0 | 129 | 1608 |
| 8:45 AM | 2 | 25 | 3 | 0 | 2 | 23 | 11 | 0 | 2 | 15 | 3 | 0 | 6 | 21 | 4 | 0 | 117 | 1605 |
| 8:50 AM | 2 | 32 | 3 | 0 | 3 | 23 | 1 | 0 | 2 | 22 | 4 | 0 | 1 | 33 | 0 | 0 | 126 | 1605 |
| 8:55 AM | 0 | 21 | 6 | 0 | 1 | 13 | 4 | 0 | 0 | 22 | 7 | 0 | 2 | 22 | 1 | 0 | 99 | 1579 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 72 | 476 | 116 | 0 | 32 | 328 | 40 | 0 | 8 | 160 | 36 | 0 | 132 | 504 | 48 | 0 | 1952 |
| Heavy Trucks | 0 | 16 | 4 | | 0 | 12 | 0 | | 0 | 12 | 4 | | 12 | 20 | 0 | | 80 |
| Pedestrians | | 32 | | | | 88 | | | | 64 | | | | 0 | | | 184 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

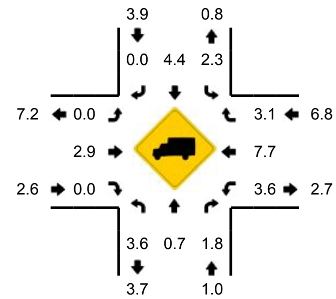
*Comments:*

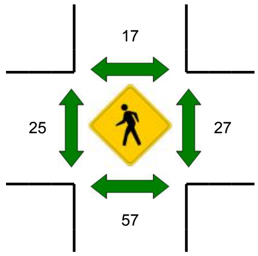
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

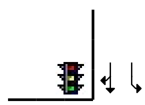
**LOCATION:** Stanyan St -- Turk Blvd | **QC JOB #:** 10652714
**CITY/STATE:** San Francisco, CA | **DATE:** Thu, Sep 08 2011

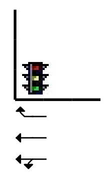


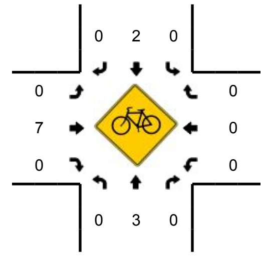

**Peak-Hour: 7:45 AM -- 8:45 AM**
**Peak 15-Min: 7:50 AM -- 8:05 AM**

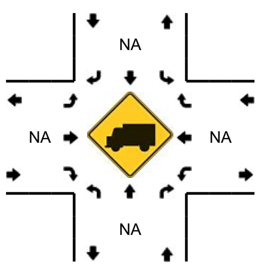


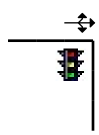



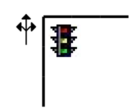



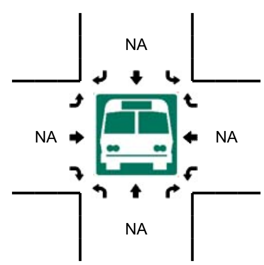









| 5-Min Count Period Beginning At | Stanyan St (Northbound) Left | Thru | Right | U | Stanyan St (Southbound) Left | Thru | Right | U | Turk Blvd (Eastbound) Left | Thru | Right | U | Turk Blvd (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7:00 AM | 1 | 9 | 2 | 0 | 1 | 13 | 0 | 0 | 1 | 9 | 0 | 0 | 1 | 13 | 0 | 0 | 50 | |
| 7:05 AM | 0 | 15 | 1 | 0 | 3 | 6 | 0 | 0 | 1 | 18 | 2 | 0 | 3 | 10 | 0 | 0 | 59 | |
| 7:10 AM | 0 | 17 | 1 | 0 | 0 | 13 | 0 | 0 | 0 | 10 | 3 | 0 | 3 | 10 | 1 | 0 | 58 | |
| 7:15 AM | 0 | 15 | 3 | 0 | 1 | 11 | 0 | 0 | 0 | 16 | 2 | 0 | 0 | 16 | 0 | 0 | 64 | |
| 7:20 AM | 2 | 17 | 1 | 0 | 1 | 9 | 1 | 0 | 0 | 18 | 3 | 0 | 3 | 15 | 0 | 0 | 70 | |
| 7:25 AM | 1 | 30 | 8 | 0 | 1 | 12 | 0 | 0 | 4 | 20 | 1 | 0 | 2 | 21 | 1 | 0 | 101 | |
| 7:30 AM | 1 | 20 | 3 | 0 | 4 | 12 | 0 | 0 | 2 | 36 | 1 | 0 | 3 | 23 | 2 | 0 | 107 | |
| 7:35 AM | 2 | 26 | 4 | 0 | 3 | 19 | 1 | 0 | 4 | 33 | 0 | 0 | 5 | 24 | 0 | 0 | 121 | |
| 7:40 AM | 1 | 15 | 4 | 0 | 5 | 18 | 2 | 0 | 5 | 36 | 0 | 0 | 1 | 32 | 2 | 0 | 121 | |
| 7:45 AM | 1 | 28 | 4 | 0 | 6 | 18 | 0 | 0 | 1 | 46 | 2 | 0 | 0 | 33 | 0 | 0 | 139 | |
| 7:50 AM | 5 | 29 | 3 | 0 | 3 | 15 | 0 | 0 | 2 | 56 | 3 | 0 | 3 | 39 | 3 | 0 | 161 | |
| 7:55 AM | 0 | 21 | 5 | 0 | 3 | 19 | 0 | 0 | 6 | 49 | 1 | 0 | 2 | 26 | 3 | 0 | 135 | 1186 |
| 8:00 AM | 3 | 29 | 7 | 0 | 6 | 14 | 0 | 0 | 2 | 47 | 5 | 0 | 8 | 26 | 5 | 0 | 152 | 1288 |
| 8:05 AM | 2 | 29 | 1 | 0 | 3 | 21 | 0 | 0 | 1 | 47 | 3 | 0 | 8 | 18 | 3 | 0 | 136 | 1365 |
| 8:10 AM | 3 | 28 | 1 | 0 | 3 | 21 | 1 | 0 | 2 | 49 | 3 | 0 | 3 | 21 | 0 | 0 | 135 | 1442 |
| 8:15 AM | 2 | 29 | 3 | 0 | 2 | 11 | 1 | 0 | 4 | 52 | 4 | 0 | 5 | 17 | 2 | 0 | 132 | 1510 |
| 8:20 AM | 2 | 30 | 4 | 0 | 4 | 22 | 1 | 0 | 0 | 46 | 2 | 0 | 8 | 34 | 6 | 0 | 159 | 1599 |
| 8:25 AM | 2 | 20 | 6 | 0 | 5 | 11 | 0 | 0 | 4 | 44 | 3 | 0 | 5 | 37 | 1 | 0 | 138 | 1636 |
| 8:30 AM | 3 | 22 | 7 | 0 | 3 | 21 | 0 | 0 | 2 | 41 | 4 | 0 | 5 | 26 | 3 | 0 | 137 | 1666 |
| 8:35 AM | 3 | 19 | 6 | 0 | 4 | 20 | 3 | 0 | 3 | 41 | 2 | 0 | 3 | 26 | 3 | 0 | 133 | 1678 |
| 8:40 AM | 2 | 23 | 8 | 0 | 2 | 11 | 0 | 0 | 3 | 39 | 5 | 0 | 6 | 23 | 3 | 0 | 125 | 1682 |
| 8:45 AM | 5 | 26 | 4 | 0 | 2 | 24 | 0 | 0 | 3 | 39 | 1 | 0 | 3 | 21 | 3 | 0 | 131 | 1674 |
| 8:50 AM | 2 | 26 | 5 | 0 | 5 | 22 | 1 | 0 | 3 | 45 | 5 | 0 | 2 | 18 | 2 | 0 | 136 | 1649 |
| 8:55 AM | 1 | 27 | 4 | 0 | 3 | 23 | 2 | 0 | 3 | 38 | 2 | 0 | 2 | 27 | 3 | 0 | 135 | 1649 |

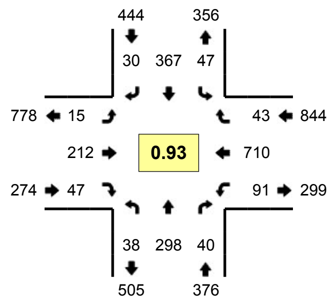
| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 32 | 316 | 60 | 0 | 48 | 192 | 0 | 0 | 40 | 608 | 36 | 0 | 52 | 364 | 44 | 0 | 1792 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 8 | 0 | | 0 | 16 | 0 | | 0 | 20 | 0 | | 44 |
| Pedestrians | | 64 | | | | 12 | | | | 20 | | | | 16 | | | 112 |
| Bicycles | 0 | 2 | 0 | | 0 | 0 | 0 | | 0 | 1 | 0 | | 0 | 0 | 0 | | 3 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

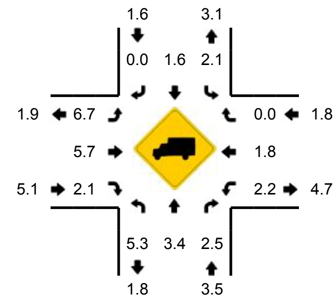
*Comments:*

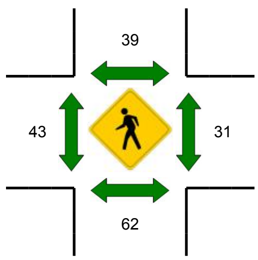
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

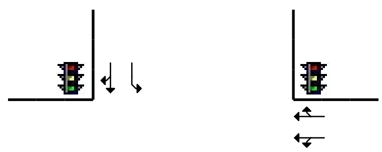
**LOCATION:** Stanyan Street -- Turk Blvd | **QC JOB #:** 10652715
**CITY/STATE:** San Francisco, CA | **DATE:** Thu, Sep 15 2011

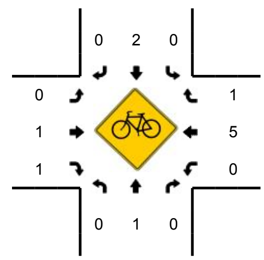
**Peak-Hour: 5:00 PM -- 6:00 PM**
**Peak 15-Min: 5:15 PM -- 5:30 PM**

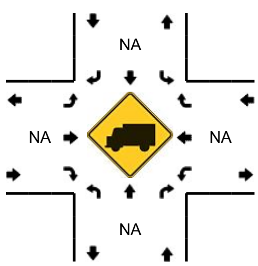


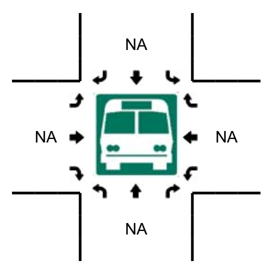





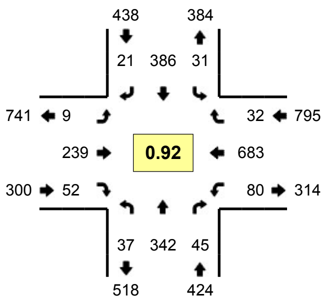

| 5-Min Count Period Beginning At | Stanyan Street (Northbound) | | | | Stanyan Street (Southbound) | | | | Turk Blvd (Eastbound) | | | | Turk Blvd (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 3 | 29 | 5 | 0 | 1 | 22 | 0 | 0 | 2 | 22 | 1 | 0 | 4 | 36 | 6 | 0 | 131 | |
| 4:05 PM | 1 | 15 | 5 | 0 | 1 | 28 | 0 | 0 | 1 | 21 | 1 | 0 | 3 | 31 | 4 | 0 | 111 | |
| 4:10 PM | 5 | 26 | 5 | 0 | 4 | 38 | 0 | 0 | 0 | 14 | 5 | 0 | 4 | 34 | 3 | 0 | 138 | |
| 4:15 PM | 0 | 35 | 2 | 0 | 5 | 27 | 0 | 0 | 1 | 16 | 2 | 0 | 8 | 35 | 3 | 0 | 134 | |
| 4:20 PM | 1 | 20 | 7 | 0 | 0 | 21 | 1 | 0 | 1 | 17 | 3 | 0 | 3 | 35 | 4 | 0 | 113 | |
| 4:25 PM | 2 | 22 | 3 | 0 | 4 | 24 | 0 | 0 | 1 | 15 | 2 | 0 | 2 | 30 | 3 | 0 | 108 | |
| 4:30 PM | 2 | 28 | 3 | 0 | 1 | 28 | 0 | 0 | 1 | 17 | 2 | 0 | 3 | 40 | 4 | 0 | 129 | |
| 4:35 PM | 2 | 24 | 1 | 0 | 4 | 31 | 1 | 0 | 2 | 22 | 2 | 0 | 6 | 56 | 2 | 0 | 153 | |
| 4:40 PM | 3 | 29 | 1 | 0 | 5 | 19 | 0 | 0 | 2 | 23 | 5 | 0 | 3 | 40 | 3 | 0 | 133 | |
| 4:45 PM | 1 | 29 | 4 | 0 | 4 | 36 | 0 | 0 | 2 | 16 | 3 | 0 | 8 | 60 | 5 | 0 | 168 | |
| 4:50 PM | 2 | 27 | 3 | 0 | 0 | 26 | 1 | 0 | 0 | 22 | 2 | 0 | 8 | 54 | 6 | 0 | 151 | |
| 4:55 PM | 5 | 27 | 5 | 0 | 5 | 31 | 1 | 0 | 0 | 11 | 3 | 0 | 6 | 44 | 3 | 0 | 141 | 1610 |
| 5:00 PM | 1 | 36 | 1 | 0 | 3 | 30 | 2 | 0 | 1 | 16 | 3 | 0 | 6 | 45 | 2 | 0 | 146 | 1625 |
| 5:05 PM | 2 | 19 | 4 | 0 | 2 | 32 | 2 | 0 | 1 | 13 | 3 | 0 | 9 | 54 | 5 | 0 | 146 | 1660 |
| 5:10 PM | 5 | 19 | 5 | 0 | 3 | 30 | 1 | 0 | 2 | 17 | 2 | 0 | 5 | 51 | 5 | 0 | 145 | 1667 |
| 5:15 PM | 2 | 35 | 2 | 0 | 2 | 33 | 2 | 0 | 0 | 16 | 5 | 0 | 8 | 72 | 3 | 0 | 180 | 1713 |
| 5:20 PM | 7 | 27 | 3 | 0 | 4 | 33 | 4 | 0 | 3 | 22 | 3 | 0 | 5 | 58 | 3 | 0 | 172 | 1772 |
| 5:25 PM | 7 | 29 | 2 | 0 | 4 | 28 | 5 | 0 | 1 | 16 | 5 | 0 | 7 | 59 | 5 | 0 | 168 | 1832 |
| 5:30 PM | 4 | 26 | 4 | 0 | 7 | 31 | 1 | 0 | 1 | 14 | 3 | 0 | 5 | 55 | 5 | 0 | 156 | 1859 |
| 5:35 PM | 3 | 25 | 0 | 0 | 6 | 31 | 6 | 0 | 0 | 21 | 5 | 0 | 8 | 66 | 5 | 0 | 176 | 1882 |
| 5:40 PM | 1 | 23 | 3 | 0 | 5 | 29 | 0 | 0 | 2 | 18 | 4 | 0 | 16 | 58 | 3 | 0 | 162 | 1911 |
| 5:45 PM | 2 | 23 | 11 | 0 | 2 | 30 | 2 | 0 | 2 | 15 | 3 | 0 | 6 | 69 | 1 | 0 | 166 | 1909 |
| 5:50 PM | 3 | 23 | 1 | 0 | 2 | 29 | 1 | 0 | 2 | 22 | 4 | 0 | 8 | 56 | 2 | 0 | 153 | 1911 |
| 5:55 PM | 1 | 13 | 4 | 0 | 7 | 31 | 4 | 0 | 0 | 22 | 7 | 0 | 8 | 67 | 4 | 0 | 168 | 1938 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 64 | 364 | 28 | 0 | 40 | 376 | 44 | 0 | 16 | 216 | 52 | 0 | 80 | 756 | 44 | 0 | 2080 |
| Heavy Trucks | 8 | 8 | 0 | | 0 | 8 | 0 | | 4 | 12 | 0 | | 4 | 16 | 0 | | 60 |
| Pedestrians | | 52 | | | | 36 | | | | 32 | | | | 28 | | | 148 |
| Bicycles | 0 | 1 | 0 | | 0 | 1 | 0 | | 0 | 0 | 0 | | 0 | 2 | 0 | | 4 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

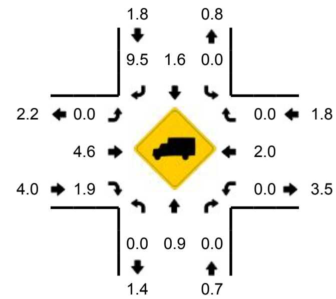
*Comments:*

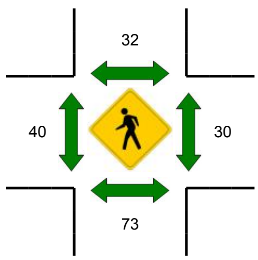
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

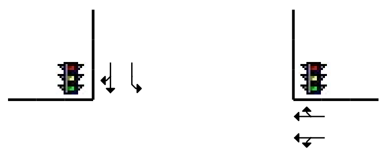
**LOCATION:** Stanyan St -- Turk Blvd | **QC JOB #:** 10652716
**CITY/STATE:** San Francisco, CA | **DATE:** Thu, Sep 08 2011

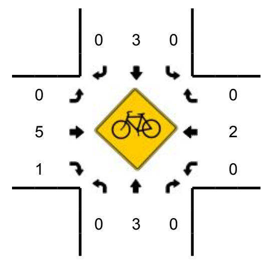


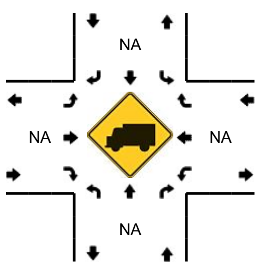

**Peak-Hour: 4:55 PM -- 5:55 PM**
**Peak 15-Min: 5:30 PM -- 5:45 PM**

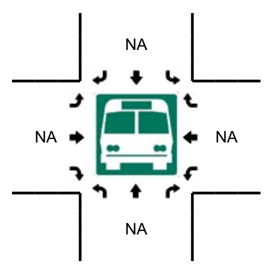





| 5-Min Count Period Beginning At | Stanyan St (Northbound) | | | | Stanyan St (Southbound) | | | | Turk Blvd (Eastbound) | | | | Turk Blvd (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 2 | 22 | 4 | 0 | 3 | 24 | 1 | 0 | 1 | 20 | 6 | 0 | 5 | 37 | 4 | 0 | 129 | |
| 4:05 PM | 6 | 31 | 3 | 0 | 5 | 23 | 0 | 0 | 0 | 16 | 7 | 0 | 10 | 35 | 1 | 0 | 137 | |
| 4:10 PM | 1 | 27 | 7 | 0 | 0 | 24 | 0 | 0 | 0 | 12 | 5 | 0 | 10 | 35 | 1 | 0 | 122 | |
| 4:15 PM | 2 | 33 | 4 | 0 | 1 | 19 | 1 | 0 | 0 | 21 | 4 | 0 | 9 | 36 | 2 | 1 | 133 | |
| 4:20 PM | 2 | 26 | 2 | 0 | 3 | 37 | 0 | 0 | 2 | 21 | 3 | 0 | 2 | 37 | 1 | 0 | 136 | |
| 4:25 PM | 3 | 29 | 4 | 0 | 0 | 21 | 2 | 0 | 1 | 19 | 2 | 0 | 6 | 54 | 3 | 0 | 144 | |
| 4:30 PM | 2 | 32 | 4 | 0 | 1 | 22 | 2 | 0 | 2 | 16 | 2 | 0 | 6 | 42 | 2 | 0 | 133 | |
| 4:35 PM | 6 | 19 | 2 | 0 | 4 | 36 | 0 | 0 | 1 | 22 | 3 | 0 | 6 | 59 | 7 | 0 | 165 | |
| 4:40 PM | 3 | 37 | 1 | 0 | 1 | 37 | 1 | 0 | 2 | 13 | 5 | 0 | 9 | 39 | 4 | 0 | 152 | |
| 4:45 PM | 2 | 25 | 1 | 0 | 4 | 27 | 1 | 0 | 2 | 23 | 3 | 0 | 8 | 42 | 6 | 0 | 144 | |
| 4:50 PM | 7 | 27 | 1 | 0 | 1 | 38 | 2 | 0 | 2 | 19 | 5 | 0 | 4 | 55 | 5 | 0 | 166 | |
| 4:55 PM | 3 | 28 | 8 | 0 | 2 | 27 | 2 | 0 | 1 | 11 | 3 | 0 | 15 | 52 | 4 | 0 | 156 | 1717 |
| 5:00 PM | 1 | 23 | 1 | 0 | 2 | 34 | 1 | 0 | 0 | 24 | 1 | 0 | 6 | 48 | 2 | 0 | 143 | 1731 |
| 5:05 PM | 3 | 30 | 4 | 0 | 2 | 29 | 0 | 0 | 1 | 14 | 2 | 0 | 7 | 58 | 1 | 0 | 151 | 1745 |
| 5:10 PM | 7 | 24 | 1 | 0 | 0 | 24 | 3 | 0 | 0 | 28 | 12 | 0 | 8 | 63 | 2 | 0 | 172 | 1795 |
| 5:15 PM | 3 | 26 | 3 | 0 | 4 | 30 | 2 | 0 | 2 | 17 | 6 | 0 | 5 | 51 | 2 | 0 | 151 | 1813 |
| 5:20 PM | 1 | 22 | 5 | 0 | 2 | 43 | 4 | 0 | 1 | 26 | 3 | 0 | 7 | 59 | 5 | 0 | 178 | 1855 |
| 5:25 PM | 2 | 33 | 5 | 0 | 3 | 29 | 0 | 0 | 2 | 19 | 5 | 0 | 4 | 49 | 1 | 0 | 152 | 1863 |
| 5:30 PM | 3 | 40 | 3 | 0 | 3 | 33 | 2 | 0 | 1 | 21 | 4 | 0 | 5 | 71 | 1 | 0 | 187 | 1917 |
| 5:35 PM | 2 | 31 | 5 | 0 | 5 | 37 | 1 | 0 | 0 | 24 | 4 | 0 | 3 | 56 | 0 | 0 | 168 | 1920 |
| 5:40 PM | 4 | 32 | 4 | 0 | 0 | 36 | 1 | 0 | 1 | 21 | 4 | 0 | 9 | 59 | 5 | 0 | 176 | 1944 |
| 5:45 PM | 1 | 30 | 2 | 0 | 1 | 30 | 1 | 0 | 0 | 17 | 5 | 0 | 3 | 56 | 3 | 0 | 149 | 1949 |
| 5:50 PM | 7 | 23 | 4 | 0 | 6 | 34 | 4 | 1 | 0 | 17 | 3 | 0 | 8 | 61 | 6 | 0 | 174 | 1957 |
| 5:55 PM | 0 | 16 | 1 | 0 | 1 | 23 | 3 | 0 | 1 | 11 | 6 | 0 | 7 | 57 | 4 | 0 | 130 | 1931 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 36 | 412 | 48 | 0 | 32 | 424 | 16 | 0 | 8 | 264 | 48 | 0 | 68 | 744 | 24 | 0 | 2124 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 8 | 0 | | 0 | 16 | 0 | | 0 | 20 | 0 | | 44 |
| Pedestrians | | 56 | | | | 40 | | | | 44 | | | | 16 | | | 156 |
| Bicycles | 0 | 2 | 0 | | 0 | 0 | 0 | | 0 | 1 | 0 | | 0 | 0 | 0 | | 3 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

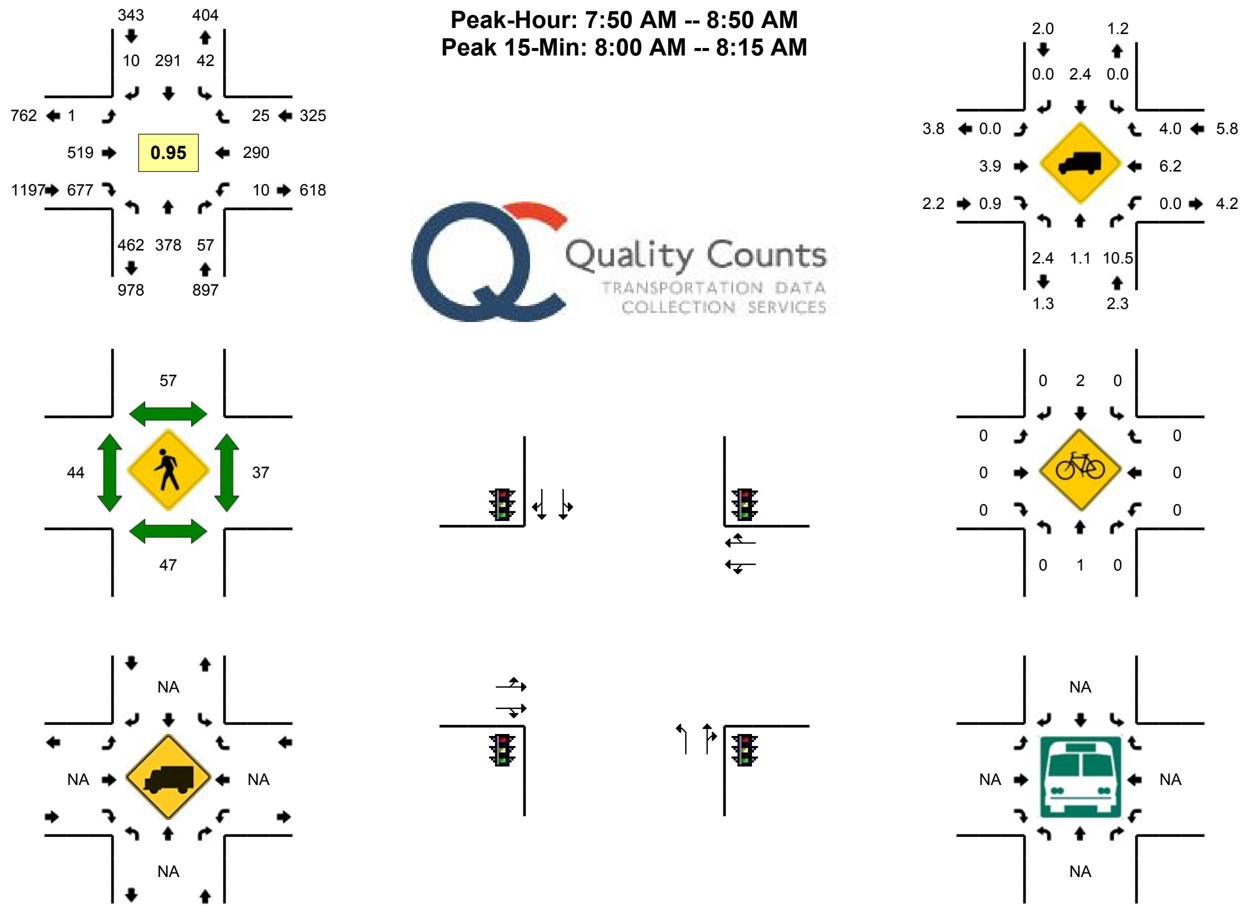
*Comments:*

Report generated on 9/23/2011 11:46 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

**LOCATION:** Stanyan St -- Fulton St | **QC JOB #:** 10652717
**CITY/STATE:** San Francisco, CA | **DATE:** Wed, Sep 14 2011

**Peak-Hour: 7:50 AM -- 8:50 AM**
**Peak 15-Min: 8:00 AM -- 8:15 AM**



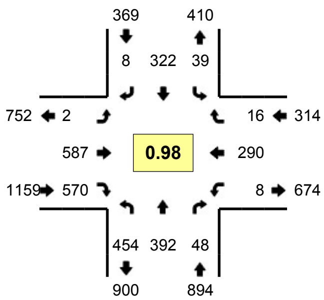

| 5-Min Count Period Beginning At | Stanyan St (Northbound) Left | Thru | Right | U | Stanyan St (Southbound) Left | Thru | Right | U | Fulton St (Eastbound) Left | Thru | Right | U | Fulton St (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7:00 AM | 21 | 6 | 2 | 0 | 0 | 22 | 0 | 0 | 0 | 17 | 39 | 0 | 0 | 12 | 0 | 0 | 119 | |
| 7:05 AM | 13 | 14 | 1 | 0 | 0 | 19 | 1 | 0 | 1 | 13 | 26 | 0 | 0 | 7 | 1 | 0 | 96 | |
| 7:10 AM | 23 | 15 | 1 | 0 | 2 | 9 | 1 | 0 | 1 | 20 | 29 | 0 | 0 | 13 | 0 | 0 | 114 | |
| 7:15 AM | 20 | 16 | 5 | 0 | 2 | 19 | 0 | 0 | 0 | 23 | 37 | 0 | 0 | 16 | 1 | 0 | 139 | |
| 7:20 AM | 43 | 21 | 3 | 0 | 1 | 18 | 0 | 0 | 0 | 30 | 39 | 0 | 1 | 12 | 0 | 0 | 168 | |
| 7:25 AM | 28 | 19 | 3 | 0 | 2 | 24 | 0 | 0 | 1 | 32 | 25 | 0 | 0 | 17 | 4 | 0 | 155 | |
| 7:30 AM | 29 | 20 | 2 | 0 | 1 | 23 | 1 | 0 | 0 | 40 | 63 | 0 | 1 | 25 | 1 | 0 | 206 | |
| 7:35 AM | 40 | 29 | 0 | 0 | 2 | 36 | 0 | 0 | 0 | 41 | 59 | 0 | 1 | 14 | 2 | 0 | 224 | |
| 7:40 AM | 30 | 26 | 4 | 0 | 4 | 38 | 1 | 0 | 0 | 45 | 39 | 0 | 0 | 19 | 2 | 0 | 208 | |
| 7:45 AM | 31 | 33 | 2 | 0 | 3 | 20 | 0 | 0 | 0 | 37 | 20 | 0 | 1 | 28 | 1 | 0 | 176 | |
| 7:50 AM | 37 | 35 | 3 | 0 | 5 | 33 | 0 | 0 | 0 | 44 | 72 | 0 | 1 | 17 | 2 | 0 | 249 | |
| 7:55 AM | 36 | 34 | 5 | 0 | 5 | 36 | 1 | 0 | 0 | 51 | 53 | 0 | 1 | 18 | 3 | 0 | 243 | 2097 |
| 8:00 AM | 37 | 28 | 4 | 0 | 2 | 22 | 0 | 0 | 0 | 59 | 64 | 0 | 1 | 16 | 0 | 0 | 233 | 2211 |
| 8:05 AM | 48 | 43 | 4 | 0 | 1 | 27 | 1 | 0 | 0 | 44 | 48 | 0 | 1 | 26 | 4 | 0 | 247 | 2362 |
| 8:10 AM | 35 | 25 | 6 | 0 | 6 | 27 | 2 | 0 | 1 | 51 | 65 | 0 | 0 | 27 | 5 | 0 | 250 | 2498 |
| 8:15 AM | 37 | 34 | 3 | 0 | 0 | 23 | 1 | 0 | 0 | 50 | 51 | 0 | 2 | 26 | 2 | 0 | 229 | 2588 |
| 8:20 AM | 40 | 37 | 8 | 0 | 2 | 21 | 0 | 0 | 0 | 45 | 57 | 0 | 0 | 24 | 2 | 0 | 236 | 2656 |
| 8:25 AM | 38 | 29 | 3 | 0 | 4 | 17 | 2 | 0 | 0 | 38 | 57 | 0 | 0 | 27 | 0 | 0 | 215 | 2716 |
| 8:30 AM | 38 | 20 | 9 | 0 | 0 | 10 | 0 | 0 | 0 | 31 | 58 | 0 | 2 | 25 | 4 | 0 | 197 | 2707 |
| 8:35 AM | 45 | 37 | 4 | 0 | 5 | 29 | 1 | 0 | 0 | 38 | 48 | 0 | 1 | 28 | 2 | 0 | 238 | 2721 |
| 8:40 AM | 34 | 24 | 7 | 0 | 6 | 23 | 0 | 0 | 0 | 36 | 46 | 0 | 0 | 28 | 1 | 0 | 205 | 2718 |
| 8:45 AM | 37 | 32 | 1 | 0 | 6 | 23 | 2 | 0 | 0 | 32 | 58 | 0 | 1 | 28 | 0 | 0 | 220 | 2762 |
| 8:50 AM | 44 | 38 | 3 | 0 | 3 | 28 | 3 | 0 | 0 | 38 | 52 | 0 | 0 | 24 | 4 | 0 | 237 | 2750 |
| 8:55 AM | 33 | 27 | 4 | 0 | 4 | 29 | 2 | 0 | 0 | 35 | 43 | 0 | 0 | 35 | 3 | 0 | 215 | 2722 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 480 | 384 | 56 | 0 | 36 | 304 | 12 | 0 | 4 | 616 | 708 | 0 | 8 | 276 | 36 | 0 | 2920 |
| Heavy Trucks | 16 | 4 | 8 | | 0 | 4 | 0 | | 0 | 20 | 12 | | 0 | 12 | 4 | | 80 |
| Pedestrians | | 56 | | | | 44 | | | | 40 | | | | 40 | | | 180 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

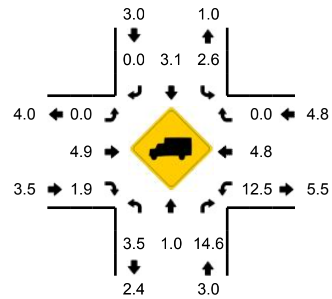
*Comments:*

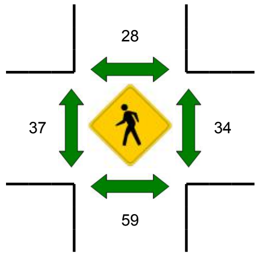
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

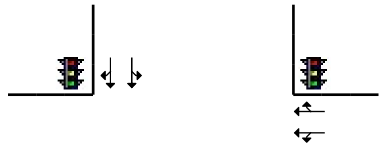
**LOCATION:** Stanyan St -- Fulton St | **QC JOB #:** 10652718
**CITY/STATE:** San Francisco, CA | **DATE:** Thu, Sep 08 2011

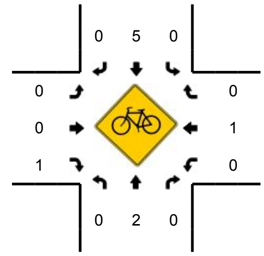


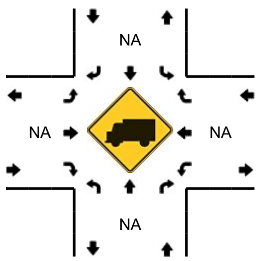

**Peak-Hour: 7:45 AM -- 8:45 AM**
**Peak 15-Min: 7:55 AM -- 8:10 AM**

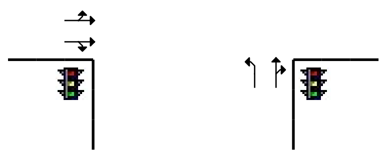


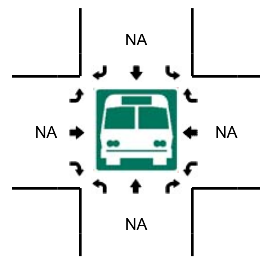








| 5-Min Count Period Beginning At | Stanyan St (Northbound) Left | Thru | Right | U | Stanyan St (Southbound) Left | Thru | Right | U | Fulton St (Eastbound) Left | Thru | Right | U | Fulton St (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7:00 AM | 16 | 14 | 0 | 0 | 0 | 13 | 1 | 0 | 1 | 17 | 27 | 0 | 2 | 9 | 0 | 0 | 100 | |
| 7:05 AM | 23 | 24 | 2 | 0 | 1 | 8 | 1 | 0 | 0 | 34 | 40 | 0 | 0 | 9 | 0 | 0 | 142 | |
| 7:10 AM | 33 | 17 | 2 | 0 | 4 | 22 | 2 | 0 | 0 | 16 | 34 | 0 | 1 | 16 | 0 | 0 | 147 | |
| 7:15 AM | 25 | 13 | 3 | 0 | 0 | 18 | 1 | 0 | 0 | 30 | 33 | 0 | 0 | 12 | 3 | 0 | 138 | |
| 7:20 AM | 33 | 37 | 3 | 0 | 1 | 10 | 0 | 0 | 1 | 34 | 44 | 0 | 1 | 13 | 1 | 0 | 178 | |
| 7:25 AM | 31 | 21 | 1 | 0 | 2 | 22 | 1 | 0 | 0 | 27 | 42 | 0 | 1 | 14 | 0 | 0 | 162 | |
| 7:30 AM | 21 | 24 | 0 | 0 | 1 | 23 | 0 | 0 | 0 | 39 | 39 | 0 | 2 | 20 | 1 | 0 | 170 | |
| 7:35 AM | 38 | 27 | 3 | 0 | 3 | 19 | 2 | 0 | 1 | 43 | 54 | 0 | 2 | 20 | 0 | 0 | 212 | |
| 7:40 AM | 43 | 29 | 1 | 0 | 3 | 24 | 0 | 0 | 0 | 43 | 42 | 0 | 1 | 26 | 0 | 0 | 212 | |
| 7:45 AM | 34 | 30 | 0 | 0 | 0 | 24 | 1 | 0 | 0 | 59 | 50 | 0 | 0 | 34 | 2 | 0 | 234 | |
| 7:50 AM | 40 | 40 | 5 | 0 | 4 | 19 | 0 | 0 | 0 | 46 | 38 | 0 | 0 | 24 | 0 | 0 | 216 | |
| 7:55 AM | 36 | 34 | 3 | 0 | 6 | 35 | 0 | 0 | 0 | 47 | 39 | 0 | 2 | 23 | 1 | 0 | 226 | 2137 |
| 8:00 AM | 37 | 32 | 3 | 0 | 4 | 24 | 0 | 0 | 0 | 59 | 57 | 0 | 0 | 25 | 1 | 0 | 242 | 2279 |
| 8:05 AM | 41 | 41 | 4 | 0 | 2 | 21 | 1 | 0 | 0 | 48 | 51 | 0 | 1 | 16 | 1 | 0 | 227 | 2364 |
| 8:10 AM | 38 | 30 | 6 | 0 | 4 | 31 | 3 | 0 | 0 | 39 | 46 | 0 | 0 | 13 | 1 | 0 | 211 | 2428 |
| 8:15 AM | 32 | 28 | 4 | 0 | 4 | 24 | 2 | 0 | 1 | 59 | 54 | 0 | 1 | 30 | 0 | 0 | 239 | 2529 |
| 8:20 AM | 48 | 36 | 7 | 0 | 3 | 32 | 0 | 0 | 0 | 44 | 52 | 0 | 1 | 18 | 0 | 0 | 241 | 2592 |
| 8:25 AM | 30 | 28 | 4 | 0 | 4 | 31 | 0 | 0 | 1 | 42 | 48 | 0 | 1 | 16 | 1 | 0 | 206 | 2636 |
| 8:30 AM | 33 | 27 | 6 | 0 | 1 | 29 | 0 | 0 | 0 | 55 | 45 | 0 | 2 | 34 | 4 | 0 | 236 | 2702 |
| 8:35 AM | 49 | 39 | 3 | 0 | 4 | 21 | 0 | 0 | 0 | 41 | 45 | 0 | 0 | 25 | 1 | 0 | 228 | 2718 |
| 8:40 AM | 36 | 27 | 3 | 0 | 3 | 31 | 1 | 0 | 0 | 48 | 45 | 0 | 0 | 32 | 4 | 0 | 230 | 2736 |
| 8:45 AM | 35 | 28 | 3 | 0 | 4 | 20 | 0 | 0 | 0 | 49 | 48 | 0 | 1 | 28 | 0 | 0 | 216 | 2718 |
| 8:50 AM | 46 | 37 | 4 | 0 | 4 | 22 | 0 | 0 | 0 | 34 | 42 | 0 | 3 | 23 | 2 | 0 | 217 | 2719 |
| 8:55 AM | 34 | 33 | 5 | 0 | 2 | 28 | 5 | 0 | 0 | 46 | 33 | 0 | 0 | 24 | 1 | 0 | 211 | 2704 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 456 | 428 | 40 | 0 | 48 | 320 | 4 | 0 | 0 | 616 | 588 | 0 | 12 | 256 | 12 | 0 | 2780 |
| Heavy Trucks | 28 | 8 | 8 | | 0 | 8 | 0 | | 0 | 20 | 8 | | 0 | 20 | 0 | | 100 |
| Pedestrians | | 60 | | | | 8 | | | | 16 | | | | 28 | | | 112 |
| Bicycles | 0 | 0 | 0 | | 0 | 1 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 1 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

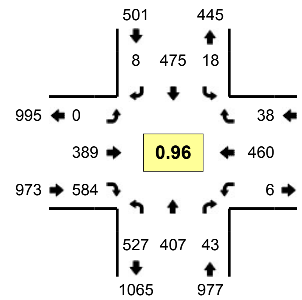
*Comments:*

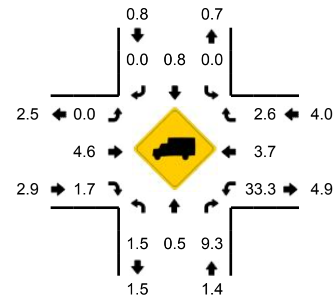
Report generated on 9/23/2011 11:46 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

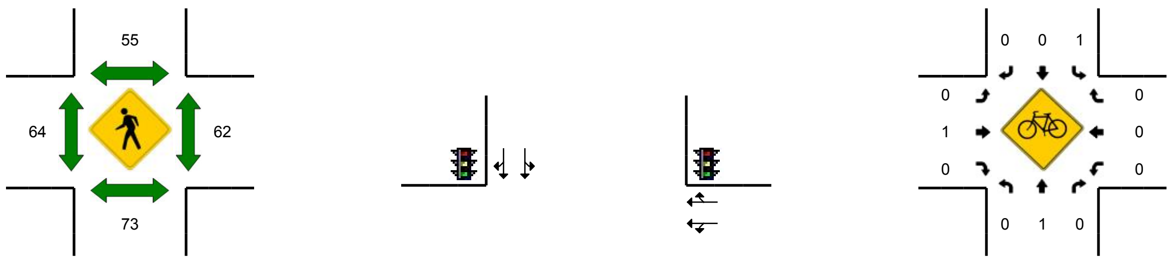
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

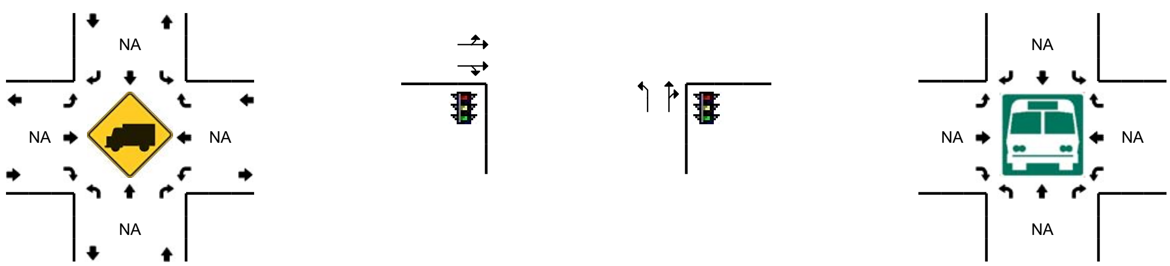
**LOCATION:** Stanyan St -- Fulton St | **QC JOB #:** 10652719
**CITY/STATE:** San Francisco, CA | **DATE:** Wed, Sep 14 2011

**Peak-Hour: 4:45 PM -- 5:45 PM**
**Peak 15-Min: 5:15 PM -- 5:30 PM**




| 5-Min Count Period Beginning At | Stanyan St (Northbound) Left | Thru | Right | U | Stanyan St (Southbound) Left | Thru | Right | U | Fulton St (Eastbound) Left | Thru | Right | U | Fulton St (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4:00 PM | 39 | 35 | 4 | 0 | 2 | 20 | 2 | 0 | 0 | 36 | 44 | 0 | 0 | 22 | 1 | 0 | 205 | |
| 4:05 PM | 45 | 27 | 5 | 0 | 0 | 32 | 1 | 0 | 1 | 25 | 40 | 0 | 0 | 18 | 6 | 0 | 200 | |
| 4:10 PM | 34 | 25 | 3 | 0 | 4 | 37 | 2 | 0 | 0 | 33 | 45 | 0 | 0 | 38 | 2 | 0 | 223 | |
| 4:15 PM | 42 | 27 | 3 | 0 | 2 | 30 | 0 | 0 | 0 | 35 | 41 | 0 | 1 | 18 | 2 | 0 | 201 | |
| 4:20 PM | 48 | 42 | 1 | 0 | 4 | 30 | 2 | 0 | 0 | 23 | 44 | 0 | 0 | 33 | 2 | 0 | 229 | |
| 4:25 PM | 39 | 31 | 5 | 0 | 0 | 38 | 2 | 0 | 0 | 26 | 40 | 0 | 0 | 17 | 3 | 0 | 201 | |
| 4:30 PM | 44 | 33 | 0 | 0 | 2 | 31 | 2 | 0 | 0 | 38 | 34 | 0 | 1 | 21 | 1 | 0 | 207 | |
| 4:35 PM | 45 | 33 | 4 | 0 | 2 | 28 | 2 | 0 | 0 | 31 | 59 | 0 | 0 | 40 | 1 | 0 | 245 | |
| 4:40 PM | 35 | 32 | 6 | 0 | 0 | 52 | 3 | 0 | 0 | 27 | 47 | 0 | 1 | 28 | 5 | 0 | 236 | |
| 4:45 PM | 43 | 39 | 1 | 0 | 2 | 40 | 2 | 0 | 0 | 43 | 38 | 0 | 0 | 35 | 4 | 0 | 247 | |
| 4:50 PM | 48 | 33 | 3 | 0 | 0 | 41 | 0 | 0 | 0 | 34 | 46 | 0 | 0 | 31 | 5 | 0 | 241 | |
| 4:55 PM | 39 | 26 | 6 | 0 | 2 | 39 | 0 | 0 | 0 | 30 | 57 | 0 | 2 | 48 | 1 | 0 | 250 | 2685 |
| 5:00 PM | 43 | 30 | 6 | 0 | 1 | 25 | 0 | 0 | 0 | 29 | 49 | 0 | 1 | 31 | 1 | 0 | 216 | 2696 |
| 5:05 PM | 53 | 39 | 3 | 0 | 0 | 37 | 0 | 0 | 0 | 22 | 43 | 0 | 1 | 31 | 3 | 0 | 232 | 2728 |
| 5:10 PM | 41 | 29 | 2 | 0 | 2 | 49 | 1 | 0 | 0 | 28 | 46 | 0 | 1 | 47 | 3 | 0 | 249 | 2754 |
| 5:15 PM | 42 | 27 | 4 | 0 | 1 | 34 | 0 | 0 | 0 | 36 | 55 | 0 | 0 | 41 | 3 | 0 | 243 | 2796 |
| 5:20 PM | 52 | 45 | 3 | 0 | 2 | 37 | 0 | 0 | 0 | 36 | 44 | 0 | 1 | 42 | 6 | 0 | 268 | 2835 |
| 5:25 PM | 40 | 29 | 6 | 0 | 3 | 53 | 1 | 0 | 0 | 34 | 60 | 0 | 0 | 28 | 4 | 0 | 258 | 2892 |
| 5:30 PM | 42 | 34 | 6 | 0 | 3 | 30 | 1 | 0 | 0 | 36 | 47 | 0 | 0 | 34 | 4 | 0 | 237 | 2922 |
| 5:35 PM | 42 | 42 | 2 | 0 | 1 | 44 | 0 | 0 | 0 | 25 | 44 | 0 | 0 | 44 | 3 | 0 | 247 | 2924 |
| 5:40 PM | 42 | 34 | 1 | 0 | 1 | 46 | 3 | 0 | 0 | 36 | 55 | 0 | 0 | 48 | 1 | 0 | 267 | 2955 |
| 5:45 PM | 40 | 28 | 3 | 0 | 0 | 41 | 1 | 0 | 0 | 26 | 48 | 0 | 0 | 34 | 2 | 0 | 223 | 2931 |
| 5:50 PM | 51 | 35 | 4 | 0 | 0 | 34 | 1 | 0 | 1 | 29 | 54 | 0 | 0 | 35 | 3 | 0 | 247 | 2937 |
| 5:55 PM | 37 | 23 | 4 | 0 | 0 | 46 | 0 | 0 | 0 | 27 | 36 | 0 | 0 | 31 | 4 | 0 | 208 | 2895 |

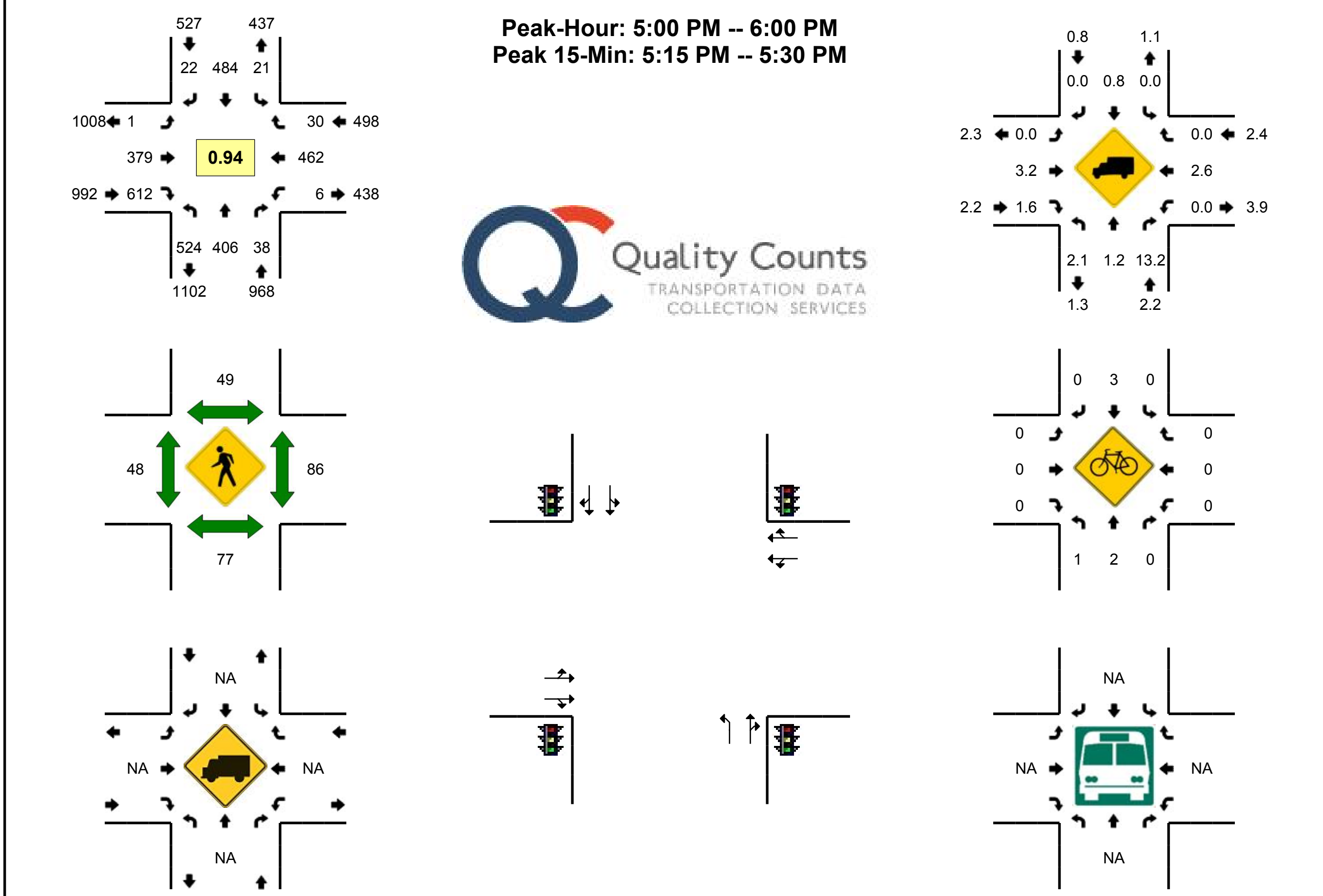
| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 536 | 404 | 52 | 0 | 24 | 496 | 4 | 0 | 0 | 424 | 636 | 0 | 4 | 444 | 52 | 0 | 3076 |
| Heavy Trucks | 12 | 4 | 4 | | 0 | 0 | 0 | | 0 | 12 | 16 | | 0 | 24 | 0 | | 72 |
| Pedestrians | | 64 | | | | 60 | | | | 80 | | | | 80 | | | 284 |
| Bicycles | 0 | 1 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 1 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 9/23/2011 11:46 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

**LOCATION:** Stanyan St -- Fulton St | **QC JOB #:** 10652720
**CITY/STATE:** San Francisco, CA | **DATE:** Thu, Sep 08 2011




| 5-Min Count Period Beginning At | Stanyan St (Northbound) | | | | Stanyan St (Southbound) | | | | Fulton St (Eastbound) | | | | Fulton St (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 38 | 31 | 3 | 0 | 1 | 32 | 0 | 0 | 0 | 28 | 46 | 0 | 0 | 28 | 2 | 0 | 209 | |
| 4:05 PM | 43 | 38 | 4 | 0 | 1 | 34 | 0 | 0 | 0 | 20 | 27 | 0 | 0 | 29 | 1 | 0 | 197 | |
| 4:10 PM | 35 | 35 | 2 | 0 | 2 | 33 | 2 | 0 | 0 | 32 | 25 | 0 | 0 | 20 | 1 | 0 | 187 | |
| 4:15 PM | 29 | 23 | 5 | 0 | 2 | 28 | 2 | 0 | 0 | 28 | 39 | 0 | 0 | 38 | 5 | 0 | 199 | |
| 4:20 PM | 52 | 38 | 1 | 0 | 0 | 37 | 2 | 0 | 0 | 35 | 37 | 0 | 0 | 20 | 3 | 0 | 225 | |
| 4:25 PM | 32 | 33 | 4 | 0 | 0 | 35 | 2 | 0 | 0 | 25 | 47 | 0 | 1 | 30 | 2 | 0 | 211 | |
| 4:30 PM | 40 | 26 | 3 | 0 | 0 | 27 | 2 | 0 | 0 | 29 | 37 | 0 | 1 | 42 | 4 | 0 | 211 | |
| 4:35 PM | 48 | 42 | 5 | 0 | 1 | 38 | 3 | 0 | 0 | 24 | 49 | 0 | 0 | 24 | 0 | 0 | 234 | |
| 4:40 PM | 43 | 33 | 4 | 0 | 2 | 52 | 1 | 0 | 0 | 32 | 48 | 0 | 0 | 41 | 2 | 0 | 258 | |
| 4:45 PM | 35 | 33 | 3 | 0 | 1 | 36 | 1 | 0 | 0 | 35 | 51 | 0 | 0 | 38 | 2 | 0 | 235 | |
| 4:50 PM | 56 | 40 | 5 | 0 | 1 | 35 | 1 | 0 | 0 | 19 | 42 | 0 | 0 | 31 | 4 | 0 | 234 | |
| 4:55 PM | 40 | 27 | 4 | 0 | 4 | 44 | 2 | 0 | 0 | 27 | 46 | 0 | 0 | 32 | 5 | 0 | 231 | 2631 |
| 5:00 PM | 37 | 26 | 4 | 0 | 4 | 30 | 3 | 0 | 0 | 34 | 52 | 0 | 0 | 37 | 2 | 0 | 229 | 2651 |
| 5:05 PM | 47 | 34 | 0 | 0 | 0 | 33 | 2 | 0 | 0 | 28 | 44 | 0 | 0 | 34 | 0 | 0 | 222 | 2676 |
| 5:10 PM | 45 | 33 | 2 | 0 | 4 | 48 | 0 | 0 | 0 | 29 | 40 | 0 | 1 | 35 | 1 | 0 | 238 | 2727 |
| 5:15 PM | 41 | 28 | 4 | 0 | 3 | 39 | 2 | 0 | 0 | 43 | 57 | 0 | 0 | 52 | 4 | 0 | 273 | 2801 |
| 5:20 PM | 49 | 41 | 1 | 0 | 1 | 32 | 3 | 0 | 0 | 30 | 69 | 0 | 1 | 35 | 2 | 0 | 264 | 2840 |
| 5:25 PM | 38 | 45 | 2 | 0 | 1 | 46 | 4 | 0 | 0 | 34 | 46 | 0 | 0 | 39 | 6 | 0 | 261 | 2890 |
| 5:30 PM | 43 | 35 | 1 | 0 | 1 | 36 | 0 | 0 | 1 | 38 | 56 | 0 | 0 | 41 | 4 | 0 | 256 | 2935 |
| 5:35 PM | 48 | 41 | 4 | 0 | 0 | 37 | 2 | 0 | 0 | 35 | 59 | 0 | 2 | 45 | 3 | 0 | 276 | 2977 |
| 5:40 PM | 42 | 31 | 5 | 0 | 2 | 52 | 0 | 0 | 0 | 28 | 46 | 0 | 0 | 29 | 2 | 0 | 237 | 2956 |
| 5:45 PM | 38 | 34 | 4 | 0 | 0 | 40 | 2 | 0 | 0 | 31 | 52 | 0 | 1 | 44 | 3 | 0 | 249 | 2970 |
| 5:50 PM | 55 | 27 | 5 | 0 | 3 | 40 | 4 | 0 | 0 | 22 | 46 | 0 | 0 | 29 | 2 | 0 | 233 | 2969 |
| 5:55 PM | 41 | 31 | 6 | 0 | 2 | 51 | 0 | 0 | 0 | 27 | 45 | 0 | 1 | 42 | 1 | 0 | 247 | 2985 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 512 | 456 | 28 | 0 | 20 | 468 | 36 | 0 | 0 | 428 | 688 | 0 | 4 | 504 | 48 | 0 | 3192 |
| Heavy Trucks | 8 | 0 | 4 | | 0 | 0 | 0 | | 0 | 12 | 0 | | 0 | 12 | 0 | | 36 |
| Pedestrians | | 80 | | | | 36 | | | | 44 | | | | 68 | | | 228 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 9/23/2011 11:46 AM

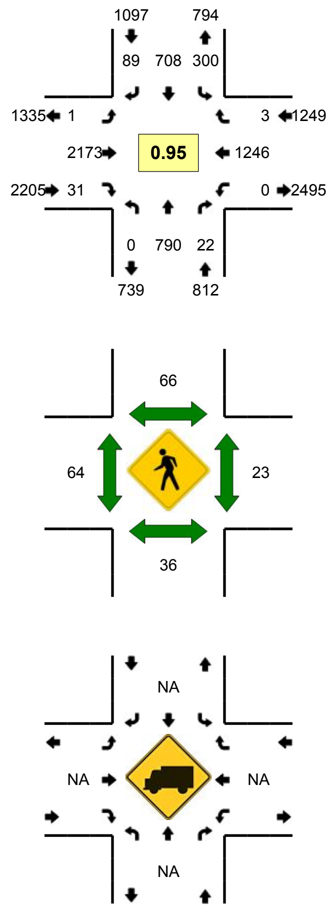
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

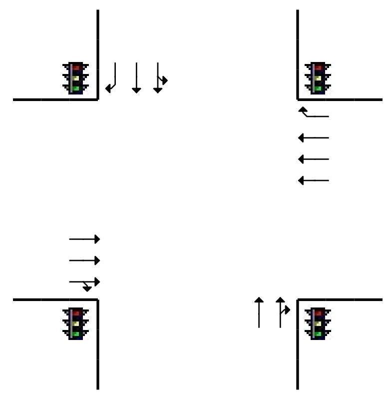
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

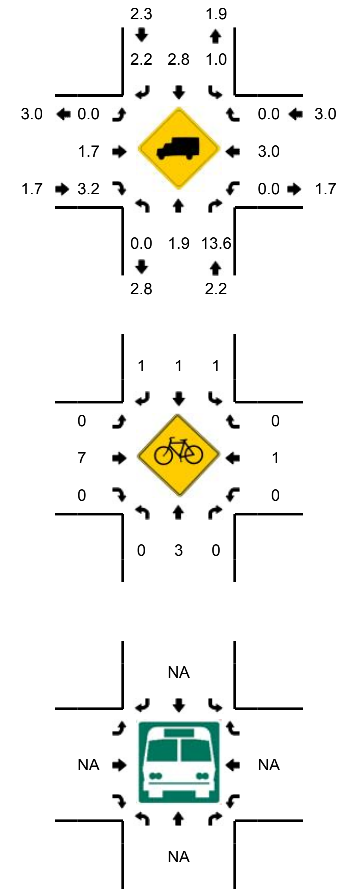
**LOCATION:** Stanyan St -- John F Kennedy Dr | **QC JOB #:** 10652721

**CITY/STATE:** San Francisco, CA | **DATE:** Tue, Sep 13 2011

**Peak-Hour: 7:50 AM -- 8:50 AM**
**Peak 15-Min: 8:00 AM -- 8:15 AM**






| 5-Min Count Period Beginning At | Stanyan St (Northbound) Left | Thru | Right | U | Stanyan St (Southbound) Left | Thru | Right | U | John F Kennedy Dr (Eastbound) Left | Thru | Right | U | John F Kennedy Dr (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7:00 AM | 0 | 12 | 0 | 0 | 30 | 27 | 4 | 0 | 0 | 93 | 0 | 0 | 0 | 54 | 0 | 0 | 220 | |
| 7:05 AM | 0 | 23 | 4 | 0 | 26 | 27 | 7 | 0 | 0 | 136 | 3 | 0 | 0 | 47 | 0 | 0 | 273 | |
| 7:10 AM | 0 | 40 | 2 | 0 | 25 | 38 | 3 | 0 | 0 | 119 | 5 | 0 | 0 | 53 | 0 | 0 | 285 | |
| 7:15 AM | 0 | 23 | 2 | 0 | 21 | 25 | 6 | 0 | 0 | 147 | 3 | 0 | 0 | 74 | 0 | 0 | 301 | |
| 7:20 AM | 0 | 35 | 0 | 0 | 23 | 25 | 8 | 0 | 0 | 149 | 3 | 0 | 0 | 68 | 0 | 0 | 311 | |
| 7:25 AM | 0 | 59 | 3 | 0 | 22 | 45 | 8 | 0 | 0 | 152 | 4 | 0 | 0 | 64 | 1 | 0 | 358 | |
| 7:30 AM | 0 | 32 | 4 | 0 | 35 | 49 | 5 | 0 | 0 | 167 | 3 | 0 | 0 | 76 | 0 | 0 | 371 | |
| 7:35 AM | 0 | 50 | 0 | 0 | 23 | 59 | 3 | 0 | 0 | 196 | 5 | 0 | 0 | 106 | 0 | 0 | 442 | |
| 7:40 AM | 0 | 73 | 0 | 0 | 24 | 74 | 15 | 0 | 0 | 149 | 2 | 0 | 0 | 87 | 0 | 0 | 424 | |
| 7:45 AM | 0 | 54 | 1 | 0 | 16 | 40 | 11 | 0 | 0 | 172 | 2 | 0 | 0 | 120 | 0 | 0 | 416 | |
| 7:50 AM | 0 | 58 | 2 | 0 | 22 | 64 | 4 | 0 | 0 | 209 | 5 | 0 | 0 | 94 | 0 | 0 | 458 | |
| 7:55 AM | 0 | 79 | 2 | 0 | 26 | 82 | 7 | 0 | 0 | 161 | 3 | 0 | 0 | 89 | 0 | 0 | 449 | 4308 |
| 8:00 AM | 0 | 62 | 1 | 0 | 31 | 59 | 9 | 0 | 0 | 174 | 3 | 0 | 0 | 111 | 0 | 0 | 450 | 4538 |
| 8:05 AM | 0 | 62 | 1 | 0 | 25 | 63 | 6 | 0 | 0 | 197 | 3 | 0 | 0 | 123 | 0 | 0 | 480 | 4745 |
| 8:10 AM | 0 | 82 | 0 | 0 | 23 | 69 | 15 | 0 | 0 | 189 | 0 | 0 | 0 | 103 | 1 | 0 | 482 | 4942 |
| 8:15 AM | 0 | 60 | 3 | 0 | 25 | 60 | 8 | 0 | 1 | 172 | 1 | 0 | 0 | 100 | 1 | 0 | 431 | 5072 |
| 8:20 AM | 0 | 60 | 0 | 0 | 21 | 51 | 5 | 0 | 0 | 190 | 2 | 0 | 0 | 119 | 0 | 0 | 448 | 5209 |
| 8:25 AM | 0 | 81 | 5 | 0 | 25 | 61 | 6 | 0 | 0 | 173 | 2 | 0 | 0 | 77 | 0 | 0 | 430 | 5281 |
| 8:30 AM | 0 | 59 | 1 | 0 | 27 | 49 | 6 | 0 | 0 | 173 | 3 | 0 | 0 | 120 | 1 | 0 | 439 | 5349 |
| 8:35 AM | 0 | 55 | 2 | 0 | 22 | 48 | 7 | 0 | 0 | 201 | 4 | 0 | 0 | 113 | 0 | 0 | 452 | 5359 |
| 8:40 AM | 0 | 76 | 3 | 0 | 20 | 54 | 11 | 0 | 0 | 161 | 2 | 0 | 0 | 87 | 0 | 0 | 414 | 5349 |
| 8:45 AM | 0 | 56 | 2 | 0 | 33 | 48 | 5 | 0 | 0 | 173 | 3 | 0 | 0 | 110 | 0 | 0 | 430 | 5363 |
| 8:50 AM | 0 | 56 | 2 | 0 | 20 | 56 | 11 | 0 | 0 | 188 | 8 | 0 | 0 | 85 | 0 | 0 | 426 | 5331 |
| 8:55 AM | 0 | 81 | 0 | 0 | 21 | 47 | 11 | 0 | 0 | 146 | 2 | 0 | 0 | 85 | 0 | 0 | 393 | 5275 |

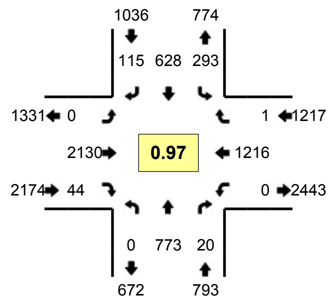
| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 0 | 824 | 8 | 0 | 316 | 764 | 120 | 0 | 0 | 2240 | 24 | 0 | 0 | 1348 | 4 | 0 | 5648 |
| Heavy Trucks | 0 | 16 | 0 | | 0 | 28 | 4 | | 0 | 40 | 4 | | 0 | 40 | 0 | | 132 |
| Pedestrians | | 32 | | | | 48 | | | | 72 | | | | 8 | | | 160 |
| Bicycles | 0 | 1 | 0 | | 0 | 0 | 0 | | 0 | 2 | 0 | | 0 | 0 | 0 | | 3 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

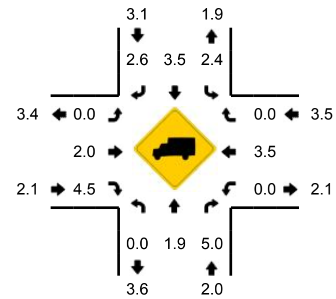
Report generated on 9/23/2011 11:46 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

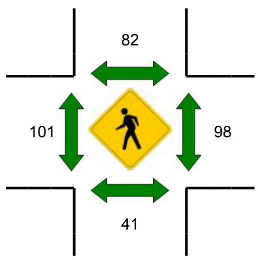
**LOCATION:** Stanyon St -- John F Kennedy Dr | **QC JOB #:** 10652722
**CITY/STATE:** San Francisco, CA | **DATE:** Thu, Sep 08 2011

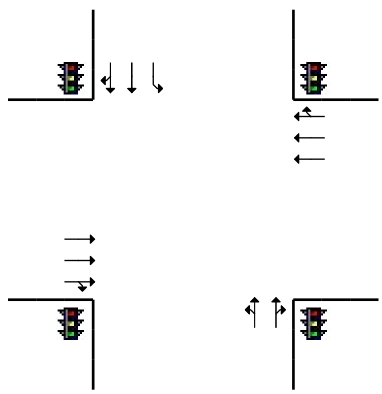


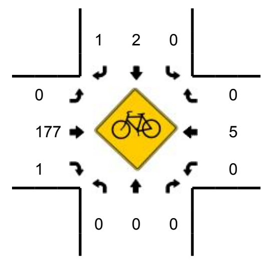

**Peak-Hour: 7:50 AM -- 8:50 AM**
**Peak 15-Min: 8:10 AM -- 8:25 AM**

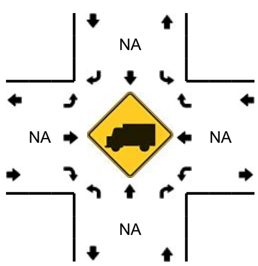


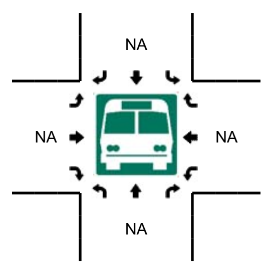

Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES






| 5-Min Count Period Beginning At | Stanyon St (Northbound) Left | Thru | Right | U | Stanyon St (Southbound) Left | Thru | Right | U | John F Kennedy Dr (Eastbound) Left | Thru | Right | U | John F Kennedy Dr (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7:00 AM | 0 | 23 | 1 | 0 | 21 | 29 | 4 | 0 | 0 | 108 | 5 | 0 | 0 | 65 | 0 | 0 | 256 | |
| 7:05 AM | 0 | 33 | 1 | 0 | 34 | 37 | 6 | 0 | 0 | 140 | 5 | 0 | 0 | 44 | 0 | 0 | 300 | |
| 7:10 AM | 0 | 33 | 1 | 0 | 27 | 35 | 6 | 0 | 0 | 140 | 1 | 0 | 0 | 74 | 1 | 0 | 318 | |
| 7:15 AM | 0 | 21 | 4 | 0 | 22 | 31 | 0 | 0 | 0 | 170 | 3 | 0 | 0 | 71 | 0 | 0 | 322 | |
| 7:20 AM | 0 | 57 | 1 | 0 | 30 | 37 | 7 | 0 | 0 | 162 | 1 | 0 | 1 | 57 | 0 | 0 | 353 | |
| 7:25 AM | 0 | 40 | 3 | 0 | 22 | 27 | 8 | 0 | 0 | 182 | 1 | 0 | 0 | 62 | 0 | 0 | 345 | |
| 7:30 AM | 0 | 39 | 2 | 0 | 25 | 42 | 6 | 0 | 0 | 193 | 4 | 0 | 0 | 72 | 0 | 0 | 383 | |
| 7:35 AM | 0 | 56 | 1 | 0 | 26 | 52 | 10 | 0 | 1 | 159 | 6 | 0 | 0 | 83 | 0 | 0 | 394 | |
| 7:40 AM | 0 | 57 | 1 | 0 | 28 | 59 | 7 | 0 | 0 | 171 | 2 | 0 | 0 | 95 | 0 | 0 | 420 | |
| 7:45 AM | 0 | 43 | 3 | 0 | 23 | 42 | 5 | 0 | 0 | 197 | 4 | 0 | 0 | 89 | 0 | 0 | 406 | |
| 7:50 AM | 0 | 75 | 0 | 0 | 21 | 65 | 10 | 0 | 0 | 165 | 5 | 0 | 0 | 86 | 0 | 0 | 427 | |
| 7:55 AM | 0 | 61 | 3 | 0 | 24 | 42 | 10 | 0 | 0 | 184 | 3 | 0 | 0 | 108 | 0 | 0 | 435 | 4359 |
| 8:00 AM | 0 | 62 | 2 | 0 | 24 | 45 | 12 | 0 | 0 | 190 | 4 | 0 | 0 | 104 | 0 | 0 | 443 | 4546 |
| 8:05 AM | 0 | 62 | 5 | 0 | 22 | 66 | 12 | 0 | 0 | 158 | 3 | 0 | 0 | 98 | 0 | 0 | 426 | 4672 |
| 8:10 AM | 0 | 59 | 0 | 0 | 28 | 44 | 8 | 0 | 0 | 177 | 3 | 0 | 0 | 124 | 0 | 0 | 443 | 4797 |
| 8:15 AM | 0 | 58 | 1 | 0 | 24 | 51 | 5 | 0 | 0 | 195 | 3 | 0 | 0 | 131 | 0 | 0 | 468 | 4943 |
| 8:20 AM | 0 | 81 | 1 | 0 | 27 | 67 | 12 | 0 | 0 | 163 | 2 | 0 | 0 | 85 | 0 | 0 | 438 | 5028 |
| 8:25 AM | 0 | 59 | 1 | 0 | 29 | 50 | 7 | 0 | 0 | 174 | 5 | 0 | 0 | 99 | 0 | 0 | 424 | 5107 |
| 8:30 AM | 0 | 61 | 1 | 0 | 22 | 50 | 11 | 0 | 0 | 191 | 4 | 0 | 0 | 105 | 0 | 0 | 445 | 5169 |
| 8:35 AM | 0 | 82 | 1 | 0 | 20 | 53 | 13 | 0 | 0 | 172 | 3 | 0 | 0 | 97 | 0 | 0 | 441 | 5216 |
| 8:40 AM | 0 | 58 | 3 | 0 | 29 | 40 | 8 | 0 | 0 | 166 | 5 | 0 | 0 | 92 | 1 | 0 | 402 | 5198 |
| 8:45 AM | 0 | 55 | 2 | 0 | 23 | 55 | 7 | 0 | 0 | 195 | 4 | 0 | 0 | 87 | 0 | 0 | 428 | 5220 |
| 8:50 AM | 1 | 80 | 1 | 0 | 21 | 47 | 17 | 0 | 0 | 151 | 4 | 0 | 0 | 94 | 1 | 0 | 417 | 5210 |
| 8:55 AM | 0 | 55 | 4 | 0 | 24 | 54 | 13 | 0 | 0 | 166 | 1 | 1 | 0 | 97 | 0 | 0 | 415 | 5190 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 0 | 792 | 8 | 0 | 316 | 648 | 100 | 0 | 0 | 2140 | 32 | 0 | 0 | 1360 | 0 | 0 | 5396 |
| Heavy Trucks | 0 | 4 | 0 | | 4 | 16 | 8 | | 0 | 32 | 4 | | 0 | 36 | 0 | | 104 |
| Pedestrians | | 60 | | | | 44 | | | | 108 | | | | 96 | | | 308 |
| Bicycles | 0 | 0 | 0 | | 0 | 1 | 0 | | 0 | 52 | 0 | | 0 | 1 | 0 | | 54 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 9/23/2011 11:46 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

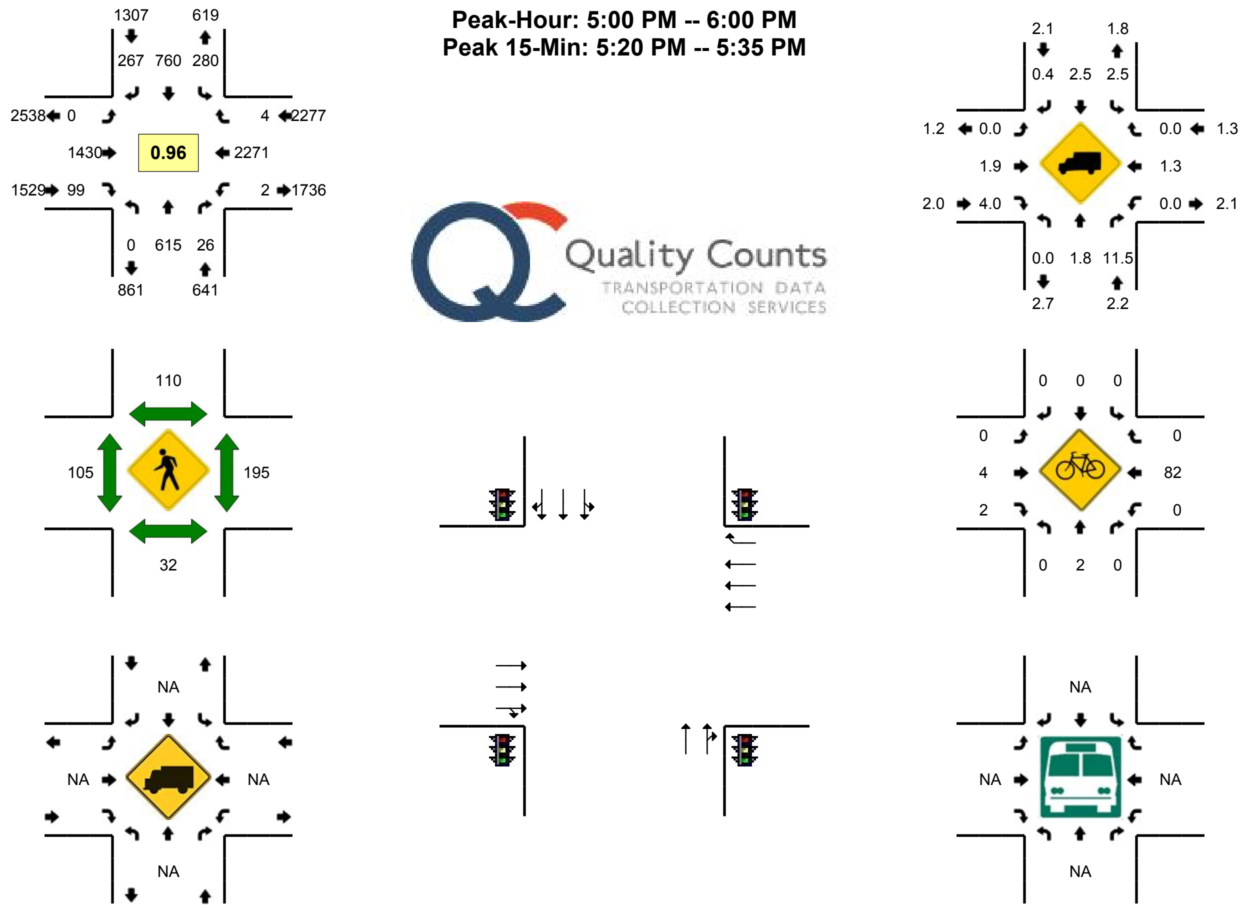
Type of peak hour being reported: Intersection Peak — Method for determining peak hour: Total Entering Volume

**LOCATION:** Stanyan St -- John F Kennedy Dr — **QC JOB #:** 10652723

**CITY/STATE:** San Francisco, CA — **DATE:** Tue, Sep 13 2011

**Peak-Hour: 5:00 PM -- 6:00 PM**

**Peak 15-Min: 5:20 PM -- 5:35 PM**



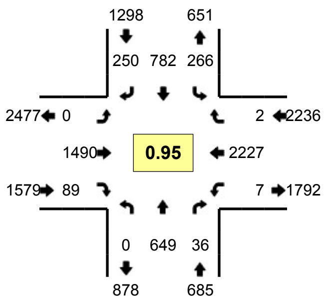

| 5-Min Count Period Beginning At | Stanyan St (Northbound) | | | | Stanyan St (Southbound) | | | | John F Kennedy Dr (Eastbound) | | | | John F Kennedy Dr (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 0 | 54 | 1 | 0 | 13 | 60 | 14 | 0 | 0 | 119 | 11 | 0 | 0 | 130 | 1 | 0 | 403 | |
| 4:05 PM | 0 | 37 | 5 | 0 | 18 | 38 | 13 | 0 | 0 | 113 | 7 | 0 | 0 | 157 | 0 | 0 | 388 | |
| 4:10 PM | 0 | 54 | 6 | 0 | 18 | 66 | 20 | 0 | 0 | 110 | 5 | 0 | 0 | 133 | 0 | 0 | 412 | |
| 4:15 PM | 0 | 51 | 0 | 0 | 26 | 56 | 23 | 0 | 0 | 130 | 8 | 0 | 0 | 136 | 0 | 0 | 430 | |
| 4:20 PM | 0 | 50 | 1 | 0 | 18 | 38 | 17 | 0 | 0 | 112 | 16 | 0 | 0 | 183 | 0 | 0 | 435 | |
| 4:25 PM | 0 | 62 | 1 | 0 | 19 | 67 | 13 | 0 | 0 | 106 | 8 | 0 | 0 | 150 | 0 | 0 | 426 | |
| 4:30 PM | 0 | 48 | 7 | 0 | 25 | 63 | 18 | 0 | 0 | 93 | 5 | 0 | 0 | 151 | 0 | 0 | 410 | |
| 4:35 PM | 0 | 42 | 3 | 0 | 17 | 44 | 20 | 0 | 0 | 125 | 12 | 0 | 0 | 158 | 0 | 0 | 421 | |
| 4:40 PM | 0 | 61 | 4 | 0 | 20 | 63 | 21 | 0 | 1 | 103 | 9 | 0 | 2 | 155 | 0 | 0 | 439 | |
| 4:45 PM | 0 | 49 | 3 | 0 | 22 | 66 | 24 | 0 | 0 | 103 | 7 | 0 | 0 | 153 | 0 | 0 | 427 | |
| 4:50 PM | 0 | 46 | 1 | 0 | 19 | 62 | 20 | 0 | 0 | 157 | 9 | 0 | 0 | 164 | 0 | 0 | 478 | |
| 4:55 PM | 0 | 66 | 1 | 0 | 20 | 55 | 12 | 0 | 0 | 114 | 6 | 0 | 0 | 148 | 0 | 0 | 422 | 5091 |
| 5:00 PM | 0 | 43 | 0 | 0 | 31 | 70 | 20 | 0 | 0 | 104 | 10 | 0 | 2 | 182 | 0 | 0 | 462 | 5150 |
| 5:05 PM | 0 | 44 | 3 | 0 | 22 | 42 | 19 | 0 | 0 | 130 | 8 | 0 | 0 | 188 | 0 | 0 | 456 | 5218 |
| 5:10 PM | 0 | 61 | 2 | 0 | 18 | 62 | 24 | 0 | 0 | 109 | 3 | 0 | 0 | 196 | 1 | 0 | 476 | 5282 |
| 5:15 PM | 0 | 42 | 4 | 0 | 25 | 51 | 26 | 0 | 0 | 97 | 6 | 0 | 0 | 175 | 0 | 0 | 426 | 5278 |
| 5:20 PM | 0 | 48 | 1 | 0 | 20 | 65 | 18 | 0 | 0 | 143 | 9 | 0 | 0 | 217 | 0 | 0 | 521 | 5364 |
| 5:25 PM | 0 | 57 | 2 | 0 | 21 | 68 | 25 | 0 | 0 | 128 | 8 | 0 | 0 | 177 | 0 | 0 | 486 | 5424 |
| 5:30 PM | 0 | 53 | 1 | 0 | 31 | 70 | 28 | 0 | 0 | 107 | 7 | 0 | 0 | 191 | 0 | 0 | 488 | 5502 |
| 5:35 PM | 0 | 47 | 1 | 0 | 22 | 54 | 28 | 0 | 0 | 109 | 11 | 0 | 0 | 219 | 2 | 0 | 493 | 5574 |
| 5:40 PM | 0 | 64 | 2 | 0 | 23 | 74 | 19 | 0 | 0 | 124 | 12 | 0 | 0 | 169 | 0 | 0 | 487 | 5622 |
| 5:45 PM | 0 | 43 | 7 | 0 | 24 | 71 | 20 | 0 | 0 | 121 | 12 | 0 | 0 | 171 | 1 | 0 | 470 | 5665 |
| 5:50 PM | 0 | 52 | 0 | 0 | 21 | 59 | 20 | 0 | 0 | 141 | 10 | 0 | 0 | 213 | 0 | 0 | 516 | 5703 |
| 5:55 PM | 0 | 61 | 3 | 0 | 22 | 74 | 20 | 0 | 0 | 117 | 3 | 0 | 0 | 173 | 0 | 0 | 473 | 5754 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 632 | 16 | 0 | 288 | 812 | 284 | 0 | 0 | 1512 | 96 | 0 | 0 | 2340 | 0 | 0 | 5980 |
| Heavy Trucks | 0 | 8 | 0 | | 20 | 12 | 0 | | 0 | 24 | 4 | | 0 | 28 | 0 | | 96 |
| Pedestrians | | 32 | | | | 148 | | | | 88 | | | | 188 | | | 456 |
| Bicycles | 0 | 1 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 34 | 0 | | 35 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

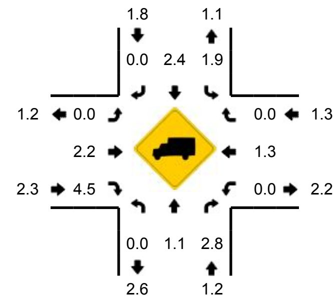
*Comments:*

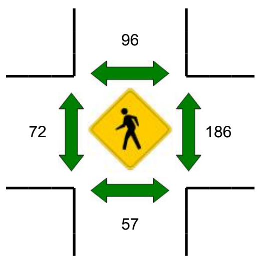
Type of peak hour being reported: Intersection Peak — Method for determining peak hour: Total Entering Volume

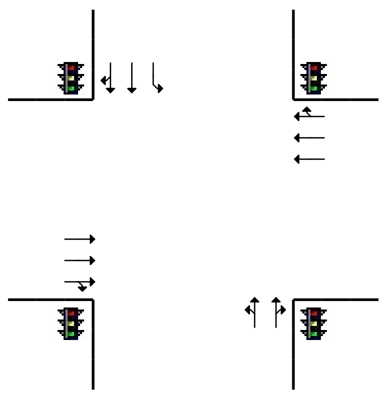
**LOCATION:** Stanyan St -- John F Kennedy Dr — **QC JOB #:** 10652724
**CITY/STATE:** San Francisco, CA — **DATE:** Thu, Sep 08 2011

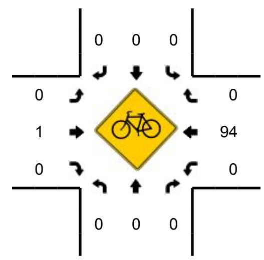


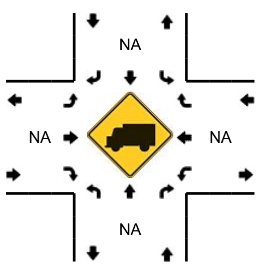

**Peak-Hour: 4:50 PM -- 5:50 PM**
**Peak 15-Min: 5:20 PM -- 5:35 PM**

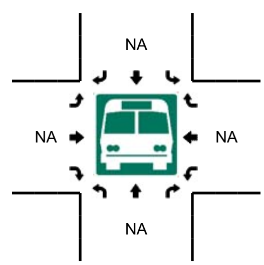





| 5-Min Count Period Beginning At | Stanyan St (Northbound) Left | Thru | Right | U | Stanyan St (Southbound) Left | Thru | Right | U | John F Kennedy Dr (Eastbound) Left | Thru | Right | U | John F Kennedy Dr (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4:00 PM | 0 | 42 | 4 | 0 | 16 | 52 | 22 | 0 | 0 | 142 | 7 | 0 | 0 | 185 | 0 | 0 | 470 | |
| 4:05 PM | 0 | 66 | 1 | 0 | 4 | 46 | 14 | 0 | 0 | 116 | 6 | 0 | 0 | 152 | 0 | 0 | 405 | |
| 4:10 PM | 0 | 51 | 3 | 0 | 24 | 57 | 18 | 0 | 0 | 121 | 6 | 0 | 0 | 153 | 1 | 0 | 434 | |
| 4:15 PM | 0 | 43 | 5 | 0 | 16 | 40 | 13 | 0 | 0 | 114 | 9 | 0 | 0 | 198 | 0 | 0 | 438 | |
| 4:20 PM | 0 | 69 | 3 | 0 | 13 | 59 | 26 | 0 | 0 | 79 | 6 | 0 | 0 | 148 | 0 | 0 | 403 | |
| 4:25 PM | 0 | 54 | 3 | 0 | 24 | 54 | 17 | 0 | 0 | 123 | 5 | 0 | 0 | 148 | 1 | 0 | 429 | |
| 4:30 PM | 0 | 45 | 3 | 0 | 18 | 48 | 19 | 0 | 0 | 112 | 5 | 0 | 0 | 180 | 1 | 0 | 431 | |
| 4:35 PM | 0 | 64 | 5 | 0 | 19 | 57 | 20 | 0 | 0 | 116 | 8 | 0 | 0 | 174 | 1 | 0 | 464 | |
| 4:40 PM | 0 | 51 | 2 | 0 | 22 | 72 | 20 | 0 | 0 | 110 | 6 | 0 | 0 | 179 | 1 | 0 | 463 | |
| 4:45 PM | 0 | 49 | 0 | 0 | 19 | 58 | 19 | 0 | 0 | 139 | 11 | 0 | 0 | 206 | 0 | 0 | 501 | |
| 4:50 PM | 0 | 69 | 3 | 0 | 22 | 66 | 30 | 0 | 0 | 103 | 11 | 0 | 0 | 180 | 0 | 0 | 484 | |
| 4:55 PM | 0 | 48 | 3 | 0 | 26 | 58 | 27 | 0 | 0 | 115 | 6 | 0 | 0 | 162 | 0 | 0 | 445 | 5367 |
| 5:00 PM | 0 | 47 | 2 | 0 | 19 | 50 | 14 | 0 | 0 | 135 | 7 | 0 | 0 | 182 | 0 | 0 | 456 | 5353 |
| 5:05 PM | 0 | 53 | 4 | 0 | 23 | 77 | 16 | 0 | 0 | 108 | 5 | 0 | 0 | 167 | 0 | 0 | 453 | 5401 |
| 5:10 PM | 0 | 47 | 1 | 0 | 23 | 60 | 18 | 0 | 0 | 136 | 13 | 0 | 0 | 166 | 0 | 0 | 464 | 5431 |
| 5:15 PM | 0 | 51 | 5 | 0 | 18 | 68 | 13 | 0 | 0 | 124 | 10 | 0 | 0 | 187 | 0 | 0 | 476 | 5469 |
| 5:20 PM | 0 | 65 | 3 | 0 | 24 | 69 | 25 | 0 | 0 | 119 | 9 | 0 | 0 | 177 | 1 | 0 | 492 | 5558 |
| 5:25 PM | 0 | 56 | 2 | 0 | 24 | 63 | 23 | 0 | 0 | 139 | 2 | 0 | 0 | 196 | 0 | 0 | 505 | 5634 |
| 5:30 PM | 0 | 41 | 4 | 0 | 21 | 59 | 20 | 0 | 0 | 135 | 6 | 0 | 0 | 237 | 0 | 0 | 523 | 5726 |
| 5:35 PM | 0 | 69 | 4 | 0 | 24 | 74 | 22 | 0 | 0 | 116 | 3 | 0 | 0 | 179 | 0 | 0 | 491 | 5753 |
| 5:40 PM | 0 | 48 | 4 | 0 | 21 | 67 | 24 | 0 | 0 | 122 | 8 | 0 | 7 | 192 | 1 | 0 | 494 | 5784 |
| 5:45 PM | 0 | 55 | 1 | 0 | 21 | 71 | 18 | 0 | 0 | 138 | 9 | 0 | 0 | 202 | 0 | 0 | 515 | 5798 |
| 5:50 PM | 0 | 56 | 3 | 0 | 24 | 72 | 29 | 0 | 0 | 90 | 7 | 0 | 0 | 167 | 1 | 0 | 449 | 5763 |
| 5:55 PM | 0 | 52 | 3 | 0 | 24 | 62 | 18 | 0 | 0 | 132 | 10 | 0 | 0 | 178 | 1 | 0 | 480 | 5798 |

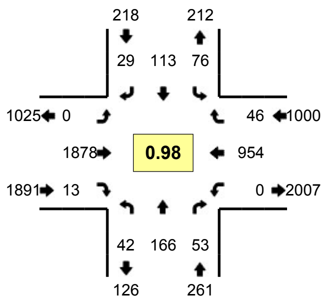
| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 0 | 648 | 36 | 0 | 276 | 764 | 272 | 0 | 0 | 1572 | 68 | 0 | 0 | 2440 | 4 | 0 | 6080 |
| Heavy Trucks | 0 | 12 | 0 | | 0 | 16 | 0 | | 0 | 44 | 8 | | 0 | 24 | 0 | | 104 |
| Pedestrians | | 80 | | | | 120 | | | | 104 | | | | 180 | | | 484 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 1 | 0 | | 0 | 29 | 0 | | 30 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

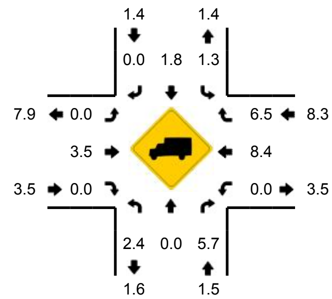
Report generated on 9/23/2011 11:47 AM — SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

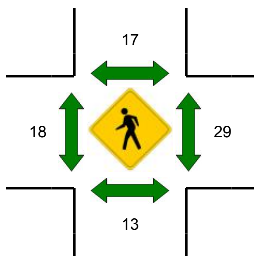
Type of peak hour being reported: Intersection Peak — Method for determining peak hour: Total Entering Volume

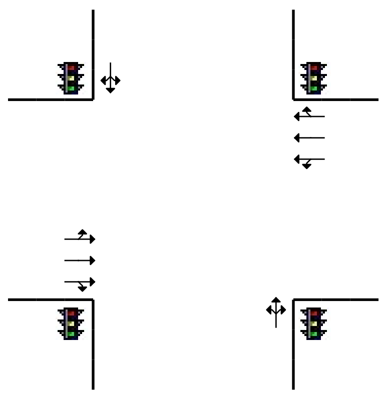
**LOCATION:** Parker St -- Geary Blvd — **QC JOB #:** 10652725
**CITY/STATE:** San Francisco, CA — **DATE:** Wed, Sep 14 2011

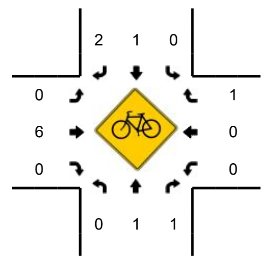


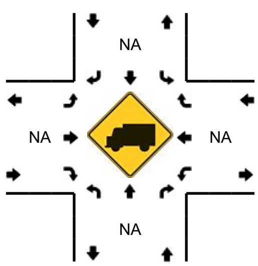

**Peak-Hour: 7:50 AM -- 8:50 AM**
**Peak 15-Min: 7:50 AM -- 8:05 AM**

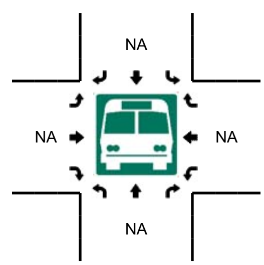





| 5-Min Count Period Beginning At | Parker St (Northbound) Left | Thru | Right | U | Parker St (Southbound) Left | Thru | Right | U | Geary Blvd (Eastbound) Left | Thru | Right | U | Geary Blvd (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7:00 AM | 1 | 2 | 1 | 0 | 0 | 3 | 3 | 0 | 0 | 93 | 1 | 0 | 0 | 33 | 1 | 0 | 138 | |
| 7:05 AM | 0 | 4 | 2 | 0 | 2 | 3 | 1 | 0 | 0 | 107 | 1 | 0 | 0 | 45 | 1 | 0 | 166 | |
| 7:10 AM | 1 | 4 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 101 | 2 | 0 | 0 | 54 | 0 | 0 | 167 | |
| 7:15 AM | 1 | 3 | 1 | 0 | 4 | 4 | 0 | 0 | 0 | 122 | 0 | 0 | 0 | 43 | 0 | 0 | 178 | |
| 7:20 AM | 2 | 6 | 2 | 0 | 3 | 5 | 1 | 0 | 0 | 138 | 3 | 0 | 0 | 57 | 1 | 0 | 218 | |
| 7:25 AM | 0 | 9 | 5 | 0 | 2 | 6 | 3 | 0 | 0 | 132 | 0 | 0 | 0 | 45 | 2 | 0 | 204 | |
| 7:30 AM | 4 | 10 | 7 | 0 | 4 | 5 | 0 | 0 | 0 | 167 | 1 | 0 | 0 | 82 | 1 | 0 | 281 | |
| 7:35 AM | 2 | 13 | 2 | 0 | 5 | 4 | 4 | 0 | 0 | 171 | 0 | 0 | 0 | 69 | 4 | 0 | 274 | |
| 7:40 AM | 2 | 15 | 5 | 0 | 14 | 12 | 0 | 0 | 0 | 136 | 1 | 0 | 0 | 66 | 2 | 0 | 253 | |
| 7:45 AM | 1 | 11 | 1 | 0 | 7 | 14 | 1 | 0 | 0 | 164 | 2 | 0 | 0 | 74 | 2 | 0 | 277 | |
| 7:50 AM | 2 | 10 | 3 | 0 | 5 | 16 | 3 | 0 | 0 | 171 | 4 | 0 | 0 | 72 | 3 | 0 | 289 | |
| 7:55 AM | 2 | 23 | 7 | 0 | 10 | 10 | 5 | 0 | 0 | 144 | 3 | 0 | 0 | 81 | 0 | 0 | 285 | 2730 |
| 8:00 AM | 3 | 13 | 3 | 0 | 9 | 14 | 1 | 0 | 0 | 166 | 0 | 0 | 0 | 76 | 5 | 0 | 290 | 2882 |
| 8:05 AM | 3 | 8 | 4 | 0 | 5 | 11 | 5 | 0 | 0 | 155 | 0 | 0 | 0 | 62 | 2 | 0 | 255 | 2971 |
| 8:10 AM | 3 | 12 | 1 | 0 | 5 | 10 | 2 | 0 | 0 | 141 | 1 | 0 | 0 | 66 | 4 | 0 | 245 | 3049 |
| 8:15 AM | 3 | 12 | 2 | 0 | 8 | 7 | 0 | 0 | 0 | 169 | 0 | 0 | 0 | 88 | 4 | 0 | 293 | 3164 |
| 8:20 AM | 4 | 17 | 8 | 0 | 5 | 11 | 2 | 0 | 0 | 168 | 0 | 0 | 0 | 83 | 5 | 0 | 303 | 3249 |
| 8:25 AM | 6 | 12 | 5 | 0 | 7 | 13 | 2 | 0 | 0 | 151 | 1 | 0 | 0 | 65 | 6 | 0 | 268 | 3313 |
| 8:30 AM | 5 | 11 | 4 | 0 | 6 | 7 | 3 | 0 | 0 | 152 | 0 | 0 | 0 | 89 | 7 | 0 | 284 | 3316 |
| 8:35 AM | 2 | 15 | 5 | 0 | 1 | 7 | 2 | 0 | 0 | 166 | 1 | 0 | 0 | 84 | 5 | 0 | 288 | 3330 |
| 8:40 AM | 6 | 20 | 5 | 0 | 10 | 2 | 3 | 0 | 0 | 136 | 1 | 0 | 0 | 86 | 1 | 0 | 270 | 3347 |
| 8:45 AM | 3 | 13 | 6 | 0 | 5 | 5 | 1 | 0 | 0 | 159 | 2 | 0 | 0 | 102 | 4 | 0 | 300 | 3370 |
| 8:50 AM | 1 | 8 | 3 | 0 | 6 | 7 | 3 | 0 | 0 | 164 | 1 | 0 | 1 | 73 | 9 | 0 | 276 | 3357 |
| 8:55 AM | 5 | 15 | 6 | 0 | 12 | 8 | 2 | 0 | 0 | 140 | 1 | 0 | 0 | 78 | 5 | 0 | 272 | 3344 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 28 | 184 | 52 | 0 | 96 | 160 | 36 | 0 | 0 | 1924 | 28 | 0 | 0 | 916 | 32 | 0 | 3456 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 8 | 0 | | 0 | 68 | 0 | | 0 | 104 | 0 | | 180 |
| Pedestrians | | 4 | | | | 16 | | | | 16 | | | | 8 | | | 44 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 9/23/2011 11:47 AM — SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

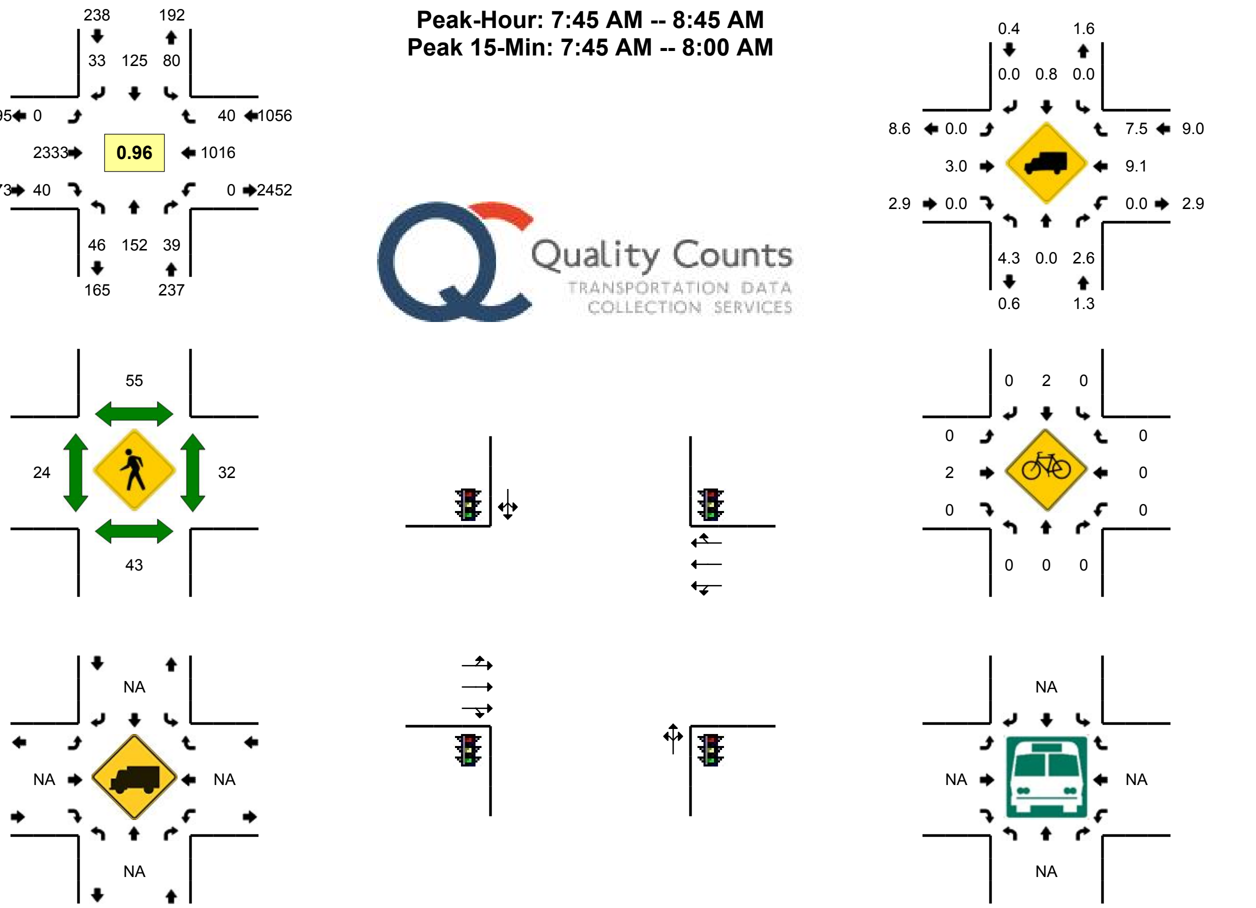
Type of peak hour being reported: Intersection Peak — Method for determining peak hour: Total Entering Volume

**LOCATION:** Parker St -- Geary Blvd — **QC JOB #:** 10652726

**CITY/STATE:** San Francisco, CA — **DATE:** Thu, Sep 08 2011

**Peak-Hour: 7:45 AM -- 8:45 AM**

**Peak 15-Min: 7:45 AM -- 8:00 AM**




| 5-Min Count Period Beginning At | Parker St (Northbound) Left | Thru | Right | U | Parker St (Southbound) Left | Thru | Right | U | Geary Blvd (Eastbound) Left | Thru | Right | U | Geary Blvd (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7:00 AM | 3 | 5 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 86 | 1 | 0 | 0 | 43 | 1 | 0 | 143 | |
| 7:05 AM | 2 | 5 | 1 | 0 | 3 | 2 | 0 | 0 | 0 | 97 | 3 | 0 | 0 | 48 | 3 | 0 | 164 | |
| 7:10 AM | 1 | 6 | 0 | 0 | 0 | 3 | 2 | 0 | 0 | 104 | 3 | 0 | 0 | 44 | 2 | 0 | 165 | |
| 7:15 AM | 1 | 4 | 0 | 0 | 3 | 5 | 2 | 0 | 0 | 138 | 1 | 0 | 0 | 56 | 1 | 0 | 211 | |
| 7:20 AM | 0 | 2 | 3 | 0 | 3 | 4 | 1 | 0 | 0 | 136 | 0 | 0 | 0 | 64 | 0 | 0 | 213 | |
| 7:25 AM | 0 | 9 | 4 | 0 | 1 | 5 | 2 | 0 | 0 | 156 | 1 | 0 | 0 | 48 | 1 | 0 | 227 | |
| 7:30 AM | 1 | 5 | 2 | 0 | 1 | 2 | 0 | 0 | 0 | 149 | 2 | 0 | 0 | 49 | 2 | 0 | 213 | |
| 7:35 AM | 2 | 9 | 4 | 0 | 10 | 7 | 1 | 0 | 0 | 212 | 2 | 0 | 0 | 83 | 3 | 0 | 333 | |
| 7:40 AM | 4 | 14 | 3 | 0 | 12 | 10 | 0 | 0 | 0 | 179 | 4 | 0 | 0 | 72 | 1 | 0 | 299 | |
| 7:45 AM | 3 | 7 | 3 | 0 | 7 | 10 | 1 | 0 | 0 | 202 | 4 | 0 | 0 | 90 | 4 | 0 | 331 | |
| 7:50 AM | 3 | 8 | 7 | 0 | 6 | 14 | 5 | 0 | 0 | 218 | 4 | 0 | 0 | 72 | 3 | 0 | 340 | |
| 7:55 AM | 6 | 20 | 2 | 0 | 9 | 14 | 1 | 0 | 0 | 187 | 5 | 0 | 0 | 100 | 3 | 0 | 347 | 2986 |
| 8:00 AM | 2 | 7 | 2 | 0 | 6 | 16 | 2 | 0 | 0 | 195 | 2 | 0 | 0 | 64 | 3 | 0 | 299 | 3142 |
| 8:05 AM | 4 | 11 | 3 | 0 | 7 | 12 | 2 | 0 | 0 | 194 | 2 | 0 | 0 | 80 | 1 | 0 | 316 | 3294 |
| 8:10 AM | 3 | 15 | 1 | 0 | 6 | 7 | 2 | 0 | 0 | 189 | 6 | 0 | 0 | 89 | 4 | 0 | 322 | 3451 |
| 8:15 AM | 3 | 15 | 2 | 0 | 6 | 10 | 3 | 0 | 0 | 203 | 4 | 0 | 0 | 89 | 4 | 0 | 339 | 3579 |
| 8:20 AM | 3 | 11 | 3 | 0 | 2 | 7 | 2 | 0 | 0 | 208 | 1 | 0 | 0 | 81 | 6 | 0 | 324 | 3690 |
| 8:25 AM | 5 | 16 | 7 | 0 | 12 | 10 | 2 | 0 | 0 | 177 | 2 | 0 | 0 | 90 | 4 | 0 | 325 | 3788 |
| 8:30 AM | 6 | 12 | 3 | 0 | 8 | 10 | 3 | 0 | 0 | 174 | 0 | 0 | 0 | 86 | 2 | 0 | 304 | 3879 |
| 8:35 AM | 4 | 14 | 4 | 0 | 1 | 2 | 4 | 0 | 0 | 213 | 5 | 0 | 0 | 85 | 1 | 0 | 333 | 3879 |
| 8:40 AM | 4 | 16 | 2 | 0 | 10 | 13 | 6 | 0 | 0 | 173 | 5 | 0 | 0 | 90 | 5 | 0 | 324 | 3904 |
| 8:45 AM | 6 | 11 | 2 | 0 | 6 | 6 | 6 | 0 | 0 | 167 | 1 | 0 | 0 | 100 | 6 | 0 | 311 | 3884 |
| 8:50 AM | 3 | 16 | 3 | 0 | 5 | 14 | 3 | 0 | 0 | 195 | 7 | 0 | 0 | 94 | 2 | 0 | 342 | 3886 |
| 8:55 AM | 4 | 16 | 3 | 0 | 7 | 11 | 2 | 0 | 0 | 167 | 4 | 0 | 0 | 86 | 7 | 0 | 307 | 3846 |

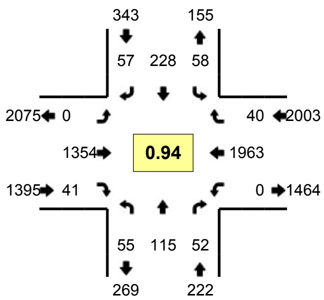
| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 48 | 140 | 48 | 0 | 88 | 152 | 28 | 0 | 0 | 2428 | 52 | 0 | 0 | 1048 | 40 | 0 | 4072 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 4 | 0 | | 0 | 92 | 0 | | 0 | 108 | 0 | | 204 |
| Pedestrians | | 40 | | | | 44 | | | | 16 | | | | 24 | | | 124 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

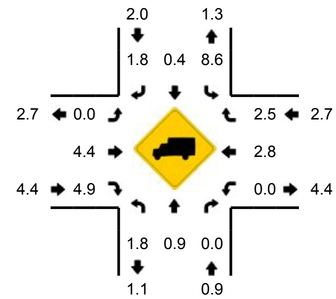
Report generated on 9/23/2011 11:47 AM — SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

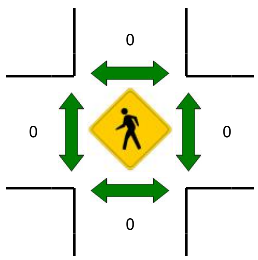
Type of peak hour being reported: Intersection Peak — Method for determining peak hour: Total Entering Volume

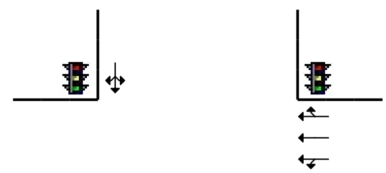
**LOCATION:** Parker St -- Geary Blvd — **QC JOB #:** 10652727
**CITY/STATE:** San Francisco, CA — **DATE:** Wed, Sep 14 2011

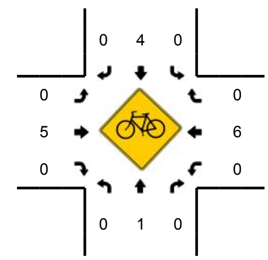


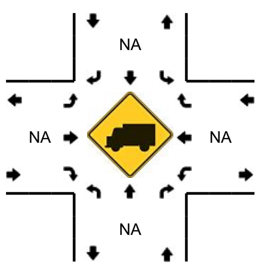

**Peak-Hour: 4:55 PM -- 5:55 PM**
**Peak 15-Min: 5:10 PM -- 5:25 PM**

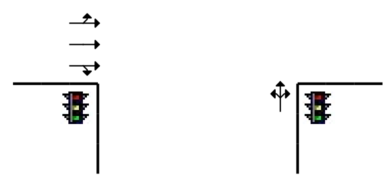


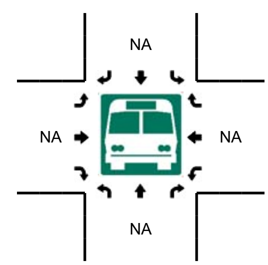








| 5-Min Count Period Beginning At | Parker St (Northbound) Left | Thru | Right | U | Parker St (Southbound) Left | Thru | Right | U | Geary Blvd (Eastbound) Left | Thru | Right | U | Geary Blvd (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4:00 PM | 8 | 8 | 4 | 0 | 2 | 15 | 2 | 0 | 0 | 110 | 3 | 0 | 1 | 130 | 6 | 0 | 289 | |
| 4:05 PM | 6 | 9 | 8 | 0 | 2 | 14 | 0 | 0 | 0 | 99 | 3 | 0 | 0 | 151 | 2 | 0 | 294 | |
| 4:10 PM | 6 | 7 | 2 | 0 | 4 | 18 | 3 | 0 | 0 | 117 | 0 | 0 | 1 | 182 | 0 | 0 | 340 | |
| 4:15 PM | 5 | 9 | 4 | 0 | 2 | 16 | 2 | 0 | 0 | 104 | 2 | 0 | 1 | 131 | 4 | 0 | 280 | |
| 4:20 PM | 2 | 9 | 1 | 0 | 1 | 16 | 2 | 0 | 0 | 108 | 3 | 0 | 0 | 154 | 3 | 0 | 299 | |
| 4:25 PM | 2 | 4 | 5 | 0 | 3 | 16 | 2 | 0 | 0 | 100 | 3 | 0 | 0 | 148 | 2 | 0 | 285 | |
| 4:30 PM | 5 | 8 | 8 | 0 | 1 | 16 | 4 | 0 | 0 | 98 | 1 | 0 | 0 | 128 | 1 | 0 | 270 | |
| 4:35 PM | 10 | 4 | 6 | 0 | 4 | 16 | 3 | 0 | 0 | 95 | 3 | 0 | 0 | 132 | 1 | 0 | 274 | |
| 4:40 PM | 2 | 11 | 10 | 0 | 2 | 14 | 5 | 0 | 0 | 103 | 5 | 0 | 0 | 157 | 4 | 0 | 313 | |
| 4:45 PM | 11 | 9 | 11 | 0 | 5 | 20 | 6 | 0 | 0 | 136 | 2 | 0 | 0 | 157 | 1 | 0 | 358 | |
| 4:50 PM | 4 | 8 | 6 | 0 | 5 | 14 | 3 | 0 | 0 | 102 | 0 | 0 | 0 | 138 | 2 | 0 | 282 | |
| 4:55 PM | 3 | 4 | 3 | 0 | 1 | 11 | 4 | 0 | 0 | 107 | 4 | 0 | 0 | 140 | 3 | 0 | 280 | 3564 |
| 5:00 PM | 6 | 12 | 5 | 0 | 3 | 23 | 3 | 0 | 0 | 96 | 3 | 0 | 0 | 144 | 3 | 0 | 298 | 3573 |
| 5:05 PM | 4 | 9 | 5 | 0 | 7 | 21 | 7 | 0 | 0 | 113 | 3 | 0 | 0 | 157 | 2 | 0 | 328 | 3607 |
| 5:10 PM | 3 | 7 | 2 | 0 | 5 | 17 | 7 | 0 | 0 | 124 | 3 | 0 | 0 | 189 | 6 | 0 | 363 | 3630 |
| 5:15 PM | 10 | 11 | 8 | 0 | 5 | 19 | 6 | 0 | 0 | 117 | 0 | 0 | 0 | 154 | 8 | 0 | 338 | 3688 |
| 5:20 PM | 7 | 7 | 5 | 0 | 5 | 21 | 9 | 0 | 0 | 130 | 4 | 0 | 0 | 164 | 1 | 0 | 353 | 3742 |
| 5:25 PM | 4 | 12 | 5 | 0 | 1 | 17 | 5 | 0 | 0 | 121 | 3 | 0 | 0 | 182 | 1 | 0 | 351 | 3808 |
| 5:30 PM | 4 | 17 | 9 | 0 | 7 | 24 | 3 | 0 | 0 | 100 | 3 | 0 | 0 | 153 | 1 | 0 | 321 | 3859 |
| 5:35 PM | 3 | 6 | 1 | 0 | 8 | 18 | 5 | 0 | 0 | 110 | 6 | 0 | 0 | 179 | 4 | 0 | 340 | 3925 |
| 5:40 PM | 5 | 12 | 3 | 0 | 2 | 23 | 2 | 0 | 0 | 118 | 5 | 0 | 0 | 170 | 2 | 0 | 342 | 3954 |
| 5:45 PM | 4 | 9 | 2 | 0 | 10 | 23 | 1 | 0 | 0 | 109 | 2 | 0 | 0 | 157 | 1 | 0 | 318 | 3914 |
| 5:50 PM | 2 | 9 | 4 | 0 | 4 | 11 | 5 | 0 | 0 | 109 | 5 | 0 | 0 | 174 | 8 | 0 | 331 | 3963 |
| 5:55 PM | 0 | 1 | 2 | 0 | 1 | 11 | 1 | 0 | 0 | 92 | 1 | 0 | 0 | 164 | 3 | 0 | 276 | 3959 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 80 | 100 | 60 | 0 | 60 | 228 | 88 | 0 | 0 | 1484 | 28 | 0 | 0 | 2028 | 60 | 0 | 4216 |
| Heavy Trucks | 4 | 0 | 0 | | 0 | 0 | 0 | | 0 | 64 | 4 | | 0 | 24 | 0 | | 96 |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 1 | 0 | | 0 | 1 | 0 | | 2 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

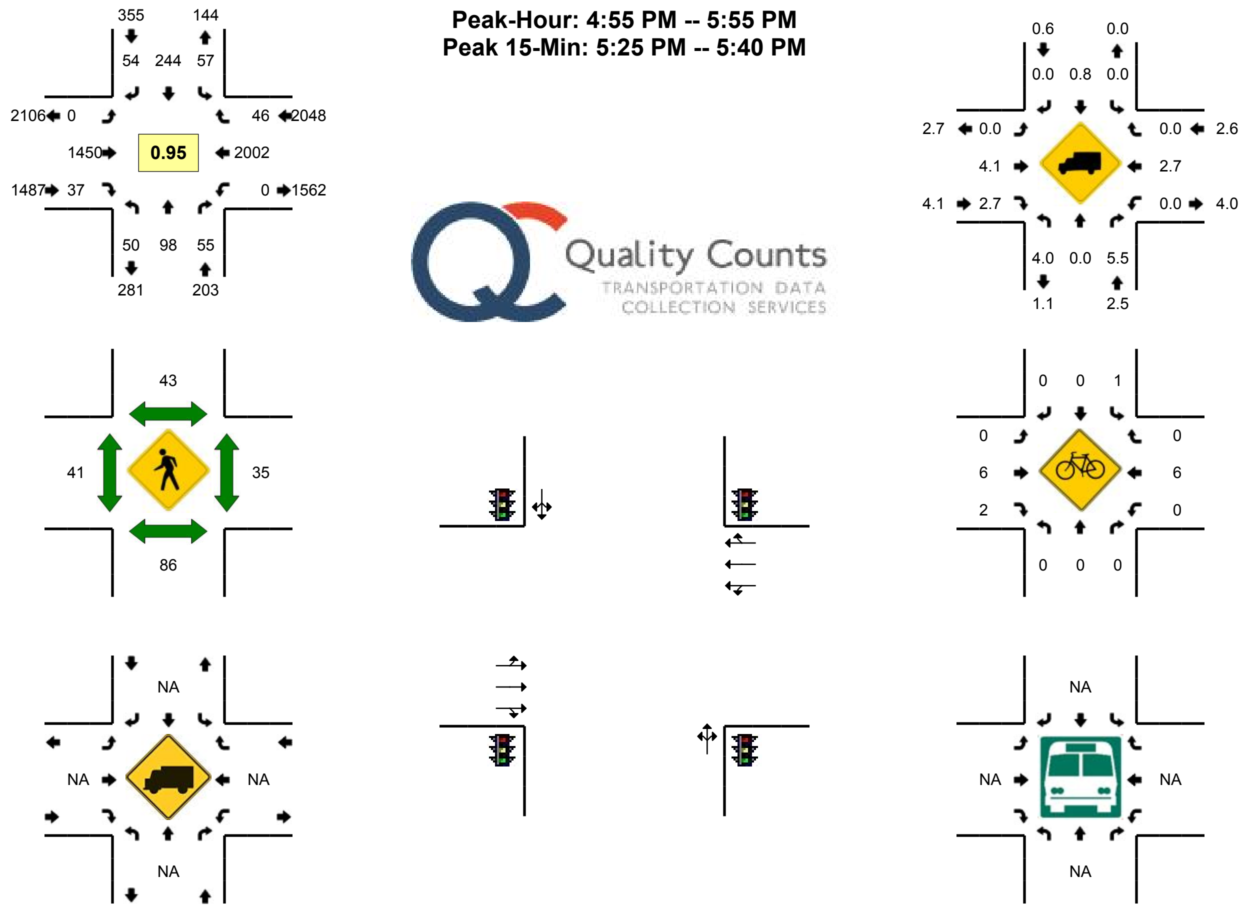
*Comments:*

Report generated on 9/23/2011 11:47 AM — SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak — Method for determining peak hour: Total Entering Volume

**LOCATION:** Parker St -- Geary Blvd — **QC JOB #:** 10652728
**CITY/STATE:** San Francisco, CA — **DATE:** Thu, Sep 08 2011

**Peak-Hour: 4:55 PM -- 5:55 PM**
**Peak 15-Min: 5:25 PM -- 5:40 PM**



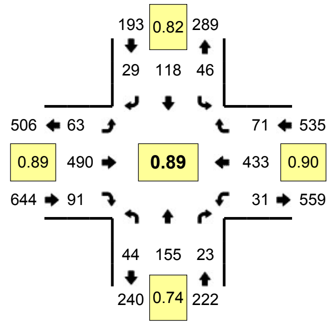

| 5-Min Count Period Beginning At | Parker St (Northbound) Left | Thru | Right | U | Parker St (Southbound) Left | Thru | Right | U | Geary Blvd (Eastbound) Left | Thru | Right | U | Geary Blvd (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4:00 PM | 4 | 14 | 5 | 0 | 2 | 19 | 4 | 0 | 0 | 112 | 7 | 0 | 0 | 118 | 3 | 0 | 288 | |
| 4:05 PM | 6 | 13 | 6 | 0 | 4 | 19 | 3 | 0 | 0 | 127 | 3 | 0 | 0 | 142 | 3 | 0 | 326 | |
| 4:10 PM | 6 | 1 | 5 | 0 | 3 | 12 | 4 | 0 | 1 | 111 | 0 | 0 | 0 | 166 | 5 | 0 | 314 | |
| 4:15 PM | 9 | 7 | 2 | 0 | 2 | 14 | 5 | 0 | 0 | 124 | 3 | 0 | 0 | 149 | 1 | 0 | 316 | |
| 4:20 PM | 3 | 5 | 5 | 0 | 3 | 15 | 2 | 0 | 0 | 116 | 4 | 0 | 0 | 137 | 4 | 0 | 294 | |
| 4:25 PM | 8 | 7 | 7 | 0 | 4 | 12 | 4 | 0 | 0 | 116 | 2 | 0 | 0 | 141 | 2 | 0 | 303 | |
| 4:30 PM | 6 | 9 | 4 | 0 | 6 | 12 | 1 | 0 | 0 | 125 | 3 | 0 | 0 | 142 | 2 | 0 | 310 | |
| 4:35 PM | 5 | 11 | 6 | 0 | 2 | 13 | 3 | 0 | 0 | 102 | 4 | 0 | 0 | 139 | 6 | 0 | 291 | |
| 4:40 PM | 4 | 10 | 4 | 0 | 4 | 10 | 6 | 0 | 0 | 131 | 7 | 0 | 0 | 139 | 6 | 0 | 321 | |
| 4:45 PM | 6 | 15 | 4 | 0 | 4 | 15 | 4 | 0 | 0 | 119 | 7 | 0 | 0 | 159 | 4 | 0 | 337 | |
| 4:50 PM | 6 | 4 | 8 | 0 | 0 | 14 | 2 | 0 | 0 | 125 | 8 | 0 | 0 | 136 | 3 | 0 | 306 | |
| 4:55 PM | 5 | 5 | 1 | 0 | 1 | 17 | 2 | 0 | 0 | 129 | 9 | 0 | 0 | 167 | 4 | 0 | 340 | 3746 |
| 5:00 PM | 2 | 9 | 8 | 0 | 1 | 13 | 4 | 0 | 0 | 115 | 2 | 0 | 0 | 132 | 2 | 0 | 288 | 3746 |
| 5:05 PM | 5 | 13 | 8 | 0 | 6 | 19 | 2 | 0 | 0 | 122 | 3 | 0 | 0 | 142 | 1 | 0 | 321 | 3741 |
| 5:10 PM | 3 | 8 | 3 | 0 | 6 | 19 | 10 | 0 | 0 | 116 | 2 | 0 | 0 | 170 | 5 | 0 | 342 | 3769 |
| 5:15 PM | 3 | 3 | 8 | 0 | 7 | 30 | 6 | 0 | 0 | 126 | 2 | 0 | 0 | 166 | 3 | 0 | 354 | 3807 |
| 5:20 PM | 9 | 9 | 9 | 0 | 5 | 22 | 8 | 0 | 0 | 110 | 2 | 0 | 0 | 166 | 2 | 0 | 342 | 3855 |
| 5:25 PM | 5 | 5 | 5 | 0 | 5 | 21 | 5 | 0 | 0 | 127 | 5 | 0 | 0 | 180 | 6 | 0 | 364 | 3916 |
| 5:30 PM | 1 | 12 | 5 | 0 | 3 | 24 | 2 | 0 | 0 | 116 | 3 | 0 | 0 | 189 | 2 | 0 | 357 | 3963 |
| 5:35 PM | 9 | 13 | 3 | 0 | 7 | 21 | 4 | 0 | 0 | 121 | 2 | 0 | 0 | 175 | 5 | 0 | 360 | 4032 |
| 5:40 PM | 3 | 8 | 3 | 0 | 3 | 24 | 4 | 0 | 0 | 136 | 1 | 0 | 0 | 172 | 5 | 0 | 359 | 4070 |
| 5:45 PM | 3 | 8 | 0 | 0 | 8 | 13 | 1 | 0 | 0 | 121 | 5 | 0 | 0 | 179 | 6 | 0 | 344 | 4077 |
| 5:50 PM | 2 | 5 | 2 | 0 | 5 | 21 | 6 | 0 | 0 | 111 | 1 | 0 | 0 | 164 | 5 | 0 | 322 | 4093 |
| 5:55 PM | 6 | 2 | 3 | 0 | 3 | 11 | 2 | 0 | 0 | 104 | 2 | 0 | 0 | 183 | 1 | 0 | 317 | 4070 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 60 | 120 | 52 | 0 | 60 | 264 | 44 | 0 | 0 | 1456 | 40 | 0 | 0 | 2176 | 52 | 0 | 4324 |
| Heavy Trucks | 4 | 0 | 0 | | 0 | 4 | 0 | | 0 | 64 | 0 | | 0 | 56 | 0 | | 128 |
| Pedestrians | | 84 | | | | 28 | | | | 24 | | | | 40 | | | 176 |
| Bicycles | 0 | 0 | 0 | | 1 | 0 | 0 | | 0 | 1 | 0 | | 0 | 2 | 0 | | 4 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

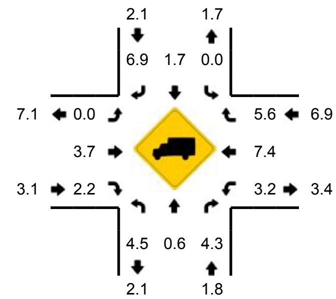
*Comments:*

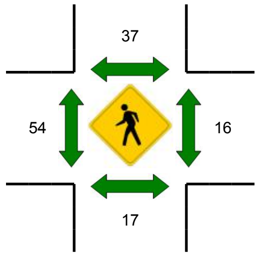
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

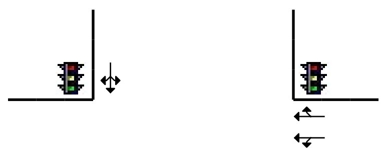
**LOCATION:** Parker Ave -- Turk Blvd **QC JOB #:** 10545943
**CITY/STATE:** San Francisco, CA **DATE:** 10/19/2010

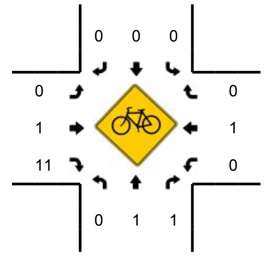


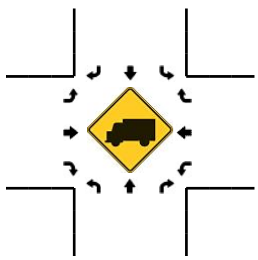

**Peak-Hour: 7:45 AM -- 8:45 AM**
**Peak 15-Min: 7:45 AM -- 8:00 AM**

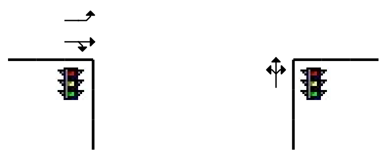


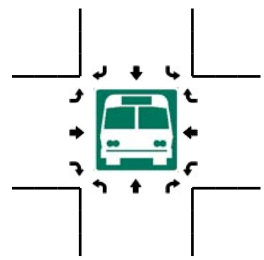









| 5-Min Count Period Beginning At | Parker Ave (Northbound) Left | Thru | Right | U | Parker Ave (Southbound) Left | Thru | Right | U | Turk Blvd (Eastbound) Left | Thru | Right | U | Turk Blvd (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7:00 AM | 0 | 0 | 1 | 0 | 0 | 6 | 1 | 0 | 0 | 6 | 1 | 0 | 0 | 15 | 1 | 0 | 31 | |
| 7:05 AM | 0 | 3 | 1 | 0 | 0 | 3 | 1 | 0 | 1 | 12 | 4 | 0 | 2 | 13 | 1 | 0 | 41 | |
| 7:10 AM | 1 | 6 | 3 | 0 | 1 | 11 | 1 | 0 | 3 | 4 | 3 | 0 | 3 | 15 | 2 | 0 | 53 | |
| 7:15 AM | 2 | 6 | 1 | 0 | 3 | 4 | 0 | 0 | 0 | 20 | 3 | 0 | 1 | 23 | 1 | 0 | 64 | |
| 7:20 AM | 3 | 9 | 3 | 0 | 2 | 4 | 1 | 0 | 2 | 20 | 3 | 0 | 3 | 12 | 3 | 0 | 65 | |
| 7:25 AM | 3 | 7 | 1 | 0 | 2 | 4 | 2 | 0 | 2 | 21 | 5 | 0 | 3 | 15 | 2 | 0 | 67 | |
| 7:30 AM | 2 | 9 | 1 | 0 | 9 | 12 | 1 | 0 | 3 | 16 | 3 | 0 | 1 | 15 | 6 | 0 | 78 | |
| 7:35 AM | 2 | 8 | 2 | 0 | 6 | 5 | 3 | 0 | 4 | 36 | 3 | 0 | 2 | 15 | 8 | 0 | 94 | |
| 7:40 AM | 2 | 3 | 2 | 0 | 2 | 6 | 1 | 0 | 6 | 38 | 2 | 0 | 3 | 26 | 6 | 0 | 97 | |
| 7:45 AM | 5 | 10 | 3 | 0 | 4 | 10 | 4 | 0 | 7 | 42 | 8 | 0 | 4 | 28 | 5 | 0 | 130 | |
| 7:50 AM | 9 | 18 | 2 | 0 | 7 | 12 | 0 | 0 | 4 | 42 | 13 | 0 | 6 | 33 | 11 | 0 | 157 | |
| 7:55 AM | 5 | 20 | 3 | 0 | 6 | 15 | 2 | 0 | 9 | 45 | 10 | 0 | 1 | 43 | 4 | 0 | 163 | 1040 |
| 8:00 AM | 6 | 10 | 2 | 0 | 0 | 4 | 3 | 0 | 5 | 43 | 3 | 0 | 2 | 45 | 4 | 0 | 127 | 1136 |
| 8:05 AM | 4 | 14 | 1 | 0 | 3 | 13 | 4 | 0 | 5 | 46 | 9 | 0 | 2 | 33 | 3 | 0 | 137 | 1232 |
| 8:10 AM | 3 | 9 | 1 | 0 | 4 | 11 | 3 | 0 | 5 | 37 | 14 | 0 | 0 | 40 | 9 | 0 | 136 | 1315 |
| 8:15 AM | 1 | 11 | 1 | 0 | 4 | 12 | 1 | 0 | 2 | 37 | 10 | 0 | 2 | 35 | 9 | 0 | 125 | 1376 |
| 8:20 AM | 1 | 17 | 1 | 0 | 6 | 9 | 3 | 0 | 2 | 41 | 6 | 0 | 3 | 32 | 6 | 0 | 127 | 1438 |
| 8:25 AM | 4 | 11 | 1 | 0 | 4 | 5 | 3 | 0 | 7 | 33 | 1 | 0 | 2 | 36 | 6 | 0 | 113 | 1484 |
| 8:30 AM | 4 | 15 | 1 | 0 | 4 | 5 | 3 | 0 | 8 | 39 | 2 | 0 | 2 | 37 | 5 | 0 | 125 | 1531 |
| 8:35 AM | 1 | 12 | 4 | 0 | 3 | 14 | 2 | 0 | 6 | 40 | 9 | 0 | 5 | 38 | 5 | 0 | 139 | 1576 |
| 8:40 AM | 1 | 8 | 3 | 0 | 1 | 8 | 1 | 0 | 3 | 45 | 6 | 0 | 2 | 33 | 4 | 0 | 115 | 1594 |
| 8:45 AM | 3 | 13 | 3 | 0 | 2 | 8 | 0 | 0 | 0 | 54 | 0 | 0 | 2 | 36 | 3 | 0 | 124 | 1588 |
| 8:50 AM | 4 | 9 | 2 | 0 | 3 | 10 | 3 | 0 | 5 | 37 | 8 | 0 | 1 | 31 | 3 | 0 | 116 | 1547 |
| 8:55 AM | 6 | 9 | 2 | 0 | 1 | 11 | 1 | 0 | 5 | 41 | 7 | 0 | 3 | 26 | 7 | 0 | 119 | 1503 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 76 | 192 | 32 | 0 | 68 | 148 | 24 | 0 | 80 | 516 | 124 | 0 | 44 | 416 | 80 | 0 | 1800 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 4 | | 0 | 28 | 0 | | 0 | 20 | 4 | | 56 |
| Pedestrians | | 20 | | | | 40 | | | | 88 | | | | 12 | | | 160 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 3 | | 0 | 0 | 0 | | 3 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

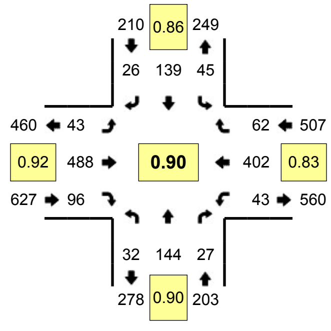
*Comments:*

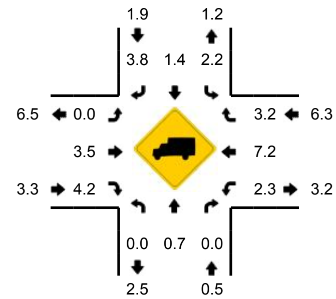
Report generated on 11/18/2010 3:24 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

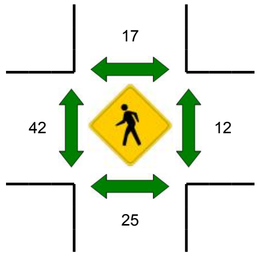
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

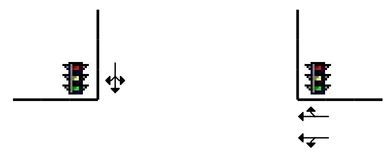
**LOCATION:** Parker Ave -- Turk Blvd | **QC JOB #:** 10545945
**CITY/STATE:** San Francisco, CA | **DATE:** 10/14/2010

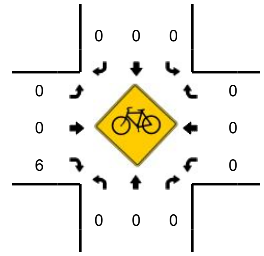
**Peak-Hour: 7:40 AM -- 8:40 AM**
**Peak 15-Min: 7:50 AM -- 8:05 AM**

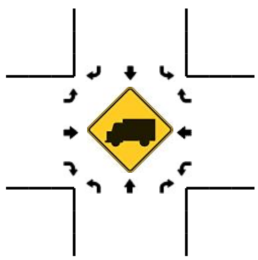


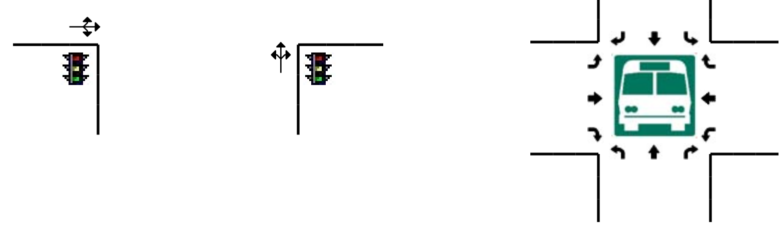







| 5-Min Count Period Beginning At | Parker Ave (Northbound) Left | Thru | Right | U | Parker Ave (Southbound) Left | Thru | Right | U | Turk Blvd (Eastbound) Left | Thru | Right | U | Turk Blvd (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7:00 AM | 1 | 5 | 1 | 0 | 2 | 5 | 0 | 0 | 0 | 8 | 2 | 0 | 1 | 15 | 5 | 0 | 45 | |
| 7:05 AM | 1 | 3 | 2 | 0 | 2 | 4 | 2 | 0 | 2 | 14 | 5 | 0 | 4 | 14 | 2 | 0 | 55 | |
| 7:10 AM | 2 | 5 | 0 | 0 | 0 | 4 | 2 | 0 | 2 | 12 | 2 | 0 | 4 | 16 | 3 | 0 | 52 | |
| 7:15 AM | 1 | 6 | 1 | 0 | 6 | 4 | 2 | 0 | 2 | 14 | 5 | 0 | 2 | 15 | 3 | 0 | 61 | |
| 7:20 AM | 1 | 6 | 0 | 0 | 1 | 4 | 0 | 0 | 2 | 16 | 2 | 0 | 2 | 16 | 4 | 0 | 54 | |
| 7:25 AM | 3 | 10 | 1 | 0 | 1 | 3 | 2 | 0 | 4 | 19 | 5 | 0 | 0 | 16 | 1 | 0 | 65 | |
| 7:30 AM | 6 | 14 | 0 | 0 | 2 | 9 | 0 | 0 | 5 | 29 | 8 | 0 | 5 | 18 | 7 | 0 | 103 | |
| 7:35 AM | 2 | 10 | 5 | 0 | 4 | 8 | 1 | 0 | 4 | 28 | 2 | 0 | 2 | 23 | 3 | 0 | 92 | |
| 7:40 AM | 1 | 16 | 3 | 0 | 9 | 12 | 1 | 0 | 3 | 41 | 5 | 0 | 3 | 24 | 6 | 0 | 124 | |
| 7:45 AM | 3 | 8 | 3 | 0 | 10 | 8 | 3 | 0 | 5 | 37 | 7 | 0 | 2 | 36 | 2 | 0 | 124 | |
| 7:50 AM | 2 | 14 | 1 | 0 | 3 | 10 | 2 | 0 | 4 | 39 | 9 | 0 | 0 | 33 | 5 | 0 | 122 | |
| 7:55 AM | 5 | 8 | 2 | 0 | 3 | 20 | 0 | 0 | 4 | 44 | 10 | 0 | 9 | 44 | 7 | 0 | 156 | 1053 |
| 8:00 AM | 7 | 20 | 0 | 0 | 2 | 13 | 4 | 0 | 3 | 50 | 8 | 0 | 5 | 34 | 8 | 0 | 154 | 1162 |
| 8:05 AM | 2 | 8 | 2 | 0 | 1 | 17 | 2 | 0 | 1 | 34 | 9 | 0 | 1 | 38 | 7 | 0 | 122 | 1229 |
| 8:10 AM | 2 | 15 | 4 | 0 | 3 | 5 | 4 | 0 | 3 | 41 | 9 | 0 | 2 | 21 | 7 | 0 | 116 | 1293 |
| 8:15 AM | 2 | 12 | 5 | 0 | 2 | 9 | 4 | 0 | 3 | 40 | 10 | 0 | 5 | 31 | 6 | 0 | 129 | 1361 |
| 8:20 AM | 5 | 13 | 1 | 0 | 4 | 11 | 2 | 0 | 3 | 48 | 10 | 0 | 2 | 46 | 5 | 0 | 150 | 1457 |
| 8:25 AM | 1 | 9 | 2 | 0 | 4 | 7 | 0 | 0 | 5 | 30 | 7 | 0 | 4 | 26 | 2 | 0 | 97 | 1489 |
| 8:30 AM | 1 | 7 | 2 | 0 | 3 | 20 | 3 | 0 | 7 | 46 | 5 | 0 | 5 | 32 | 4 | 0 | 135 | 1521 |
| 8:35 AM | 1 | 14 | 2 | 0 | 1 | 7 | 1 | 0 | 2 | 38 | 7 | 0 | 5 | 37 | 3 | 0 | 118 | 1547 |
| 8:40 AM | 1 | 6 | 4 | 0 | 3 | 4 | 0 | 0 | 3 | 32 | 6 | 0 | 1 | 26 | 5 | 0 | 91 | 1514 |
| 8:45 AM | 2 | 8 | 2 | 0 | 3 | 8 | 1 | 0 | 2 | 42 | 5 | 0 | 7 | 22 | 7 | 0 | 109 | 1499 |
| 8:50 AM | 2 | 9 | 2 | 0 | 2 | 10 | 0 | 0 | 4 | 39 | 2 | 0 | 2 | 30 | 6 | 0 | 108 | 1485 |
| 8:55 AM | 3 | 12 | 3 | 0 | 7 | 5 | 0 | 0 | 5 | 33 | 7 | 0 | 1 | 20 | 10 | 0 | 106 | 1435 |

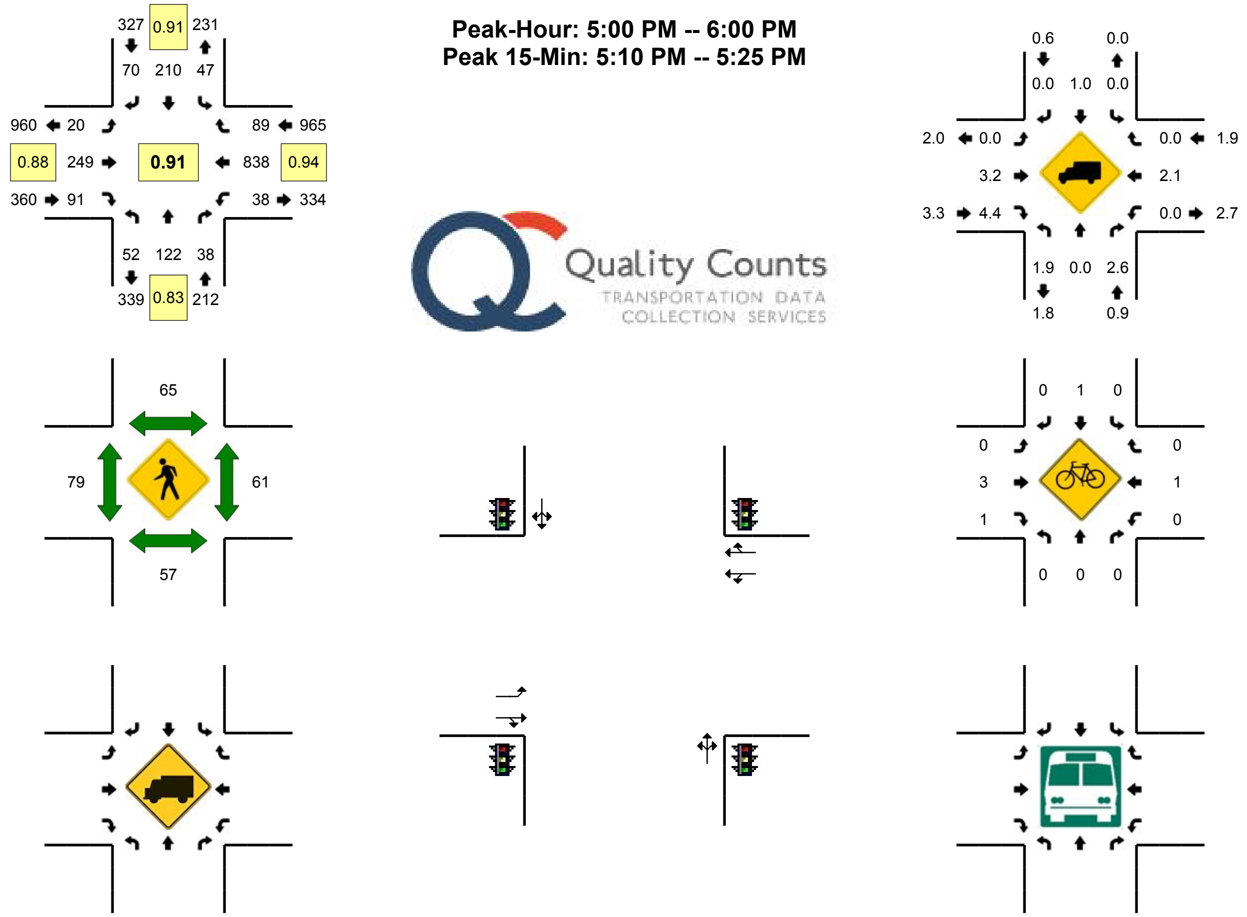
| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 56 | 168 | 12 | 0 | 32 | 172 | 24 | 0 | 44 | 532 | 108 | 0 | 56 | 444 | 80 | 0 | 1728 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 4 | | 0 | 24 | 0 | | 0 | 20 | 0 | | 48 |
| Pedestrians | | 12 | | | | 20 | | | | 32 | | | | 8 | | | 72 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 2 | | 0 | 0 | 0 | | 2 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

**LOCATION:** Parker Ave -- Turk Blvd | **QC JOB #:** 10545946
**CITY/STATE:** San Francisco, CA | **DATE:** 10/19/2010

**Peak-Hour: 5:00 PM -- 6:00 PM**
**Peak 15-Min: 5:10 PM -- 5:25 PM**




| 5-Min Count Period Beginning At | Parker Ave (Northbound) Left | Thru | Right | U | Parker Ave (Southbound) Left | Thru | Right | U | Turk Blvd (Eastbound) Left | Thru | Right | U | Turk Blvd (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4:00 PM | 7 | 9 | 4 | 0 | 2 | 6 | 1 | 0 | 4 | 19 | 7 | 0 | 3 | 40 | 3 | 0 | 105 | |
| 4:05 PM | 4 | 9 | 2 | 0 | 5 | 12 | 2 | 0 | 3 | 19 | 5 | 0 | 3 | 24 | 2 | 0 | 90 | |
| 4:10 PM | 3 | 13 | 5 | 0 | 2 | 16 | 2 | 0 | 1 | 17 | 7 | 0 | 1 | 42 | 4 | 0 | 113 | |
| 4:15 PM | 2 | 13 | 3 | 0 | 3 | 12 | 6 | 0 | 0 | 19 | 2 | 0 | 4 | 42 | 3 | 0 | 109 | |
| 4:20 PM | 4 | 14 | 3 | 0 | 4 | 8 | 3 | 0 | 3 | 19 | 5 | 0 | 7 | 49 | 3 | 0 | 122 | |
| 4:25 PM | 3 | 11 | 3 | 0 | 1 | 14 | 6 | 0 | 1 | 17 | 9 | 0 | 3 | 40 | 7 | 0 | 115 | |
| 4:30 PM | 9 | 11 | 1 | 0 | 0 | 19 | 4 | 0 | 4 | 16 | 3 | 0 | 3 | 54 | 5 | 0 | 129 | |
| 4:35 PM | 7 | 11 | 7 | 0 | 2 | 7 | 5 | 0 | 4 | 22 | 6 | 0 | 5 | 50 | 6 | 0 | 132 | |
| 4:40 PM | 5 | 9 | 4 | 0 | 1 | 20 | 1 | 0 | 3 | 19 | 2 | 0 | 6 | 51 | 4 | 0 | 125 | |
| 4:45 PM | 5 | 7 | 1 | 0 | 4 | 13 | 5 | 0 | 1 | 15 | 5 | 0 | 2 | 45 | 4 | 0 | 107 | |
| 4:50 PM | 6 | 11 | 2 | 0 | 0 | 22 | 4 | 0 | 1 | 20 | 5 | 0 | 4 | 60 | 4 | 0 | 139 | |
| 4:55 PM | 5 | 13 | 0 | 0 | 0 | 9 | 1 | 0 | 2 | 16 | 5 | 0 | 6 | 52 | 7 | 0 | 116 | 1402 |
| 5:00 PM | 4 | 10 | 2 | 0 | 4 | 15 | 9 | 0 | 0 | 14 | 9 | 0 | 4 | 58 | 7 | 0 | 136 | 1433 |
| 5:05 PM | 3 | 15 | 3 | 0 | 4 | 17 | 7 | 0 | 4 | 27 | 4 | 0 | 2 | 74 | 9 | 0 | 169 | 1512 |
| 5:10 PM | 8 | 9 | 3 | 0 | 3 | 18 | 6 | 0 | 3 | 22 | 7 | 0 | 5 | 73 | 10 | 0 | 167 | 1566 |
| 5:15 PM | 5 | 17 | 5 | 0 | 5 | 19 | 6 | 0 | 2 | 21 | 6 | 0 | 3 | 71 | 6 | 0 | 166 | 1623 |
| 5:20 PM | 5 | 15 | 6 | 0 | 5 | 18 | 8 | 0 | 0 | 29 | 12 | 0 | 3 | 69 | 7 | 0 | 177 | 1678 |
| 5:25 PM | 4 | 8 | 2 | 0 | 5 | 17 | 7 | 0 | 2 | 20 | 6 | 0 | 1 | 82 | 12 | 0 | 166 | 1729 |
| 5:30 PM | 4 | 8 | 2 | 0 | 4 | 16 | 6 | 0 | 1 | 14 | 5 | 0 | 1 | 73 | 9 | 0 | 143 | 1743 |
| 5:35 PM | 6 | 6 | 3 | 0 | 1 | 21 | 3 | 0 | 1 | 21 | 11 | 0 | 0 | 68 | 7 | 0 | 148 | 1759 |
| 5:40 PM | 1 | 9 | 6 | 0 | 6 | 14 | 2 | 0 | 5 | 19 | 8 | 0 | 3 | 76 | 3 | 0 | 152 | 1786 |
| 5:45 PM | 2 | 9 | 2 | 0 | 7 | 19 | 3 | 0 | 1 | 19 | 9 | 0 | 6 | 82 | 6 | 0 | 165 | 1844 |
| 5:50 PM | 6 | 4 | 0 | 0 | 2 | 16 | 3 | 0 | 1 | 23 | 10 | 0 | 3 | 59 | 7 | 0 | 134 | 1839 |
| 5:55 PM | 4 | 12 | 4 | 0 | 1 | 20 | 10 | 0 | 0 | 20 | 4 | 0 | 7 | 53 | 6 | 0 | 141 | 1864 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 72 | 164 | 56 | 0 | 52 | 220 | 80 | 0 | 20 | 288 | 100 | 0 | 44 | 852 | 92 | 0 | 2040 |
| Heavy Trucks | 4 | 0 | 0 | | 0 | 8 | 0 | | 0 | 8 | 8 | | 0 | 4 | 0 | | 32 |
| Pedestrians | | 44 | | | | 60 | | | | 92 | | | | 56 | | | 252 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

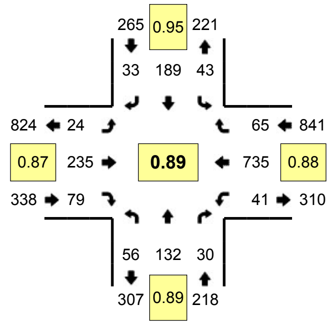
*Comments:*

Report generated on 11/18/2010 3:24 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

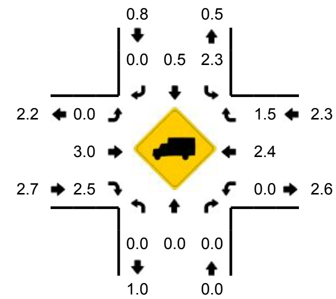
Type of peak hour being reported: Intersection Peak — Method for determining peak hour: Total Entering Volume

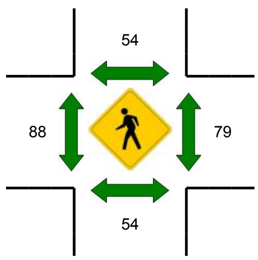
**LOCATION:** Parker Ave -- Turk Blvd — **QC JOB #:** 10545948

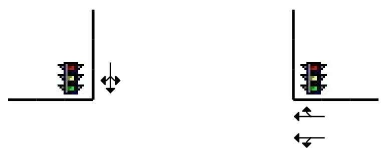
**CITY/STATE:** San Francisco, CA — **DATE:** 10/14/2010

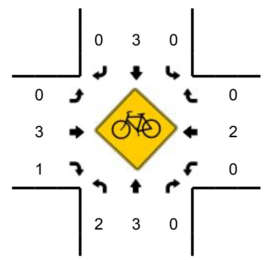


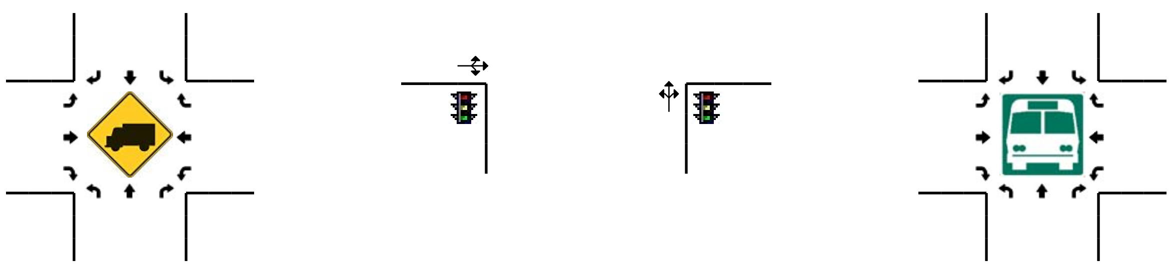

**Peak-Hour: 5:00 PM -- 6:00 PM**
**Peak 15-Min: 5:15 PM -- 5:30 PM**





| 5-Min Count Period Beginning At | Parker Ave (Northbound) Left | Thru | Right | U | Parker Ave (Southbound) Left | Thru | Right | U | Turk Blvd (Eastbound) Left | Thru | Right | U | Turk Blvd (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4:00 PM | 6 | 8 | 3 | 0 | 3 | 13 | 2 | 0 | 4 | 18 | 6 | 1 | 2 | 45 | 6 | 0 | 117 | |
| 4:05 PM | 5 | 7 | 1 | 0 | 4 | 11 | 6 | 0 | 4 | 28 | 3 | 0 | 0 | 51 | 5 | 0 | 125 | |
| 4:10 PM | 4 | 10 | 1 | 0 | 0 | 19 | 0 | 0 | 2 | 16 | 3 | 0 | 2 | 42 | 7 | 0 | 106 | |
| 4:15 PM | 6 | 5 | 4 | 0 | 3 | 19 | 1 | 0 | 2 | 14 | 5 | 0 | 6 | 44 | 0 | 0 | 109 | |
| 4:20 PM | 3 | 13 | 5 | 0 | 3 | 17 | 2 | 0 | 2 | 17 | 6 | 0 | 3 | 43 | 4 | 0 | 118 | |
| 4:25 PM | 5 | 8 | 4 | 0 | 1 | 14 | 6 | 0 | 0 | 26 | 3 | 0 | 3 | 41 | 6 | 0 | 117 | |
| 4:30 PM | 9 | 9 | 2 | 0 | 4 | 10 | 3 | 0 | 2 | 22 | 7 | 0 | 2 | 48 | 5 | 0 | 123 | |
| 4:35 PM | 4 | 15 | 0 | 0 | 4 | 18 | 2 | 0 | 0 | 20 | 6 | 0 | 4 | 46 | 2 | 0 | 121 | |
| 4:40 PM | 4 | 10 | 5 | 0 | 3 | 10 | 4 | 0 | 1 | 17 | 6 | 0 | 4 | 49 | 4 | 0 | 117 | |
| 4:45 PM | 7 | 16 | 5 | 0 | 3 | 14 | 3 | 0 | 3 | 19 | 8 | 0 | 4 | 55 | 5 | 0 | 142 | |
| 4:50 PM | 9 | 8 | 4 | 0 | 3 | 20 | 1 | 2 | 0 | 16 | 3 | 0 | 3 | 58 | 5 | 1 | 133 | |
| 4:55 PM | 3 | 8 | 4 | 0 | 4 | 6 | 1 | 2 | 3 | 18 | 7 | 0 | 2 | 49 | 4 | 0 | 111 | 1439 |
| 5:00 PM | 2 | 9 | 5 | 0 | 8 | 18 | 2 | 0 | 2 | 17 | 2 | 0 | 4 | 59 | 3 | 0 | 131 | 1453 |
| 5:05 PM | 7 | 14 | 2 | 0 | 2 | 16 | 3 | 0 | 5 | 13 | 8 | 0 | 2 | 54 | 6 | 0 | 132 | 1460 |
| 5:10 PM | 7 | 12 | 3 | 0 | 3 | 16 | 2 | 0 | 0 | 17 | 5 | 0 | 3 | 60 | 4 | 0 | 132 | 1486 |
| 5:15 PM | 5 | 11 | 5 | 0 | 4 | 19 | 1 | 0 | 2 | 22 | 7 | 0 | 6 | 67 | 8 | 1 | 158 | 1535 |
| 5:20 PM | 5 | 14 | 0 | 0 | 3 | 18 | 1 | 0 | 3 | 25 | 12 | 0 | 1 | 70 | 4 | 0 | 156 | 1573 |
| 5:25 PM | 5 | 11 | 2 | 0 | 6 | 11 | 4 | 0 | 2 | 22 | 2 | 0 | 1 | 75 | 10 | 0 | 151 | 1607 |
| 5:30 PM | 5 | 10 | 2 | 0 | 4 | 20 | 2 | 0 | 1 | 21 | 5 | 0 | 1 | 60 | 5 | 1 | 137 | 1621 |
| 5:35 PM | 3 | 9 | 3 | 0 | 2 | 12 | 1 | 0 | 3 | 21 | 6 | 0 | 7 | 74 | 3 | 0 | 144 | 1644 |
| 5:40 PM | 6 | 11 | 1 | 0 | 1 | 13 | 3 | 0 | 2 | 18 | 4 | 0 | 3 | 60 | 6 | 0 | 128 | 1655 |
| 5:45 PM | 1 | 5 | 1 | 0 | 3 | 18 | 3 | 0 | 2 | 24 | 11 | 0 | 6 | 65 | 5 | 0 | 144 | 1657 |
| 5:50 PM | 4 | 14 | 5 | 0 | 3 | 14 | 2 | 0 | 1 | 18 | 7 | 0 | 3 | 47 | 7 | 0 | 125 | 1649 |
| 5:55 PM | 6 | 12 | 1 | 0 | 4 | 14 | 9 | 0 | 1 | 17 | 10 | 0 | 2 | 44 | 4 | 0 | 124 | 1662 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 60 | 144 | 28 | 0 | 52 | 192 | 24 | 0 | 28 | 276 | 84 | 0 | 32 | 848 | 88 | 4 | 1860 |
| Heavy Trucks | 0 | 0 | 0 | | 4 | 0 | 0 | | 0 | 16 | 4 | | 0 | 16 | 0 | | 40 |
| Pedestrians | | 32 | | | | 44 | | | | 84 | | | | 68 | | | 228 |
| Bicycles | 1 | 1 | 0 | | 0 | 0 | 0 | | 0 | 1 | 0 | | 0 | 2 | 0 | | 5 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

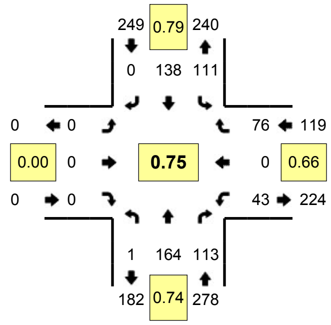
*Comments:*

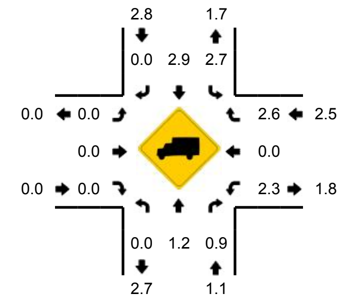
Report generated on 11/18/2010 3:24 PM — SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

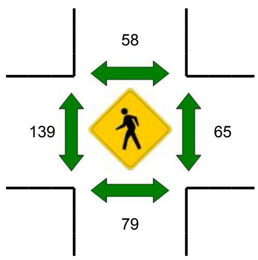
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

**LOCATION:** Parker Ave -- Golden Gate Ave | **QC JOB #:** 10545901
**CITY/STATE:** San Francisco, CA | **DATE:** 10/19/2010

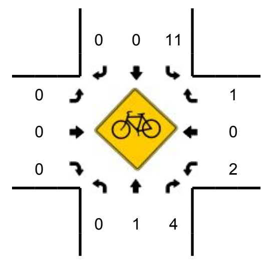
**Peak-Hour: 7:45 AM -- 8:45 AM**
**Peak 15-Min: 7:45 AM -- 8:00 AM**

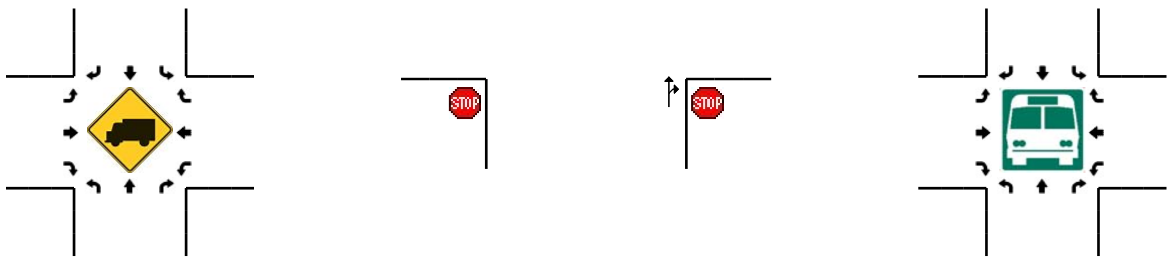







| 5-Min Count Period Beginning At | Parker Ave (Northbound) Left | Thru | Right | U | Parker Ave (Southbound) Left | Thru | Right | U | Golden Gate Ave (Eastbound) Left | Thru | Right | U | Golden Gate Ave (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7:00 AM | 0 | 1 | 5 | 1 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 0 | 18 | |
| 7:05 AM | 0 | 4 | 5 | 0 | 2 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 20 | |
| 7:10 AM | 0 | 8 | 3 | 0 | 5 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 1 | 0 | 35 | |
| 7:15 AM | 0 | 9 | 3 | 0 | 4 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 4 | 0 | 27 | |
| 7:20 AM | 0 | 10 | 6 | 0 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 0 | 29 | |
| 7:25 AM | 0 | 6 | 8 | 0 | 6 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 5 | 0 | 33 | |
| 7:30 AM | 0 | 11 | 6 | 0 | 9 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 2 | 0 | 39 | |
| 7:35 AM | 0 | 9 | 7 | 0 | 4 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 6 | 0 | 32 | |
| 7:40 AM | 0 | 6 | 13 | 0 | 11 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 2 | 0 | 39 | |
| 7:45 AM | 0 | 15 | 11 | 0 | 10 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 7 | 0 | 61 | |
| 7:50 AM | 0 | 18 | 12 | 0 | 15 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 12 | 0 | 73 | |
| 7:55 AM | 0 | 22 | 15 | 0 | 19 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 11 | 0 | 81 | 487 |
| 8:00 AM | 0 | 11 | 15 | 1 | 3 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 9 | 0 | 50 | 519 |
| 8:05 AM | 0 | 12 | 12 | 0 | 7 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 6 | 0 | 58 | 557 |
| 8:10 AM | 0 | 12 | 7 | 0 | 12 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 0 | 45 | 567 |
| 8:15 AM | 0 | 10 | 6 | 0 | 9 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 5 | 0 | 49 | 589 |
| 8:20 AM | 0 | 16 | 9 | 0 | 7 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 6 | 0 | 59 | 619 |
| 8:25 AM | 0 | 13 | 5 | 0 | 5 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 30 | 616 |
| 8:30 AM | 0 | 14 | 8 | 0 | 11 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 6 | 0 | 57 | 634 |
| 8:35 AM | 0 | 7 | 6 | 0 | 9 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 5 | 0 | 43 | 645 |
| 8:40 AM | 0 | 14 | 7 | 0 | 4 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 2 | 0 | 40 | 646 |
| 8:45 AM | 0 | 12 | 8 | 0 | 5 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 43 | 628 |
| 8:50 AM | 0 | 15 | 5 | 0 | 10 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 4 | 0 | 51 | 606 |
| 8:55 AM | 0 | 8 | 8 | 0 | 11 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 3 | 0 | 42 | 567 |

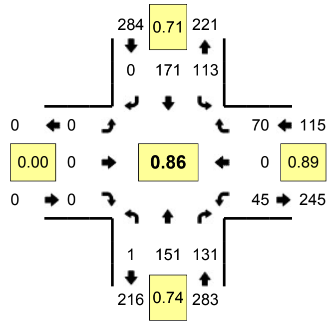
| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 0 | 220 | 152 | 0 | 176 | 140 | 0 | 0 | 0 | 0 | 0 | 0 | 52 | 0 | 120 | 0 | 860 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 4 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 4 |
| Pedestrians | | 100 | | | | 68 | | | | 152 | | | | 64 | | | 384 |
| Bicycles | 0 | 0 | 0 | | 5 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 5 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

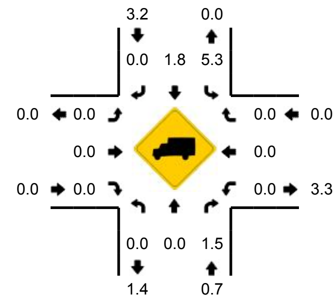
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

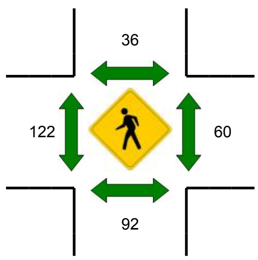
**LOCATION:** Parker Ave -- Golden Gate Ave | **QC JOB #:** 10545903

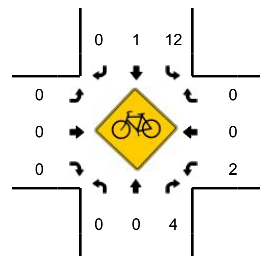
**CITY/STATE:** San Francisco, CA | **DATE:** 10/14/2010

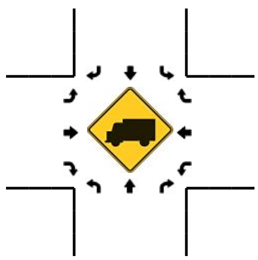


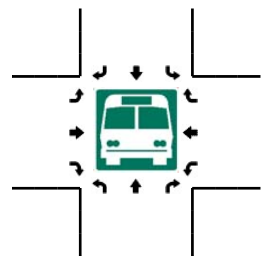

**Peak-Hour: 7:40 AM -- 8:40 AM**
**Peak 15-Min: 7:50 AM -- 8:05 AM**





| 5-Min Count Period Beginning At | Parker Ave (Northbound) Left | Thru | Right | U | Parker Ave (Southbound) Left | Thru | Right | U | Golden Gate Ave (Eastbound) Left | Thru | Right | U | Golden Gate Ave (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7:00 AM | 0 | 5 | 4 | 0 | 4 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 2 | 0 | 25 | |
| 7:05 AM | 0 | 4 | 3 | 0 | 4 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 0 | 23 | |
| 7:10 AM | 0 | 6 | 4 | 0 | 1 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | |
| 7:15 AM | 0 | 4 | 5 | 0 | 2 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 3 | 0 | 27 | |
| 7:20 AM | 0 | 6 | 5 | 0 | 5 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 27 | |
| 7:25 AM | 0 | 8 | 8 | 0 | 5 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 0 | 31 | |
| 7:30 AM | 0 | 16 | 6 | 0 | 9 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 7 | 0 | 50 | |
| 7:35 AM | 0 | 10 | 11 | 0 | 7 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 7 | 0 | 44 | |
| 7:40 AM | 0 | 17 | 12 | 1 | 6 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 4 | 0 | 58 | |
| 7:45 AM | 0 | 14 | 19 | 0 | 10 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 7 | 0 | 66 | |
| 7:50 AM | 0 | 13 | 21 | 0 | 7 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 5 | 0 | 60 | |
| 7:55 AM | 0 | 13 | 10 | 0 | 24 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 6 | 0 | 72 | 502 |
| 8:00 AM | 0 | 18 | 8 | 0 | 5 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 12 | 0 | 67 | 544 |
| 8:05 AM | 0 | 6 | 6 | 0 | 17 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 7 | 0 | 56 | 577 |
| 8:10 AM | 0 | 19 | 8 | 0 | 6 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 5 | 0 | 50 | 608 |
| 8:15 AM | 0 | 9 | 10 | 0 | 11 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 7 | 0 | 50 | 631 |
| 8:20 AM | 0 | 12 | 13 | 0 | 6 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 1 | 58 | 662 |
| 8:25 AM | 0 | 11 | 3 | 0 | 7 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 4 | 0 | 43 | 674 |
| 8:30 AM | 0 | 7 | 11 | 0 | 3 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 51 | 675 |
| 8:35 AM | 0 | 12 | 10 | 0 | 11 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 2 | 0 | 51 | 682 |
| 8:40 AM | 0 | 7 | 9 | 0 | 5 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 5 | 0 | 36 | 660 |
| 8:45 AM | 0 | 9 | 4 | 0 | 6 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 33 | 627 |
| 8:50 AM | 0 | 14 | 4 | 0 | 7 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 0 | 39 | 606 |
| 8:55 AM | 0 | 16 | 5 | 0 | 5 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4 | 0 | 43 | 577 |

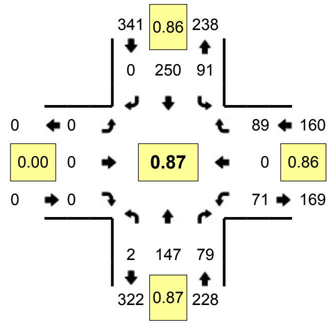
| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 0 | 176 | 156 | 0 | 144 | 188 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 0 | 92 | 0 | 796 |
| Heavy Trucks | 0 | 0 | 0 | | 4 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 4 |
| Pedestrians | | 120 | | | | 64 | | | | 144 | | | | 92 | | | 420 |
| Bicycles | 0 | 0 | 3 | | 4 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 7 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

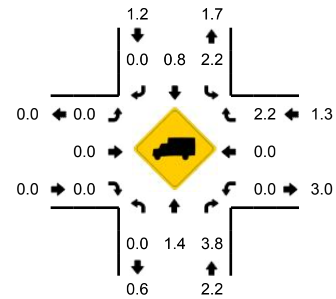
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

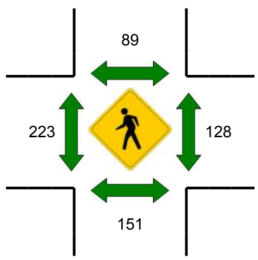
**LOCATION:** Parker Ave -- Golden Gate Ave | **QC JOB #:** 10545904

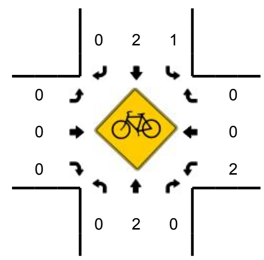
**CITY/STATE:** San Francisco, CA | **DATE:** 10/19/2010

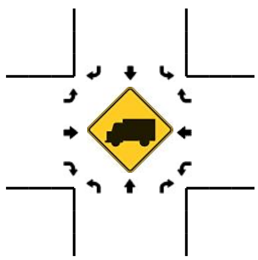


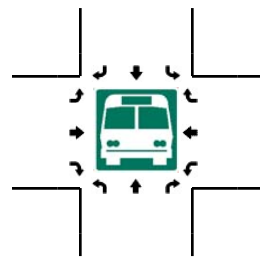

**Peak-Hour: 4:25 PM -- 5:25 PM**
**Peak 15-Min: 5:10 PM -- 5:25 PM**





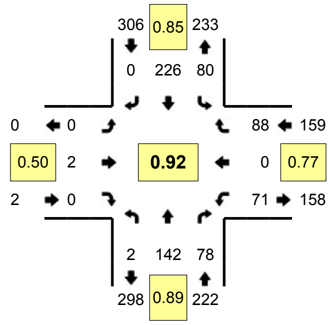
| 5-Min Count Period Beginning At | Parker Ave (Northbound) Left | Thru | Right | U | Parker Ave (Southbound) Left | Thru | Right | U | Golden Gate Ave (Eastbound) Left | Thru | Right | U | Golden Gate Ave (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4:00 PM | 0 | 14 | 5 | 0 | 4 | 13 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 7 | 0 | 47 | |
| 4:05 PM | 0 | 8 | 10 | 0 | 5 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 7 | 0 | 51 | |
| 4:10 PM | 0 | 12 | 7 | 0 | 6 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 10 | 0 | 61 | |
| 4:15 PM | 0 | 16 | 6 | 0 | 7 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 3 | 0 | 49 | |
| 4:20 PM | 0 | 9 | 7 | 0 | 5 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 10 | 0 | 60 | |
| 4:25 PM | 0 | 11 | 6 | 0 | 9 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 8 | 0 | 62 | |
| 4:30 PM | 0 | 16 | 7 | 0 | 9 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 7 | 0 | 66 | |
| 4:35 PM | 0 | 16 | 9 | 0 | 7 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 9 | 0 | 64 | |
| 4:40 PM | 0 | 9 | 7 | 1 | 9 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 10 | 0 | 66 | |
| 4:45 PM | 0 | 8 | 9 | 0 | 4 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 3 | 0 | 46 | |
| 4:50 PM | 0 | 10 | 6 | 0 | 8 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 7 | 0 | 55 | |
| 4:55 PM | 0 | 11 | 6 | 0 | 3 | 18 | 0 | 2 | 0 | 0 | 0 | 0 | 5 | 0 | 4 | 0 | 49 | 676 |
| 5:00 PM | 0 | 10 | 6 | 0 | 7 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 8 | 0 | 59 | 688 |
| 5:05 PM | 0 | 14 | 5 | 0 | 6 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 5 | 0 | 52 | 689 |
| 5:10 PM | 0 | 10 | 4 | 0 | 7 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 9 | 1 | 66 | 694 |
| 5:15 PM | 0 | 15 | 6 | 0 | 6 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 12 | 0 | 68 | 713 |
| 5:20 PM | 0 | 17 | 8 | 1 | 14 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 7 | 0 | 76 | 729 |
| 5:25 PM | 0 | 10 | 9 | 0 | 6 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 4 | 0 | 57 | 724 |
| 5:30 PM | 0 | 10 | 9 | 0 | 6 | 16 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 4 | 0 | 50 | 708 |
| 5:35 PM | 0 | 5 | 8 | 0 | 9 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 12 | 0 | 63 | 707 |
| 5:40 PM | 0 | 16 | 11 | 0 | 7 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 1 | 0 | 59 | 700 |
| 5:45 PM | 0 | 7 | 10 | 0 | 10 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 0 | 51 | 705 |
| 5:50 PM | 0 | 3 | 6 | 0 | 11 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 7 | 0 | 49 | 699 |
| 5:55 PM | 0 | 16 | 9 | 0 | 13 | 21 | 0 | 1 | 0 | 0 | 0 | 0 | 9 | 0 | 5 | 0 | 74 | 724 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 0 | 168 | 72 | 4 | 108 | 296 | 0 | 0 | 0 | 0 | 0 | 0 | 76 | 0 | 112 | 4 | 840 |
| Heavy Trucks | 0 | 4 | 0 | | 4 | 4 | 0 | | 0 | 0 | 0 | | 0 | 0 | 4 | | 16 |
| Pedestrians | | 108 | | | | 76 | | | | 180 | | | | 96 | | | 460 |
| Bicycles | 0 | 0 | 0 | | 0 | 1 | 0 | | 0 | 0 | 0 | | 1 | 0 | 0 | | 2 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

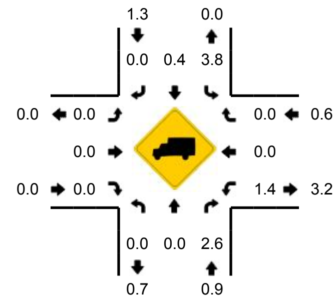
*Comments:*

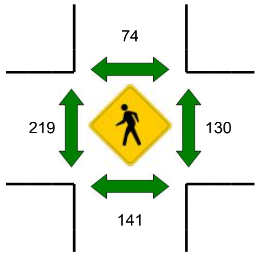
Type of peak hour being reported: Intersection Peak    Method for determining peak hour: Total Entering Volume

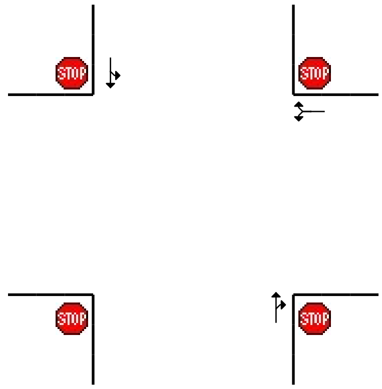
**LOCATION:** Parker Ave -- Golden Gate Ave    **QC JOB #:** 10545906
**CITY/STATE:** San Francisco, CA    **DATE:** 10/14/2010

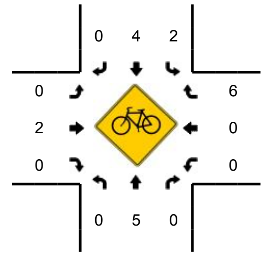


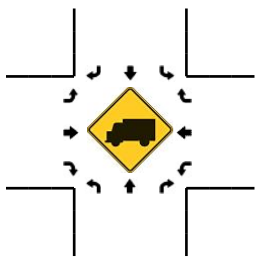

**Peak-Hour: 4:25 PM -- 5:25 PM**
**Peak 15-Min: 4:35 PM -- 4:50 PM**

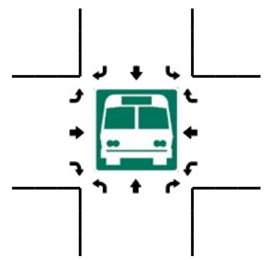




| 5-Min Count Period Beginning At | Parker Ave (Northbound) Left | Thru | Right | U | Parker Ave (Southbound) Left | Thru | Right | U | Golden Gate Ave (Eastbound) Left | Thru | Right | U | Golden Gate Ave (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4:00 PM | 0 | 7 | 4 | 0 | 7 | 15 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 0 | 9 | 0 | 48 | |
| 4:05 PM | 0 | 10 | 8 | 0 | 2 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 4 | 0 | 45 | |
| 4:10 PM | 0 | 7 | 4 | 0 | 5 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 6 | 0 | 35 | |
| 4:15 PM | 0 | 10 | 9 | 0 | 9 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 8 | 0 | 68 | |
| 4:20 PM | 0 | 19 | 4 | 0 | 9 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 57 | |
| 4:25 PM | 0 | 10 | 7 | 0 | 5 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 8 | 0 | 51 | |
| 4:30 PM | 0 | 10 | 5 | 0 | 6 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 8 | 0 | 53 | |
| 4:35 PM | 0 | 9 | 9 | 0 | 8 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 9 | 0 | 61 | |
| 4:40 PM | 0 | 10 | 9 | 0 | 3 | 18 | 0 | 0 | 0 | 1 | 0 | 0 | 9 | 0 | 9 | 0 | 59 | |
| 4:45 PM | 0 | 17 | 9 | 0 | 8 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 9 | 0 | 67 | |
| 4:50 PM | 0 | 12 | 5 | 1 | 3 | 23 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 10 | 0 | 59 | |
| 4:55 PM | 0 | 8 | 7 | 0 | 3 | 16 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 6 | 0 | 45 | 648 |
| 5:00 PM | 0 | 9 | 4 | 0 | 6 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 4 | 1 | 45 | 645 |
| 5:05 PM | 0 | 11 | 7 | 0 | 9 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 9 | 0 | 62 | 662 |
| 5:10 PM | 0 | 15 | 3 | 0 | 8 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 6 | 0 | 56 | 683 |
| 5:15 PM | 0 | 16 | 7 | 1 | 8 | 19 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 6 | 0 | 62 | 677 |
| 5:20 PM | 0 | 15 | 6 | 0 | 10 | 28 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 0 | 4 | 0 | 69 | 689 |
| 5:25 PM | 0 | 8 | 4 | 0 | 4 | 9 | 0 | 0 | 0 | 2 | 0 | 0 | 4 | 0 | 10 | 0 | 41 | 679 |
| 5:30 PM | 0 | 14 | 6 | 0 | 10 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 4 | 0 | 52 | 678 |
| 5:35 PM | 0 | 9 | 6 | 0 | 4 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 6 | 0 | 56 | 673 |
| 5:40 PM | 0 | 16 | 5 | 0 | 6 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 3 | 0 | 51 | 665 |
| 5:45 PM | 0 | 5 | 7 | 0 | 10 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 3 | 0 | 61 | 659 |
| 5:50 PM | 0 | 16 | 7 | 0 | 10 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 6 | 0 | 63 | 663 |
| 5:55 PM | 0 | 9 | 5 | 1 | 9 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 7 | 1 | 53 | 671 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 0 | 144 | 108 | 0 | 76 | 204 | 0 | 0 | 0 | 4 | 0 | 0 | 104 | 0 | 108 | 0 | 748 |
| Heavy Trucks | 0 | 0 | 8 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 4 | 0 | 0 | | 12 |
| Pedestrians | | 120 | | | | 76 | | | | 168 | | | | 80 | | | 444 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 1 | 0 | | 0 | 0 | 3 | | 4 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

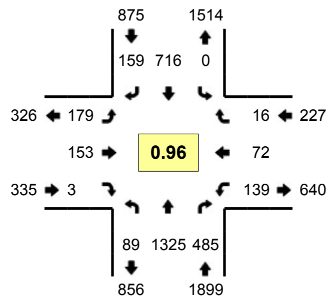
Report generated on 11/18/2010 3:23 PM    SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

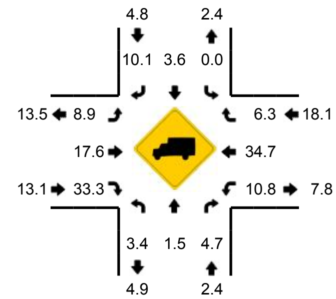
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

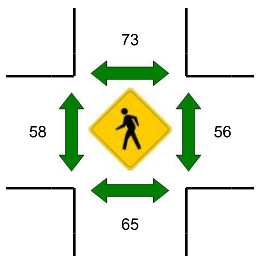
**LOCATION:** Masonic Ave -- Geary Blvd | **QC JOB #:** 10652729

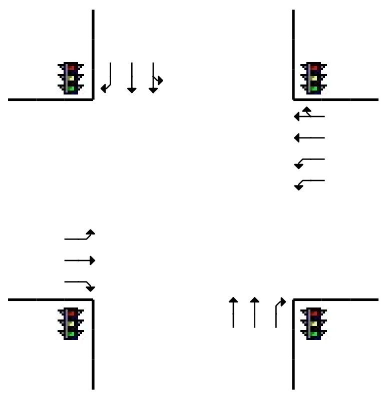
**CITY/STATE:** San Francisco, CA | **DATE:** Tue, Sep 13 2011

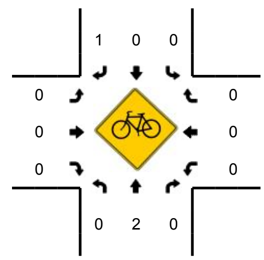
**Peak-Hour: 7:55 AM -- 8:55 AM**
**Peak 15-Min: 8:15 AM -- 8:30 AM**

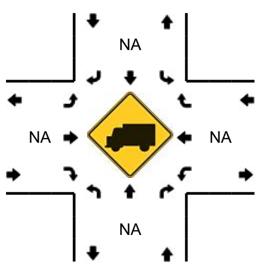


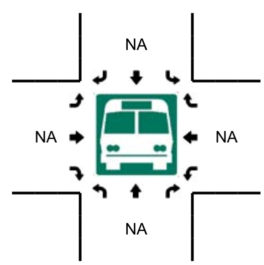






| 5-Min Count Period Beginning At | Masonic Ave (Northbound) | | | | Masonic Ave (Southbound) | | | | Geary Blvd (Eastbound) | | | | Geary Blvd (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 4 | 41 | 12 | 0 | 0 | 23 | 7 | 0 | 6 | 11 | 0 | 0 | 7 | 5 | 0 | 0 | 116 | |
| 7:05 AM | 3 | 39 | 8 | 0 | 0 | 32 | 4 | 0 | 14 | 7 | 0 | 0 | 7 | 1 | 0 | 0 | 115 | |
| 7:10 AM | 3 | 51 | 15 | 0 | 0 | 27 | 9 | 0 | 12 | 4 | 1 | 0 | 4 | 8 | 0 | 0 | 134 | |
| 7:15 AM | 4 | 56 | 9 | 0 | 0 | 29 | 9 | 0 | 10 | 6 | 1 | 0 | 6 | 4 | 2 | 1 | 137 | |
| 7:20 AM | 10 | 79 | 19 | 0 | 0 | 23 | 8 | 0 | 11 | 7 | 1 | 0 | 11 | 3 | 2 | 0 | 174 | |
| 7:25 AM | 1 | 74 | 11 | 0 | 0 | 34 | 4 | 0 | 8 | 12 | 0 | 0 | 8 | 4 | 3 | 0 | 159 | |
| 7:30 AM | 5 | 105 | 25 | 0 | 0 | 31 | 7 | 0 | 13 | 11 | 0 | 0 | 11 | 7 | 0 | 0 | 215 | |
| 7:35 AM | 7 | 99 | 20 | 0 | 0 | 53 | 2 | 0 | 13 | 7 | 1 | 1 | 12 | 3 | 0 | 0 | 218 | |
| 7:40 AM | 3 | 87 | 20 | 0 | 0 | 59 | 9 | 0 | 17 | 19 | 0 | 0 | 9 | 6 | 1 | 0 | 230 | |
| 7:45 AM | 4 | 109 | 29 | 0 | 0 | 54 | 7 | 0 | 13 | 18 | 0 | 1 | 10 | 5 | 2 | 0 | 252 | |
| 7:50 AM | 3 | 126 | 35 | 0 | 0 | 53 | 8 | 0 | 12 | 11 | 0 | 0 | 20 | 1 | 2 | 0 | 271 | |
| 7:55 AM | 7 | 92 | 29 | 0 | 0 | 72 | 11 | 0 | 18 | 16 | 1 | 0 | 10 | 6 | 0 | 0 | 262 | 2283 |
| 8:00 AM | 6 | 120 | 41 | 0 | 0 | 74 | 11 | 0 | 14 | 12 | 0 | 1 | 7 | 3 | 2 | 0 | 291 | 2458 |
| 8:05 AM | 9 | 115 | 39 | 0 | 0 | 71 | 16 | 0 | 15 | 12 | 0 | 0 | 10 | 3 | 2 | 1 | 293 | 2636 |
| 8:10 AM | 9 | 101 | 46 | 0 | 0 | 56 | 13 | 0 | 11 | 14 | 0 | 1 | 5 | 8 | 0 | 0 | 264 | 2766 |
| 8:15 AM | 8 | 116 | 36 | 0 | 0 | 75 | 7 | 0 | 13 | 13 | 0 | 0 | 11 | 8 | 2 | 0 | 289 | 2918 |
| 8:20 AM | 7 | 123 | 43 | 0 | 0 | 66 | 22 | 0 | 16 | 6 | 0 | 1 | 15 | 3 | 2 | 0 | 304 | 3048 |
| 8:25 AM | 10 | 94 | 39 | 0 | 0 | 55 | 19 | 0 | 16 | 20 | 0 | 0 | 10 | 12 | 0 | 0 | 275 | 3164 |
| 8:30 AM | 6 | 123 | 35 | 0 | 0 | 54 | 11 | 0 | 12 | 15 | 0 | 1 | 14 | 6 | 1 | 0 | 278 | 3227 |
| 8:35 AM | 8 | 111 | 38 | 0 | 0 | 52 | 10 | 0 | 16 | 5 | 0 | 1 | 16 | 4 | 3 | 0 | 264 | 3273 |
| 8:40 AM | 7 | 92 | 45 | 0 | 0 | 45 | 12 | 0 | 13 | 11 | 1 | 0 | 13 | 9 | 0 | 0 | 248 | 3291 |
| 8:45 AM | 2 | 117 | 46 | 0 | 0 | 53 | 18 | 0 | 17 | 17 | 0 | 0 | 10 | 7 | 2 | 0 | 289 | 3328 |
| 8:50 AM | 10 | 121 | 48 | 0 | 0 | 43 | 9 | 0 | 12 | 12 | 1 | 1 | 16 | 3 | 2 | 1 | 279 | 3336 |
| 8:55 AM | 8 | 96 | 32 | 0 | 0 | 49 | 12 | 0 | 13 | 20 | 0 | 1 | 10 | 10 | 0 | 0 | 251 | 3325 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 100 | 1332 | 472 | 0 | 0 | 784 | 192 | 0 | 180 | 156 | 0 | 4 | 144 | 92 | 16 | 0 | 3472 |
| Heavy Trucks | 0 | 28 | 20 | | 0 | 28 | 24 | | 24 | 24 | 0 | | 20 | 32 | 4 | | 204 |
| Pedestrians | | 68 | | | | 76 | | | | 76 | | | | 28 | | | 248 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 9/23/2011 11:47 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

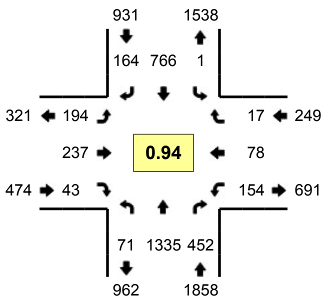
Type of peak hour being reported: Intersection Peak — Method for determining peak hour: Total Entering Volume

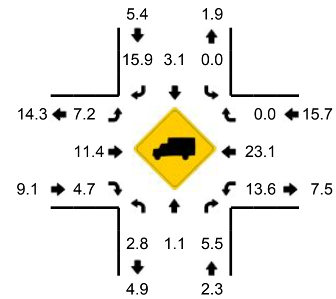
**LOCATION:** Masonic Ave -- Geary Blvd — **QC JOB #:** 10652730

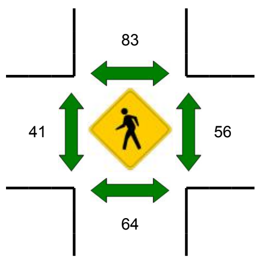
**CITY/STATE:** San Francisco, CA — **DATE:** Thu, Sep 08 2011

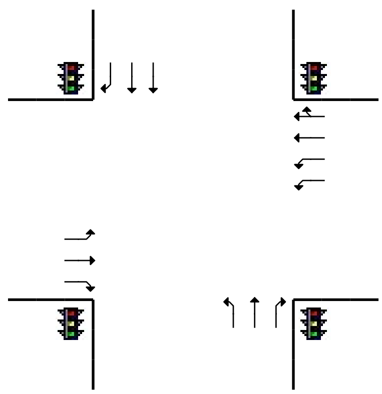
**Peak-Hour: 7:50 AM -- 8:50 AM**

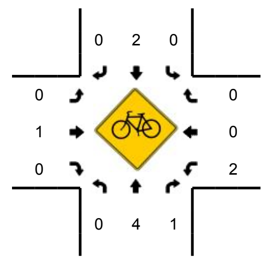
**Peak 15-Min: 8:15 AM -- 8:30 AM**

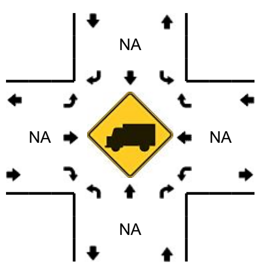


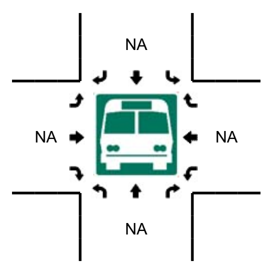






| 5-Min Count Period Beginning At | Masonic Ave (Northbound) | | | | Masonic Ave (Southbound) | | | | Geary Blvd (Eastbound) | | | | Geary Blvd (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 2 | 44 | 16 | 0 | 0 | 29 | 4 | 0 | 4 | 6 | 2 | 1 | 6 | 4 | 0 | 0 | 118 | |
| 7:05 AM | 3 | 36 | 10 | 0 | 0 | 19 | 3 | 0 | 12 | 9 | 3 | 0 | 10 | 7 | 0 | 0 | 112 | |
| 7:10 AM | 1 | 54 | 12 | 0 | 0 | 34 | 5 | 0 | 8 | 6 | 2 | 0 | 2 | 4 | 1 | 0 | 129 | |
| 7:15 AM | 2 | 57 | 21 | 0 | 0 | 21 | 8 | 0 | 13 | 13 | 2 | 0 | 8 | 4 | 0 | 1 | 150 | |
| 7:20 AM | 3 | 63 | 18 | 0 | 0 | 20 | 5 | 0 | 16 | 12 | 3 | 0 | 8 | 4 | 1 | 0 | 153 | |
| 7:25 AM | 1 | 88 | 18 | 0 | 0 | 30 | 11 | 0 | 4 | 11 | 5 | 0 | 9 | 4 | 2 | 0 | 183 | |
| 7:30 AM | 6 | 105 | 26 | 0 | 0 | 37 | 6 | 0 | 9 | 9 | 2 | 1 | 7 | 2 | 1 | 0 | 211 | |
| 7:35 AM | 5 | 83 | 29 | 0 | 0 | 42 | 8 | 0 | 12 | 13 | 9 | 3 | 15 | 3 | 0 | 0 | 222 | |
| 7:40 AM | 4 | 119 | 27 | 0 | 0 | 51 | 7 | 0 | 17 | 16 | 10 | 0 | 11 | 5 | 1 | 0 | 268 | |
| 7:45 AM | 5 | 123 | 28 | 0 | 0 | 60 | 5 | 0 | 12 | 15 | 8 | 1 | 10 | 2 | 3 | 0 | 272 | |
| 7:50 AM | 5 | 105 | 30 | 0 | 1 | 49 | 8 | 0 | 21 | 25 | 5 | 0 | 19 | 4 | 2 | 0 | 274 | |
| 7:55 AM | 4 | 116 | 30 | 0 | 0 | 64 | 17 | 0 | 18 | 24 | 4 | 0 | 13 | 3 | 2 | 0 | 295 | 2387 |
| 8:00 AM | 9 | 119 | 49 | 0 | 0 | 73 | 14 | 0 | 15 | 19 | 2 | 0 | 7 | 7 | 0 | 0 | 314 | 2583 |
| 8:05 AM | 5 | 98 | 41 | 0 | 0 | 58 | 16 | 0 | 19 | 15 | 9 | 1 | 15 | 5 | 1 | 0 | 283 | 2754 |
| 8:10 AM | 9 | 103 | 44 | 0 | 0 | 72 | 18 | 0 | 8 | 19 | 4 | 1 | 14 | 6 | 2 | 1 | 301 | 2926 |
| 8:15 AM | 6 | 129 | 36 | 0 | 0 | 85 | 10 | 0 | 16 | 16 | 0 | 2 | 13 | 9 | 1 | 0 | 323 | 3099 |
| 8:20 AM | 3 | 105 | 36 | 0 | 0 | 64 | 16 | 0 | 20 | 26 | 4 | 1 | 14 | 11 | 2 | 0 | 302 | 3248 |
| 8:25 AM | 7 | 108 | 53 | 0 | 0 | 69 | 14 | 0 | 18 | 17 | 6 | 1 | 8 | 5 | 1 | 0 | 307 | 3372 |
| 8:30 AM | 8 | 117 | 38 | 0 | 0 | 71 | 15 | 0 | 17 | 19 | 1 | 1 | 15 | 9 | 2 | 0 | 313 | 3474 |
| 8:35 AM | 6 | 95 | 34 | 0 | 0 | 37 | 10 | 0 | 20 | 20 | 5 | 1 | 19 | 7 | 2 | 0 | 256 | 3508 |
| 8:40 AM | 4 | 113 | 34 | 0 | 0 | 61 | 11 | 0 | 5 | 15 | 1 | 0 | 7 | 5 | 2 | 0 | 258 | 3498 |
| 8:45 AM | 5 | 127 | 27 | 0 | 0 | 63 | 15 | 0 | 9 | 22 | 2 | 0 | 9 | 7 | 0 | 0 | 286 | 3512 |
| 8:50 AM | 10 | 95 | 39 | 0 | 0 | 42 | 6 | 0 | 13 | 8 | 2 | 0 | 19 | 12 | 1 | 0 | 247 | 3485 |
| 8:55 AM | 10 | 109 | 32 | 0 | 0 | 50 | 15 | 0 | 10 | 17 | 6 | 0 | 8 | 6 | 1 | 0 | 264 | 3454 |

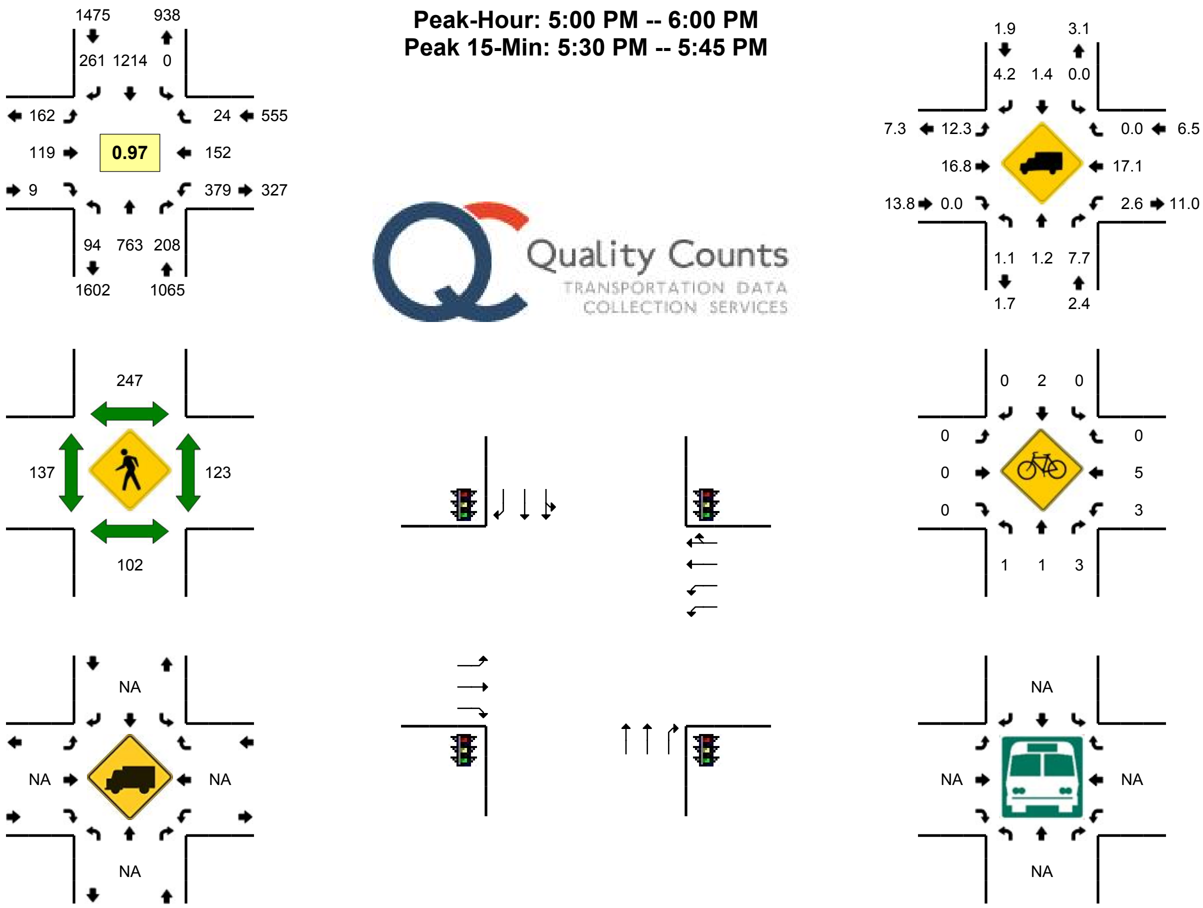
| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 64 | 1368 | 500 | 0 | 0 | 872 | 160 | 0 | 216 | 236 | 40 | 16 | 140 | 100 | 16 | 0 | 3728 |
| Heavy Trucks | 4 | 16 | 32 | | 0 | 28 | 20 | | 8 | 24 | 0 | | 32 | 16 | 0 | | 180 |
| Pedestrians | | 36 | | | | 80 | | | | 32 | | | | 24 | | | 172 |
| Bicycles | 0 | 1 | 0 | | 0 | 0 | 0 | | 0 | 1 | 0 | | 1 | 0 | 0 | | 3 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

**LOCATION:** Masonic Ave -- Geary Blvd | **QC JOB #:** 10652731
**CITY/STATE:** San Francisco, CA | **DATE:** Tue, Sep 13 2011

**Peak-Hour: 5:00 PM -- 6:00 PM**
**Peak 15-Min: 5:30 PM -- 5:45 PM**




| 5-Min Count Period Beginning At | Masonic Ave (Northbound) | | | | Masonic Ave (Southbound) | | | | Geary Blvd (Eastbound) | | | | Geary Blvd (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 7 | 70 | 16 | 0 | 0 | 90 | 16 | 0 | 5 | 7 | 2 | 0 | 25 | 9 | 0 | 0 | 247 | |
| 4:05 PM | 8 | 53 | 15 | 1 | 0 | 59 | 14 | 0 | 8 | 12 | 1 | 0 | 36 | 7 | 1 | 0 | 215 | |
| 4:10 PM | 5 | 52 | 24 | 0 | 0 | 85 | 18 | 0 | 9 | 7 | 0 | 1 | 31 | 5 | 3 | 0 | 240 | |
| 4:15 PM | 6 | 68 | 20 | 0 | 0 | 103 | 27 | 0 | 9 | 16 | 0 | 1 | 28 | 10 | 1 | 0 | 289 | |
| 4:20 PM | 6 | 54 | 17 | 0 | 0 | 70 | 15 | 0 | 11 | 11 | 0 | 0 | 38 | 4 | 1 | 1 | 228 | |
| 4:25 PM | 4 | 62 | 20 | 0 | 0 | 90 | 29 | 0 | 7 | 11 | 0 | 0 | 22 | 15 | 0 | 0 | 260 | |
| 4:30 PM | 12 | 72 | 15 | 0 | 0 | 79 | 14 | 0 | 13 | 9 | 0 | 1 | 31 | 13 | 0 | 0 | 259 | |
| 4:35 PM | 5 | 54 | 13 | 0 | 0 | 85 | 17 | 0 | 14 | 15 | 0 | 1 | 37 | 16 | 1 | 0 | 258 | |
| 4:40 PM | 9 | 49 | 16 | 0 | 0 | 89 | 19 | 0 | 14 | 7 | 0 | 0 | 30 | 6 | 0 | 0 | 239 | |
| 4:45 PM | 8 | 58 | 12 | 0 | 0 | 109 | 24 | 0 | 9 | 9 | 1 | 2 | 28 | 9 | 3 | 0 | 272 | |
| 4:50 PM | 4 | 64 | 16 | 0 | 0 | 99 | 17 | 0 | 15 | 11 | 0 | 0 | 28 | 13 | 1 | 1 | 269 | |
| 4:55 PM | 4 | 57 | 13 | 0 | 0 | 97 | 22 | 0 | 8 | 7 | 0 | 1 | 28 | 5 | 2 | 0 | 244 | 3020 |
| 5:00 PM | 9 | 71 | 22 | 0 | 0 | 118 | 21 | 0 | 8 | 5 | 1 | 0 | 27 | 8 | 0 | 0 | 290 | 3063 |
| 5:05 PM | 7 | 48 | 16 | 0 | 0 | 92 | 27 | 0 | 13 | 9 | 1 | 1 | 34 | 10 | 2 | 0 | 260 | 3108 |
| 5:10 PM | 8 | 65 | 16 | 0 | 0 | 96 | 14 | 0 | 12 | 14 | 1 | 1 | 25 | 11 | 1 | 0 | 264 | 3132 |
| 5:15 PM | 3 | 74 | 18 | 0 | 0 | 114 | 24 | 0 | 14 | 10 | 1 | 0 | 30 | 7 | 2 | 0 | 297 | 3140 |
| 5:20 PM | 10 | 62 | 17 | 0 | 0 | 89 | 31 | 0 | 17 | 9 | 1 | 0 | 40 | 17 | 4 | 0 | 297 | 3209 |
| 5:25 PM | 10 | 45 | 16 | 0 | 0 | 101 | 22 | 0 | 13 | 11 | 0 | 0 | 32 | 10 | 1 | 0 | 261 | 3210 |
| 5:30 PM | 9 | 78 | 21 | 0 | 0 | 115 | 20 | 0 | 11 | 9 | 0 | 3 | 28 | 18 | 0 | 0 | 312 | 3263 |
| 5:35 PM | 8 | 66 | 14 | 0 | 0 | 92 | 18 | 0 | 15 | 8 | 1 | 0 | 39 | 14 | 2 | 0 | 277 | 3282 |
| 5:40 PM | 6 | 66 | 22 | 0 | 0 | 93 | 19 | 0 | 13 | 11 | 1 | 1 | 26 | 22 | 4 | 0 | 284 | 3327 |
| 5:45 PM | 7 | 79 | 15 | 0 | 0 | 111 | 22 | 0 | 9 | 10 | 0 | 3 | 29 | 10 | 6 | 0 | 301 | 3356 |
| 5:50 PM | 8 | 51 | 16 | 0 | 0 | 92 | 22 | 0 | 18 | 12 | 0 | 1 | 41 | 14 | 1 | 0 | 276 | 3363 |
| 5:55 PM | 9 | 58 | 15 | 0 | 0 | 101 | 21 | 0 | 8 | 11 | 2 | 1 | 28 | 11 | 1 | 0 | 266 | 3385 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 92 | 840 | 228 | 0 | 0 | 1200 | 228 | 0 | 156 | 112 | 8 | 16 | 372 | 216 | 24 | 0 | 3492 |
| Heavy Trucks | 0 | 12 | 20 | | 0 | 8 | 12 | | 20 | 28 | 0 | | 16 | 28 | 0 | | 144 |
| Pedestrians | | 84 | | | | 272 | | | | 96 | | | | 120 | | | 572 |
| Bicycles | 1 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 1 | 1 | 0 | | 3 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

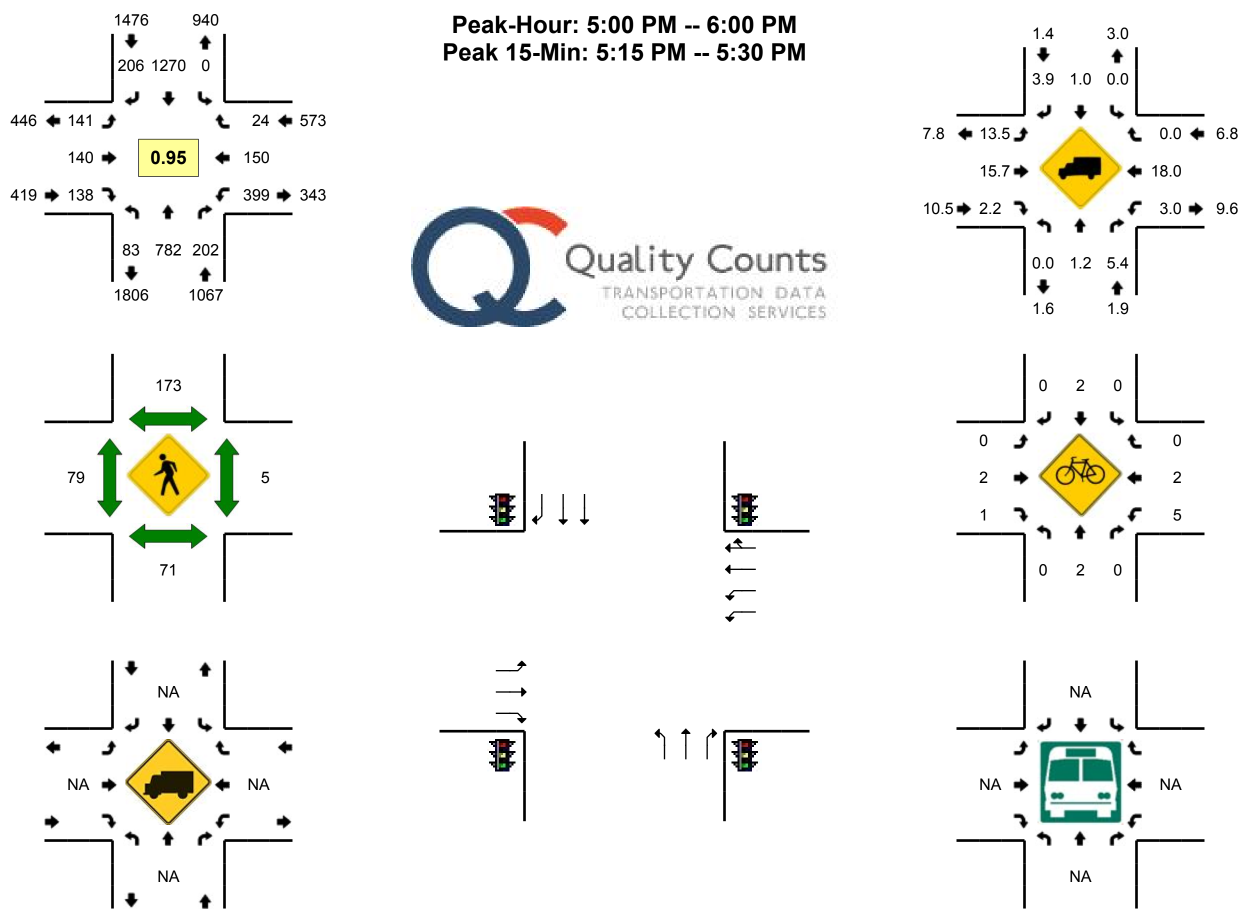
*Comments:*

Type of peak hour being reported: Intersection Peak — Method for determining peak hour: Total Entering Volume

**LOCATION:** Masonic Ave -- Geary Blvd — **QC JOB #:** 10652732

**CITY/STATE:** San Francisco, CA — **DATE:** Thu, Sep 08 2011

**Peak-Hour: 5:00 PM -- 6:00 PM**
**Peak 15-Min: 5:15 PM -- 5:30 PM**




| 5-Min Count Period Beginning At | Masonic Ave (Northbound) | | | | Masonic Ave (Southbound) | | | | Geary Blvd (Eastbound) | | | | Geary Blvd (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 9 | 53 | 15 | 0 | 0 | 80 | 21 | 0 | 16 | 10 | 7 | 0 | 40 | 7 | 1 | 1 | 260 | |
| 4:05 PM | 7 | 48 | 15 | 0 | 0 | 63 | 19 | 0 | 5 | 9 | 5 | 2 | 30 | 11 | 0 | 0 | 214 | |
| 4:10 PM | 4 | 57 | 11 | 0 | 0 | 113 | 17 | 0 | 13 | 23 | 14 | 1 | 30 | 11 | 2 | 0 | 296 | |
| 4:15 PM | 9 | 52 | 21 | 0 | 0 | 91 | 19 | 0 | 12 | 8 | 10 | 0 | 38 | 11 | 2 | 0 | 273 | |
| 4:20 PM | 4 | 72 | 12 | 0 | 0 | 77 | 23 | 0 | 6 | 9 | 5 | 1 | 28 | 14 | 2 | 0 | 253 | |
| 4:25 PM | 10 | 64 | 18 | 0 | 0 | 106 | 16 | 0 | 9 | 15 | 6 | 1 | 28 | 9 | 1 | 0 | 283 | |
| 4:30 PM | 8 | 51 | 11 | 0 | 0 | 86 | 31 | 0 | 11 | 12 | 12 | 0 | 35 | 4 | 2 | 0 | 263 | |
| 4:35 PM | 7 | 66 | 18 | 0 | 0 | 75 | 22 | 0 | 12 | 13 | 5 | 1 | 31 | 10 | 0 | 0 | 260 | |
| 4:40 PM | 8 | 65 | 18 | 0 | 0 | 110 | 18 | 0 | 10 | 12 | 7 | 0 | 31 | 6 | 2 | 0 | 287 | |
| 4:45 PM | 9 | 52 | 24 | 0 | 0 | 103 | 16 | 0 | 11 | 12 | 6 | 2 | 38 | 7 | 0 | 0 | 280 | |
| 4:50 PM | 10 | 54 | 13 | 0 | 0 | 85 | 22 | 0 | 11 | 9 | 8 | 0 | 29 | 19 | 0 | 0 | 260 | |
| 4:55 PM | 13 | 73 | 15 | 0 | 0 | 105 | 24 | 0 | 12 | 14 | 12 | 0 | 25 | 9 | 2 | 0 | 304 | 3233 |
| 5:00 PM | 11 | 42 | 19 | 0 | 0 | 78 | 21 | 0 | 6 | 13 | 5 | 0 | 37 | 13 | 3 | 1 | 249 | 3222 |
| 5:05 PM | 2 | 57 | 14 | 0 | 0 | 90 | 16 | 0 | 10 | 7 | 18 | 1 | 31 | 19 | 1 | 0 | 266 | 3274 |
| 5:10 PM | 7 | 57 | 29 | 0 | 0 | 121 | 15 | 0 | 12 | 10 | 8 | 1 | 28 | 8 | 1 | 0 | 297 | 3275 |
| 5:15 PM | 9 | 66 | 15 | 0 | 0 | 111 | 20 | 0 | 15 | 14 | 22 | 1 | 41 | 11 | 4 | 0 | 329 | 3331 |
| 5:20 PM | 7 | 68 | 21 | 0 | 0 | 93 | 9 | 0 | 12 | 14 | 11 | 1 | 30 | 22 | 1 | 0 | 289 | 3367 |
| 5:25 PM | 4 | 92 | 13 | 0 | 0 | 124 | 21 | 0 | 4 | 13 | 13 | 0 | 27 | 3 | 2 | 0 | 316 | 3400 |
| 5:30 PM | 8 | 65 | 16 | 0 | 0 | 105 | 17 | 0 | 14 | 14 | 11 | 0 | 37 | 12 | 2 | 0 | 301 | 3438 |
| 5:35 PM | 7 | 51 | 18 | 0 | 0 | 95 | 13 | 0 | 11 | 12 | 8 | 0 | 28 | 19 | 2 | 0 | 264 | 3442 |
| 5:40 PM | 6 | 80 | 16 | 0 | 0 | 123 | 23 | 0 | 16 | 11 | 11 | 0 | 31 | 14 | 3 | 0 | 334 | 3489 |
| 5:45 PM | 8 | 69 | 15 | 0 | 0 | 107 | 25 | 0 | 19 | 4 | 15 | 1 | 39 | 8 | 1 | 0 | 311 | 3520 |
| 5:50 PM | 4 | 60 | 12 | 0 | 0 | 98 | 13 | 0 | 6 | 13 | 8 | 1 | 34 | 14 | 2 | 0 | 265 | 3525 |
| 5:55 PM | 10 | 75 | 14 | 0 | 0 | 125 | 13 | 0 | 9 | 15 | 8 | 1 | 35 | 7 | 2 | 0 | 314 | 3535 |

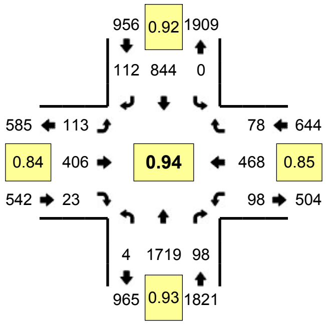
| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 80 | 904 | 196 | 0 | 0 | 1312 | 200 | 0 | 124 | 164 | 184 | 8 | 392 | 144 | 28 | 0 | 3736 |
| Heavy Trucks | 0 | 8 | 8 | | 0 | 4 | 8 | | 12 | 28 | 4 | | 16 | 28 | 0 | | 116 |
| Pedestrians | | 68 | | | | 124 | | | | 72 | | | | 0 | | | 264 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 2 | 0 | | 2 | 2 | 0 | | 6 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

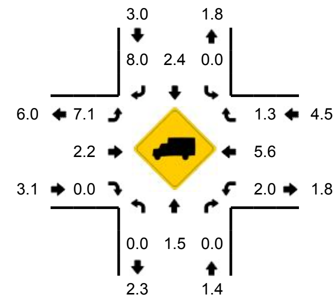
Report generated on 9/23/2011 11:47 AM — SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

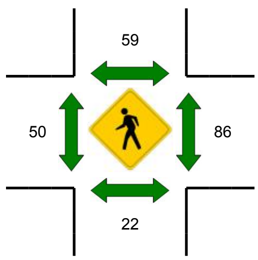
Type of peak hour being reported: Intersection Peak — Method for determining peak hour: Total Entering Volume

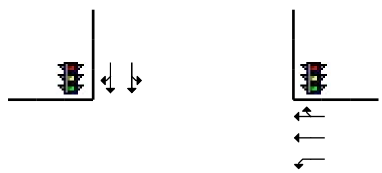
**LOCATION:** Masonic Ave -- Turk Blvd — **QC JOB #:** 10545925
**CITY/STATE:** San Francisco, CA — **DATE:** 10/19/2010

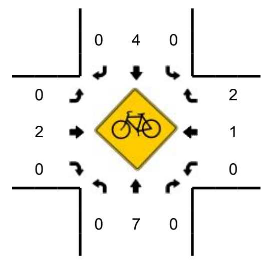


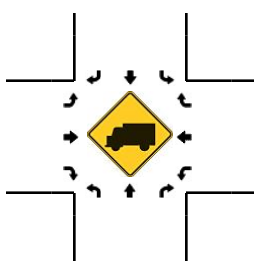

**Peak-Hour: 7:40 AM -- 8:40 AM**
**Peak 15-Min: 7:45 AM -- 8:00 AM**

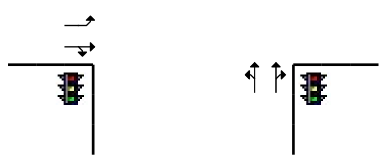


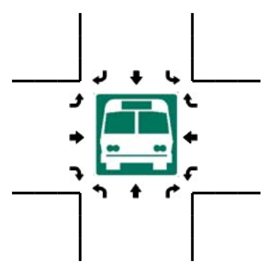









| 5-Min Count Period Beginning At | Masonic Ave (Northbound) Left | Thru | Right | U | Masonic Ave (Southbound) Left | Thru | Right | U | Turk Blvd (Eastbound) Left | Thru | Right | U | Turk Blvd (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7:00 AM | 1 | 58 | 1 | 0 | 1 | 19 | 4 | 0 | 3 | 1 | 1 | 0 | 4 | 15 | 4 | 0 | 112 | |
| 7:05 AM | 0 | 49 | 3 | 0 | 0 | 24 | 6 | 0 | 1 | 10 | 1 | 0 | 4 | 11 | 5 | 0 | 114 | |
| 7:10 AM | 1 | 54 | 3 | 0 | 0 | 31 | 5 | 0 | 2 | 4 | 5 | 0 | 6 | 14 | 2 | 0 | 127 | |
| 7:15 AM | 0 | 88 | 3 | 0 | 0 | 33 | 7 | 0 | 5 | 10 | 1 | 0 | 3 | 17 | 0 | 0 | 167 | |
| 7:20 AM | 0 | 86 | 3 | 0 | 0 | 30 | 5 | 0 | 6 | 16 | 3 | 0 | 8 | 12 | 3 | 0 | 172 | |
| 7:25 AM | 0 | 78 | 3 | 0 | 0 | 76 | 1 | 0 | 11 | 15 | 0 | 0 | 7 | 18 | 2 | 0 | 211 | |
| 7:30 AM | 1 | 128 | 11 | 0 | 0 | 33 | 1 | 0 | 8 | 13 | 0 | 0 | 8 | 17 | 6 | 0 | 226 | |
| 7:35 AM | 0 | 121 | 7 | 0 | 0 | 48 | 6 | 0 | 5 | 21 | 1 | 0 | 12 | 23 | 7 | 0 | 251 | |
| 7:40 AM | 0 | 130 | 6 | 0 | 0 | 51 | 7 | 0 | 10 | 41 | 0 | 0 | 6 | 39 | 8 | 0 | 298 | |
| 7:45 AM | 0 | 163 | 15 | 0 | 0 | 68 | 16 | 0 | 9 | 31 | 1 | 0 | 11 | 33 | 6 | 0 | 353 | |
| 7:50 AM | 2 | 149 | 13 | 0 | 0 | 71 | 6 | 0 | 8 | 37 | 6 | 0 | 7 | 53 | 8 | 0 | 360 | |
| 7:55 AM | 1 | 133 | 12 | 0 | 0 | 65 | 7 | 0 | 11 | 41 | 3 | 0 | 11 | 48 | 12 | 0 | 344 | 2735 |
| 8:00 AM | 0 | 138 | 14 | 0 | 0 | 85 | 7 | 0 | 14 | 40 | 1 | 0 | 7 | 33 | 8 | 0 | 347 | 2970 |
| 8:05 AM | 0 | 147 | 8 | 0 | 0 | 79 | 10 | 0 | 7 | 40 | 1 | 0 | 9 | 33 | 6 | 0 | 340 | 3196 |
| 8:10 AM | 0 | 127 | 5 | 0 | 0 | 75 | 9 | 0 | 10 | 41 | 1 | 0 | 12 | 45 | 5 | 0 | 330 | 3399 |
| 8:15 AM | 1 | 171 | 7 | 0 | 0 | 68 | 7 | 0 | 5 | 26 | 3 | 0 | 8 | 37 | 7 | 0 | 340 | 3572 |
| 8:20 AM | 0 | 145 | 4 | 0 | 0 | 66 | 7 | 0 | 7 | 29 | 0 | 1 | 4 | 38 | 6 | 0 | 307 | 3707 |
| 8:25 AM | 0 | 124 | 6 | 0 | 0 | 79 | 10 | 0 | 11 | 27 | 2 | 0 | 8 | 38 | 5 | 0 | 310 | 3806 |
| 8:30 AM | 0 | 153 | 4 | 0 | 0 | 81 | 21 | 0 | 8 | 30 | 2 | 0 | 6 | 41 | 2 | 0 | 348 | 3928 |
| 8:35 AM | 0 | 139 | 4 | 0 | 0 | 56 | 5 | 0 | 12 | 23 | 3 | 0 | 9 | 30 | 5 | 0 | 286 | 3963 |
| 8:40 AM | 0 | 129 | 5 | 0 | 0 | 65 | 11 | 0 | 10 | 31 | 3 | 0 | 4 | 30 | 5 | 0 | 293 | 3958 |
| 8:45 AM | 0 | 154 | 0 | 0 | 0 | 63 | 8 | 0 | 8 | 32 | 0 | 0 | 5 | 36 | 13 | 0 | 319 | 3924 |
| 8:50 AM | 0 | 138 | 7 | 0 | 0 | 67 | 8 | 0 | 6 | 33 | 3 | 0 | 9 | 34 | 10 | 0 | 315 | 3879 |
| 8:55 AM | 0 | 114 | 6 | 0 | 0 | 58 | 7 | 0 | 12 | 28 | 0 | 0 | 5 | 27 | 7 | 0 | 264 | 3799 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 12 | 1780 | 160 | 0 | 0 | 816 | 116 | 0 | 112 | 436 | 40 | 0 | 116 | 536 | 104 | 0 | 4228 |
| Heavy Trucks | 0 | 32 | 0 | | 0 | 16 | 12 | | 12 | 12 | 0 | | 0 | 12 | 4 | | 100 |
| Pedestrians | | 24 | | | | 116 | | | | 56 | | | | 96 | | | 292 |
| Bicycles | 0 | 3 | 0 | | 0 | 1 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 4 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

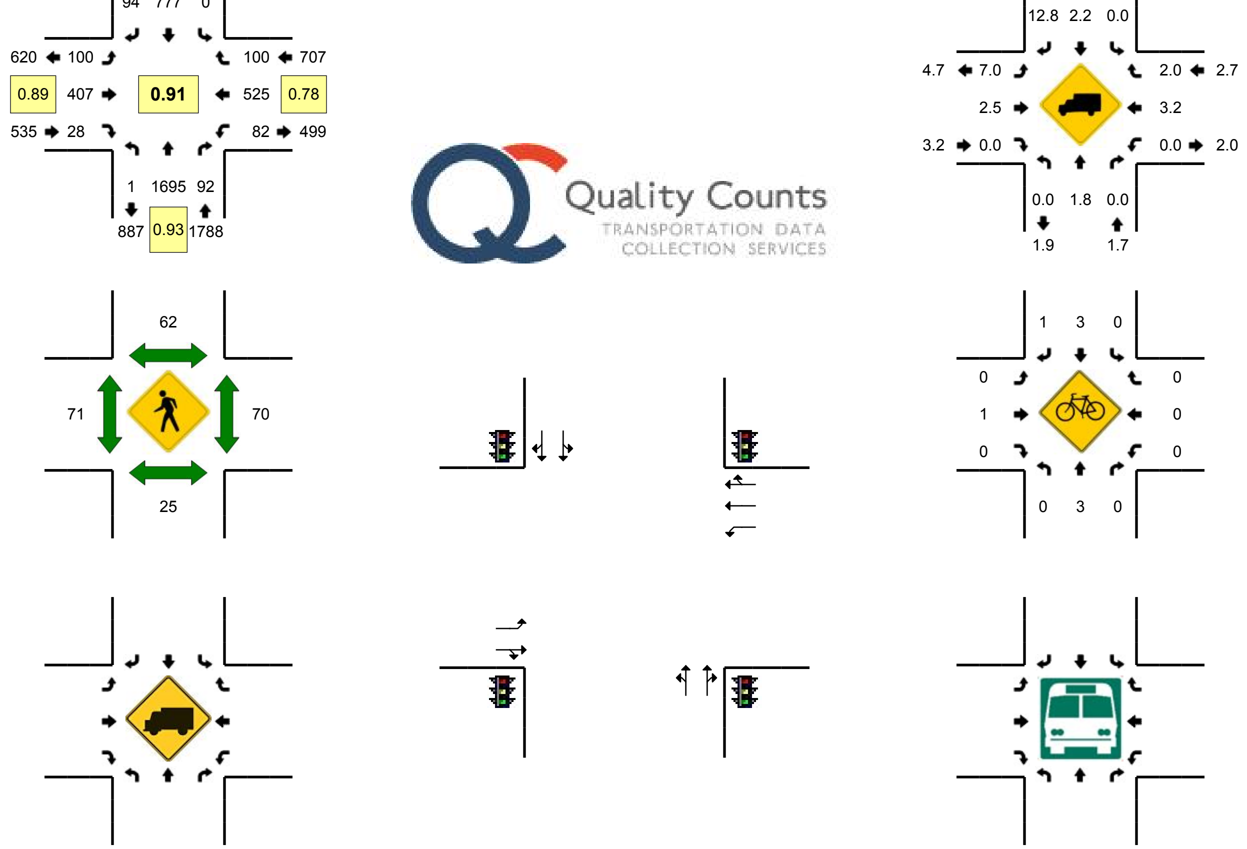
*Comments:*

Type of peak hour being reported: Intersection Peak — Method for determining peak hour: Total Entering Volume

**LOCATION:** Masonic Ave -- Turk Blvd — **QC JOB #:** 10545927

**CITY/STATE:** San Francisco, CA — **DATE:** 10/14/2010

**Peak-Hour: 7:40 AM -- 8:40 AM**
**Peak 15-Min: 7:50 AM -- 8:05 AM**




| 5-Min Count Period Beginning At | Masonic Ave (Northbound) | | | | Masonic Ave (Southbound) | | | | Turk Blvd (Eastbound) | | | | Turk Blvd (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 0 | 53 | 2 | 0 | 0 | 32 | 7 | 0 | 5 | 9 | 2 | 0 | 4 | 15 | 4 | 0 | 133 | |
| 7:05 AM | 0 | 56 | 2 | 0 | 0 | 26 | 2 | 0 | 3 | 11 | 2 | 0 | 3 | 14 | 1 | 0 | 120 | |
| 7:10 AM | 1 | 69 | 2 | 0 | 0 | 31 | 6 | 0 | 4 | 14 | 0 | 0 | 2 | 20 | 3 | 0 | 152 | |
| 7:15 AM | 0 | 68 | 2 | 0 | 0 | 23 | 3 | 0 | 4 | 10 | 0 | 0 | 8 | 16 | 5 | 0 | 139 | |
| 7:20 AM | 0 | 90 | 2 | 0 | 0 | 30 | 7 | 0 | 7 | 12 | 1 | 0 | 3 | 11 | 2 | 0 | 165 | |
| 7:25 AM | 0 | 102 | 3 | 0 | 0 | 34 | 9 | 0 | 7 | 9 | 0 | 0 | 7 | 23 | 3 | 0 | 197 | |
| 7:30 AM | 0 | 87 | 8 | 0 | 0 | 39 | 4 | 0 | 13 | 19 | 4 | 0 | 6 | 28 | 4 | 0 | 212 | |
| 7:35 AM | 0 | 128 | 4 | 0 | 0 | 53 | 12 | 0 | 4 | 26 | 1 | 0 | 3 | 22 | 8 | 0 | 261 | |
| 7:40 AM | 0 | 154 | 11 | 0 | 0 | 54 | 8 | 0 | 8 | 31 | 2 | 0 | 9 | 35 | 9 | 0 | 321 | |
| 7:45 AM | 0 | 130 | 7 | 0 | 0 | 52 | 6 | 0 | 9 | 45 | 3 | 0 | 9 | 51 | 11 | 0 | 323 | |
| 7:50 AM | 0 | 148 | 22 | 0 | 0 | 69 | 12 | 0 | 6 | 28 | 3 | 0 | 6 | 53 | 7 | 0 | 354 | |
| 7:55 AM | 1 | 146 | 11 | 0 | 0 | 74 | 7 | 0 | 5 | 37 | 1 | 0 | 9 | 58 | 12 | 0 | 361 | 2738 |
| 8:00 AM | 0 | 143 | 10 | 0 | 0 | 57 | 9 | 0 | 9 | 44 | 0 | 0 | 9 | 61 | 11 | 0 | 353 | 2958 |
| 8:05 AM | 0 | 146 | 5 | 0 | 0 | 80 | 10 | 0 | 10 | 41 | 3 | 0 | 8 | 31 | 9 | 0 | 343 | 3181 |
| 8:10 AM | 0 | 152 | 5 | 0 | 0 | 65 | 7 | 0 | 4 | 31 | 0 | 0 | 5 | 30 | 8 | 0 | 307 | 3336 |
| 8:15 AM | 0 | 133 | 5 | 0 | 0 | 68 | 7 | 0 | 7 | 37 | 2 | 0 | 5 | 44 | 11 | 0 | 319 | 3516 |
| 8:20 AM | 0 | 134 | 2 | 0 | 0 | 76 | 10 | 0 | 7 | 36 | 7 | 0 | 5 | 43 | 5 | 0 | 325 | 3676 |
| 8:25 AM | 0 | 144 | 6 | 0 | 0 | 57 | 6 | 0 | 19 | 28 | 4 | 0 | 7 | 41 | 8 | 0 | 320 | 3799 |
| 8:30 AM | 0 | 118 | 1 | 0 | 0 | 58 | 6 | 0 | 10 | 21 | 1 | 0 | 4 | 42 | 7 | 0 | 268 | 3855 |
| 8:35 AM | 0 | 147 | 7 | 0 | 0 | 67 | 6 | 0 | 6 | 28 | 2 | 0 | 6 | 36 | 2 | 0 | 307 | 3901 |
| 8:40 AM | 0 | 130 | 5 | 0 | 0 | 61 | 7 | 0 | 11 | 26 | 1 | 0 | 4 | 28 | 4 | 0 | 277 | 3857 |
| 8:45 AM | 0 | 126 | 4 | 0 | 0 | 68 | 6 | 0 | 2 | 31 | 2 | 0 | 7 | 40 | 14 | 0 | 300 | 3834 |
| 8:50 AM | 0 | 153 | 2 | 0 | 0 | 78 | 9 | 0 | 9 | 32 | 2 | 0 | 4 | 28 | 6 | 0 | 323 | 3803 |
| 8:55 AM | 2 | 123 | 2 | 0 | 0 | 58 | 5 | 0 | 9 | 25 | 0 | 0 | 6 | 26 | 3 | 0 | 259 | 3701 |

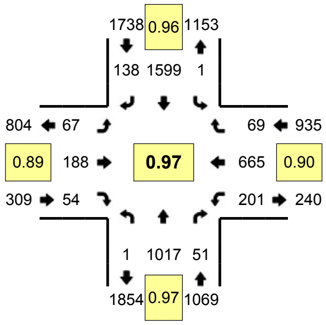
| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 4 | 1748 | 172 | 0 | 0 | 800 | 112 | 0 | 80 | 436 | 16 | 0 | 96 | 688 | 120 | 0 | 4272 |
| Heavy Trucks | 0 | 16 | 0 | | 0 | 24 | 20 | | 16 | 8 | 0 | | 0 | 8 | 0 | | 92 |
| Pedestrians | | 24 | | | | 68 | | | | 64 | | | | 108 | | | 264 |
| Bicycles | 0 | 1 | 0 | | 0 | 1 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 2 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

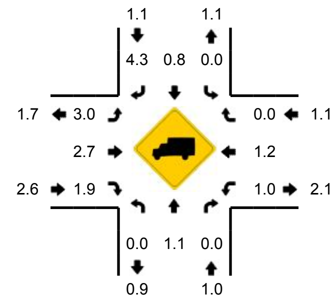
Type of peak hour being reported: Intersection Peak — Method for determining peak hour: Total Entering Volume

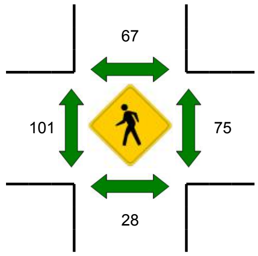
**LOCATION:** Masonic Ave -- Turk Blvd — **QC JOB #:** 10545928

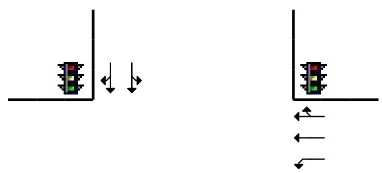
**CITY/STATE:** San Francisco, CA — **DATE:** 10/20/2010

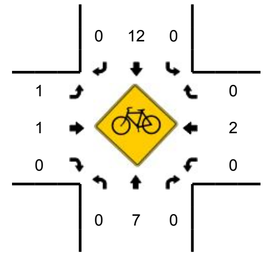


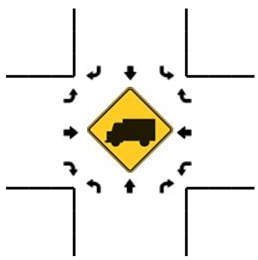

**Peak-Hour: 5:00 PM -- 6:00 PM**
**Peak 15-Min: 5:20 PM -- 5:35 PM**

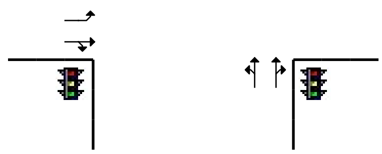


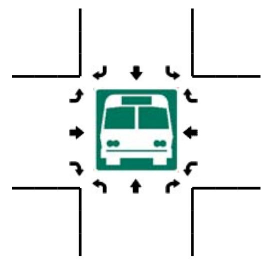









| 5-Min Count Period Beginning At | Masonic Ave (Northbound) Left | Thru | Right | U | Masonic Ave (Southbound) Left | Thru | Right | U | Turk Blvd (Eastbound) Left | Thru | Right | U | Turk Blvd (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4:00 PM | 1 | 86 | 1 | 0 | 1 | 118 | 9 | 0 | 6 | 19 | 6 | 0 | 11 | 33 | 5 | 0 | 296 | |
| 4:05 PM | 0 | 99 | 4 | 0 | 0 | 87 | 10 | 0 | 3 | 20 | 1 | 0 | 12 | 44 | 4 | 0 | 284 | |
| 4:10 PM | 0 | 63 | 5 | 0 | 0 | 100 | 13 | 0 | 8 | 20 | 5 | 0 | 11 | 49 | 5 | 0 | 279 | |
| 4:15 PM | 0 | 82 | 4 | 0 | 0 | 107 | 16 | 0 | 5 | 14 | 1 | 0 | 8 | 30 | 5 | 0 | 272 | |
| 4:20 PM | 0 | 91 | 2 | 0 | 0 | 109 | 11 | 0 | 9 | 15 | 4 | 0 | 12 | 48 | 6 | 0 | 307 | |
| 4:25 PM | 0 | 74 | 3 | 0 | 0 | 82 | 16 | 0 | 4 | 20 | 4 | 0 | 15 | 46 | 7 | 0 | 271 | |
| 4:30 PM | 0 | 101 | 3 | 0 | 1 | 139 | 13 | 0 | 5 | 10 | 2 | 0 | 15 | 35 | 4 | 0 | 328 | |
| 4:35 PM | 2 | 91 | 5 | 0 | 0 | 132 | 11 | 0 | 4 | 13 | 4 | 0 | 21 | 43 | 6 | 0 | 332 | |
| 4:40 PM | 0 | 73 | 2 | 0 | 0 | 117 | 16 | 0 | 9 | 24 | 7 | 0 | 25 | 50 | 7 | 0 | 330 | |
| 4:45 PM | 0 | 99 | 5 | 0 | 0 | 123 | 15 | 0 | 6 | 18 | 1 | 0 | 15 | 45 | 3 | 0 | 330 | |
| 4:50 PM | 0 | 91 | 3 | 0 | 0 | 123 | 7 | 0 | 4 | 12 | 4 | 0 | 15 | 38 | 4 | 0 | 301 | |
| 4:55 PM | 0 | 64 | 5 | 0 | 0 | 112 | 10 | 0 | 5 | 11 | 1 | 0 | 14 | 52 | 4 | 0 | 278 | 3608 |
| 5:00 PM | 1 | 92 | 2 | 0 | 0 | 135 | 13 | 0 | 4 | 17 | 4 | 0 | 6 | 52 | 6 | 0 | 332 | 3644 |
| 5:05 PM | 0 | 88 | 5 | 0 | 0 | 145 | 13 | 0 | 5 | 15 | 3 | 0 | 17 | 56 | 5 | 0 | 352 | 3712 |
| 5:10 PM | 0 | 69 | 10 | 0 | 0 | 112 | 11 | 0 | 7 | 23 | 7 | 0 | 22 | 63 | 6 | 0 | 330 | 3763 |
| 5:15 PM | 0 | 83 | 4 | 0 | 0 | 154 | 9 | 0 | 8 | 14 | 5 | 0 | 18 | 47 | 5 | 0 | 347 | 3838 |
| 5:20 PM | 0 | 101 | 1 | 0 | 0 | 137 | 11 | 0 | 2 | 14 | 6 | 0 | 22 | 58 | 8 | 0 | 360 | 3891 |
| 5:25 PM | 0 | 68 | 2 | 0 | 1 | 122 | 14 | 0 | 6 | 16 | 3 | 0 | 19 | 73 | 4 | 0 | 328 | 3948 |
| 5:30 PM | 0 | 80 | 9 | 0 | 0 | 155 | 9 | 0 | 2 | 16 | 5 | 0 | 19 | 54 | 3 | 0 | 352 | 3972 |
| 5:35 PM | 0 | 72 | 2 | 0 | 0 | 142 | 10 | 0 | 4 | 14 | 3 | 0 | 16 | 58 | 3 | 0 | 324 | 3964 |
| 5:40 PM | 0 | 89 | 5 | 0 | 0 | 124 | 12 | 0 | 8 | 16 | 4 | 0 | 18 | 41 | 7 | 0 | 324 | 3958 |
| 5:45 PM | 0 | 100 | 3 | 0 | 0 | 124 | 13 | 0 | 6 | 17 | 4 | 0 | 10 | 51 | 1 | 0 | 329 | 3957 |
| 5:50 PM | 0 | 97 | 2 | 0 | 0 | 126 | 15 | 0 | 5 | 16 | 6 | 0 | 11 | 57 | 10 | 0 | 345 | 4001 |
| 5:55 PM | 0 | 78 | 6 | 0 | 0 | 123 | 8 | 0 | 10 | 10 | 4 | 0 | 23 | 55 | 11 | 0 | 328 | 4051 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 0 | 996 | 48 | 0 | 4 | 1656 | 136 | 0 | 40 | 184 | 56 | 0 | 240 | 740 | 60 | 0 | 4160 |
| Heavy Trucks | 0 | 8 | 0 | | 0 | 4 | 8 | | 0 | 4 | 4 | | 0 | 8 | 0 | | 36 |
| Pedestrians | | 16 | | | | 16 | | | | 100 | | | | 40 | | | 172 |
| Bicycles | 0 | 4 | 0 | | 0 | 1 | 0 | | 0 | 0 | 0 | | 0 | 1 | 0 | | 6 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

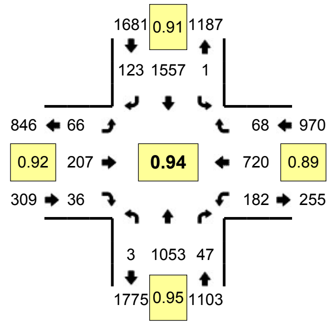
*Comments:*

Report generated on 11/18/2010 3:24 PM — SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

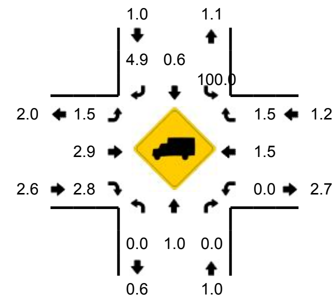
Type of peak hour being reported: Intersection Peak — Method for determining peak hour: Total Entering Volume

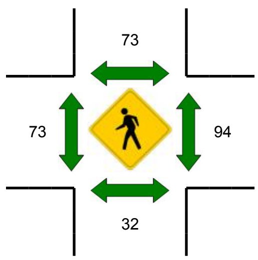
**LOCATION:** Masonic Ave -- Turk Blvd — **QC JOB #:** 10545930

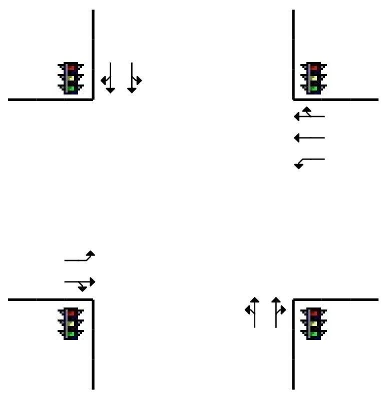
**CITY/STATE:** San Francisco, CA — **DATE:** 10/14/2010

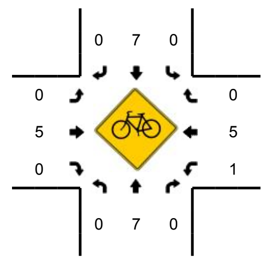


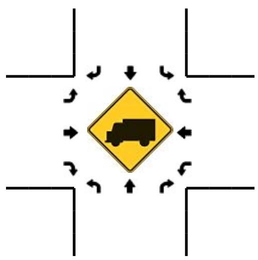

**Peak-Hour: 5:00 PM -- 6:00 PM**
**Peak 15-Min: 5:15 PM -- 5:30 PM**

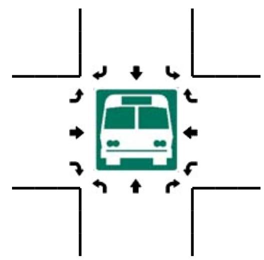






| 5-Min Count Period Beginning At | Masonic Ave (Northbound) | | | | Masonic Ave (Southbound) | | | | Turk Blvd (Eastbound) | | | | Turk Blvd (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 1 | 71 | 4 | 0 | 1 | 86 | 12 | 0 | 5 | 21 | 4 | 0 | 14 | 41 | 9 | 0 | 269 | |
| 4:05 PM | 2 | 79 | 5 | 0 | 1 | 106 | 10 | 0 | 3 | 27 | 5 | 0 | 11 | 40 | 2 | 0 | 291 | |
| 4:10 PM | 0 | 73 | 2 | 0 | 0 | 109 | 13 | 0 | 4 | 14 | 4 | 0 | 16 | 40 | 1 | 0 | 276 | |
| 4:15 PM | 0 | 72 | 3 | 0 | 0 | 86 | 9 | 0 | 3 | 13 | 3 | 0 | 20 | 39 | 4 | 0 | 252 | |
| 4:20 PM | 0 | 89 | 2 | 0 | 0 | 110 | 10 | 0 | 6 | 13 | 5 | 0 | 11 | 38 | 11 | 0 | 295 | |
| 4:25 PM | 0 | 89 | 2 | 0 | 0 | 116 | 11 | 0 | 7 | 12 | 5 | 0 | 10 | 36 | 2 | 0 | 290 | |
| 4:30 PM | 0 | 79 | 4 | 0 | 0 | 106 | 8 | 0 | 5 | 27 | 3 | 0 | 15 | 45 | 14 | 0 | 306 | |
| 4:35 PM | 0 | 94 | 3 | 0 | 0 | 114 | 14 | 0 | 5 | 12 | 3 | 0 | 11 | 45 | 8 | 0 | 309 | |
| 4:40 PM | 0 | 88 | 3 | 0 | 0 | 123 | 13 | 0 | 10 | 17 | 1 | 0 | 18 | 38 | 7 | 0 | 318 | |
| 4:45 PM | 0 | 80 | 1 | 0 | 0 | 110 | 13 | 0 | 9 | 17 | 4 | 0 | 18 | 56 | 5 | 0 | 313 | |
| 4:50 PM | 0 | 92 | 4 | 0 | 0 | 122 | 10 | 0 | 4 | 18 | 3 | 0 | 24 | 49 | 8 | 0 | 334 | |
| 4:55 PM | 0 | 71 | 2 | 0 | 0 | 122 | 16 | 0 | 3 | 18 | 2 | 0 | 12 | 55 | 7 | 0 | 308 | 3561 |
| 5:00 PM | 1 | 83 | 5 | 0 | 0 | 110 | 18 | 0 | 5 | 18 | 5 | 0 | 14 | 54 | 4 | 0 | 317 | 3609 |
| 5:05 PM | 0 | 91 | 7 | 0 | 0 | 131 | 4 | 0 | 3 | 15 | 4 | 0 | 10 | 50 | 5 | 0 | 320 | 3638 |
| 5:10 PM | 1 | 75 | 5 | 0 | 0 | 116 | 8 | 0 | 5 | 11 | 2 | 0 | 13 | 46 | 7 | 0 | 289 | 3651 |
| 5:15 PM | 0 | 93 | 3 | 0 | 0 | 119 | 10 | 0 | 8 | 24 | 3 | 0 | 20 | 79 | 4 | 0 | 363 | 3762 |
| 5:20 PM | 0 | 90 | 1 | 0 | 0 | 165 | 7 | 0 | 9 | 19 | 2 | 0 | 14 | 63 | 8 | 0 | 378 | 3845 |
| 5:25 PM | 0 | 81 | 7 | 0 | 0 | 142 | 7 | 0 | 0 | 16 | 4 | 0 | 13 | 62 | 5 | 0 | 337 | 3892 |
| 5:30 PM | 0 | 70 | 4 | 0 | 0 | 132 | 10 | 0 | 6 | 25 | 4 | 0 | 20 | 72 | 6 | 0 | 349 | 3935 |
| 5:35 PM | 1 | 92 | 7 | 0 | 1 | 126 | 10 | 0 | 5 | 16 | 2 | 0 | 18 | 66 | 2 | 0 | 346 | 3972 |
| 5:40 PM | 0 | 98 | 3 | 0 | 0 | 139 | 13 | 0 | 7 | 19 | 3 | 0 | 19 | 65 | 8 | 0 | 374 | 4028 |
| 5:45 PM | 0 | 83 | 1 | 0 | 0 | 119 | 14 | 0 | 9 | 19 | 4 | 0 | 19 | 58 | 7 | 0 | 333 | 4048 |
| 5:50 PM | 0 | 104 | 1 | 0 | 0 | 127 | 11 | 0 | 6 | 6 | 0 | 0 | 11 | 58 | 8 | 0 | 332 | 4046 |
| 5:55 PM | 0 | 93 | 3 | 0 | 0 | 131 | 11 | 0 | 3 | 19 | 3 | 0 | 11 | 47 | 4 | 0 | 325 | 4063 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 1056 | 44 | 0 | 0 | 1704 | 96 | 0 | 68 | 236 | 36 | 0 | 188 | 816 | 68 | 0 | 4312 |
| Heavy Trucks | 0 | 20 | 0 | | 0 | 8 | 4 | | 0 | 16 | 4 | | 0 | 16 | 0 | | 68 |
| Pedestrians | | 24 | | | | 88 | | | | 76 | | | | 120 | | | 308 |
| Bicycles | 0 | 0 | 0 | | 0 | 3 | 0 | | 0 | 0 | 0 | | 1 | 2 | 0 | | 6 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

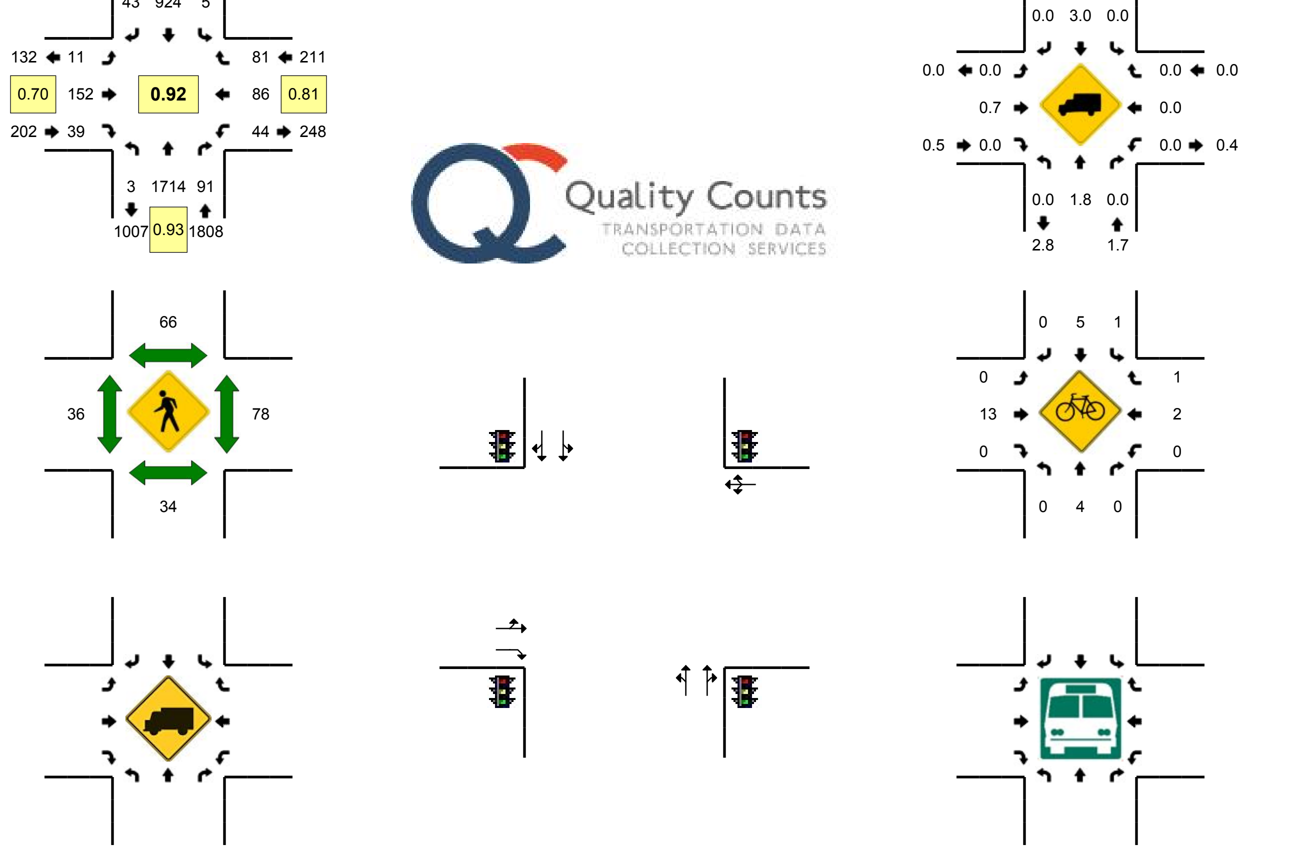
Report generated on 11/18/2010 3:24 PM — SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of peak hour being reported: Intersection Peak — Method for determining peak hour: Total Entering Volume

**LOCATION:** Masonic Ave -- Golden Gate Ave — **QC JOB #:** 10545919

**CITY/STATE:** San Francisco, CA — **DATE:** 10/19/2010

**Peak-Hour: 7:40 AM -- 8:40 AM**
**Peak 15-Min: 7:45 AM -- 8:00 AM**



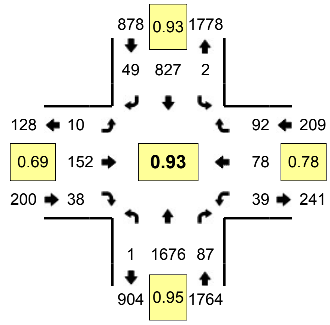

| 5-Min Count Period Beginning At | Masonic Ave (Northbound) Left | Thru | Right | U | Masonic Ave (Southbound) Left | Thru | Right | U | Golden Gate Ave (Eastbound) Left | Thru | Right | U | Golden Gate Ave (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7:00 AM | 0 | 53 | 0 | 0 | 3 | 28 | 0 | 0 | 0 | 3 | 2 | 0 | 1 | 1 | 0 | 0 | 91 | |
| 7:05 AM | 1 | 61 | 4 | 0 | 1 | 34 | 0 | 0 | 0 | 5 | 4 | 0 | 0 | 0 | 1 | 0 | 111 | |
| 7:10 AM | 0 | 50 | 3 | 0 | 2 | 33 | 2 | 0 | 1 | 2 | 1 | 0 | 1 | 6 | 0 | 0 | 101 | |
| 7:15 AM | 0 | 97 | 2 | 0 | 0 | 31 | 1 | 0 | 0 | 3 | 1 | 0 | 0 | 4 | 0 | 0 | 139 | |
| 7:20 AM | 0 | 90 | 5 | 0 | 0 | 42 | 4 | 0 | 0 | 3 | 1 | 0 | 4 | 6 | 3 | 0 | 158 | |
| 7:25 AM | 1 | 79 | 3 | 0 | 0 | 40 | 2 | 0 | 2 | 8 | 3 | 0 | 2 | 9 | 5 | 0 | 154 | |
| 7:30 AM | 0 | 128 | 10 | 0 | 0 | 56 | 0 | 0 | 0 | 10 | 1 | 0 | 2 | 3 | 6 | 0 | 216 | |
| 7:35 AM | 1 | 141 | 10 | 0 | 2 | 54 | 3 | 0 | 0 | 4 | 1 | 0 | 6 | 12 | 6 | 0 | 240 | |
| 7:40 AM | 0 | 120 | 7 | 0 | 1 | 61 | 1 | 0 | 3 | 11 | 2 | 0 | 3 | 14 | 7 | 0 | 230 | |
| 7:45 AM | 0 | 166 | 5 | 0 | 0 | 73 | 4 | 0 | 0 | 11 | 6 | 0 | 7 | 10 | 7 | 0 | 289 | |
| 7:50 AM | 1 | 169 | 6 | 0 | 0 | 86 | 6 | 0 | 1 | 16 | 4 | 0 | 4 | 10 | 5 | 0 | 308 | |
| 7:55 AM | 0 | 137 | 4 | 0 | 1 | 74 | 6 | 0 | 0 | 24 | 5 | 0 | 6 | 8 | 10 | 0 | 275 | 2312 |
| 8:00 AM | 0 | 129 | 11 | 0 | 0 | 76 | 6 | 0 | 2 | 13 | 7 | 0 | 7 | 3 | 13 | 0 | 267 | 2488 |
| 8:05 AM | 0 | 145 | 10 | 0 | 2 | 105 | 4 | 0 | 0 | 11 | 3 | 0 | 5 | 6 | 2 | 0 | 293 | 2670 |
| 8:10 AM | 0 | 128 | 8 | 0 | 0 | 63 | 1 | 0 | 0 | 17 | 2 | 0 | 0 | 10 | 14 | 0 | 243 | 2812 |
| 8:15 AM | 1 | 152 | 10 | 0 | 0 | 72 | 3 | 0 | 0 | 11 | 4 | 0 | 4 | 5 | 8 | 0 | 270 | 2943 |
| 8:20 AM | 0 | 153 | 6 | 0 | 0 | 87 | 4 | 0 | 0 | 10 | 1 | 0 | 2 | 7 | 4 | 0 | 274 | 3059 |
| 8:25 AM | 1 | 123 | 7 | 0 | 0 | 73 | 3 | 0 | 2 | 4 | 2 | 0 | 2 | 2 | 6 | 0 | 225 | 3130 |
| 8:30 AM | 0 | 142 | 10 | 0 | 1 | 83 | 1 | 0 | 2 | 10 | 1 | 0 | 3 | 7 | 3 | 0 | 263 | 3177 |
| 8:35 AM | 0 | 150 | 7 | 0 | 0 | 71 | 4 | 0 | 1 | 14 | 2 | 0 | 1 | 4 | 2 | 0 | 256 | 3193 |
| 8:40 AM | 0 | 133 | 5 | 0 | 0 | 61 | 1 | 0 | 2 | 10 | 2 | 0 | 1 | 4 | 4 | 0 | 223 | 3186 |
| 8:45 AM | 0 | 137 | 6 | 0 | 0 | 73 | 2 | 0 | 0 | 4 | 1 | 0 | 1 | 4 | 2 | 0 | 230 | 3127 |
| 8:50 AM | 1 | 160 | 6 | 0 | 0 | 74 | 2 | 0 | 1 | 11 | 7 | 0 | 0 | 5 | 2 | 0 | 269 | 3088 |
| 8:55 AM | 1 | 123 | 4 | 0 | 0 | 55 | 1 | 0 | 1 | 15 | 5 | 0 | 1 | 5 | 7 | 0 | 218 | 3031 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 4 | 1888 | 60 | 0 | 4 | 932 | 64 | 0 | 4 | 204 | 60 | 0 | 68 | 112 | 88 | 0 | 3488 |
| Heavy Trucks | 0 | 24 | 0 | | 0 | 12 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 36 |
| Pedestrians | | 48 | | | | 112 | | | | 44 | | | | 52 | | | 256 |
| Bicycles | 0 | 3 | 0 | | 0 | 1 | 0 | | 0 | 3 | 0 | | 0 | 0 | 1 | | 8 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

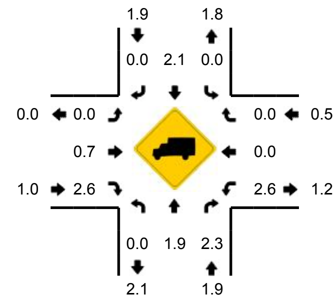
*Comments:*

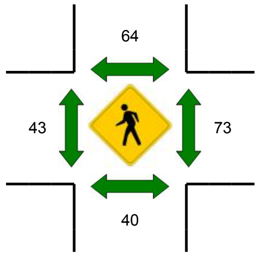
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

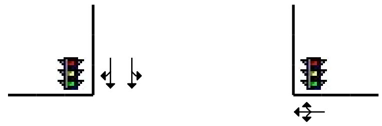
**LOCATION:** Masonic Ave -- Golden Gate Ave | **QC JOB #:** 10545921
**CITY/STATE:** San Francisco, CA | **DATE:** 10/14/2010

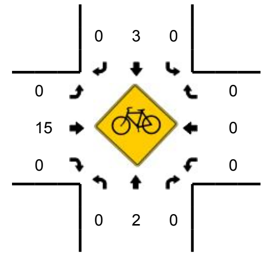


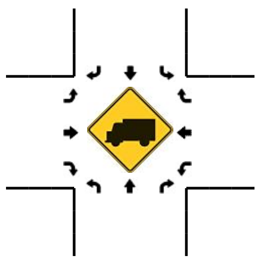

**Peak-Hour: 7:40 AM -- 8:40 AM**
**Peak 15-Min: 7:45 AM -- 8:00 AM**

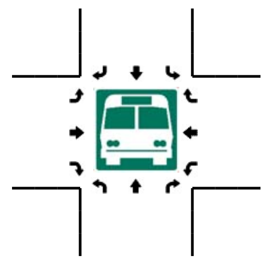






| 5-Min Count Period Beginning At | Masonic Ave (Northbound) | | | | Masonic Ave (Southbound) | | | | Golden Gate Ave (Eastbound) | | | | Golden Gate Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 3 | 51 | 2 | 0 | 0 | 30 | 5 | 0 | 0 | 5 | 1 | 0 | 0 | 1 | 0 | 0 | 98 | |
| 7:05 AM | 1 | 66 | 7 | 0 | 2 | 29 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 110 | |
| 7:10 AM | 0 | 63 | 3 | 0 | 2 | 27 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 5 | 4 | 0 | 108 | |
| 7:15 AM | 1 | 78 | 2 | 0 | 1 | 26 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 3 | 1 | 0 | 115 | |
| 7:20 AM | 1 | 99 | 7 | 0 | 0 | 37 | 2 | 0 | 0 | 3 | 5 | 0 | 0 | 2 | 0 | 0 | 156 | |
| 7:25 AM | 0 | 89 | 4 | 0 | 3 | 34 | 1 | 0 | 0 | 4 | 2 | 0 | 2 | 5 | 3 | 0 | 147 | |
| 7:30 AM | 0 | 96 | 2 | 0 | 1 | 52 | 1 | 0 | 1 | 7 | 4 | 0 | 1 | 6 | 2 | 0 | 173 | |
| 7:35 AM | 1 | 139 | 12 | 0 | 0 | 60 | 0 | 0 | 0 | 10 | 4 | 0 | 6 | 6 | 6 | 0 | 244 | |
| 7:40 AM | 0 | 146 | 7 | 0 | 0 | 61 | 4 | 0 | 0 | 13 | 1 | 0 | 4 | 2 | 7 | 0 | 245 | |
| 7:45 AM | 0 | 138 | 7 | 0 | 0 | 56 | 6 | 0 | 2 | 11 | 8 | 0 | 4 | 12 | 8 | 0 | 252 | |
| 7:50 AM | 0 | 159 | 6 | 0 | 0 | 74 | 5 | 0 | 1 | 18 | 7 | 0 | 6 | 8 | 10 | 0 | 294 | |
| 7:55 AM | 0 | 141 | 4 | 0 | 0 | 74 | 9 | 0 | 0 | 21 | 7 | 0 | 8 | 5 | 9 | 0 | 278 | 2220 |
| 8:00 AM | 0 | 137 | 6 | 0 | 0 | 56 | 5 | 0 | 2 | 11 | 5 | 0 | 5 | 11 | 7 | 0 | 245 | 2367 |
| 8:05 AM | 0 | 146 | 8 | 0 | 1 | 94 | 2 | 0 | 0 | 18 | 2 | 0 | 2 | 7 | 9 | 0 | 289 | 2546 |
| 8:10 AM | 0 | 129 | 9 | 0 | 0 | 67 | 1 | 0 | 0 | 14 | 0 | 0 | 2 | 4 | 12 | 0 | 238 | 2676 |
| 8:15 AM | 0 | 127 | 7 | 0 | 0 | 69 | 0 | 0 | 2 | 9 | 2 | 0 | 1 | 6 | 10 | 0 | 233 | 2794 |
| 8:20 AM | 0 | 144 | 11 | 0 | 1 | 81 | 6 | 0 | 0 | 11 | 1 | 0 | 3 | 5 | 5 | 0 | 268 | 2906 |
| 8:25 AM | 1 | 125 | 7 | 0 | 0 | 63 | 3 | 0 | 1 | 13 | 0 | 0 | 0 | 9 | 8 | 0 | 230 | 2989 |
| 8:30 AM | 0 | 129 | 8 | 0 | 0 | 61 | 2 | 0 | 0 | 6 | 1 | 0 | 2 | 5 | 3 | 0 | 217 | 3033 |
| 8:35 AM | 0 | 155 | 7 | 0 | 0 | 71 | 6 | 0 | 2 | 7 | 4 | 0 | 2 | 4 | 4 | 0 | 262 | 3051 |
| 8:40 AM | 2 | 122 | 10 | 0 | 0 | 62 | 2 | 0 | 0 | 13 | 4 | 0 | 3 | 3 | 0 | 0 | 221 | 3027 |
| 8:45 AM | 0 | 132 | 5 | 0 | 2 | 76 | 1 | 0 | 2 | 11 | 1 | 0 | 0 | 1 | 2 | 0 | 233 | 3008 |
| 8:50 AM | 1 | 158 | 1 | 0 | 1 | 80 | 3 | 0 | 0 | 9 | 1 | 0 | 0 | 6 | 2 | 0 | 262 | 2976 |
| 8:55 AM | 1 | 115 | 10 | 0 | 1 | 55 | 6 | 0 | 0 | 4 | 1 | 0 | 0 | 7 | 1 | 0 | 201 | 2899 |

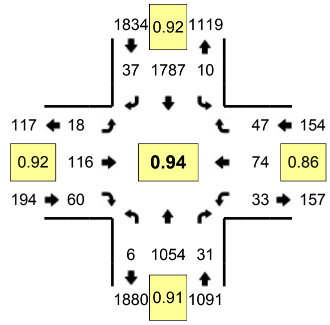
| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 1752 | 68 | 0 | 0 | 816 | 80 | 0 | 12 | 200 | 88 | 0 | 72 | 100 | 108 | 0 | 3296 |
| Heavy Trucks | 0 | 32 | 0 | | 0 | 24 | 0 | | 0 | 4 | 0 | | 0 | 0 | 0 | | 60 |
| Pedestrians | | 40 | | | | 88 | | | | 36 | | | | 104 | | | 268 |
| Bicycles | 0 | 1 | 0 | | 0 | 1 | 0 | | 0 | 4 | 0 | | 0 | 0 | 0 | | 6 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

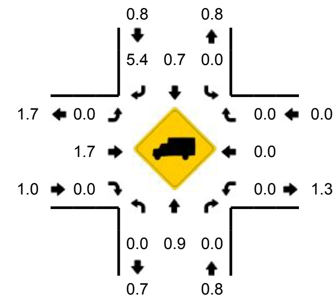
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

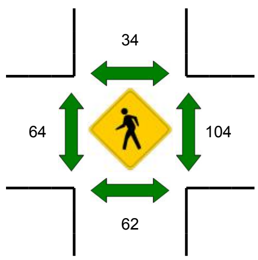
**LOCATION:** Masonic Ave -- Golden Gate Ave | **QC JOB #:** 10545922

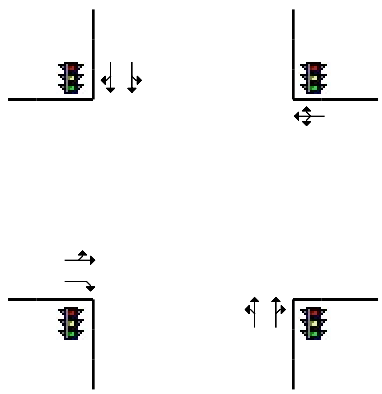
**CITY/STATE:** San Francisco, CA | **DATE:** 10/19/2010

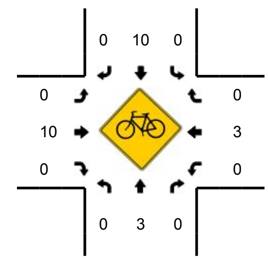


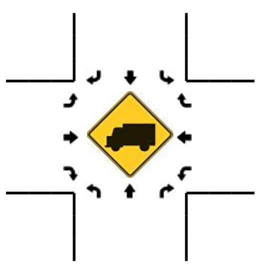

**Peak-Hour: 5:00 PM -- 6:00 PM**
**Peak 15-Min: 5:30 PM -- 5:45 PM**

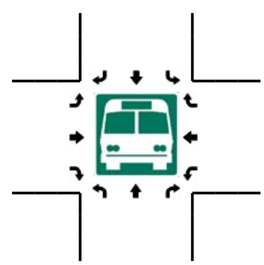






| 5-Min Count Period Beginning At | Masonic Ave (Northbound) | | | | Masonic Ave (Southbound) | | | | Golden Gate Ave (Eastbound) | | | | Golden Gate Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 1 | 73 | 5 | 0 | 2 | 80 | 1 | 0 | 3 | 2 | 7 | 0 | 0 | 2 | 3 | 0 | 179 | |
| 4:05 PM | 0 | 78 | 2 | 0 | 0 | 113 | 3 | 0 | 3 | 8 | 2 | 0 | 2 | 5 | 3 | 0 | 219 | |
| 4:10 PM | 2 | 78 | 3 | 0 | 0 | 109 | 2 | 0 | 0 | 11 | 5 | 0 | 4 | 4 | 6 | 0 | 224 | |
| 4:15 PM | 0 | 89 | 7 | 0 | 0 | 120 | 6 | 0 | 1 | 5 | 6 | 0 | 2 | 4 | 3 | 0 | 243 | |
| 4:20 PM | 0 | 90 | 3 | 0 | 0 | 125 | 2 | 0 | 1 | 4 | 3 | 0 | 1 | 13 | 5 | 0 | 247 | |
| 4:25 PM | 1 | 79 | 3 | 0 | 0 | 94 | 2 | 0 | 3 | 9 | 6 | 0 | 2 | 9 | 3 | 0 | 211 | |
| 4:30 PM | 0 | 75 | 5 | 0 | 1 | 90 | 3 | 0 | 3 | 7 | 5 | 0 | 0 | 4 | 2 | 0 | 195 | |
| 4:35 PM | 0 | 102 | 6 | 0 | 0 | 139 | 2 | 0 | 3 | 6 | 6 | 0 | 2 | 7 | 1 | 0 | 274 | |
| 4:40 PM | 1 | 84 | 3 | 0 | 1 | 129 | 3 | 0 | 3 | 9 | 5 | 0 | 2 | 4 | 4 | 0 | 248 | |
| 4:45 PM | 0 | 85 | 5 | 0 | 2 | 137 | 1 | 0 | 2 | 8 | 3 | 0 | 2 | 5 | 1 | 0 | 251 | |
| 4:50 PM | 0 | 74 | 3 | 0 | 0 | 139 | 5 | 0 | 0 | 7 | 4 | 0 | 2 | 4 | 4 | 0 | 242 | |
| 4:55 PM | 0 | 56 | 2 | 0 | 0 | 115 | 2 | 0 | 2 | 12 | 1 | 0 | 5 | 7 | 3 | 0 | 205 | 2738 |
| 5:00 PM | 1 | 80 | 2 | 0 | 1 | 142 | 2 | 0 | 0 | 5 | 2 | 0 | 2 | 8 | 4 | 0 | 249 | 2808 |
| 5:05 PM | 0 | 90 | 5 | 0 | 2 | 145 | 1 | 0 | 1 | 12 | 8 | 0 | 6 | 5 | 4 | 0 | 279 | 2868 |
| 5:10 PM | 0 | 75 | 1 | 0 | 1 | 137 | 2 | 0 | 0 | 11 | 4 | 0 | 6 | 9 | 4 | 0 | 250 | 2894 |
| 5:15 PM | 0 | 79 | 2 | 0 | 2 | 149 | 2 | 0 | 1 | 4 | 7 | 0 | 3 | 6 | 3 | 0 | 258 | 2909 |
| 5:20 PM | 0 | 84 | 5 | 0 | 0 | 170 | 4 | 0 | 3 | 14 | 5 | 0 | 0 | 10 | 7 | 0 | 302 | 2964 |
| 5:25 PM | 0 | 76 | 2 | 0 | 0 | 156 | 5 | 0 | 2 | 8 | 4 | 0 | 0 | 5 | 4 | 0 | 262 | 3015 |
| 5:30 PM | 2 | 96 | 1 | 0 | 1 | 158 | 3 | 0 | 6 | 4 | 4 | 0 | 3 | 3 | 6 | 0 | 287 | 3107 |
| 5:35 PM | 0 | 96 | 5 | 0 | 0 | 162 | 4 | 0 | 3 | 8 | 4 | 0 | 5 | 7 | 4 | 0 | 298 | 3131 |
| 5:40 PM | 0 | 87 | 1 | 0 | 1 | 158 | 1 | 0 | 1 | 18 | 5 | 0 | 4 | 7 | 7 | 0 | 290 | 3173 |
| 5:45 PM | 0 | 105 | 2 | 0 | 2 | 130 | 3 | 0 | 0 | 10 | 4 | 0 | 1 | 6 | 2 | 0 | 265 | 3187 |
| 5:50 PM | 1 | 97 | 2 | 0 | 0 | 158 | 5 | 0 | 0 | 9 | 5 | 0 | 1 | 4 | 1 | 0 | 283 | 3228 |
| 5:55 PM | 2 | 89 | 3 | 0 | 0 | 122 | 5 | 0 | 1 | 13 | 8 | 0 | 2 | 4 | 1 | 0 | 250 | 3273 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 8 | 1116 | 28 | 0 | 8 | 1912 | 32 | 0 | 40 | 120 | 52 | 0 | 48 | 68 | 68 | 0 | 3500 |
| Heavy Trucks | 0 | 12 | 0 | | 0 | 8 | 0 | | 0 | 4 | 0 | | 0 | 0 | 0 | | 24 |
| Pedestrians | | 84 | | | | 48 | | | | 60 | | | | 164 | | | 356 |
| Bicycles | 0 | 0 | 0 | | 0 | 5 | 0 | | 0 | 1 | 0 | | 0 | 0 | 0 | | 6 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

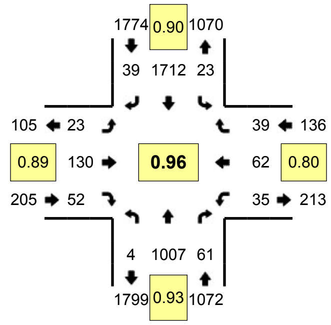
*Comments:*

Report generated on 11/18/2010 3:24 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

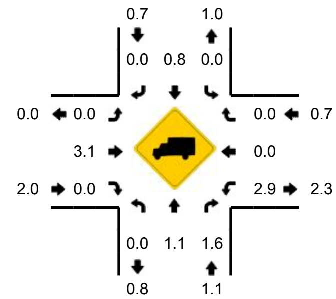
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

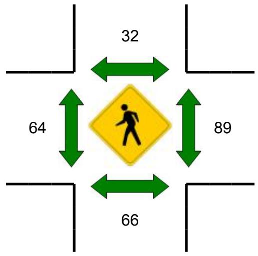
**LOCATION:** Masonic Ave -- Golden Gate Ave | **QC JOB #:** 10545924

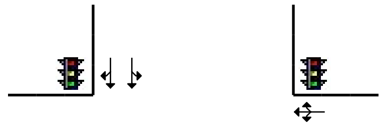
**CITY/STATE:** San Francisco, CA | **DATE:** 10/14/2010

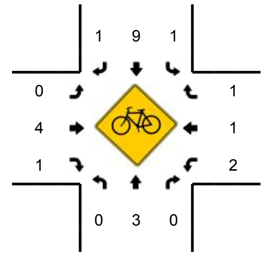


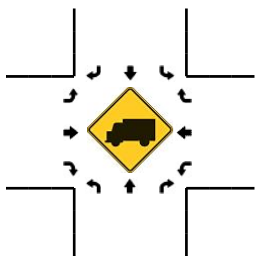

**Peak-Hour: 5:00 PM -- 6:00 PM**
**Peak 15-Min: 5:20 PM -- 5:35 PM**

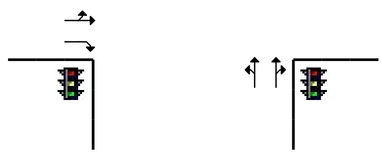


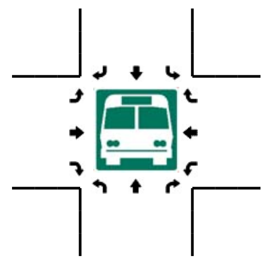









| 5-Min Count Period Beginning At | Masonic Ave (Northbound) | | | | Masonic Ave (Southbound) | | | | Golden Gate Ave (Eastbound) | | | | Golden Gate Ave (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 1 | 83 | 5 | 0 | 0 | 98 | 7 | 0 | 0 | 12 | 3 | 0 | 0 | 2 | 4 | 0 | 215 | |
| 4:05 PM | 0 | 73 | 3 | 0 | 0 | 124 | 3 | 0 | 1 | 7 | 2 | 0 | 0 | 3 | 7 | 0 | 223 | |
| 4:10 PM | 0 | 67 | 10 | 0 | 1 | 118 | 3 | 0 | 3 | 7 | 3 | 0 | 0 | 5 | 4 | 0 | 221 | |
| 4:15 PM | 2 | 73 | 1 | 0 | 0 | 106 | 3 | 0 | 1 | 12 | 2 | 0 | 1 | 5 | 3 | 0 | 209 | |
| 4:20 PM | 0 | 78 | 6 | 0 | 2 | 123 | 4 | 0 | 4 | 9 | 3 | 0 | 1 | 3 | 1 | 0 | 234 | |
| 4:25 PM | 0 | 82 | 5 | 0 | 0 | 121 | 6 | 0 | 3 | 1 | 5 | 0 | 1 | 3 | 4 | 0 | 231 | |
| 4:30 PM | 0 | 81 | 6 | 0 | 1 | 127 | 1 | 0 | 2 | 13 | 4 | 0 | 2 | 8 | 7 | 0 | 252 | |
| 4:35 PM | 0 | 85 | 2 | 0 | 0 | 132 | 2 | 0 | 4 | 9 | 8 | 0 | 2 | 6 | 3 | 0 | 253 | |
| 4:40 PM | 0 | 78 | 13 | 0 | 0 | 131 | 3 | 0 | 4 | 13 | 5 | 0 | 1 | 14 | 4 | 0 | 266 | |
| 4:45 PM | 0 | 82 | 4 | 0 | 1 | 137 | 1 | 0 | 3 | 9 | 2 | 0 | 1 | 6 | 3 | 0 | 249 | |
| 4:50 PM | 0 | 84 | 2 | 0 | 0 | 148 | 2 | 0 | 2 | 7 | 3 | 0 | 0 | 3 | 2 | 0 | 253 | |
| 4:55 PM | 0 | 76 | 4 | 0 | 0 | 130 | 3 | 0 | 2 | 10 | 5 | 0 | 3 | 5 | 3 | 0 | 241 | 2847 |
| 5:00 PM | 0 | 85 | 3 | 0 | 1 | 123 | 3 | 0 | 0 | 9 | 7 | 0 | 5 | 2 | 7 | 0 | 245 | 2877 |
| 5:05 PM | 2 | 80 | 5 | 0 | 4 | 140 | 1 | 0 | 2 | 10 | 5 | 0 | 5 | 11 | 5 | 0 | 270 | 2924 |
| 5:10 PM | 0 | 78 | 7 | 0 | 2 | 139 | 3 | 0 | 0 | 12 | 1 | 0 | 2 | 3 | 6 | 0 | 253 | 2956 |
| 5:15 PM | 0 | 89 | 5 | 0 | 3 | 140 | 3 | 0 | 1 | 13 | 6 | 0 | 3 | 4 | 4 | 0 | 271 | 3018 |
| 5:20 PM | 0 | 77 | 3 | 0 | 2 | 174 | 2 | 0 | 3 | 5 | 5 | 0 | 1 | 4 | 1 | 0 | 277 | 3061 |
| 5:25 PM | 0 | 73 | 11 | 0 | 2 | 155 | 3 | 1 | 2 | 20 | 1 | 0 | 4 | 8 | 3 | 0 | 283 | 3113 |
| 5:30 PM | 0 | 78 | 5 | 0 | 2 | 152 | 2 | 0 | 2 | 17 | 4 | 0 | 4 | 5 | 2 | 0 | 273 | 3134 |
| 5:35 PM | 1 | 94 | 3 | 0 | 1 | 137 | 4 | 0 | 2 | 8 | 3 | 0 | 1 | 4 | 6 | 0 | 264 | 3145 |
| 5:40 PM | 0 | 87 | 6 | 0 | 2 | 154 | 3 | 0 | 3 | 9 | 6 | 0 | 6 | 2 | 1 | 0 | 279 | 3158 |
| 5:45 PM | 0 | 81 | 6 | 0 | 1 | 129 | 4 | 0 | 5 | 10 | 5 | 0 | 0 | 15 | 3 | 0 | 259 | 3168 |
| 5:50 PM | 1 | 103 | 3 | 0 | 1 | 141 | 5 | 0 | 1 | 7 | 4 | 0 | 1 | 2 | 1 | 0 | 270 | 3185 |
| 5:55 PM | 0 | 82 | 4 | 0 | 1 | 128 | 6 | 0 | 2 | 10 | 5 | 0 | 3 | 2 | 0 | 0 | 243 | 3187 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 912 | 76 | 0 | 24 | 1924 | 28 | 4 | 28 | 168 | 40 | 0 | 36 | 68 | 24 | 0 | 3332 |
| Heavy Trucks | 0 | 16 | 0 | | 0 | 8 | 0 | | 0 | 4 | 0 | | 0 | 0 | 0 | | 28 |
| Pedestrians | | 52 | | | | 36 | | | | 72 | | | | 104 | | | 264 |
| Bicycles | 0 | 0 | 0 | | 0 | 4 | 0 | | 0 | 2 | 0 | | 1 | 0 | 0 | | 7 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

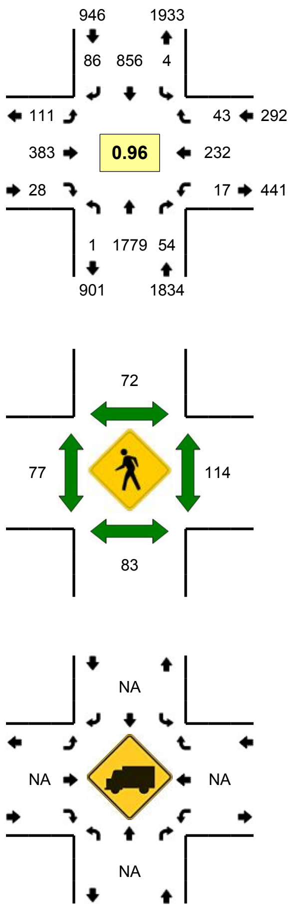
*Comments:*

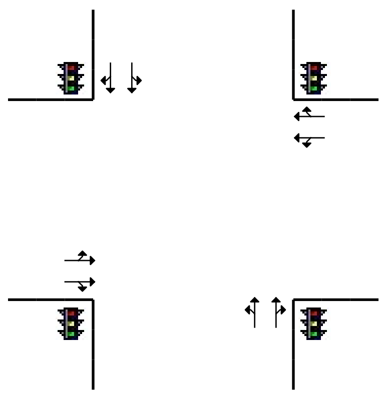
Report generated on 11/18/2010 3:24 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

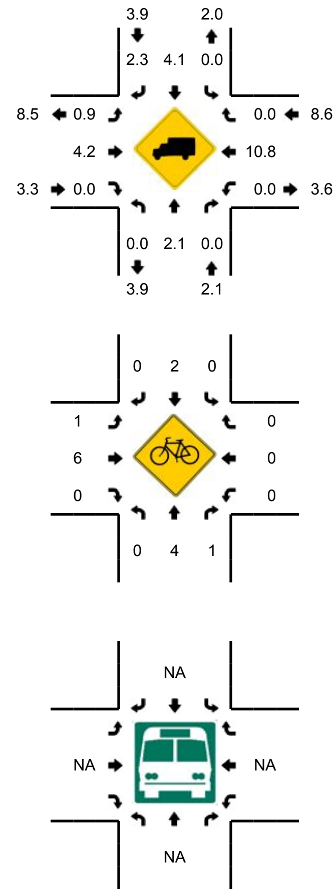
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

**LOCATION:** Masonic Ave -- Fulton St | **QC JOB #:** 10652733
**CITY/STATE:** San Francisco, CA | **DATE:** Wed, Sep 14 2011

**Peak-Hour: 7:50 AM -- 8:50 AM**
**Peak 15-Min: 7:55 AM -- 8:10 AM**






| 5-Min Count Period Beginning At | Masonic Ave (Northbound) Left | Thru | Right | U | Masonic Ave (Southbound) Left | Thru | Right | U | Fulton St (Eastbound) Left | Thru | Right | U | Fulton St (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7:00 AM | 1 | 55 | 4 | 0 | 0 | 35 | 2 | 0 | 1 | 9 | 0 | 0 | 0 | 4 | 1 | 0 | 112 | |
| 7:05 AM | 0 | 57 | 3 | 0 | 0 | 38 | 1 | 0 | 2 | 11 | 0 | 0 | 2 | 7 | 1 | 0 | 122 | |
| 7:10 AM | 0 | 56 | 1 | 0 | 0 | 37 | 3 | 0 | 5 | 10 | 3 | 0 | 1 | 11 | 1 | 0 | 128 | |
| 7:15 AM | 0 | 85 | 5 | 0 | 0 | 40 | 0 | 0 | 5 | 12 | 0 | 0 | 1 | 13 | 2 | 0 | 163 | |
| 7:20 AM | 0 | 89 | 2 | 0 | 0 | 42 | 2 | 0 | 6 | 18 | 2 | 0 | 1 | 7 | 4 | 0 | 173 | |
| 7:25 AM | 0 | 90 | 3 | 0 | 0 | 40 | 3 | 0 | 10 | 30 | 0 | 0 | 2 | 16 | 2 | 0 | 196 | |
| 7:30 AM | 0 | 137 | 4 | 0 | 0 | 51 | 3 | 0 | 14 | 18 | 1 | 0 | 2 | 21 | 0 | 0 | 251 | |
| 7:35 AM | 0 | 131 | 1 | 0 | 0 | 64 | 3 | 0 | 12 | 20 | 2 | 0 | 1 | 13 | 1 | 0 | 248 | |
| 7:40 AM | 0 | 129 | 4 | 0 | 0 | 63 | 5 | 0 | 14 | 43 | 2 | 0 | 0 | 18 | 5 | 0 | 283 | |
| 7:45 AM | 1 | 139 | 2 | 0 | 1 | 64 | 5 | 0 | 9 | 20 | 1 | 0 | 2 | 14 | 2 | 0 | 260 | |
| 7:50 AM | 0 | 170 | 8 | 0 | 0 | 69 | 7 | 0 | 7 | 36 | 2 | 0 | 1 | 15 | 1 | 0 | 316 | |
| 7:55 AM | 0 | 136 | 4 | 0 | 0 | 65 | 9 | 0 | 14 | 45 | 3 | 0 | 1 | 15 | 4 | 0 | 296 | 2548 |
| 8:00 AM | 0 | 164 | 4 | 0 | 1 | 84 | 2 | 0 | 10 | 35 | 3 | 0 | 0 | 12 | 5 | 0 | 320 | 2756 |
| 8:05 AM | 0 | 139 | 3 | 0 | 1 | 93 | 8 | 0 | 9 | 37 | 0 | 0 | 4 | 22 | 2 | 0 | 318 | 2952 |
| 8:10 AM | 0 | 123 | 7 | 0 | 1 | 59 | 4 | 0 | 7 | 46 | 3 | 0 | 2 | 17 | 3 | 0 | 272 | 3096 |
| 8:15 AM | 0 | 163 | 3 | 0 | 0 | 85 | 9 | 0 | 15 | 28 | 4 | 0 | 1 | 22 | 2 | 0 | 332 | 3265 |
| 8:20 AM | 0 | 151 | 3 | 0 | 0 | 79 | 7 | 0 | 9 | 27 | 1 | 0 | 0 | 21 | 5 | 0 | 303 | 3395 |
| 8:25 AM | 0 | 127 | 3 | 0 | 0 | 57 | 7 | 0 | 9 | 35 | 4 | 0 | 2 | 19 | 3 | 0 | 266 | 3465 |
| 8:30 AM | 1 | 154 | 4 | 0 | 0 | 70 | 10 | 0 | 8 | 16 | 1 | 0 | 2 | 19 | 4 | 0 | 289 | 3503 |
| 8:35 AM | 0 | 147 | 8 | 0 | 0 | 91 | 5 | 0 | 6 | 27 | 3 | 0 | 1 | 22 | 2 | 0 | 312 | 3567 |
| 8:40 AM | 0 | 132 | 5 | 0 | 0 | 47 | 10 | 0 | 12 | 32 | 2 | 0 | 3 | 24 | 7 | 0 | 274 | 3558 |
| 8:45 AM | 0 | 173 | 2 | 0 | 1 | 57 | 8 | 0 | 5 | 19 | 2 | 0 | 0 | 24 | 5 | 0 | 296 | 3594 |
| 8:50 AM | 2 | 135 | 3 | 0 | 0 | 72 | 13 | 0 | 7 | 31 | 2 | 0 | 2 | 22 | 9 | 0 | 298 | 3576 |
| 8:55 AM | 1 | 123 | 1 | 0 | 0 | 50 | 9 | 0 | 7 | 38 | 1 | 0 | 1 | 30 | 11 | 0 | 272 | 3552 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 0 | 1756 | 44 | 0 | 8 | 968 | 76 | 0 | 132 | 468 | 24 | 0 | 20 | 196 | 44 | 0 | 3736 |
| Heavy Trucks | 0 | 32 | 0 | | 0 | 32 | 0 | | 0 | 16 | 0 | | 0 | 20 | 0 | | 100 |
| Pedestrians | | 92 | | | | 128 | | | | 96 | | | | 136 | | | 452 |
| Bicycles | 0 | 1 | 0 | | 0 | 1 | 0 | | 0 | 1 | 0 | | 0 | 0 | 0 | | 3 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

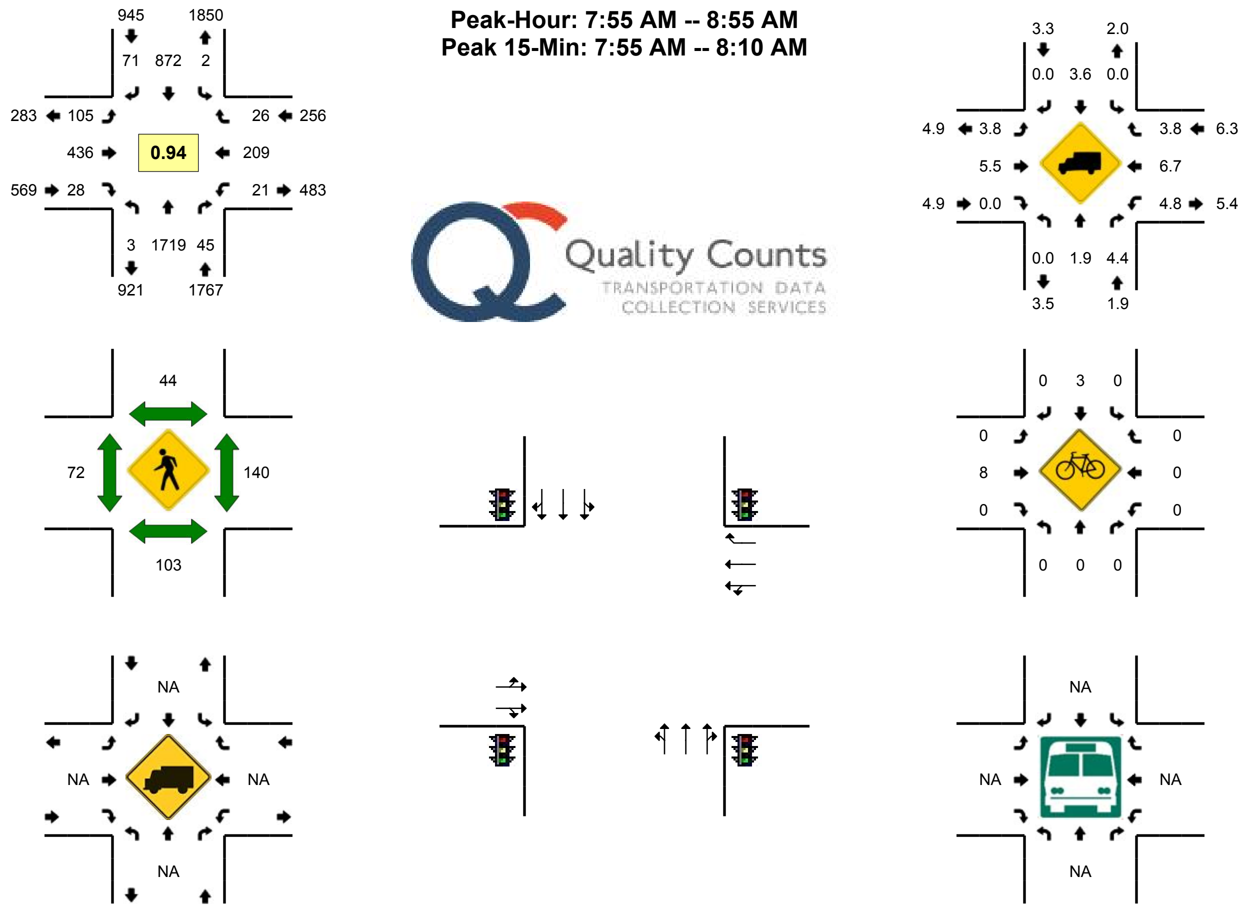
*Comments:*

Report generated on 9/23/2011 11:47 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak — Method for determining peak hour: Total Entering Volume

**LOCATION:** Masonic Ave -- Fulton St — **QC JOB #:** 10652734
**CITY/STATE:** San Francisco, CA — **DATE:** Thu, Sep 08 2011

**Peak-Hour: 7:55 AM -- 8:55 AM**
**Peak 15-Min: 7:55 AM -- 8:10 AM**




| 5-Min Count Period Beginning At | Masonic Ave (Northbound) | | | | Masonic Ave (Southbound) | | | | Fulton St (Eastbound) | | | | Fulton St (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 2 | 53 | 2 | 0 | 0 | 31 | 2 | 0 | 5 | 6 | 0 | 0 | 0 | 8 | 2 | 0 | 111 | |
| 7:05 AM | 0 | 50 | 6 | 0 | 0 | 36 | 1 | 0 | 3 | 11 | 2 | 0 | 4 | 5 | 2 | 0 | 120 | |
| 7:10 AM | 0 | 62 | 0 | 0 | 0 | 33 | 1 | 0 | 6 | 20 | 3 | 0 | 5 | 11 | 2 | 0 | 143 | |
| 7:15 AM | 0 | 93 | 1 | 0 | 0 | 37 | 6 | 0 | 4 | 5 | 2 | 0 | 1 | 6 | 0 | 0 | 155 | |
| 7:20 AM | 0 | 77 | 4 | 0 | 0 | 31 | 3 | 0 | 6 | 19 | 2 | 0 | 0 | 17 | 2 | 0 | 161 | |
| 7:25 AM | 1 | 96 | 3 | 0 | 0 | 37 | 3 | 0 | 14 | 16 | 0 | 0 | 0 | 13 | 0 | 0 | 183 | |
| 7:30 AM | 0 | 145 | 2 | 0 | 0 | 44 | 4 | 0 | 5 | 19 | 1 | 0 | 1 | 10 | 5 | 0 | 236 | |
| 7:35 AM | 0 | 116 | 6 | 0 | 0 | 65 | 3 | 0 | 8 | 24 | 2 | 0 | 2 | 21 | 3 | 0 | 250 | |
| 7:40 AM | 1 | 143 | 1 | 0 | 0 | 58 | 4 | 0 | 12 | 29 | 0 | 0 | 2 | 17 | 1 | 0 | 268 | |
| 7:45 AM | 0 | 159 | 7 | 0 | 0 | 59 | 10 | 0 | 12 | 22 | 1 | 0 | 1 | 17 | 2 | 0 | 290 | |
| 7:50 AM | 0 | 133 | 3 | 0 | 0 | 61 | 5 | 0 | 6 | 35 | 2 | 0 | 3 | 23 | 3 | 0 | 274 | |
| 7:55 AM | 0 | 156 | 6 | 0 | 0 | 78 | 9 | 0 | 15 | 32 | 1 | 0 | 3 | 20 | 1 | 0 | 321 | 2512 |
| 8:00 AM | 0 | 177 | 0 | 0 | 0 | 93 | 3 | 0 | 6 | 39 | 0 | 0 | 0 | 16 | 1 | 0 | 335 | 2736 |
| 8:05 AM | 0 | 131 | 4 | 0 | 0 | 68 | 5 | 0 | 10 | 41 | 2 | 0 | 2 | 17 | 2 | 0 | 282 | 2898 |
| 8:10 AM | 0 | 137 | 1 | 0 | 1 | 83 | 3 | 0 | 10 | 37 | 2 | 0 | 1 | 13 | 2 | 0 | 290 | 3045 |
| 8:15 AM | 2 | 148 | 2 | 0 | 0 | 79 | 9 | 0 | 6 | 38 | 3 | 0 | 3 | 16 | 3 | 0 | 309 | 3199 |
| 8:20 AM | 0 | 128 | 4 | 0 | 0 | 74 | 6 | 0 | 12 | 41 | 4 | 0 | 1 | 15 | 1 | 0 | 286 | 3324 |
| 8:25 AM | 1 | 142 | 6 | 0 | 0 | 66 | 5 | 0 | 10 | 36 | 3 | 0 | 1 | 18 | 1 | 0 | 289 | 3430 |
| 8:30 AM | 0 | 133 | 3 | 0 | 1 | 71 | 9 | 0 | 7 | 27 | 1 | 0 | 3 | 13 | 2 | 0 | 270 | 3464 |
| 8:35 AM | 0 | 133 | 2 | 0 | 0 | 64 | 5 | 0 | 6 | 42 | 4 | 0 | 0 | 24 | 4 | 0 | 284 | 3498 |
| 8:40 AM | 0 | 142 | 5 | 0 | 0 | 61 | 7 | 0 | 9 | 37 | 4 | 0 | 1 | 25 | 2 | 0 | 293 | 3523 |
| 8:45 AM | 0 | 144 | 6 | 0 | 0 | 65 | 5 | 0 | 4 | 28 | 3 | 0 | 3 | 11 | 2 | 0 | 271 | 3504 |
| 8:50 AM | 0 | 148 | 6 | 0 | 0 | 70 | 5 | 0 | 10 | 38 | 1 | 0 | 3 | 21 | 5 | 0 | 307 | 3537 |
| 8:55 AM | 1 | 115 | 6 | 0 | 0 | 43 | 8 | 0 | 8 | 32 | 4 | 0 | 1 | 19 | 12 | 0 | 249 | 3465 |

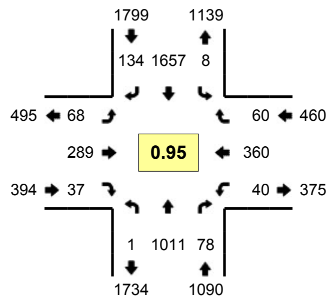
| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 1856 | 40 | 0 | 0 | 956 | 68 | 0 | 124 | 448 | 12 | 0 | 20 | 212 | 16 | 0 | 3752 |
| Heavy Trucks | 0 | 28 | 0 | | 0 | 32 | 0 | | 0 | 36 | 0 | | 0 | 16 | 0 | | 112 |
| Pedestrians | | 124 | | | | 64 | | | | 84 | | | | 160 | | | 432 |
| Bicycles | 0 | 0 | 0 | | 0 | 1 | 0 | | 0 | 1 | 0 | | 0 | 0 | 0 | | 2 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

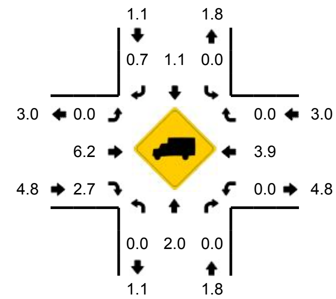
**LOCATION:** Masonic Ave -- Fulton St | **QC JOB #:** 10652735

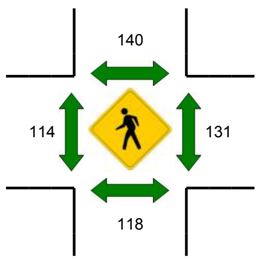
**CITY/STATE:** San Francisco, CA | **DATE:** Wed, Sep 14 2011

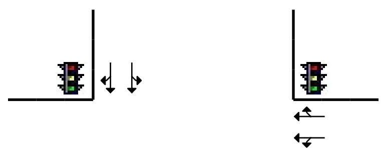


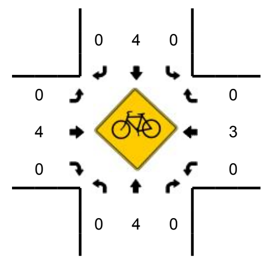

**Peak-Hour: 4:55 PM -- 5:55 PM**
**Peak 15-Min: 5:30 PM -- 5:45 PM**

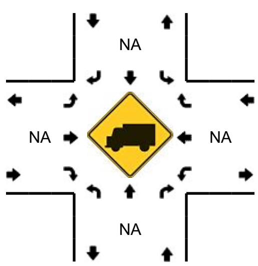
Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES

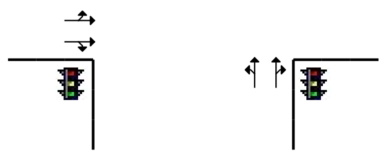


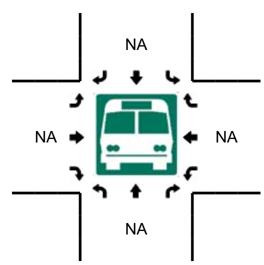








| 5-Min Count Period Beginning At | Masonic Ave (Northbound) Left | Thru | Right | U | Masonic Ave (Southbound) Left | Thru | Right | U | Fulton St (Eastbound) Left | Thru | Right | U | Fulton St (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4:00 PM | 0 | 93 | 5 | 0 | 1 | 104 | 6 | 0 | 3 | 30 | 1 | 0 | 2 | 19 | 0 | 0 | 264 | |
| 4:05 PM | 0 | 76 | 5 | 0 | 0 | 82 | 6 | 0 | 4 | 21 | 7 | 0 | 2 | 16 | 3 | 0 | 222 | |
| 4:10 PM | 0 | 68 | 6 | 0 | 0 | 97 | 4 | 0 | 7 | 22 | 5 | 0 | 6 | 29 | 3 | 0 | 247 | |
| 4:15 PM | 2 | 79 | 5 | 0 | 0 | 131 | 11 | 0 | 3 | 28 | 3 | 0 | 6 | 17 | 3 | 0 | 288 | |
| 4:20 PM | 0 | 70 | 5 | 0 | 1 | 136 | 12 | 0 | 6 | 21 | 1 | 0 | 1 | 16 | 6 | 0 | 275 | |
| 4:25 PM | 0 | 71 | 5 | 0 | 0 | 120 | 6 | 0 | 13 | 19 | 5 | 0 | 3 | 21 | 5 | 0 | 268 | |
| 4:30 PM | 0 | 64 | 8 | 0 | 1 | 103 | 12 | 0 | 3 | 19 | 2 | 0 | 2 | 18 | 2 | 0 | 234 | |
| 4:35 PM | 0 | 85 | 7 | 0 | 1 | 122 | 10 | 0 | 4 | 25 | 4 | 0 | 3 | 26 | 5 | 0 | 292 | |
| 4:40 PM | 1 | 65 | 2 | 0 | 0 | 120 | 17 | 0 | 4 | 22 | 1 | 0 | 2 | 26 | 5 | 0 | 265 | |
| 4:45 PM | 1 | 85 | 5 | 0 | 2 | 111 | 11 | 0 | 2 | 20 | 1 | 0 | 4 | 24 | 6 | 0 | 272 | |
| 4:50 PM | 0 | 73 | 3 | 0 | 0 | 119 | 11 | 0 | 5 | 32 | 4 | 0 | 2 | 23 | 5 | 0 | 277 | |
| 4:55 PM | 1 | 86 | 7 | 0 | 0 | 121 | 10 | 0 | 7 | 28 | 3 | 0 | 2 | 35 | 6 | 0 | 306 | 3210 |
| 5:00 PM | 0 | 93 | 3 | 0 | 0 | 133 | 9 | 0 | 10 | 19 | 5 | 0 | 4 | 23 | 2 | 0 | 301 | 3247 |
| 5:05 PM | 0 | 75 | 7 | 0 | 0 | 124 | 8 | 0 | 5 | 20 | 5 | 0 | 2 | 19 | 4 | 0 | 269 | 3294 |
| 5:10 PM | 0 | 77 | 8 | 0 | 0 | 126 | 10 | 0 | 7 | 26 | 2 | 0 | 4 | 46 | 3 | 0 | 309 | 3356 |
| 5:15 PM | 0 | 91 | 4 | 0 | 0 | 142 | 11 | 0 | 2 | 26 | 4 | 0 | 2 | 25 | 4 | 0 | 311 | 3379 |
| 5:20 PM | 0 | 80 | 6 | 0 | 0 | 167 | 10 | 0 | 2 | 26 | 3 | 0 | 5 | 23 | 3 | 0 | 325 | 3429 |
| 5:25 PM | 0 | 78 | 3 | 0 | 4 | 117 | 11 | 0 | 7 | 28 | 5 | 0 | 4 | 39 | 6 | 0 | 302 | 3463 |
| 5:30 PM | 0 | 91 | 6 | 0 | 2 | 154 | 9 | 0 | 5 | 29 | 1 | 0 | 3 | 30 | 7 | 0 | 337 | 3566 |
| 5:35 PM | 0 | 89 | 10 | 0 | 1 | 156 | 13 | 0 | 6 | 23 | 3 | 0 | 1 | 30 | 4 | 0 | 336 | 3610 |
| 5:40 PM | 0 | 76 | 7 | 0 | 0 | 130 | 16 | 0 | 6 | 29 | 2 | 0 | 7 | 35 | 8 | 0 | 316 | 3661 |
| 5:45 PM | 0 | 90 | 8 | 0 | 1 | 151 | 14 | 0 | 7 | 14 | 2 | 0 | 4 | 27 | 8 | 0 | 326 | 3715 |
| 5:50 PM | 0 | 85 | 9 | 0 | 0 | 136 | 13 | 0 | 4 | 21 | 2 | 0 | 2 | 28 | 5 | 0 | 305 | 3743 |
| 5:55 PM | 0 | 71 | 1 | 0 | 0 | 125 | 8 | 0 | 5 | 20 | 3 | 0 | 5 | 29 | 11 | 0 | 278 | 3715 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 0 | 1024 | 92 | 0 | 12 | 1760 | 152 | 0 | 68 | 324 | 24 | 0 | 44 | 380 | 76 | 0 | 3956 |
| Heavy Trucks | 0 | 28 | 0 | | 0 | 20 | 0 | | 0 | 24 | 0 | | 0 | 8 | 0 | | 80 |
| Pedestrians | | 140 | | | | 132 | | | | 108 | | | | 160 | | | 540 |
| Bicycles | 0 | 0 | 0 | | 0 | 1 | 0 | | 0 | 1 | 0 | | 0 | 1 | 0 | | 3 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

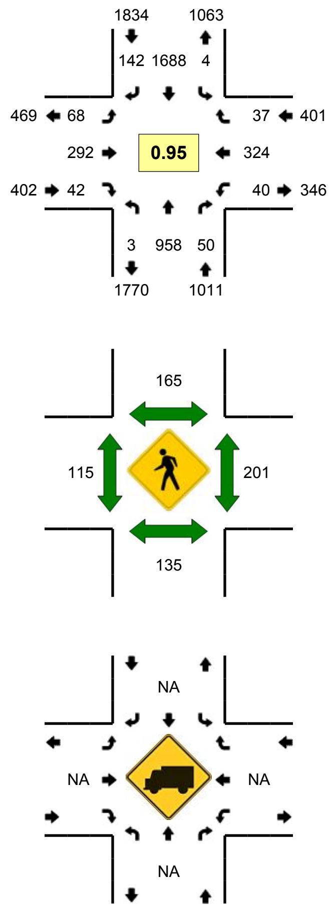
Type of peak hour being reported: Intersection Peak — Method for determining peak hour: Total Entering Volume

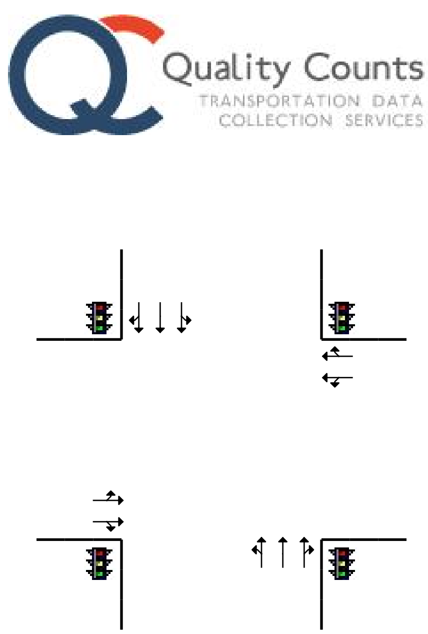
**LOCATION:** Masonic Ave -- Fulton St — **QC JOB #:** 10652736

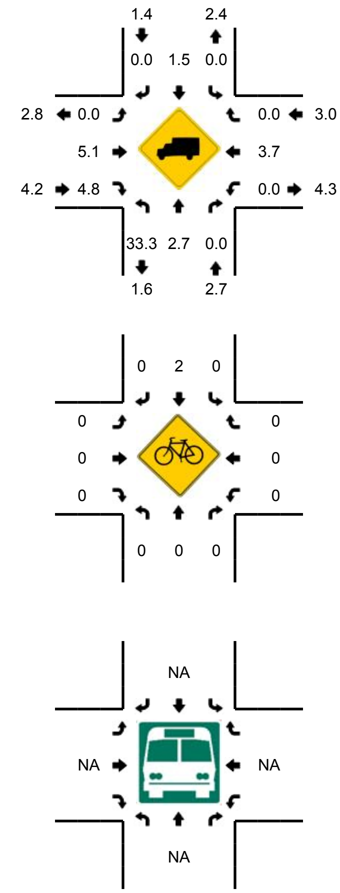
**CITY/STATE:** San Francisco, CA — **DATE:** Thu, Sep 08 2011

**Peak-Hour: 5:00 PM -- 6:00 PM**

**Peak 15-Min: 5:15 PM -- 5:30 PM**




| 5-Min Count Period Beginning At | Masonic Ave (Northbound) | | | | Masonic Ave (Southbound) | | | | Fulton St (Eastbound) | | | | Fulton St (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 0 | 78 | 3 | 0 | 0 | 128 | 9 | 0 | 8 | 20 | 2 | 0 | 4 | 24 | 2 | 0 | 278 | |
| 4:05 PM | 0 | 64 | 9 | 0 | 1 | 112 | 5 | 0 | 7 | 24 | 2 | 0 | 3 | 30 | 3 | 0 | 260 | |
| 4:10 PM | 0 | 71 | 4 | 0 | 1 | 116 | 5 | 0 | 3 | 18 | 2 | 0 | 5 | 18 | 3 | 0 | 246 | |
| 4:15 PM | 0 | 87 | 8 | 0 | 1 | 140 | 12 | 0 | 7 | 23 | 5 | 0 | 2 | 25 | 3 | 0 | 313 | |
| 4:20 PM | 0 | 71 | 3 | 0 | 2 | 116 | 6 | 0 | 7 | 22 | 3 | 0 | 4 | 25 | 10 | 0 | 269 | |
| 4:25 PM | 1 | 52 | 3 | 0 | 0 | 107 | 8 | 0 | 5 | 18 | 4 | 0 | 6 | 24 | 4 | 0 | 232 | |
| 4:30 PM | 0 | 73 | 7 | 0 | 0 | 142 | 6 | 0 | 5 | 23 | 7 | 0 | 3 | 19 | 3 | 0 | 288 | |
| 4:35 PM | 0 | 94 | 3 | 0 | 0 | 134 | 7 | 0 | 4 | 17 | 5 | 0 | 3 | 26 | 6 | 0 | 299 | |
| 4:40 PM | 0 | 81 | 2 | 0 | 0 | 108 | 9 | 0 | 8 | 28 | 3 | 0 | 1 | 24 | 2 | 0 | 266 | |
| 4:45 PM | 0 | 60 | 1 | 0 | 0 | 141 | 13 | 0 | 3 | 12 | 5 | 0 | 4 | 20 | 5 | 0 | 264 | |
| 4:50 PM | 1 | 74 | 3 | 0 | 0 | 126 | 10 | 0 | 2 | 36 | 3 | 0 | 2 | 19 | 3 | 0 | 279 | |
| 4:55 PM | 0 | 76 | 7 | 0 | 0 | 130 | 4 | 0 | 4 | 18 | 1 | 0 | 8 | 24 | 4 | 0 | 276 | 3270 |
| 5:00 PM | 0 | 68 | 6 | 0 | 0 | 122 | 18 | 0 | 2 | 27 | 3 | 0 | 1 | 20 | 2 | 0 | 269 | 3261 |
| 5:05 PM | 0 | 75 | 4 | 0 | 0 | 129 | 12 | 0 | 7 | 25 | 4 | 0 | 4 | 22 | 2 | 0 | 284 | 3285 |
| 5:10 PM | 0 | 75 | 3 | 0 | 1 | 138 | 8 | 0 | 8 | 19 | 1 | 0 | 6 | 22 | 2 | 0 | 283 | 3322 |
| 5:15 PM | 0 | 99 | 4 | 0 | 0 | 158 | 9 | 0 | 3 | 9 | 1 | 0 | 3 | 30 | 2 | 0 | 318 | 3327 |
| 5:20 PM | 1 | 79 | 5 | 0 | 1 | 154 | 17 | 0 | 8 | 30 | 5 | 0 | 3 | 24 | 2 | 0 | 329 | 3387 |
| 5:25 PM | 0 | 74 | 7 | 0 | 0 | 130 | 8 | 0 | 8 | 28 | 6 | 0 | 5 | 39 | 4 | 0 | 309 | 3464 |
| 5:30 PM | 1 | 70 | 6 | 0 | 0 | 150 | 17 | 0 | 8 | 31 | 2 | 0 | 5 | 23 | 2 | 0 | 315 | 3491 |
| 5:35 PM | 0 | 96 | 1 | 0 | 0 | 128 | 13 | 0 | 4 | 28 | 1 | 0 | 5 | 27 | 6 | 0 | 309 | 3501 |
| 5:40 PM | 0 | 83 | 6 | 0 | 0 | 132 | 10 | 0 | 6 | 26 | 4 | 0 | 3 | 36 | 8 | 0 | 314 | 3549 |
| 5:45 PM | 0 | 79 | 3 | 0 | 1 | 158 | 12 | 0 | 4 | 21 | 5 | 0 | 1 | 31 | 1 | 0 | 316 | 3601 |
| 5:50 PM | 1 | 87 | 1 | 0 | 0 | 154 | 9 | 0 | 4 | 29 | 6 | 0 | 1 | 21 | 2 | 0 | 315 | 3637 |
| 5:55 PM | 0 | 73 | 4 | 0 | 1 | 135 | 9 | 0 | 6 | 19 | 4 | 0 | 3 | 29 | 4 | 0 | 287 | 3648 |

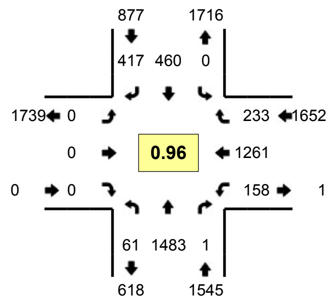
| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 4 | 1008 | 64 | 0 | 4 | 1768 | 136 | 0 | 76 | 268 | 48 | 0 | 44 | 372 | 32 | 0 | 3824 |
| Heavy Trucks | 4 | 20 | 0 | | 0 | 20 | 0 | | 0 | 12 | 0 | | 0 | 8 | 0 | | 64 |
| Pedestrians | | 140 | | | | 140 | | | | 128 | | | | 208 | | | 616 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

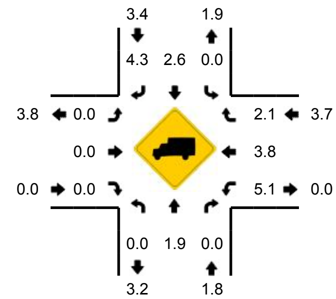
Report generated on 9/23/2011 11:47 AM — SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

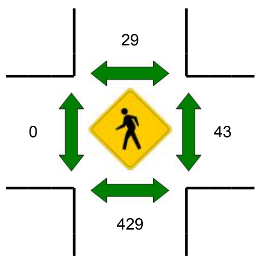
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

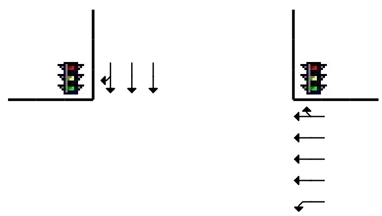
**LOCATION:** Masonic Ave -- Fell St | **QC JOB #:** 10652737
**CITY/STATE:** San Francisco, CA | **DATE:** Thu, Sep 15 2011

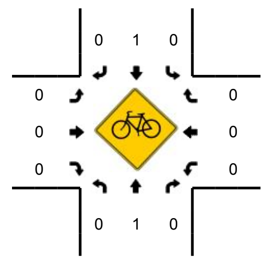


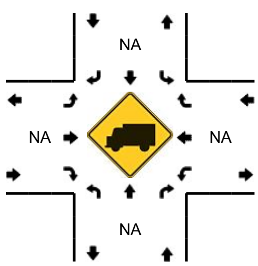

**Peak-Hour: 7:50 AM -- 8:50 AM**
**Peak 15-Min: 8:00 AM -- 8:15 AM**

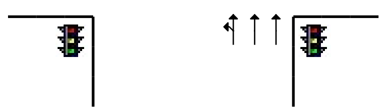


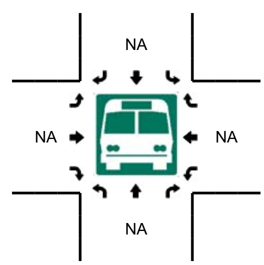








| 5-Min Count Period Beginning At | Masonic Ave (Northbound) Left | Thru | Right | U | Masonic Ave (Southbound) Left | Thru | Right | U | Fell St (Eastbound) Left | Thru | Right | U | Fell St (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7:00 AM | 0 | 48 | 0 | 0 | 0 | 19 | 14 | 0 | 0 | 0 | 0 | 0 | 3 | 51 | 10 | 0 | 145 | |
| 7:05 AM | 3 | 39 | 0 | 0 | 0 | 14 | 13 | 0 | 0 | 0 | 0 | 0 | 9 | 67 | 15 | 0 | 160 | |
| 7:10 AM | 3 | 65 | 0 | 0 | 0 | 19 | 17 | 0 | 0 | 0 | 0 | 0 | 3 | 64 | 10 | 0 | 181 | |
| 7:15 AM | 0 | 81 | 0 | 0 | 0 | 11 | 14 | 0 | 0 | 0 | 0 | 0 | 6 | 74 | 12 | 0 | 198 | |
| 7:20 AM | 3 | 64 | 0 | 0 | 0 | 20 | 17 | 0 | 0 | 0 | 0 | 0 | 9 | 101 | 11 | 0 | 225 | |
| 7:25 AM | 3 | 114 | 0 | 0 | 0 | 22 | 17 | 0 | 0 | 0 | 0 | 0 | 2 | 77 | 17 | 0 | 252 | |
| 7:30 AM | 2 | 86 | 0 | 0 | 0 | 31 | 21 | 0 | 0 | 0 | 0 | 0 | 9 | 77 | 16 | 0 | 242 | |
| 7:35 AM | 4 | 98 | 0 | 0 | 0 | 16 | 33 | 0 | 0 | 0 | 0 | 0 | 11 | 100 | 19 | 0 | 281 | |
| 7:40 AM | 7 | 142 | 0 | 0 | 0 | 36 | 36 | 0 | 0 | 0 | 0 | 0 | 11 | 82 | 17 | 0 | 331 | |
| 7:45 AM | 4 | 118 | 0 | 0 | 0 | 38 | 25 | 0 | 0 | 0 | 0 | 0 | 9 | 100 | 22 | 0 | 316 | |
| 7:50 AM | 1 | 117 | 0 | 0 | 0 | 28 | 34 | 0 | 0 | 0 | 0 | 0 | 19 | 123 | 18 | 0 | 340 | |
| 7:55 AM | 5 | 135 | 0 | 0 | 0 | 51 | 42 | 0 | 0 | 0 | 0 | 0 | 7 | 95 | 16 | 0 | 351 | 3022 |
| 8:00 AM | 5 | 127 | 0 | 0 | 0 | 54 | 34 | 0 | 0 | 0 | 0 | 0 | 15 | 94 | 24 | 0 | 353 | 3230 |
| 8:05 AM | 6 | 108 | 0 | 0 | 0 | 26 | 35 | 0 | 0 | 0 | 0 | 0 | 17 | 128 | 17 | 0 | 337 | 3407 |
| 8:10 AM | 7 | 144 | 0 | 0 | 0 | 45 | 33 | 0 | 0 | 0 | 0 | 0 | 17 | 99 | 22 | 0 | 367 | 3593 |
| 8:15 AM | 3 | 114 | 1 | 0 | 0 | 37 | 43 | 0 | 0 | 0 | 0 | 0 | 7 | 97 | 20 | 0 | 322 | 3717 |
| 8:20 AM | 2 | 121 | 0 | 0 | 0 | 35 | 32 | 0 | 0 | 0 | 0 | 0 | 20 | 115 | 23 | 0 | 348 | 3840 |
| 8:25 AM | 9 | 134 | 0 | 0 | 0 | 43 | 37 | 0 | 0 | 0 | 0 | 0 | 10 | 96 | 24 | 0 | 353 | 3941 |
| 8:30 AM | 4 | 111 | 0 | 0 | 0 | 42 | 26 | 0 | 0 | 0 | 0 | 0 | 15 | 108 | 14 | 0 | 320 | 4019 |
| 8:35 AM | 6 | 107 | 0 | 0 | 0 | 35 | 34 | 0 | 0 | 0 | 0 | 0 | 13 | 114 | 17 | 0 | 326 | 4064 |
| 8:40 AM | 9 | 143 | 0 | 0 | 0 | 32 | 28 | 0 | 0 | 0 | 0 | 0 | 8 | 79 | 22 | 0 | 321 | 4054 |
| 8:45 AM | 4 | 122 | 0 | 0 | 0 | 32 | 39 | 0 | 0 | 0 | 0 | 0 | 10 | 113 | 16 | 0 | 336 | 4074 |
| 8:50 AM | 5 | 121 | 0 | 0 | 0 | 27 | 28 | 0 | 0 | 0 | 0 | 0 | 8 | 107 | 23 | 0 | 319 | 4053 |
| 8:55 AM | 10 | 128 | 0 | 0 | 0 | 42 | 32 | 0 | 0 | 0 | 0 | 0 | 11 | 89 | 14 | 0 | 326 | 4028 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 72 | 1516 | 0 | 0 | 0 | 500 | 408 | 0 | 0 | 0 | 0 | 0 | 196 | 1284 | 252 | 0 | 4228 |
| Heavy Trucks | 0 | 16 | 0 | | 0 | 20 | 16 | | 0 | 0 | 0 | | 8 | 40 | 4 | | 104 |
| Pedestrians | | 408 | | | | 20 | | | | 0 | | | | 56 | | | 484 |
| Bicycles | 0 | 1 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 1 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

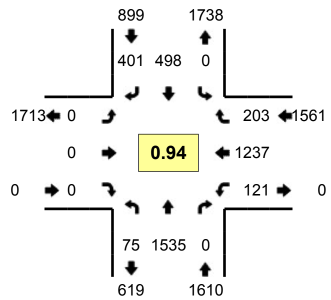
Report generated on 9/23/2011 11:47 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

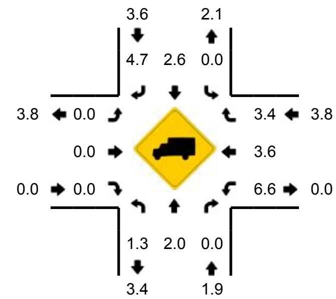
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

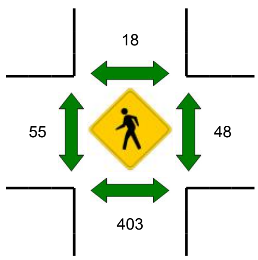
**LOCATION:** Masonic Ave -- Fell St | **QC JOB #:** 10652738

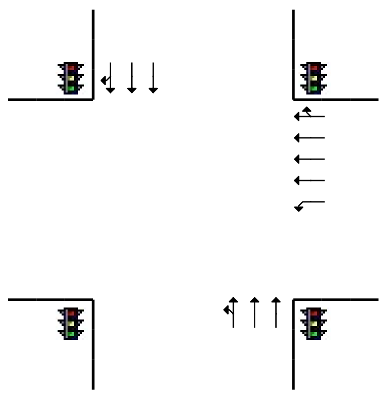
**CITY/STATE:** San Francisco, CA | **DATE:** Thu, Sep 08 2011

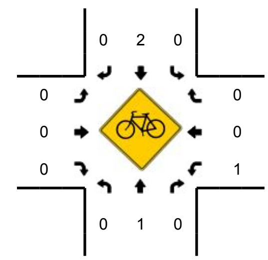


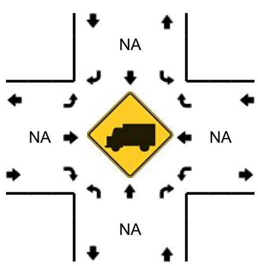

**Peak-Hour: 7:55 AM -- 8:55 AM**
**Peak 15-Min: 7:55 AM -- 8:10 AM**

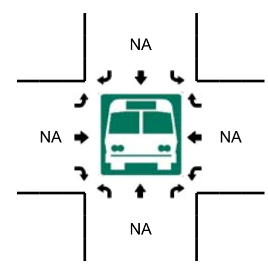





| 5-Min Count Period Beginning At | Masonic Ave (Northbound) | | | | Masonic Ave (Southbound) | | | | Fell St (Eastbound) | | | | Fell St (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 3 | 42 | 0 | 0 | 0 | 14 | 20 | 0 | 0 | 0 | 0 | 0 | 4 | 76 | 6 | 0 | 165 | |
| 7:05 AM | 3 | 48 | 0 | 0 | 0 | 24 | 17 | 0 | 0 | 0 | 0 | 0 | 7 | 70 | 14 | 0 | 183 | |
| 7:10 AM | 1 | 48 | 0 | 0 | 0 | 21 | 21 | 0 | 0 | 0 | 0 | 0 | 6 | 66 | 18 | 0 | 181 | |
| 7:15 AM | 2 | 72 | 0 | 0 | 0 | 12 | 16 | 0 | 0 | 0 | 0 | 0 | 4 | 94 | 15 | 0 | 215 | |
| 7:20 AM | 3 | 84 | 0 | 0 | 0 | 25 | 15 | 0 | 0 | 0 | 0 | 0 | 14 | 86 | 13 | 0 | 240 | |
| 7:25 AM | 2 | 100 | 0 | 0 | 0 | 22 | 22 | 0 | 0 | 0 | 0 | 0 | 9 | 66 | 7 | 0 | 228 | |
| 7:30 AM | 3 | 107 | 0 | 0 | 0 | 24 | 17 | 0 | 0 | 0 | 0 | 0 | 8 | 86 | 16 | 0 | 261 | |
| 7:35 AM | 0 | 112 | 0 | 0 | 0 | 33 | 30 | 0 | 0 | 0 | 0 | 0 | 14 | 88 | 26 | 0 | 303 | |
| 7:40 AM | 1 | 133 | 0 | 0 | 0 | 43 | 34 | 0 | 0 | 0 | 0 | 0 | 7 | 88 | 18 | 0 | 324 | |
| 7:45 AM | 5 | 113 | 0 | 0 | 0 | 24 | 30 | 0 | 0 | 0 | 0 | 0 | 12 | 114 | 26 | 0 | 324 | |
| 7:50 AM | 1 | 126 | 0 | 0 | 0 | 36 | 21 | 0 | 0 | 0 | 0 | 0 | 10 | 83 | 15 | 0 | 292 | |
| 7:55 AM | 5 | 155 | 0 | 0 | 0 | 47 | 34 | 0 | 0 | 0 | 0 | 0 | 12 | 92 | 19 | 0 | 364 | 3080 |
| 8:00 AM | 3 | 127 | 0 | 0 | 0 | 45 | 33 | 0 | 0 | 0 | 0 | 0 | 9 | 106 | 15 | 0 | 338 | 3253 |
| 8:05 AM | 8 | 122 | 0 | 0 | 0 | 49 | 32 | 0 | 0 | 0 | 0 | 0 | 17 | 126 | 22 | 0 | 376 | 3446 |
| 8:10 AM | 4 | 134 | 0 | 0 | 0 | 37 | 48 | 0 | 0 | 0 | 0 | 0 | 10 | 105 | 16 | 0 | 354 | 3619 |
| 8:15 AM | 3 | 114 | 0 | 0 | 0 | 39 | 34 | 0 | 0 | 0 | 0 | 0 | 7 | 117 | 14 | 0 | 328 | 3732 |
| 8:20 AM | 7 | 127 | 0 | 0 | 0 | 45 | 36 | 0 | 0 | 0 | 0 | 0 | 12 | 98 | 15 | 0 | 340 | 3832 |
| 8:25 AM | 8 | 141 | 0 | 0 | 0 | 44 | 27 | 0 | 0 | 0 | 0 | 0 | 11 | 92 | 13 | 0 | 336 | 3940 |
| 8:30 AM | 7 | 108 | 0 | 0 | 0 | 44 | 26 | 0 | 0 | 0 | 0 | 0 | 7 | 122 | 15 | 0 | 329 | 4008 |
| 8:35 AM | 7 | 124 | 0 | 0 | 0 | 43 | 31 | 0 | 0 | 0 | 0 | 0 | 13 | 106 | 16 | 0 | 340 | 4045 |
| 8:40 AM | 6 | 141 | 0 | 0 | 0 | 35 | 33 | 0 | 0 | 0 | 0 | 0 | 7 | 84 | 17 | 0 | 323 | 4044 |
| 8:45 AM | 8 | 109 | 0 | 0 | 0 | 35 | 29 | 0 | 0 | 0 | 0 | 0 | 6 | 91 | 25 | 0 | 303 | 4023 |
| 8:50 AM | 9 | 133 | 0 | 0 | 0 | 35 | 38 | 0 | 0 | 0 | 0 | 0 | 10 | 98 | 16 | 0 | 339 | 4070 |
| 8:55 AM | 8 | 120 | 0 | 0 | 0 | 27 | 31 | 0 | 0 | 0 | 0 | 0 | 10 | 84 | 12 | 0 | 292 | 3998 |

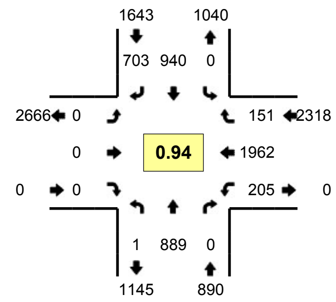
| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 64 | 1616 | 0 | 0 | 0 | 564 | 396 | 0 | 0 | 0 | 0 | 0 | 152 | 1296 | 224 | 0 | 4312 |
| Heavy Trucks | 0 | 24 | 0 | | 0 | 8 | 24 | | 0 | 0 | 0 | | 4 | 68 | 4 | | 132 |
| Pedestrians | | 360 | | | | 8 | | | | 48 | | | | 36 | | | 452 |
| Bicycles | 0 | 0 | 0 | | 0 | 1 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 1 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

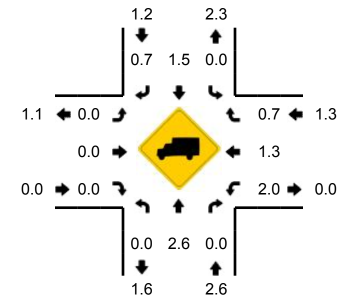
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

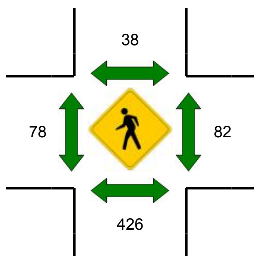
**LOCATION:** Masonic Ave -- Fell St
**CITY/STATE:** San Francisco, CA

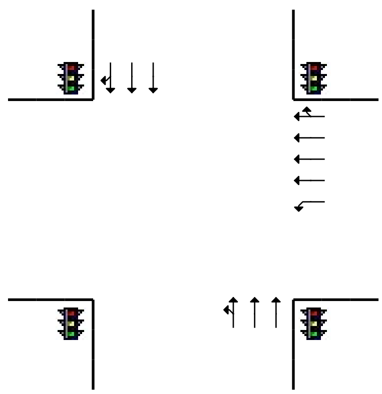
**QC JOB #:** 10652739
**DATE:** Thu, Sep 15 2011

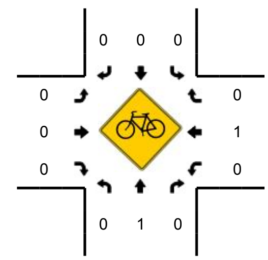


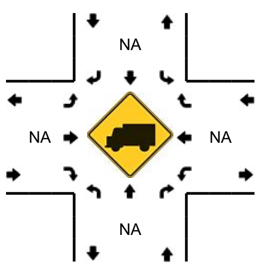

**Peak-Hour: 5:00 PM -- 6:00 PM**
**Peak 15-Min: 5:40 PM -- 5:55 PM**

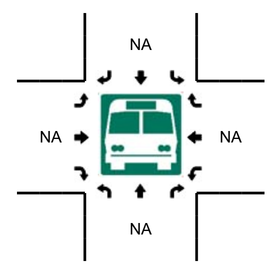





| 5-Min Count Period Beginning At | Masonic Ave (Northbound) | | | | Masonic Ave (Southbound) | | | | Fell St (Eastbound) | | | | Fell St (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 1 | 72 | 0 | 0 | 0 | 67 | 57 | 0 | 0 | 0 | 0 | 0 | 13 | 115 | 16 | 0 | 341 | |
| 4:05 PM | 0 | 80 | 0 | 0 | 0 | 76 | 58 | 0 | 0 | 0 | 0 | 0 | 16 | 122 | 14 | 0 | 366 | |
| 4:10 PM | 1 | 57 | 0 | 0 | 0 | 58 | 54 | 0 | 0 | 0 | 0 | 0 | 17 | 109 | 12 | 0 | 308 | |
| 4:15 PM | 0 | 59 | 0 | 0 | 0 | 66 | 48 | 0 | 0 | 0 | 0 | 0 | 22 | 106 | 15 | 0 | 316 | |
| 4:20 PM | 0 | 85 | 0 | 0 | 0 | 82 | 67 | 0 | 0 | 0 | 0 | 0 | 13 | 124 | 20 | 0 | 391 | |
| 4:25 PM | 0 | 72 | 0 | 0 | 0 | 54 | 53 | 0 | 0 | 0 | 0 | 0 | 11 | 150 | 18 | 0 | 358 | |
| 4:30 PM | 0 | 72 | 0 | 0 | 0 | 66 | 60 | 0 | 0 | 0 | 0 | 0 | 20 | 174 | 12 | 0 | 404 | |
| 4:35 PM | 1 | 82 | 0 | 0 | 0 | 73 | 55 | 0 | 0 | 0 | 0 | 0 | 11 | 132 | 15 | 0 | 369 | |
| 4:40 PM | 0 | 65 | 0 | 0 | 0 | 59 | 58 | 0 | 0 | 0 | 0 | 0 | 14 | 186 | 15 | 0 | 397 | |
| 4:45 PM | 0 | 81 | 0 | 0 | 0 | 69 | 53 | 0 | 0 | 0 | 0 | 0 | 22 | 151 | 11 | 0 | 387 | |
| 4:50 PM | 0 | 90 | 0 | 0 | 0 | 75 | 65 | 0 | 0 | 0 | 0 | 0 | 17 | 150 | 19 | 0 | 416 | |
| 4:55 PM | 0 | 67 | 0 | 0 | 0 | 55 | 50 | 0 | 0 | 0 | 0 | 0 | 17 | 155 | 12 | 0 | 356 | 4409 |
| 5:00 PM | 0 | 68 | 0 | 0 | 0 | 69 | 63 | 0 | 0 | 0 | 0 | 0 | 20 | 143 | 9 | 0 | 372 | 4440 |
| 5:05 PM | 1 | 83 | 0 | 0 | 0 | 76 | 50 | 0 | 0 | 0 | 0 | 0 | 14 | 135 | 12 | 0 | 371 | 4445 |
| 5:10 PM | 0 | 66 | 0 | 0 | 0 | 72 | 52 | 0 | 0 | 0 | 0 | 0 | 11 | 171 | 10 | 0 | 382 | 4519 |
| 5:15 PM | 0 | 65 | 0 | 0 | 0 | 81 | 63 | 0 | 0 | 0 | 0 | 0 | 18 | 170 | 13 | 0 | 410 | 4613 |
| 5:20 PM | 0 | 76 | 0 | 0 | 0 | 94 | 62 | 0 | 0 | 0 | 0 | 0 | 10 | 164 | 12 | 0 | 418 | 4640 |
| 5:25 PM | 0 | 76 | 0 | 0 | 0 | 68 | 52 | 0 | 0 | 0 | 0 | 0 | 17 | 174 | 10 | 0 | 397 | 4679 |
| 5:30 PM | 0 | 79 | 0 | 0 | 0 | 85 | 45 | 0 | 0 | 0 | 0 | 0 | 27 | 146 | 12 | 0 | 394 | 4669 |
| 5:35 PM | 0 | 76 | 0 | 0 | 0 | 75 | 68 | 0 | 0 | 0 | 0 | 0 | 19 | 157 | 10 | 0 | 405 | 4705 |
| 5:40 PM | 0 | 71 | 0 | 0 | 0 | 71 | 64 | 0 | 0 | 0 | 0 | 0 | 19 | 162 | 22 | 0 | 409 | 4717 |
| 5:45 PM | 0 | 91 | 0 | 0 | 0 | 92 | 55 | 0 | 0 | 0 | 0 | 0 | 18 | 177 | 9 | 0 | 442 | 4772 |
| 5:50 PM | 0 | 85 | 0 | 0 | 0 | 86 | 72 | 0 | 0 | 0 | 0 | 0 | 16 | 167 | 18 | 0 | 444 | 4800 |
| 5:55 PM | 0 | 53 | 0 | 0 | 0 | 71 | 57 | 0 | 0 | 0 | 0 | 0 | 16 | 196 | 14 | 0 | 407 | 4851 |

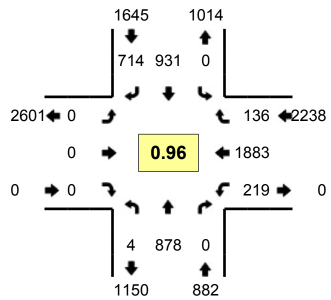
| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 988 | 0 | 0 | 0 | 996 | 764 | 0 | 0 | 0 | 0 | 0 | 212 | 2024 | 196 | 0 | 5180 |
| Heavy Trucks | 0 | 24 | 0 | | 0 | 8 | 0 | | 0 | 0 | 0 | | 4 | 16 | 0 | | 52 |
| Pedestrians | | 416 | | | | 32 | | | | 76 | | | | 76 | | | 600 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 1 | 0 | | 1 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

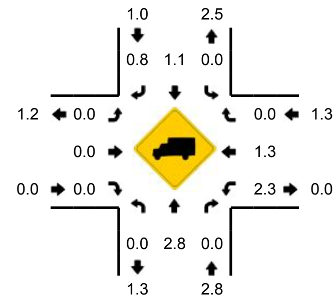
Type of peak hour being reported: Intersection Peak — Method for determining peak hour: Total Entering Volume

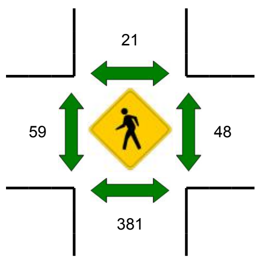
**LOCATION:** Masonic Ave -- Fell St — **QC JOB #:** 10652740

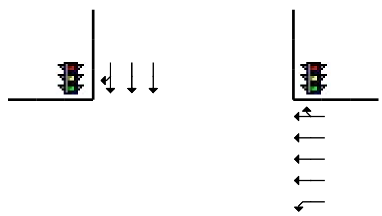
**CITY/STATE:** San Francisco, CA — **DATE:** Thu, Sep 08 2011

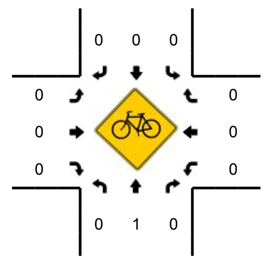


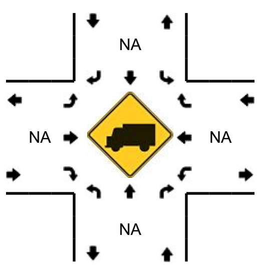

**Peak-Hour: 4:45 PM -- 5:45 PM**
**Peak 15-Min: 5:25 PM -- 5:40 PM**

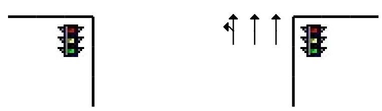


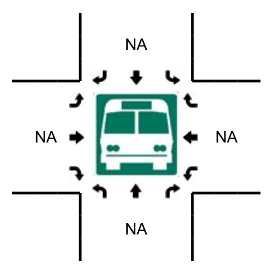








| 5-Min Count Period Beginning At | Masonic Ave (Northbound) | | | | Masonic Ave (Southbound) | | | | Fell St (Eastbound) | | | | Fell St (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 2 | 72 | 0 | 0 | 0 | 62 | 70 | 0 | 0 | 0 | 0 | 0 | 17 | 122 | 11 | 0 | 356 | |
| 4:05 PM | 2 | 67 | 0 | 0 | 0 | 74 | 68 | 0 | 0 | 0 | 0 | 0 | 17 | 161 | 17 | 0 | 406 | |
| 4:10 PM | 0 | 69 | 0 | 0 | 0 | 71 | 58 | 0 | 0 | 0 | 0 | 0 | 20 | 118 | 14 | 0 | 350 | |
| 4:15 PM | 0 | 89 | 0 | 0 | 0 | 68 | 52 | 0 | 0 | 0 | 0 | 0 | 13 | 129 | 14 | 0 | 365 | |
| 4:20 PM | 0 | 58 | 0 | 0 | 0 | 78 | 58 | 0 | 0 | 0 | 0 | 0 | 16 | 132 | 16 | 0 | 358 | |
| 4:25 PM | 1 | 41 | 0 | 0 | 0 | 65 | 53 | 0 | 0 | 0 | 0 | 0 | 21 | 151 | 12 | 0 | 344 | |
| 4:30 PM | 1 | 85 | 0 | 0 | 0 | 71 | 65 | 0 | 0 | 0 | 0 | 0 | 20 | 121 | 10 | 0 | 373 | |
| 4:35 PM | 0 | 70 | 0 | 0 | 0 | 85 | 59 | 0 | 0 | 0 | 0 | 0 | 18 | 151 | 20 | 0 | 403 | |
| 4:40 PM | 0 | 61 | 0 | 0 | 0 | 74 | 49 | 0 | 0 | 0 | 0 | 0 | 24 | 170 | 16 | 0 | 394 | |
| 4:45 PM | 0 | 73 | 0 | 0 | 0 | 65 | 65 | 0 | 0 | 0 | 0 | 0 | 17 | 165 | 10 | 0 | 395 | |
| 4:50 PM | 0 | 71 | 0 | 0 | 0 | 92 | 51 | 0 | 0 | 0 | 0 | 0 | 14 | 142 | 9 | 0 | 379 | |
| 4:55 PM | 2 | 57 | 0 | 0 | 0 | 71 | 57 | 0 | 0 | 0 | 0 | 0 | 23 | 148 | 20 | 0 | 378 | 4501 |
| 5:00 PM | 0 | 75 | 0 | 0 | 0 | 61 | 55 | 0 | 0 | 0 | 0 | 0 | 19 | 117 | 10 | 0 | 337 | 4482 |
| 5:05 PM | 0 | 58 | 0 | 0 | 0 | 90 | 78 | 0 | 0 | 0 | 0 | 0 | 21 | 148 | 9 | 0 | 404 | 4480 |
| 5:10 PM | 0 | 70 | 0 | 0 | 0 | 77 | 65 | 0 | 0 | 0 | 0 | 0 | 14 | 171 | 15 | 0 | 412 | 4542 |
| 5:15 PM | 0 | 101 | 0 | 0 | 0 | 68 | 57 | 0 | 0 | 0 | 0 | 0 | 17 | 140 | 8 | 0 | 391 | 4568 |
| 5:20 PM | 0 | 68 | 0 | 0 | 0 | 96 | 67 | 0 | 0 | 0 | 0 | 0 | 17 | 158 | 9 | 0 | 415 | 4625 |
| 5:25 PM | 1 | 71 | 0 | 0 | 0 | 78 | 58 | 0 | 0 | 0 | 0 | 0 | 22 | 179 | 9 | 0 | 418 | 4699 |
| 5:30 PM | 0 | 80 | 0 | 0 | 0 | 70 | 51 | 0 | 0 | 0 | 0 | 0 | 19 | 175 | 7 | 0 | 402 | 4728 |
| 5:35 PM | 1 | 86 | 0 | 0 | 0 | 86 | 61 | 0 | 0 | 0 | 0 | 0 | 17 | 156 | 11 | 0 | 418 | 4743 |
| 5:40 PM | 0 | 68 | 0 | 0 | 0 | 77 | 49 | 0 | 0 | 0 | 0 | 0 | 19 | 184 | 19 | 0 | 416 | 4765 |
| 5:45 PM | 0 | 91 | 0 | 0 | 0 | 70 | 55 | 0 | 0 | 0 | 0 | 0 | 17 | 138 | 10 | 0 | 381 | 4751 |
| 5:50 PM | 0 | 76 | 0 | 0 | 0 | 70 | 46 | 0 | 0 | 0 | 0 | 0 | 20 | 158 | 11 | 0 | 381 | 4753 |
| 5:55 PM | 0 | 58 | 0 | 0 | 0 | 72 | 52 | 0 | 0 | 0 | 0 | 0 | 25 | 165 | 15 | 0 | 387 | 4762 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 8 | 948 | 0 | 0 | 0 | 936 | 680 | 0 | 0 | 0 | 0 | 0 | 232 | 2040 | 108 | 0 | 4952 |
| Heavy Trucks | 0 | 12 | 0 | | 0 | 12 | 4 | | 0 | 0 | 0 | | 4 | 16 | 0 | | 48 |
| Pedestrians | | 408 | | | | 24 | | | | 68 | | | | 48 | | | 548 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

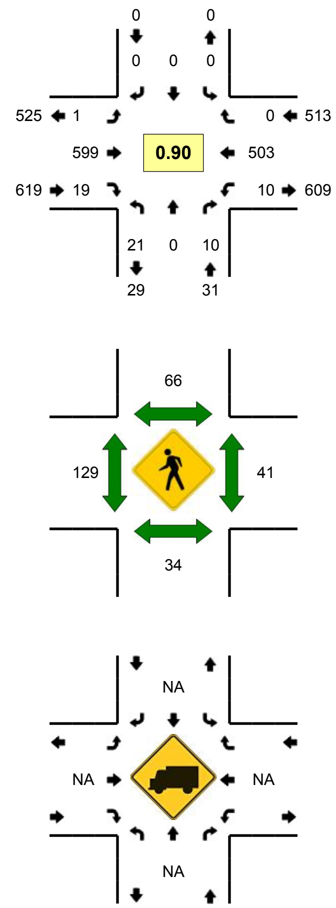
Report generated on 9/23/2011 11:47 AM — SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

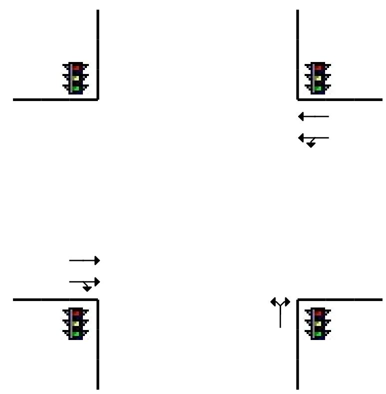
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

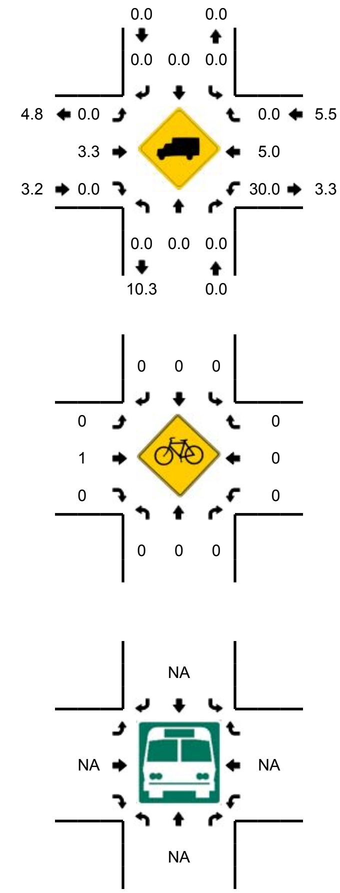
**LOCATION:** Chabot Terr -- Turk Blvd | **QC JOB #:** 10652741

**CITY/STATE:** San Francisco, CA | **DATE:** Thu, Sep 15 2011

**Peak-Hour: 7:40 AM -- 8:40 AM**
**Peak 15-Min: 7:45 AM -- 8:00 AM**






| 5-Min Count Period Beginning At | Chabot Terr (Northbound) Left | Thru | Right | U | Chabot Terr (Southbound) Left | Thru | Right | U | Turk Blvd (Eastbound) Left | Thru | Right | U | Turk Blvd (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7:00 AM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 13 | 0 | 0 | 27 | |
| 7:05 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 18 | 0 | 1 | 35 | |
| 7:10 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 20 | 0 | 0 | 40 | |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 19 | 0 | 0 | 35 | |
| 7:20 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 21 | 0 | 0 | 47 | |
| 7:25 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 | 1 | 0 | 0 | 21 | 0 | 0 | 56 | |
| 7:30 AM | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 0 | 0 | 0 | 36 | 0 | 0 | 69 | |
| 7:35 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 42 | 0 | 0 | 0 | 43 | 0 | 0 | 86 | |
| 7:40 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 3 | 0 | 0 | 39 | 0 | 0 | 89 | |
| 7:45 AM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 52 | 4 | 0 | 0 | 42 | 0 | 0 | 100 | |
| 7:50 AM | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 57 | 3 | 0 | 3 | 39 | 0 | 0 | 105 | |
| 7:55 AM | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 55 | 2 | 0 | 2 | 52 | 0 | 0 | 117 | 806 |
| 8:00 AM | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 52 | 3 | 0 | 0 | 41 | 0 | 0 | 100 | 879 |
| 8:05 AM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 0 | 0 | 1 | 48 | 0 | 0 | 97 | 941 |
| 8:10 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 48 | 2 | 0 | 1 | 36 | 0 | 0 | 88 | 989 |
| 8:15 AM | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 0 | 1 | 0 | 32 | 0 | 0 | 87 | 1041 |
| 8:20 AM | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 43 | 1 | 0 | 0 | 46 | 0 | 0 | 93 | 1087 |
| 8:25 AM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 49 | 0 | 0 | 1 | 39 | 0 | 0 | 91 | 1122 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 54 | 0 | 0 | 1 | 39 | 0 | 0 | 94 | 1147 |
| 8:35 AM | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 | 1 | 0 | 1 | 50 | 0 | 0 | 102 | 1163 |
| 8:40 AM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 48 | 2 | 0 | 0 | 35 | 0 | 0 | 87 | 1161 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 | 1 | 0 | 2 | 41 | 0 | 0 | 91 | 1152 |
| 8:50 AM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 0 | 0 | 0 | 45 | 0 | 0 | 84 | 1131 |
| 8:55 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 2 | 0 | 0 | 41 | 0 | 0 | 82 | 1096 |

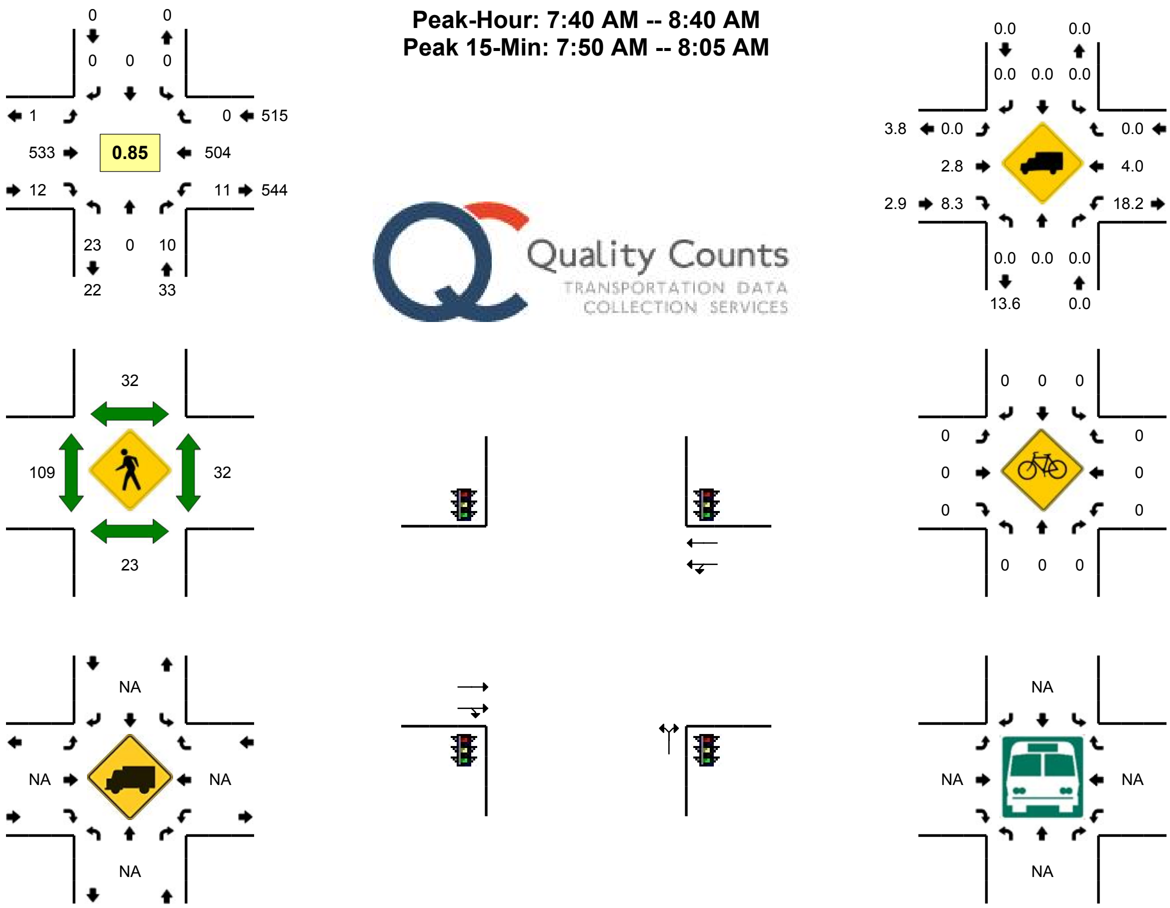
| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 28 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 656 | 36 | 0 | 20 | 532 | 0 | 0 | 1288 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 24 | 0 | | 12 | 20 | 0 | | 56 |
| Pedestrians | | 72 | | | | 148 | | | | 308 | | | | 92 | | | 620 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

**LOCATION:** Chabot Ter -- Turk Blvd | **QC JOB #:** 10652742
**CITY/STATE:** San Francisco, CA | **DATE:** Thu, Sep 08 2011

**Peak-Hour: 7:40 AM -- 8:40 AM**
**Peak 15-Min: 7:50 AM -- 8:05 AM**




| 5-Min Count Period Beginning At | Chabot Ter (Northbound) Left | Thru | Right | U | Chabot Ter (Southbound) Left | Thru | Right | U | Turk Blvd (Eastbound) Left | Thru | Right | U | Turk Blvd (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 8 | 0 | 0 | 17 | |
| 7:05 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 16 | 0 | 0 | 23 | |
| 7:10 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 17 | 0 | 0 | 35 | |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 17 | 0 | 0 | 33 | |
| 7:20 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 2 | 20 | 0 | 0 | 35 | |
| 7:25 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 27 | 0 | 1 | 46 | |
| 7:30 AM | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 0 | 0 | 0 | 28 | 0 | 0 | 61 | |
| 7:35 AM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 1 | 0 | 0 | 29 | 0 | 0 | 61 | |
| 7:40 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 0 | 1 | 0 | 49 | 0 | 0 | 97 | |
| 7:45 AM | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 43 | 2 | 0 | 0 | 42 | 0 | 0 | 90 | |
| 7:50 AM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 57 | 3 | 0 | 1 | 58 | 0 | 0 | 121 | |
| 7:55 AM | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 49 | 2 | 0 | 3 | 44 | 0 | 0 | 102 | 721 |
| 8:00 AM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 0 | 0 | 2 | 48 | 0 | 0 | 98 | 802 |
| 8:05 AM | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 0 | 0 | 2 | 35 | 0 | 0 | 89 | 868 |
| 8:10 AM | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 48 | 1 | 0 | 0 | 25 | 0 | 0 | 76 | 909 |
| 8:15 AM | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0 | 34 | 0 | 0 | 82 | 958 |
| 8:20 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 1 | 0 | 1 | 46 | 0 | 0 | 88 | 1011 |
| 8:25 AM | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 2 | 0 | 0 | 50 | 0 | 0 | 101 | 1066 |
| 8:30 AM | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 37 | 0 | 1 | 69 | 1074 |
| 8:35 AM | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 1 | 0 | 1 | 36 | 0 | 0 | 81 | 1094 |
| 8:40 AM | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 1 | 1 | 1 | 41 | 0 | 0 | 88 | 1085 |
| 8:45 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 1 | 0 | 1 | 36 | 0 | 0 | 78 | 1073 |
| 8:50 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 2 | 0 | 0 | 35 | 0 | 0 | 75 | 1027 |
| 8:55 AM | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 3 | 0 | 0 | 40 | 0 | 0 | 82 | 1007 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 28 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 608 | 20 | 0 | 24 | 600 | 0 | 0 | 1284 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 16 | 4 | | 8 | 12 | 0 | | 40 |
| Pedestrians | | 44 | | | | 80 | | | | 208 | | | | 32 | | | 364 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

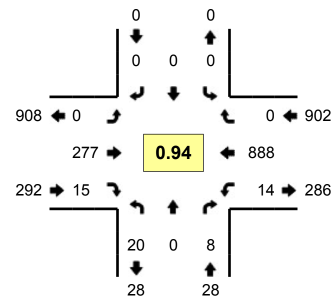
*Comments:*

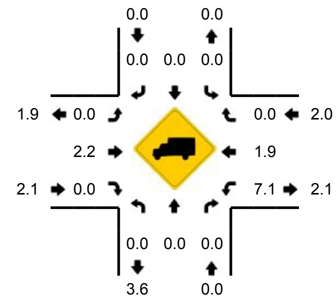
Type of peak hour being reported: Intersection Peak — Method for determining peak hour: Total Entering Volume

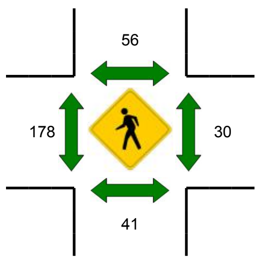
**LOCATION:** Chabot Terr -- Turk Blvd — **QC JOB #:** 10652743

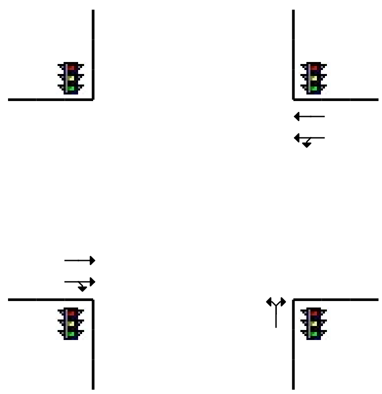
**CITY/STATE:** San Francisco, CA — **DATE:** Thu, Sep 15 2011

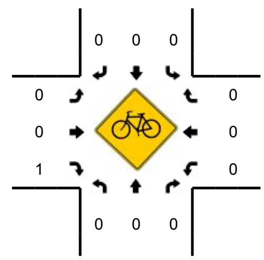
**Peak-Hour: 5:00 PM -- 6:00 PM**
**Peak 15-Min: 5:10 PM -- 5:25 PM**

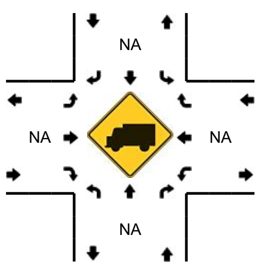


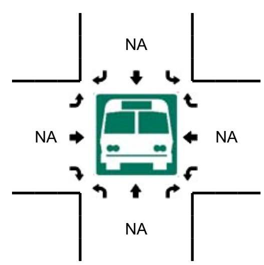





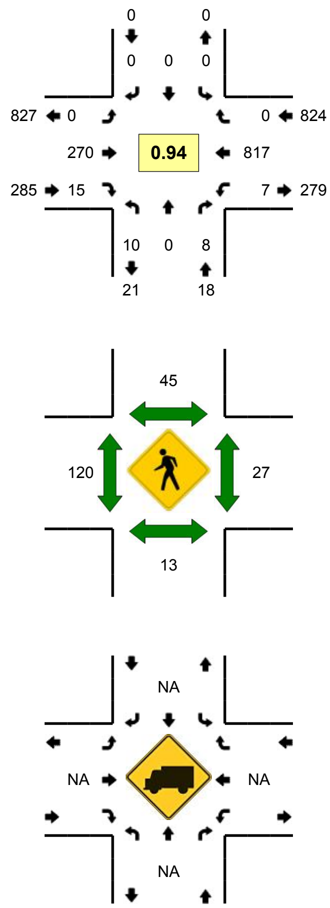

| 5-Min Count Period Beginning At | Chabot Terr (Northbound) Left | Thru | Right | U | Chabot Terr (Southbound) Left | Thru | Right | U | Turk Blvd (Eastbound) Left | Thru | Right | U | Turk Blvd (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4:00 PM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 0 | 0 | 3 | 48 | 0 | 0 | 81 | |
| 4:05 PM | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 2 | 50 | 0 | 0 | 71 | |
| 4:10 PM | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 3 | 0 | 1 | 36 | 0 | 0 | 63 | |
| 4:15 PM | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 1 | 42 | 0 | 0 | 70 | |
| 4:20 PM | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 1 | 0 | 1 | 38 | 0 | 0 | 63 | |
| 4:25 PM | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 1 | 0 | 1 | 54 | 0 | 0 | 84 | |
| 4:30 PM | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 1 | 0 | 3 | 64 | 0 | 0 | 93 | |
| 4:35 PM | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 1 | 0 | 0 | 47 | 0 | 0 | 78 | |
| 4:40 PM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 4 | 0 | 2 | 61 | 0 | 1 | 92 | |
| 4:45 PM | 2 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 2 | 83 | 0 | 0 | 111 | |
| 4:50 PM | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 1 | 0 | 1 | 39 | 0 | 0 | 69 | |
| 4:55 PM | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 1 | 0 | 0 | 64 | 0 | 0 | 81 | 956 |
| 5:00 PM | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 0 | 0 | 0 | 64 | 0 | 0 | 95 | 970 |
| 5:05 PM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 2 | 0 | 0 | 70 | 0 | 0 | 101 | 1000 |
| 5:10 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 0 | 1 | 80 | 0 | 1 | 102 | 1039 |
| 5:15 PM | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 3 | 0 | 2 | 81 | 0 | 0 | 111 | 1080 |
| 5:20 PM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 1 | 0 | 4 | 77 | 0 | 0 | 111 | 1128 |
| 5:25 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 1 | 0 | 1 | 54 | 0 | 0 | 77 | 1121 |
| 5:30 PM | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 1 | 0 | 0 | 89 | 0 | 0 | 116 | 1144 |
| 5:35 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 1 | 0 | 2 | 79 | 0 | 0 | 104 | 1170 |
| 5:40 PM | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 0 | 1 | 73 | 0 | 0 | 96 | 1174 |
| 5:45 PM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 5 | 0 | 0 | 85 | 0 | 0 | 113 | 1176 |
| 5:50 PM | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 1 | 0 | 1 | 66 | 0 | 0 | 93 | 1200 |
| 5:55 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 | 0 | 0 | 1 | 70 | 0 | 0 | 103 | 1222 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 28 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 264 | 16 | 0 | 28 | 952 | 0 | 4 | 1296 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 4 | 0 | | 0 | 16 | 0 | | 20 |
| Pedestrians | | 16 | | | | 40 | | | | 104 | | | | 28 | | | 188 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

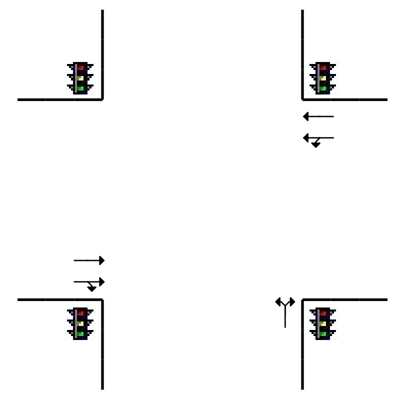
*Comments:*

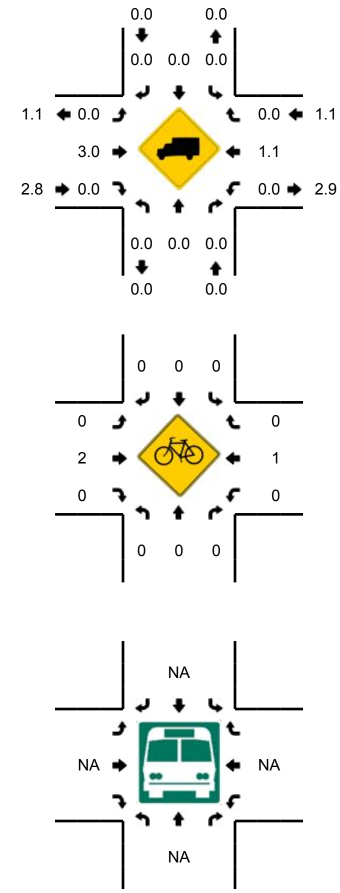
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

**LOCATION:** Chabot Ter -- Turk Blvd | **QC JOB #:** 10652744
**CITY/STATE:** San Francisco, CA | **DATE:** Thu, Sep 08 2011




**Peak-Hour: 4:55 PM -- 5:55 PM**
**Peak 15-Min: 5:40 PM -- 5:55 PM**






| 5-Min Count Period Beginning At | Chabot Ter (Northbound) | | | | Chabot Ter (Southbound) | | | | Turk Blvd (Eastbound) | | | | Turk Blvd (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 55 | 0 | 0 | 77 | |
| 4:05 PM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 2 | 0 | 2 | 49 | 0 | 0 | 78 | |
| 4:10 PM | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 1 | 0 | 0 | 37 | 0 | 0 | 64 | |
| 4:15 PM | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 2 | 0 | 1 | 49 | 0 | 1 | 77 | |
| 4:20 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 1 | 57 | 0 | 0 | 84 | |
| 4:25 PM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 0 | 0 | 0 | 61 | 0 | 0 | 92 | |
| 4:30 PM | 2 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 2 | 58 | 0 | 0 | 84 | |
| 4:35 PM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 3 | 0 | 1 | 83 | 0 | 0 | 109 | |
| 4:40 PM | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 1 | 54 | 0 | 0 | 73 | |
| 4:45 PM | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 0 | 0 | 2 | 54 | 0 | 1 | 87 | |
| 4:50 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 63 | 0 | 0 | 90 | |
| 4:55 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 70 | 0 | 0 | 93 | 1008 |
| 5:00 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 3 | 0 | 1 | 54 | 0 | 0 | 77 | 1008 |
| 5:05 PM | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 1 | 0 | 0 | 77 | 0 | 0 | 99 | 1029 |
| 5:10 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 3 | 0 | 0 | 60 | 0 | 0 | 89 | 1054 |
| 5:15 PM | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 1 | 0 | 0 | 62 | 0 | 0 | 87 | 1064 |
| 5:20 PM | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 1 | 85 | 0 | 1 | 114 | 1094 |
| 5:25 PM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 3 | 0 | 1 | 59 | 0 | 0 | 88 | 1090 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 1 | 66 | 0 | 0 | 87 | 1093 |
| 5:35 PM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 1 | 0 | 0 | 65 | 0 | 0 | 93 | 1077 |
| 5:40 PM | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 34 | 1 | 0 | 1 | 74 | 0 | 0 | 113 | 1117 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 59 | 0 | 0 | 77 | 1107 |
| 5:50 PM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 2 | 0 | 1 | 86 | 0 | 0 | 110 | 1127 |
| 5:55 PM | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 2 | 0 | 0 | 66 | 0 | 0 | 92 | 1126 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 12 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 284 | 12 | 0 | 8 | 876 | 0 | 0 | 1200 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 12 | 0 | | 0 | 8 | 0 | | 20 |
| Pedestrians | | 8 | | | | 48 | | | | 144 | | | | 32 | | | 232 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 2 | 0 | | 0 | 0 | 0 | | 2 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

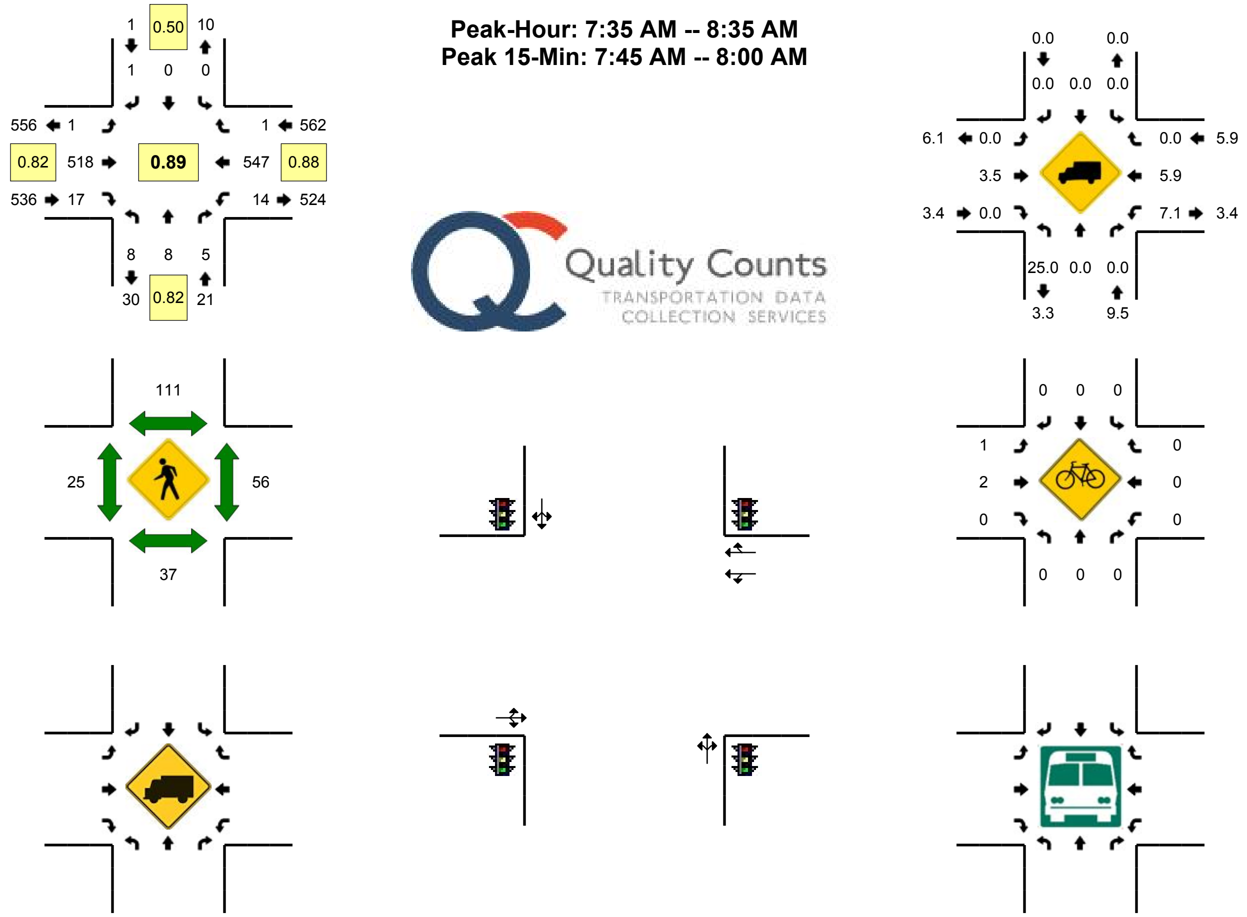
Report generated on 9/23/2011 11:47 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

**LOCATION:** Tamalpais Ter -- Turk Blvd | **QC JOB #:** 10545931

**CITY/STATE:** San Francisco, CA | **DATE:** 10/19/2010

**Peak-Hour: 7:35 AM -- 8:35 AM**
**Peak 15-Min: 7:45 AM -- 8:00 AM**




| 5-Min Count Period Beginning At | Tamalpais Ter (Northbound) | | | | Tamalpais Ter (Southbound) | | | | Turk Blvd (Eastbound) | | | | Turk Blvd (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 24 | 0 | 0 | 30 | |
| 7:05 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 1 | 18 | 0 | 0 | 32 | |
| 7:10 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 19 | 0 | 0 | 28 | |
| 7:15 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 0 | 0 | 1 | 23 | 0 | 0 | 46 | |
| 7:20 AM | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 0 | 0 | 1 | 19 | 1 | 0 | 46 | |
| 7:25 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 4 | 0 | 0 | 14 | 0 | 0 | 39 | |
| 7:30 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 1 | 0 | 0 | 24 | 0 | 0 | 50 | |
| 7:35 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 0 | 0 | 0 | 31 | 0 | 1 | 71 | |
| 7:40 AM | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 1 | 0 | 0 | 37 | 0 | 0 | 79 | |
| 7:45 AM | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 47 | 1 | 0 | 2 | 52 | 0 | 0 | 106 | |
| 7:50 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 58 | 2 | 0 | 2 | 54 | 0 | 0 | 116 | |
| 7:55 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 | 6 | 0 | 2 | 40 | 0 | 0 | 93 | 736 |
| 8:00 AM | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 53 | 2 | 0 | 1 | 41 | 0 | 0 | 100 | 806 |
| 8:05 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 51 | 0 | 0 | 3 | 43 | 0 | 0 | 98 | 872 |
| 8:10 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 | 0 | 0 | 0 | 41 | 0 | 0 | 74 | 918 |
| 8:15 AM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 0 | 0 | 2 | 50 | 0 | 0 | 90 | 962 |
| 8:20 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 | 2 | 0 | 1 | 56 | 0 | 0 | 101 | 1017 |
| 8:25 AM | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 1 | 0 | 0 | 39 | 0 | 0 | 80 | 1058 |
| 8:30 AM | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 43 | 2 | 0 | 0 | 63 | 1 | 0 | 112 | 1120 |
| 8:35 AM | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 31 | 1 | 0 | 1 | 35 | 0 | 0 | 71 | 1120 |
| 8:40 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 3 | 0 | 1 | 29 | 0 | 0 | 72 | 1113 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 45 | 1 | 0 | 0 | 50 | 0 | 0 | 98 | 1105 |
| 8:50 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 1 | 0 | 1 | 36 | 0 | 0 | 74 | 1063 |
| 8:55 AM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 1 | 0 | 1 | 31 | 0 | 0 | 81 | 1051 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 8 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 592 | 36 | 0 | 24 | 584 | 0 | 0 | 1260 |
| Heavy Trucks | 4 | 0 | 0 | | 0 | 0 | 0 | | 0 | 24 | 0 | | 0 | 16 | 0 | | 44 |
| Pedestrians | | 80 | | | | 220 | | | | 52 | | | | 124 | | | 476 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 1 | 0 | 0 | | 0 | 0 | 0 | | 1 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

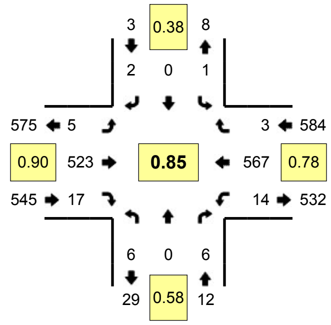
*Comments:*

Report generated on 11/18/2010 3:24 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

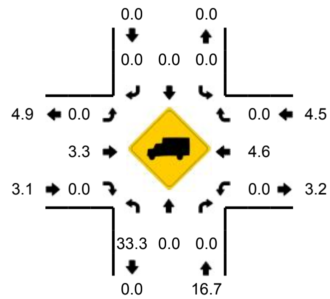
Type of peak hour being reported: Intersection Peak — Method for determining peak hour: Total Entering Volume

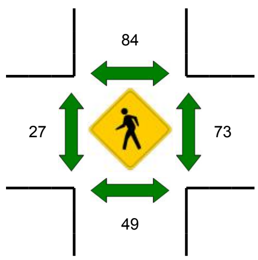
**LOCATION:** Tamalpais Ter -- Turk Blvd — **QC JOB #:** 10545933

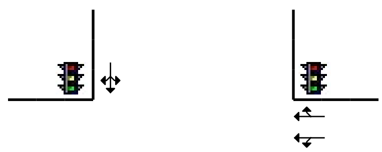
**CITY/STATE:** San Francisco, CA — **DATE:** 10/14/2010

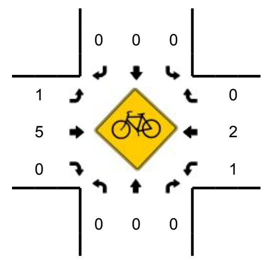


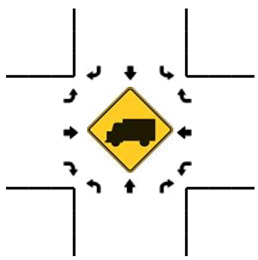

**Peak-Hour: 7:40 AM -- 8:40 AM**
**Peak 15-Min: 7:50 AM -- 8:05 AM**

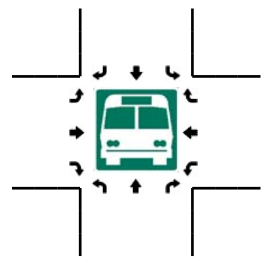






| 5-Min Count Period Beginning At | Tamalpais Ter (Northbound) Left | Thru | Right | U | Tamalpais Ter (Southbound) Left | Thru | Right | U | Turk Blvd (Eastbound) Left | Thru | Right | U | Turk Blvd (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7:00 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 26 | 0 | 0 | 37 | |
| 7:05 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 20 | 3 | 1 | 36 | |
| 7:10 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 25 | 0 | 0 | 44 | |
| 7:15 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 17 | 0 | 0 | 31 | |
| 7:20 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 0 | 0 | 0 | 19 | 0 | 0 | 41 | |
| 7:25 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 1 | 0 | 2 | 33 | 1 | 0 | 58 | |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 0 | 0 | 1 | 22 | 0 | 0 | 51 | |
| 7:35 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 0 | 0 | 0 | 32 | 0 | 0 | 70 | |
| 7:40 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 40 | 1 | 0 | 1 | 33 | 1 | 0 | 77 | |
| 7:45 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 53 | 2 | 0 | 1 | 55 | 0 | 0 | 113 | |
| 7:50 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 37 | 2 | 0 | 1 | 44 | 0 | 0 | 85 | |
| 7:55 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 3 | 0 | 2 | 67 | 0 | 1 | 112 | 755 |
| 8:00 AM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 2 | 0 | 2 | 69 | 0 | 1 | 141 | 859 |
| 8:05 AM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 1 | 0 | 2 | 34 | 1 | 0 | 79 | 902 |
| 8:10 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 1 | 35 | 0 | 0 | 81 | 939 |
| 8:15 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 33 | 1 | 0 | 0 | 38 | 0 | 0 | 73 | 981 |
| 8:20 AM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 1 | 0 | 1 | 58 | 1 | 0 | 113 | 1053 |
| 8:25 AM | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 2 | 44 | 1 | 0 | 1 | 40 | 0 | 0 | 92 | 1087 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 35 | 1 | 0 | 0 | 54 | 0 | 0 | 91 | 1127 |
| 8:35 AM | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 43 | 2 | 0 | 0 | 40 | 0 | 0 | 87 | 1144 |
| 8:40 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 1 | 0 | 0 | 32 | 0 | 0 | 71 | 1138 |
| 8:45 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 33 | 2 | 0 | 0 | 43 | 0 | 0 | 80 | 1105 |
| 8:50 AM | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 36 | 1 | 0 | 0 | 38 | 1 | 0 | 79 | 1099 |
| 8:55 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 | 0 | 0 | 1 | 31 | 0 | 0 | 65 | 1052 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 564 | 28 | 0 | 20 | 720 | 0 | 8 | 1352 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 24 | 0 | | 0 | 24 | 0 | | 48 |
| Pedestrians | | 80 | | | | 148 | | | | 76 | | | | 196 | | | 500 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 3 | 0 | | 0 | 1 | 0 | | 4 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 11/18/2010 3:24 PM — SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

**LOCATION:** Tamalpais Ter -- Turk Blvd

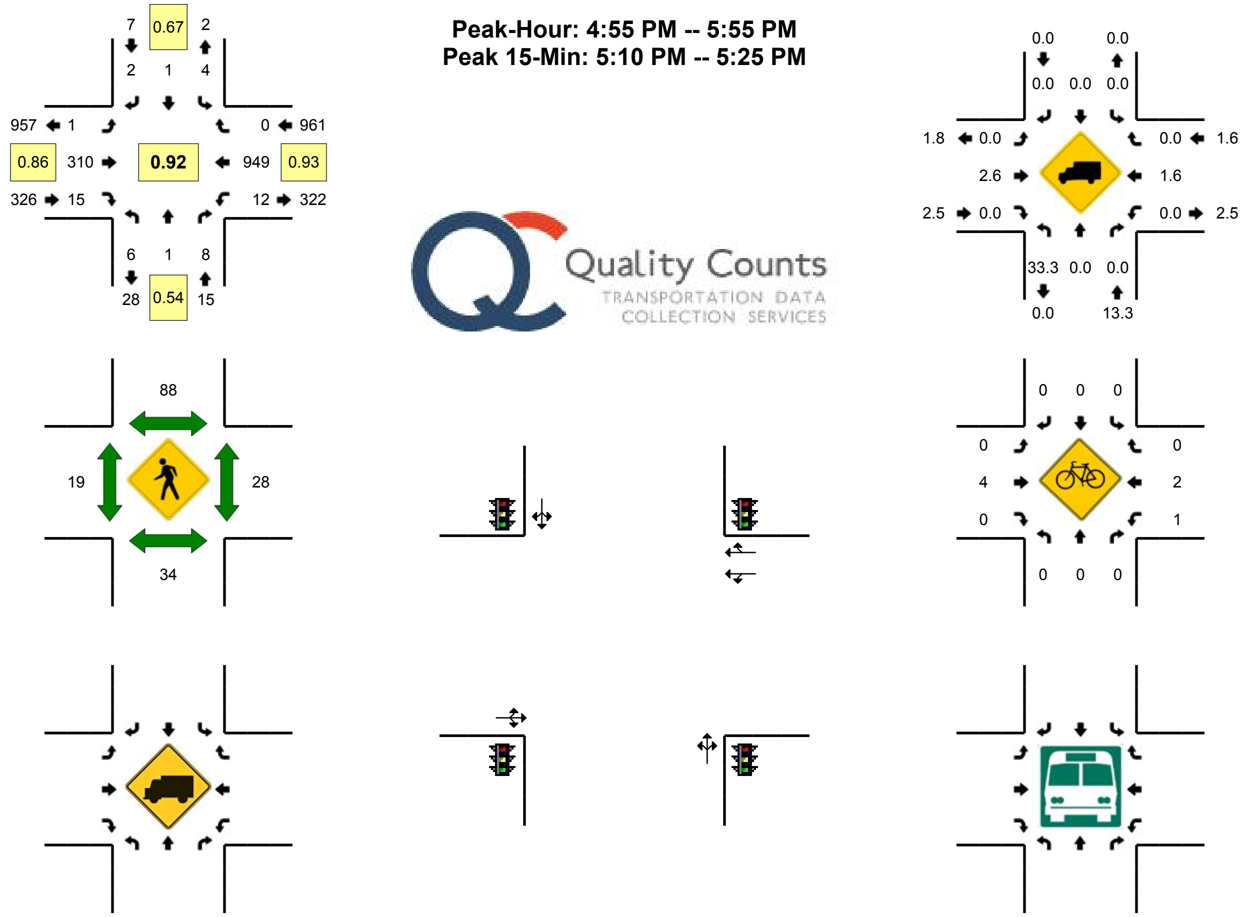
**CITY/STATE:** San Francisco, CA

**QC JOB #:** 10545934

**DATE:** 10/19/2010

**Peak-Hour: 4:55 PM -- 5:55 PM**

**Peak 15-Min: 5:10 PM -- 5:25 PM**




| 5-Min Count Period Beginning At | Tamalpais Ter (Northbound) Left | Thru | Right | U | Tamalpais Ter (Southbound) Left | Thru | Right | U | Turk Blvd (Eastbound) Left | Thru | Right | U | Turk Blvd (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4:00 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 16 | 1 | 0 | 0 | 56 | 0 | 0 | 76 | |
| 4:05 PM | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 22 | 2 | 0 | 1 | 34 | 0 | 0 | 62 | |
| 4:10 PM | 3 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 2 | 22 | 5 | 0 | 1 | 42 | 0 | 0 | 79 | |
| 4:15 PM | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 27 | 3 | 0 | 0 | 67 | 1 | 0 | 102 | |
| 4:20 PM | 0 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 19 | 1 | 0 | 3 | 54 | 2 | 0 | 83 | |
| 4:25 PM | 3 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 1 | 20 | 9 | 0 | 2 | 41 | 0 | 0 | 79 | |
| 4:30 PM | 3 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 22 | 2 | 0 | 3 | 55 | 2 | 0 | 90 | |
| 4:35 PM | 1 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 1 | 20 | 1 | 0 | 1 | 51 | 0 | 0 | 79 | |
| 4:40 PM | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 22 | 3 | 0 | 3 | 54 | 1 | 0 | 89 | |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 20 | 2 | 0 | 2 | 59 | 1 | 0 | 85 | |
| 4:50 PM | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 0 | 22 | 1 | 0 | 1 | 69 | 1 | 0 | 98 | |
| 4:55 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 17 | 1 | 0 | 0 | 58 | 0 | 0 | 78 | 1000 |
| 5:00 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 0 | 0 | 2 | 55 | 0 | 0 | 75 | 999 |
| 5:05 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 33 | 1 | 0 | 2 | 81 | 0 | 0 | 118 | 1055 |
| 5:10 PM | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 36 | 1 | 0 | 0 | 82 | 0 | 0 | 122 | 1098 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 1 | 0 | 1 | 88 | 0 | 0 | 114 | 1110 |
| 5:20 PM | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 33 | 2 | 0 | 1 | 81 | 0 | 0 | 120 | 1147 |
| 5:25 PM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 1 | 0 | 1 | 75 | 0 | 0 | 110 | 1178 |
| 5:30 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 2 | 0 | 0 | 91 | 0 | 0 | 109 | 1197 |
| 5:35 PM | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 26 | 2 | 0 | 2 | 88 | 0 | 0 | 121 | 1239 |
| 5:40 PM | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 29 | 1 | 0 | 1 | 71 | 0 | 0 | 104 | 1254 |
| 5:45 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 1 | 0 | 1 | 88 | 0 | 0 | 109 | 1278 |
| 5:50 PM | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 2 | 0 | 1 | 91 | 0 | 0 | 129 | 1309 |
| 5:55 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 4 | 0 | 1 | 48 | 0 | 0 | 76 | 1307 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 0 | 4 | 0 | 0 | 8 | 4 | 8 | 0 | 0 | 372 | 16 | 0 | 8 | 1004 | 0 | 0 | 1424 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 4 | 0 | | 0 | 16 | 0 | | 20 |
| Pedestrians | | 56 | | | | 60 | | | | 16 | | | | 48 | | | 180 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 1 | 0 | | 0 | 0 | 0 | | 1 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

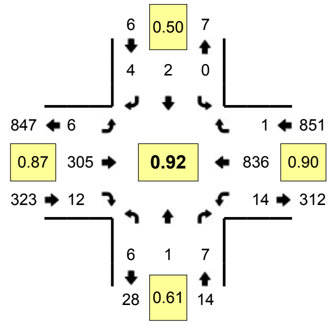
*Comments:*

Report generated on 11/18/2010 3:24 PM

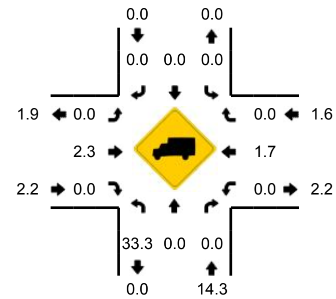
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

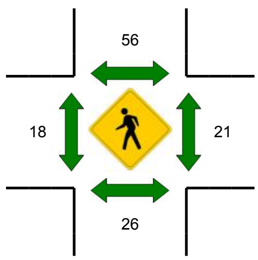
Type of peak hour being reported: Intersection Peak
Method for determining peak hour: Total Entering Volume

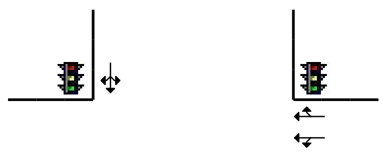
**LOCATION:** Tamalpais Ter -- Turk Blvd
**CITY/STATE:** San Francisco, CA
**QC JOB #:** 10545936
**DATE:** 10/14/2010

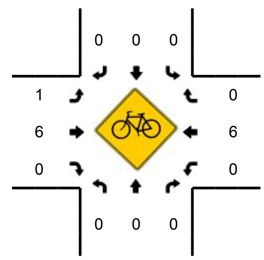


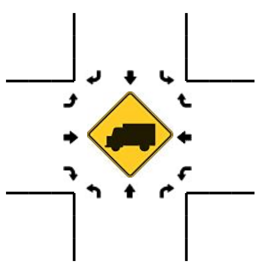

**Peak-Hour: 4:50 PM -- 5:50 PM**
**Peak 15-Min: 5:15 PM -- 5:30 PM**

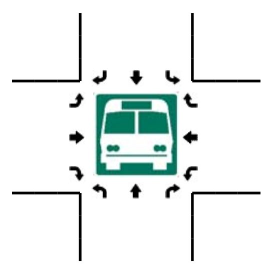






| 5-Min Count Period Beginning At | Tamalpais Ter (Northbound) Left | Thru | Right | U | Tamalpais Ter (Southbound) Left | Thru | Right | U | Turk Blvd (Eastbound) Left | Thru | Right | U | Turk Blvd (Westbound) Left | Thru | Right | U | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4:00 PM | 0 | 0 | 3 | 0 | 0 | 1 | 2 | 0 | 1 | 29 | 1 | 0 | 2 | 45 | 0 | 0 | 84 | |
| 4:05 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 0 | 0 | 1 | 61 | 0 | 0 | 103 | |
| 4:10 PM | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 17 | 2 | 0 | 2 | 42 | 0 | 0 | 67 | |
| 4:15 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 3 | 0 | 0 | 48 | 0 | 0 | 69 | |
| 4:20 PM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 0 | 0 | 1 | 53 | 0 | 1 | 79 | |
| 4:25 PM | 0 | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 36 | 3 | 0 | 1 | 45 | 0 | 0 | 91 | |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 2 | 0 | 1 | 42 | 3 | 0 | 74 | |
| 4:35 PM | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 1 | 25 | 2 | 0 | 1 | 48 | 0 | 0 | 81 | |
| 4:40 PM | 0 | 1 | 4 | 0 | 0 | 0 | 2 | 0 | 1 | 16 | 3 | 0 | 1 | 37 | 0 | 0 | 65 | |
| 4:45 PM | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 29 | 1 | 0 | 1 | 62 | 0 | 0 | 97 | |
| 4:50 PM | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 24 | 3 | 0 | 2 | 62 | 0 | 0 | 95 | |
| 4:55 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 0 | 0 | 2 | 64 | 0 | 0 | 95 | 1000 |
| 5:00 PM | 1 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 26 | 2 | 0 | 0 | 73 | 1 | 0 | 106 | 1022 |
| 5:05 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 1 | 54 | 0 | 0 | 79 | 998 |
| 5:10 PM | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 21 | 0 | 0 | 0 | 54 | 0 | 0 | 77 | 1008 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 32 | 1 | 1 | 0 | 74 | 0 | 0 | 109 | 1048 |
| 5:20 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 1 | 0 | 1 | 87 | 0 | 0 | 116 | 1085 |
| 5:25 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 2 | 0 | 0 | 68 | 0 | 0 | 98 | 1092 |
| 5:30 PM | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 26 | 1 | 0 | 3 | 68 | 0 | 0 | 102 | 1120 |
| 5:35 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 24 | 1 | 0 | 2 | 86 | 0 | 0 | 116 | 1155 |
| 5:40 PM | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 26 | 1 | 0 | 2 | 71 | 0 | 0 | 103 | 1193 |
| 5:45 PM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 20 | 0 | 0 | 1 | 75 | 0 | 0 | 98 | 1194 |
| 5:50 PM | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 21 | 0 | 0 | 1 | 63 | 0 | 0 | 90 | 1189 |
| 5:55 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 19 | 0 | 0 | 2 | 58 | 1 | 0 | 81 | 1175 |

| Peak 15-Min Flowrates | Northbound Left | Thru | Right | U | Southbound Left | Thru | Right | U | Eastbound Left | Thru | Right | U | Westbound Left | Thru | Right | U | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Vehicles | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 348 | 16 | 4 | 4 | 916 | 0 | 0 | 1292 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 8 | 0 | | 0 | 16 | 0 | | 24 |
| Pedestrians | | 20 | | | | 76 | | | | 20 | | | | 0 | | | 116 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 3 | 0 | | 0 | 3 | 0 | | 6 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 11/18/2010 3:24 PM
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES

**Location: USF Campus Parking Lots**
**Date: 4/19/2011**

| Tuesday April 19th | | Number of Cars parked on Street | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| USF Campus Parking Lots 1-8 | Available Spots | 7:00 AM | 8:00 AM | 9:00 AM | 10:00 AM | 11:00 AM | 12:00 PM | 1:00 PM | 2:00 PM | 3:00 PM | 4:00 PM | 5:00 PM | 6:00 PM | 7:00 PM | 8:00 PM | 9:00 PM | 10:00 PM | 11:00 PM |
| #1 Kendrick Hall Garage Upper Level (Regular Spaces) | 37 | 6 | 14 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 36 | 30 | 31 | 32 | 30 | 12 | 6 | 0 |
| #1 Kendrick Hall Garage Upper Level (Handicapped Spaces) | 2 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 |
| #1 Kendrick Hall Garage Upper Level (Reserved Space) | 2 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 |
| #2 Kendrick Hall Garage Lower Level (Regular Spaces) | 62 | 4 | 8 | 26 | 49 | 62 | 62 | 61 | 62 | 62 | 60 | 52 | 41 | 33 | 27 | 12 | 4 | 3 |
| #2 Kendrick Hall Garage Lower Level (Handicapped Spaces) | 2 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 0 | 0 |
| #3 Gleeson Library Lot (Regular Spaces) | 13 | 5 | 9 | 13 | 12 | 12 | 11 | 10 | 9 | 10 | 7 | 8 | 13 | 13 | 9 | 4 | 3 | 1 |
| #3 Gleeson Library Lot (Handicapped Spaces) | 3 | 0 | 0 | 0 | 1 | 3 | 2 | 1 | 2 | 2 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 |
| #3 Gleeson Library Lot (Loading Zone Spaces) | 6 | 1 | 3 | 6 | 6 | 5 | 5 | 2 | 2 | 3 | 4 | 3 | 2 | 0 | 1 | 1 | 1 | 1 |
| #4 The University Center Parking Lot (Regular Spaces) | 24 | University Center Parking Lot Closed for Construction All Day. | | | | | | | | | | | | | | | | |
| #4 The University Center Parking Lot (Handicapped Spaces) | 2 | | | | | | | | | | | | | | | | | |
| #4 The University Center Parking Lot (Loading Zone Spaces) | 7 | | | | | | | | | | | | | | | | | |
| #5 The Memorial Gym Parking Lot (Regular Spaces) | 32 | 8 | 11 | 30 | 30 | 32 | 32 | 31 | 28 | 27 | 26 | 8 | 9 | 9 | 9 | 8 | 3 | 3 |
| #5 The Memorial Gym Parking Lot (Handicapped Spaces) | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| #5 The Memorial Gym Parking Lot (Reserved Spaces) | 5 | 3 | 4 | 5 | 5 | 4 | 5 | 5 | 4 | 5 | 4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| #5 The Memorial Gym Parking Lot (Loading Zone Spaces) | 7 | 3 | 3 | 3 | 6 | 3 | 3 | 2 | 1 | 1 | 3 | 4 | 4 | 3 | 4 | 3 | 3 | 3 |
| Parking Lot #5 two spaces blocked all day to make room for shuttle turn around | | | | | | | | | | | | | | | | | | |
| #6 The Hayes Healy Garage Level B and C (Regular Spaces) | 53 | 36 | 52 | 52 | 53 | 63 | 35 | 59 | 57 | 52 | 49 | 38 | 39 | 38 | 29 | 18 | 11 | 8 |
| #6 The Hayes Healy Garage Level B and C (Reserved Spaces) | 7 | 5 | 2 | 6 | 2 | 2 | 3 | 3 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| #6 The Hayes Healy Garage Level B and C (Motorcyle Spaces) | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Lot #6 gets very busy starting at 10 AM. Garage attendant begins double parking cars. That is why for some time periods there are more cars parked than available spots. | | | | | | | | | | | | | | | | | | |
| #7 The Hayes Healy Garage Level D and E (Regular Spaces) | 56 | 12 | 22 | 43 | 55 | 49 | 51 | 50 | 52 | 51 | 42 | 38 | 23 | 17 | 13 | 10 | 9 | 6 |
| #8 The School of Education Parking Lot (Regular Spaces) | 32 | 1 | 1 | 5 | 9 | 16 | 17 | 19 | 17 | 17 | 12 | 18 | 10 | 8 | 5 | 5 | 2 | 2 |
| #8 The School of Education Parking Lot (Handicapped Spaces) | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 |
| #8 The School of Education Parking Lot (Motorcycle Spaces) | 4 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| #8 The School of Education Parking Lot (Loading Zone Spaces) | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES

**Location: USF Campus Parking Lots**
**Date: 4/19/2011**

| **Tuesday April 19th** | | **Number of Cars parked on Street** | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| USF Campus Parking Lots 9-17 | Available Spots | 7:00 AM | 8:00 AM | 9:00 AM | 10:00 AM | 11:00 AM | 12:00 PM | 1:00 PM | 2:00 PM | 3:00 PM | 4:00 PM | 5:00 PM | 6:00 PM | 7:00 PM | 8:00 PM | 9:00 PM | 10:00 PM | 11:00 PM |
| #9 Lone Mountain Entrance Ramp (Regular Spaces) | 16 | 2 | 2 | 14 | 15 | 15 | 16 | 16 | 15 | 15 | 13 | 10 | 8 | 4 | 0 | 0 | 0 | 0 |
| #10 Lone Mountain Pacific Wing Parking Lot (Regular Spaces) | 8 | 4 | 4 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 9 | 6 | 5 | 5 | 4 | 4 | 4 | 0 |
| #10 Lone Mountain Pacific Wing Parking Lot (Loading Zone Spaces) | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| #10 Lone Mountain Pacific Wing Parking Lot (Electric Cart Spaces) | 4 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| #10 Lone Mountain Pacific Wing Parking Lot (Security Spaces) | 10 | 4 | 4 | 6 | 4 | 7 | 5 | 6 | 5 | 7 | 7 | 5 | 6 | 7 | 5 | 5 | 6 | 6 |
| #11 Lone Mountain Fee Lot (Regular Spaces) | 38 | 5 | 5 | 17 | 37 | 38 | 33 | 32 | 37 | 37 | 31 | 19 | 11 | 5 | 4 | 2 | 2 | 2 |
| #11 Lone Mountain Fee Lot (Handicapped Spaces) | 4 | 0 | 1 | 2 | 2 | 4 | 4 | 1 | 3 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| #11 Lone Mountain Fee Lot (Loading Zone Spaces) | 5 | 1 | 2 | 2 | 3 | 5 | 2 | 3 | 3 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| #12 Lone Mountain Entrance Ramp East Side (Regular Spaces) | 35 | 4 | 22 | 32 | 35 | 35 | 34 | 32 | 34 | 32 | 30 | 15 | 8 | 8 | 5 | 1 | 0 | 0 |
| #12 Lone Mountain Entrance Ramp East Side (Loading Zone Spaces) | 3 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Jesuit Community Parking Lot (Regular Spaces) | 15 | 8 | 8 | 8 | 9 | 10 | 8 | 6 | 6 | 7 | 9 | 7 | 6 | 7 | 8 | 9 | 9 | 9 |
| Jesuit Community Parking Lot (Handicapped Spaces) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| #13 Loyola Parking Lot (Regular Spaces) | 71 | 5 | 16 | 48 | 71 | 74 | 81 | 75 | 73 | 65 | 58 | 36 | 18 | 13 | 6 | 2 | 0 | 0 |
| #13 Loyola Parking Lot (Zip Car Spaces) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 2 | 2 |
| #13 Loyola Parking Lot (Jesuit Community Spaces) | 7 | 2 | 2 | 3 | 4 | 4 | 3 | 3 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 1 | 1 | 1 |
| Lot #13 When it got busy cars were being double parked by a lot attendant. This is why for some time periods there are more cars parked than available spots | | | | | | | | | | | | | | | | | | |
| #14 The Lone Mountain Rear Ramp West Side (Regular Spaces) | 16 | 2 | 4 | 11 | 12 | 16 | 16 | 14 | 15 | 13 | 13 | 5 | 3 | 2 | 1 | 1 | 1 | 1 |
| #15 The Lone Mountain Rear Ramp East Side (Regular Spaces) | 8 | 1 | 6 | 8 | 8 | 8 | 7 | 6 | 7 | 8 | 7 | 2 | 2 | 2 | 1 | 2 | 2 | 1 |
| #15 The Lone Mountain Rear Ramp East Side (Handicapped Space) | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| #15 The Lone Mountain Rear Ramp East Side (Reserved Spaces) | 4 | 4 | 4 | 4 | 3 | 3 | 2 | 4 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| #15 The Lone Mountain Rear Ramp East Side (Electric Cart Spaces) | 4 | 4 | 4 | 4 | 4 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 |
| #16 Koret Parking Lot Lower Level (Regular Spaces) | 140 | 42 | 44 | 71 | 102 | 106 | 103 | 106 | 111 | 108 | 98 | 76 | 71 | 50 | 27 | 16 | 8 | 7 |
| #16 Koret Parking Lot Lower Level (Handicapped Spaces) | 4 | 2 | 3 | 2 | 1 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| #16 Koret Parking Lot Lower Level (Motorcylcle Spaces) | 15 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 0 | 0 | 0 |
| #17 Koret Parking Lot Upper Level (Regular Spaces) | 69 | 18 | 31 | 43 | 64 | 65 | 65 | 66 | 67 | 64 | 60 | 44 | 36 | 31 | 20 | 9 | 2 | 2 |
| #17 Koret Parking Lot Upper Level (Handicapped Spaces) | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| #17 Koret Parking Lot Upper Level (Carpool Spaces) | 25 | 3 | 4 | 6 | 10 | 11 | 13 | 13 | 16 | 19 | 17 | 12 | 11 | 10 | 8 | 6 | 5 | 4 |
| #17 Koret Parking Lot Upper Level (Zip Car Spaces) | 2 | 2 | 2 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES

**Location: USF Campus and surrounding area**
**Date: 7AM-3PM Thursday 3/31, 4 PM-11PM Thursday March 24 2011**

| Thursday March 24th | | Number of Cars parked on Street | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Area #1 | Available Spots | 7:00 AM | 8:00 AM | 9:00 AM | 10:00 AM | 11:00 AM | 12:00 PM | 1:00 PM | 2:00 PM | 3:00 PM | 4:00 PM | 5:00 PM | 6:00 PM | 7:00 PM | 8:00 PM | 9:00 PM | 10:00 PM | 11:00 PM |
| Geary Blvd Btwn Arguello Blvd and Parker Ave | 71 | 10 | 13 | 21 | 29 | 34 | 43 | 42 | 29 | 38 | 37 | 27 | 38 | 44 | 35 | 30 | 36 | 32 |
| Arguello Blvd Btwn Geary Blvd and Fulton St | 122 | 97 | 93 | 97 | 94 | 97 | 96 | 85 | 93 | 90 | 95 | 51 | 108 | 109 | 108 | 103 | 103 | 102 |
| Fulton St Btwn Arguello Blvd and Parker Ave | 102 | 84 | 67 | 83 | 78 | 80 | 69 | 65 | 73 | 70 | 72 | 55 | 59 | 54 | 62 | 53 | 55 | 49 |
| Beaumont Ave Btwn Geary Blvd and Turk Blvd | 73 | 52 | 48 | 47 | 57 | 55 | 55 | 51 | 55 | 42 | 61 | 60 | 64 | 68 | 67 | 57 | 55 | 51 |
| Stanyan St Btwn Geary Blvd and Fulton St | 144 | 105 | 105 | 112 | 124 | 120 | 116 | 124 | 113 | 107 | 103 | 99 | 112 | 107 | 118 | 132 | 116 | 112 |
| N Willard St Btwn Fulton and Edward St | 80 | 66 | 51 | 33 | 35 | 37 | 50 | 41 | 45 | 46 | 56 | 52 | 68 | 71 | 74 | 73 | 76 | 76 |
| Parson St Btwn Fulton St and McAllister St | 27 | 19 | 17 | 14 | 15 | 18 | 20 | 17 | 20 | 13 | 15 | 17 | 15 | 25 | 24 | 31 | 26 | 26 |
| Alamaden Ct North of Anza St | 29 | 12 | 11 | 2 | 6 | 7 | 7 | 6 | 5 | 3 | 7 | 4 | 2 | 4 | 8 | 10 | 11 | 11 |
| Loraine Ct North of Anza St | 18 | 9 | 4 | 0 | 0 | 2 | 3 | 4 | 4 | 4 | 4 | 6 | 4 | 5 | 7 | 7 | 8 | 8 |
| Rossi Ave Btwn Anza St and Turk Blvd | 51 | 13 | 15 | 19 | 24 | 23 | 21 | 24 | 20 | 23 | 12 | 15 | 16 | 12 | 18 | 17 | 18 | 20 |
| Anza St Btwn Parker Ave and Arguello Blvd | 72 | 62 | 67 | 65 | 65 | 60 | 65 | 64 | 65 | 64 | 52 | 51 | 57 | 62 | 63 | 64 | 58 | 58 |
| Edward St Btwn Arguello Blvd and N Willard St | 37 | 25 | 20 | 11 | 18 | 19 | 24 | 25 | 26 | 25 | 20 | 15 | 24 | 27 | 28 | 28 | 29 | 30 |
| Turk Blvd Btwn Arguello Blvd and Parker Ave | 66 | 58 | 52 | 57 | 55 | 48 | 48 | 47 | 48 | 44 | 47 | 46 | 51 | 56 | 54 | 46 | 45 | 48 |
| Golden Gate Ave Btwn N. Willard St and Stanyan St | 27 | 25 | 21 | 21 | 21 | 17 | 13 | 18 | 13 | 12 | 21 | 16 | 20 | 22 | 25 | 20 | 22 | 26 |
| Golden Gate Ave Btwn Arguello Blvd and N. Willard St | 38 | 33 | 35 | 33 | 28 | 26 | 26 | 26 | 24 | 28 | 25 | 26 | 34 | 39 | 33 | 35 | 31 | 32 |
| Dwy West of Stanyan St (Off of Stanyan South of Golden Gate Ave) | 19 | 16 | 16 | 12 | 15 | 14 | 15 | 14 | 15 | 13 | 14 | 10 | 9 | 10 | 9 | 11 | 11 | 11 |
| McAllister St Btwn Arguello Blvd and Parker Ave | 91 | 88 | 89 | 87 | 86 | 87 | 88 | 67 | 76 | 84 | 87 | 95 | 101 | 85 | 107 | 102 | 99 | 101 |
| Total | 1067 | | | | | | | | | | | | | | | | | |

Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES

**Location: USF Campus and surrounding area**
**Date: Thursday March 24 2011**

| **Thursday March 24th** | | Number of Cars parked on Street | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Area #2 | Available Spots | 7:00 AM | 8:00 AM | 9:00 AM | 10:00 AM | 11:00 AM | 12:00 PM | 1:00 PM | 2:00 PM | 3:00 PM | 4:00 PM | 5:00 PM | 6:00 PM | 7:00 PM | 8:00 PM | 9:00 PM | 10:00 PM | 11:00 PM |
| Geary Blvd Btwn Parker Ave and Masonic Ave | 70 | 22 | 34 | 39 | 56 | 63 | 60 | 51 | 42 | 45 | 41 | 55 | 44 | 54 | 56 | 60 | 45 | 34 |
| Masonic Ave Btwn Geary Blvd and Golden Gate Ave | 70 | 18 | 22 | 53 | 59 | 58 | 60 | 58 | 56 | 57 | 52 | 45 | 40 | 40 | 34 | 31 | 20 | 18 |
| Golden Gate Ave Btwn Central Ave and Parker Ave | 162 | 123 | 147 | 156 | 160 | 155 | 162 | 158 | 160 | 161 | 157 | 154 | 164 | 153 | 146 | 139 | 127 | 123 |
| Turk Blvd Btwn Parker Ave and Central Ave | 100 | 77 | 131 | 91 | 95 | 178 | 85 | 88 | 90 | 97 | 91 | 86 | 92 | 90 | 82 | 80 | 66 | 65 |
| Anza St Btwn Parker Ave and Masonic Ave | 230 | 203 | 206 | 216 | 213 | 212 | 212 | 213 | 214 | 224 | 221 | 222 | 217 | 219 | 220 | 223 | 225 | 226 |
| Temescal Terrace Btwn Golden Gate Ave and Turk Blvd | 22 | 15 | 17 | 22 | 20 | 19 | 18 | 19 | 20 | 20 | 20 | 20 | 18 | 20 | 14 | 13 | 7 | 6 |
| Chabot Terrace Btwn Golden Gate Ave and Turk Blvd | 18 | 8 | 17 | 18 | 15 | 16 | 14 | 15 | 15 | 17 | 15 | 16 | 16 | 15 | 15 | 13 | 6 | 8 |
| Kittredge Terrace Btwn Golden Gate Ave and Turk Blvd | 18 | 8 | 12 | 16 | 16 | 16 | 16 | 15 | 17 | 17 | 17 | 16 | 17 | 17 | 14 | 10 | 11 | 8 |
| Roselyn Terrace Btwn Golden Gate Ave and Turk Blvd | 20 | 10 | 14 | 20 | 20 | 19 | 23 | 21 | 19 | 21 | 20 | 17 | 17 | 15 | 15 | 12 | 7 | 6 |
| Tamalpais Terace Btwn Golden Gate Ave and Turk Blvd | 21 | 9 | 10 | 18 | 18 | 19 | 19 | 20 | 18 | 19 | 20 | 21 | 21 | 19 | 19 | 18 | 13 | 12 |
| Annapolis Terrace Btwn Golden Gate Ave and Turk Blvd | 20 | 9 | 11 | 19 | 20 | 20 | 19 | 21 | 18 | 19 | 18 | 18 | 19 | 16 | 14 | 17 | 13 | 12 |
| Ewing Terrace West of Masonic Ave | 55 | 44 | 35 | 40 | 33 | 27 | 27 | 27 | 25 | 29 | 29 | 38 | 36 | 37 | 41 | 41 | 45 | 44 |
| Spruce St Btwn Geary Blvd and Anza St | 22 | 21 | 22 | 20 | 20 | 19 | 19 | 17 | 16 | 19 | 21 | 18 | 22 | 18 | 18 | 20 | 22 | 24 |
| Cook St Btwn Geary Blvd and Anza St | 26 | 20 | 20 | 18 | 20 | 26 | 20 | 19 | 23 | 24 | 26 | 23 | 24 | 17 | 18 | 15 | 20 | 21 |
| Blake St Btwn Geary Blvd and Anza St | 22 | 17 | 17 | 20 | 20 | 21 | 17 | 17 | 18 | 18 | 15 | 16 | 15 | 11 | 10 | 14 | 13 | 14 |
| Collins St Btwn Geary Blvd and Anza St | 21 | 19 | 18 | 19 | 20 | 19 | 21 | 19 | 21 | 19 | 17 | 20 | 22 | 18 | 18 | 19 | 20 | 18 |
| Wood St Btwn Geary Blvd and Anza St | 26 | 22 | 21 | 18 | 24 | 22 | 27 | 23 | 21 | 20 | 24 | 26 | 23 | 24 | 24 | 24 | 24 | 22 |
| USF Dwy System North of Turk | 200 | 39 | 124 | 179 | 191 | 193 | 176 | 174 | 175 | 166 | 160 | 98 | 81 | 63 | 57 | 50 | 30 | 30 |
| Parker Ave Btwn Geary Blvd and Fulton ST | 195 | 166 | 158 | 181 | 179 | 177 | 165 | 178 | 167 | 175 | 184 | 178 | 174 | 176 | 173 | 155 | 121 | 116 |
| Total | 1318 | | | | | | | | | | | | | | | | | |

Quality Counts TRANSPORTATION DATA COLLECTION SERVICES

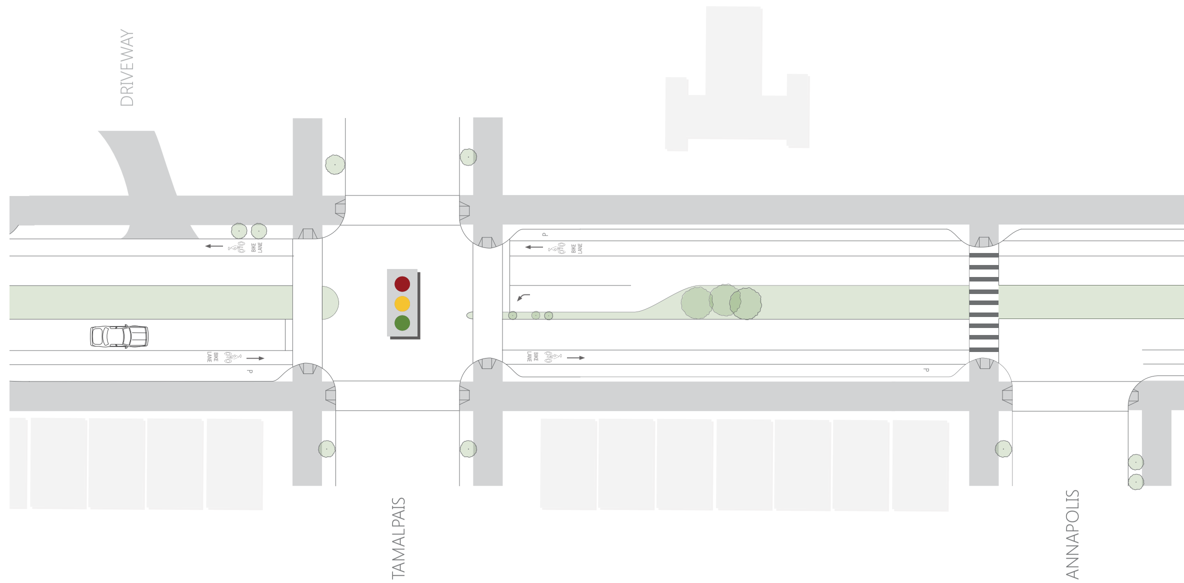
**Location: USF Campus and surrounding area**
**Date: Thursday March 24 2011**

| Thursday March 24th | Number of Cars parked on Street | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Area #3 | Available Spots | 7:00 AM | 8:00 AM | 9:00 AM | 10:00 AM | 11:00 AM | 12:00 PM | 1:00 PM | 2:00 PM | 3:00 PM | 4:00 PM | 5:00 PM | 6:00 PM | 7:00 PM | 8:00 PM | 9:00 PM | 10:00 PM | 11:00 PM |
| Central Ave Btwn Turk Blvd and Fell St | 138 | 126 | 127 | 128 | 119 | 104 | 120 | 116 | 111 | 111 | 121 | 129 | 122 | 123 | 133 | 132 | 133 | 133 |
| Fell St Btwn Central Ave and Stanyan St | 215 | 199 | 203 | 200 | 196 | 181 | 192 | 189 | 193 | 197 | 190 | 192 | 196 | 202 | 205 | 207 | 206 | 208 |
| Stanyan St Btwn Fell St and Fulton St | 25 | 24 | 25 | 24 | 24 | 24 | 24 | 21 | 23 | 22 | 20 | 19 | 22 | 22 | 23 | 21 | 16 | 15 |
| Masonic Ave Btwn Golden Gate Ave and Fell St | 83 | 27 | 37 | 61 | 66 | 72 | 54 | 54 | 56 | 51 | 48 | 53 | 45 | 55 | 52 | 57 | 63 | 68 |
| Ashbury St Btwn Fell St and Fulton St | 61 | 59 | 58 | 59 | 59 | 49 | 50 | 55 | 56 | 54 | 55 | 54 | 58 | 58 | 57 | 56 | 58 | 59 |
| Clayton St Btwn Fell St and Fulton St | 70 | 57 | 64 | 66 | 65 | 57 | 64 | 65 | 65 | 64 | 61 | 66 | 68 | 69 | 69 | 67 | 63 | 65 |
| Cole St Btwn Fell St and Fulton St | 79 | 72 | 75 | 77 | 72 | 72 | 65 | 72 | 71 | 74 | 74 | 74 | 75 | 76 | 75 | 75 | 77 | 77 |
| Shrader St Btwn Fell St and Fulton St | 67 | 60 | 65 | 66 | 66 | 63 | 62 | 66 | 63 | 59 | 65 | 60 | 64 | 63 | 64 | 59 | 64 | 63 |
| Hayes St Btwn Stanyan St and Central Ave | 183 | 153 | 140 | 156 | 162 | 168 | 162 | 158 | 163 | 173 | 173 | 178 | 173 | 176 | 176 | 177 | 173 | 176 |
| Grove St Btwn Shrader St and Central Ave | 150 | 120 | 101 | 102 | 125 | 127 | 126 | 136 | 131 | 137 | 138 | 136 | 142 | 146 | 143 | 143 | 144 | 143 |
| Fulton St Btwn Parker Ave and Central Ave | 146 | 101 | 97 | 104 | 95 | 108 | 109 | 114 | 115 | 115 | 114 | 117 | 136 | 135 | 136 | 122 | 95 | 94 |
| McAllister St Btwn Masonic Ave and Central Ave | 32 | 28 | 22 | 20 | 25 | 32 | 32 | 32 | 32 | 29 | 31 | 31 | 29 | 31 | 31 | 32 | 31 | 31 |
| Atalaya Terrace North of Fulton St | 19 | 14 | 13 | 18 | 14 | 14 | 12 | 14 | 13 | 16 | 15 | 17 | 19 | 19 | 18 | 19 | 19 | 19 |
| Hemway Terrace North of Fulton St | 6 | 6 | 6 | 6 | 6 | 5 | 6 | 5 | 6 | 6 | 6 | 5 | 6 | 5 | 6 | 6 | 6 | 6 |
| Loyola Terrace North of Fulton St | 10 | 9 | 9 | 9 | 10 | 9 | 10 | 10 | 10 | 9 | 9 | 10 | 9 | 10 | 10 | 9 | 10 | 10 |
| Total | 1284 | | | | | | | | | | | | | | | | | |

# APPENDIX E: TRAFFIC CALMING STUDY

# UNIVERSITY OF SAN FRANCISCO

## Traffic Calming Project




Prepared for:

University of San Francisco

Prepared by:

FEHR PEERS
332 Pine Street, Floor 4
San Francisco, CA 94104

In Association With:

Urban Design +

March 2012

# University of San Francisco and University Terrace Neighborhood Traffic Calming Study

Prepared for:

UNIVERSITY OF SAN FRANCISCO

CHANGE THE WORLD FROM HERE

Prepared by:

FEHR & PEERS

In association with:

SASAKI

URBAN DESIGN+

March 2012

Documentation and technical analysis prepared by:

Fehr & Peers

332 Pine Street, 4th Floor

San Francisco, California 94104

415.348.0300

# TABLE OF CONTENTS

## LIST OF FIGURES

# EXECUTIVE SUMMARY

Traffic calming seeks to reduce vehicle speeds, improve safety, and enhance quality of life. Measures to achieve these goals are typically focused on engineering solutions that oblige drivers to slow down or take an alternate route, though enforcement and education can also modify traffic movement. When carefully planned and designed, traffic calming initiatives also improve neighborhood character. Many traffic calming measures create more space for pedestrian movement, neighborhood activities and landscape features.

In San Francisco, the climate for improving pedestrian and bicyclist safety and reducing the impacts of traffic on neighborhood streets is particularly strong. The City has recently adopted the Better Streets Plan to guide decision-making on street improvements across City agencies, including the Municipal Transportation Agency (SFMTA), Planning Department, Public Works, and the County Transportation Authority. The Better Streets Plan provides guidelines and design recommendations to create street designs that are appropriate for the people who use them and for the adjacent neighborhood. Goals of the Better Streets Plan include safe streets that support diverse public life, promote human use and comfort, and create convenient connections.

USF and the University Terrace Association began conducting a traffic calming study to identify potential traffic and transportation safety improvements in the University Terrace neighborhood beginning in June 2010 as part of the University's planning efforts. Residents of University Terrace and members of the USF community had expressed concern about safety in the neighborhood, primarily caused by driver behavior and pedestrian activity, particularly in the University Terrace neighborhood, which is located between the Upper and Lower Campuses and is bound by Turk Boulevard on the north, Golden Gate Avenue on the south, Parker Avenue on the west and Masonic Avenue on the east.


The transportation conditions and specific traffic issues and opportunities in the study area were evaluated by Fehr & Peers, transportation planners and engineers, and Urban Design +, a design, planning and sustainability firm. They were tasked with identifying stakeholder concerns; reviewing applicable City policies; and collecting traffic data, including speeds, volumes, and collision information.

In order to develop a clear understanding of the vehicular and pedestrian issues effecting University Terrace and the USF campus, the project team conducted a wide analysis that focused on issues that affect circulation, safety and livability in four main zones: the University Terrace neighborhood, along Turk Boulevard, Golden Gate Avenue, and the USF campus. The analysis included a walking tour of the neighborhood with University Terrace Association and USF representatives, site observation on multiple occasions, traffic data collection, review of overview materials provided by UTA members, and a survey of neighbor and USF communities.

To understand the concerns and details about the issues in the project area, a comprehensive community outreach process was employed. This entailed approximately twenty meetings involving the University, University Terrace Association, students, and the City of San Francisco. The goal of the meetings was to identify and prioritize community concerns in the study area and discuss potential traffic calming measures to alleviate concerns.

In addition to the neighborhood meetings, a survey was distributed to University Terrace residents as well as USF faculty, staff and students. The purpose of this survey was to assist in identifying community concerns in the study area. This qualitative data was considered in conjunction to inputs from the neighborhood meetings among members of the University and UTA. The survey included questions about transportation patterns, safety concerns, travel behavior and challenges to accessing campus and residences, among others. Survey questions can be found in the Appendix. A total of 1,076 respondents provided input on the survey.

The traffic calming study also included a robust data collection effort, including vehicle traffic counts, speed surveys, pedestrian and bicyclist counts, parking analysis, and collision data, within the University Terrace neighborhood.

## 1.1 SITE ANALYSIS SUMMARY

This study identified a series of issues in five general categories:

**Parking Management in the UT Neighborhood** Parking in the UT neighborhood is impacted by members of the public, including the USF community, parking throughout the UT. These impacts include lack of parking for visitors, high traffic volumes created by people looking for parking, unsafe driving maneuvers including mid-block U-turns and inattentive and high speed turns, and blocking of residents' driveways.

**Traffic Management in the UT Neighborhood** The residential parking permit area in University Terrace (i.e., "BB") has a 2-hour time limit for non-residents which leads to regular turnover of the parking spaces. This space turnover ensures that if one looks long enough, odds are eventually a space will be found. The corollary to this turnover is that it creates traffic throughout the University Terrace streets as vehicles circulate looking for parking.

**Pedestrian Volumes in the UT Neighborhood** Throughout the day, members of the USF community walk back and forth between the Upper and Lower campuses. The resulting pedestrian volumes are significant. As the sidewalks in the University Terrace neighborhood were not designed for such volumes and are generally narrow and often obstructed, many people walk in the street, creating a potentially hazardous condition given the traffic volumes and frequently observed unsafe driving maneuvers.

**Pedestrian Safety on Golden Gate Avenue and Turk Boulevard** The high volume of pedestrians moving between the two USF campuses is evident on both Golden Gate and Turk and is impacted by dangerous conditions on each. On Turk, crossing signal timing at the signalized crosswalks is too short for the distance and volumes (22 seconds at Chabot Terrace); the medians are insufficient for safe refuge; the grade and sun angles impede sight distances on the street and for drivers making turns to/from the street; the downhill eastbound grade and unnecessarily wide street encourage speeding; the sidewalks at the bus stops are narrow; the bike lanes are not continuous; and distracted pedestrians jaywalk at both the intersections and mid-block (contributing are Upper Campus paths that are not aligned to the crosswalks). On Golden Gate, the street is unnecessarily wide (which encourages unsafe driving maneuvers such as mid-block U-turns); there are no signalized intersections; there is a high volume of pedestrians crossing in all directions; the bike lanes are not continuous; and the downhill grade encourages high vehicular speeds (including bikes and skateboards).

**Vehicular Impacts on USF Campus Edges** The edges of each of the campuses are inordinately impacted by vehicles. These impacts include parking, driveways, service vehicles, and the traffic volumes on both Golden Gate and Turk. Parking and services, which dominate the campus edges, create obstacles for pedestrians and cyclists, as does the interruption in public space between the two campuses. These issues challenge the university to provide safe, efficient operations and maintain a curb appeal within the community.

There is a broad menu of traffic calming devices that can effectively address some of the traffic issues identified as a result of the data collection and public outreach in University Terrace. These could be as simple as revised lane striping or more prominent crosswalk markings for the directional guidance of cars, bicycles and pedestrians; reducing speed and volume through various narrowing and volume devices; bulbouts that narrow the travel lane at intersections and create shorter crossing distance for pedestrians; and "road diets," which reduce the number of automobile travel lanes to benefit transportation modes (e.g. bike lanes, wider sidewalks.) or alternative uses (e.g. parklets, stormwater management). One of the more effective tools of traffic calming is full or partial-street closures that restrict the quantity and sometimes the type of travel on a given right-of-way.

The study team developed four alternative traffic calming scenarios. Each alternative is a combination of possibilities from an overall menu of ideas—the alternatives are organized around general themes, but many of the components can be recombined to generate other scenarios. A full description of the alternatives may be found in the Appendix. Regardless of the methods implemented, the ultimate evaluation of effectiveness is how well the measures meet the needs of street users and residents and provide consistency with community values and city policy. Potential traffic calming measures were identified and combined to form four alternatives for the communities to evaluate through a series of public and campus meetings. Neighborhood residents and other stakeholders evaluated the alternatives, selected the measures that were most effective to meet the project goals, and developed a preferred alternative.

Recognizing that no one idea will solve neighborhood and USF traffic issues, the community combined the most palatable elements of the four alternatives to develop a comprehensive plan that results in changes to address existing traffic behavior and retains appropriate access to University Terrace and USF. A successful solution will be a comprehensive solution that both mitigates the identified issues and creates a safer and more welcoming community. The Preferred Plan, which represents a combination of elements from all four initial scenarios, is described in this report.

## 1.2 PREFERRED PLAN

The Preferred Plan, which is acceptable to the UTA and USF, combines components of each of the four draft alternatives to create a plan focused on safe and welcoming neighborhood. This Preferred Plan, "A Great Neighborhood" includes a number of key concepts such as restricting the turning movements on Turk Boulevard to prevent cut-through traffic; pedestrian crosswalk enhancements along Turk Boulevard; bus stop improvements; gateway treatments; and the reframing of the streets in the University Terrace neighborhood and adjacent to USF.

To create a welcoming, high quality university and residential neighborhood, the preferred alternative includes a planted median along Turk Street and gateway treatments at both Parker and near Masonic on Golden Gate Avenue. Each of the Terrace streets would have a partial closure at the southern end to restrict vehicles from entering Terrace streets from Golden Gate Avenue. One westbound lane would be removed from Turk Boulevard, such that Turk would only have one lane westbound and one lane eastbound.

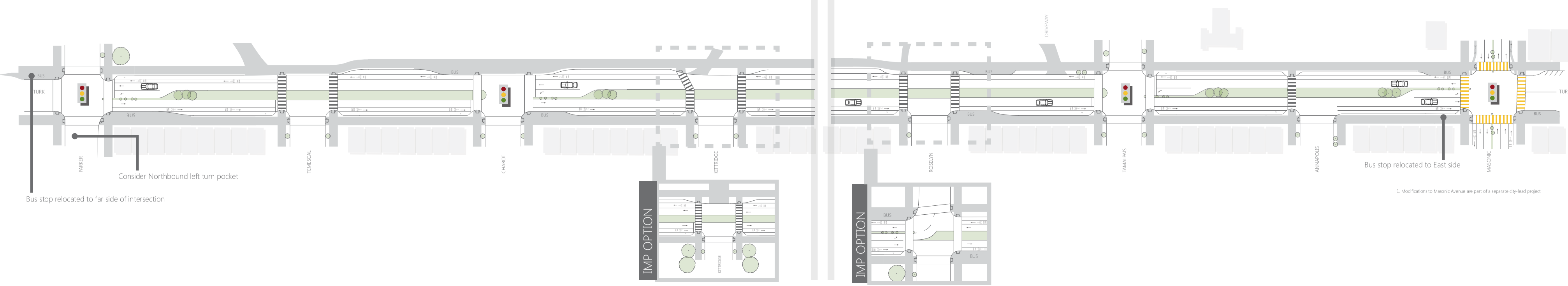
The combination of a median restricting certain turning movements on Turk Boulevard and the partial closures of the Terraces would maintain access for residents while discouraging vehicles from circulating through the Terrace streets looking for parking. Combined with managed parking restrictions – including the reduced time limit on BB parking – this plan would significantly decrease the amount of vehicular traffic on University Terrace streets and create a neighborhood-oriented environment for the community and safer environment for pedestrians.

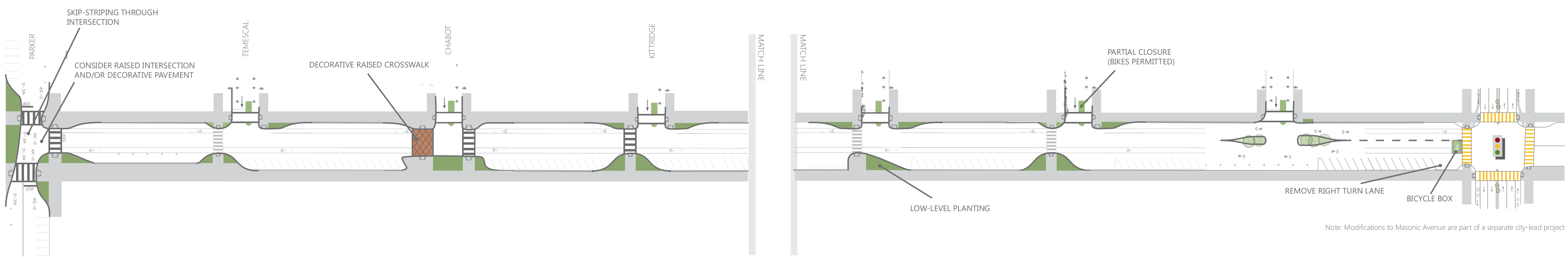
On Golden Gate Avenue, bulbouts at crosswalks and gateway treatments at Parker and Annapolis will highlight and create clear entries into the neighborhood. There would also be an enlarged and enhanced crosswalk at Chabot Street that would align with the pedestrian path within the Lower Campus. This crosswalk would create an inviting and continuous pedestrian connection between the Lower Campus and Upper Campus along Chabot Terrace. Each of the Terraces would have at least one marked crosswalk with bulbouts shortening the distance required to cross Golden Gate. There would also be a large planted median in the center of Golden Gate, just east of Annapolis Terrace. This median would act as both a traffic calming and gateway feature into the neighborhood.

Enhancements on Parker Street will create safer conditions for the campus community, enhance connections to the Koret Center and soccer field, and create a more attractive campus entry and edge. Curb extensions into the intersection of Parker and Golden Gate would create a much smaller intersection than what exists today. Planted areas between curb ramps could help channel pedestrians into the crosswalks at the intersection.

This Preferred Plan is comprehensive concept for improvements in the University Terrace and USF district, one that can both address parking and traffic safety issues and create a more welcoming environment for residents and members of the University Terrace and USF community. This preferred plan, as voted on by the University Terrace, will guide the development of the future design of streetscape improvements in the neighborhood.

# TURK STREET CORRIDOR




# GOLDEN GATE AVENUE CORRIDOR

N

Not to Scale

**DRAFT -** FOR DISCUSSION PURPOSES ONLY

# CHAPTER 1. INTRODUCTION

The USF Traffic Calming Plan presents a comprehensive range of ideas to reduce traffic in the University Terrace neighborhood and create a safer and more respectful environment for neighbors and the USF community. The ultimate goal of the improvements suggested in this Plan is to improve safety, minimize vehicle, pedestrian, bicycle, and parking impacts on the University Terrace area, and to ensure that the area has the welcoming qualities of a university and residential neighborhood.

This study was initiated by a Settlement Agreement between USF and the University Terrace Association (UTA) dated June 24, 2010 and identifies traffic and transportation safety improvements in the University Terrace neighborhood as part of University planning efforts. This study is being conducted in coordination with the University's Institutional Master Plan (IMP), which addresses other transportation improvements for the University and its impacts on the surrounding neighborhoods, including parking, transportation demand management and delivery access.

The project area encompasses the University Terrace neighborhood, which is located between the USF Upper and Lower Campuses and bound by Turk Boulevard on the north, Golden Gate Avenue on the south, Parker Avenue on the west, and Masonic Avenue on the east.

Residents of University Terrace and members of the USF community, including faculty, staff and students, have expressed concern about safety in the neighborhood primarily caused by driver behavior and pedestrian activity. With construction of the new Center of Science and Innovation on USF's lower campus, south of the existing Harney Science Center, UTA requested (as part of the Settlement Agreement) that USF consider traffic calming improvements adjacent to the new center and throughout the University Terrace neighborhood.

## 1.3 BACKGROUND DOCUMENTS

This Plan encompasses previous planning efforts conducted to date:

- 2010 USF/UTA Settlement Agreement
- 2010 SFMTA Masonic Avenue Street Design Study
- 2010 Temescal Terrace SFMTA Parking Striping Request
- 2010 Ideas for USF/UTA Transportation & Traffic Calming Study by Marty MacIntyre
- 2010 Transportation Packet from Marty MacIntyre for Traffic Calming kick-off including:
  - 2010 SF Chronicle Article, Cars to take a backseat in SF by M. Cabanatuan
  - 2002 Intersection Survey of vehicles and pedestrians
  - Survey of UT parking spaces
  - 2002, 2003 Survey of parking violations by location, type and frequency
  - 2000 Pedestrian and Traffic Safety Analysis
  - 2000 University Terrace Housing Survey
  - 2000 Related Comments from Resident Survey
- 2009-2010 Student Parking Packet
- 2009-2010 Faculty/Staff Parking Packet
- 2005 Policy Board Parking Survey
- 2003 Vehicle-Pedestrian Confrontations in University Terrace by Marty MacIntyre
- 2003 Traffic Calming Request to MTA
- 2003 Charrette for University Terrace Traffic Calming
- 2002 Letter from SF Planning Department re: Comments on Preliminary Draft Transportation Memorandum for USF McLaren Hall
- 2002 McLaren Hall Transportation Memo
- 2002 Institutional Plan
- 2002 Details on Chabot and Turk accident by Marty MacIntyre
- 1993 Institutional Plan Transportation Impact Analysis

URBAN DESIGN +
urban design planning sustainability

USF-Traffic Calming, Phase 1
Study Area

Project Team:
Urban Design +
Fehr and Peers
Sasaki Associates

Client:
University of San Francisco

## 1.4 TRAFFIC CALMING 101

Traffic calming seeks to reduce vehicle speeds, improve safety and enhance quality of life. Measures to achieve these goals are typically focused on engineering that oblige drivers to slow down or take an alternate route, yet enforcement and education can also modify traffic movement.

When carefully planned and designed, effective traffic calming is also concerned with improving neighborhood character. Many traffic calming measures create more space for pedestrian movement, neighborhood activities and landscape features. As important, multiple studies have shown that slower moving and/or less vehicular traffic creates both safer and more connected neighborhoods.

The pioneering San Francisco livable streets research conducted by Donald Appleyard, which led to a wide range of ideas championed by the former City Planning Director, Allen Jacobs, including significant traffic calming projects such as the improvements in the Duboce Triangle, have shown to greatly increase neighborhood quality and long-term property values.

Perhaps the best-known method for calming traffic is the speed bump, which has evolved to various forms and materials that provide a vertical deflection forcing traffic to physically slow down. In contemporary practice, simple speed bumps have generally given way to more design-oriented and effective measures such as raised crosswalks and speed tables.

There is now a broad menu of traffic calming devices that can be equally effective seeking to reduce traffic speeds. These may be as simple as revised lane striping or more prominent crosswalk markings for the directional guidance of cars, bicycles and pedestrians.

Reducing speed and volume can also be achieved through various narrowing and volume devices. Some examples include bulbouts that narrow the travel lane at intersections and create shorter crossing distance for pedestrians, and "road diets," which reduce the number of automobile travel lanes in exchange for other transportation modes (e.g. bike lanes, wider sidewalks.) or alternative uses (e.g. parklets, stormwater management).

One of the more effective tools is full or partial-street closures that restrict the quantity and sometimes the type of travel on a given right-of-way. Such measures can be appropriate on less-traveled streets and can dramatically affect quality of life by reducing cut-through and non-local traffic.

Regardless of the methods implemented, the ultimate evaluation of effectiveness is how well the measures meet the needs of all street users and residents while ensuring consistency with both community values and city policy.

A sample traffic calming toolbox for the USF area is included as **Appendix 1**.



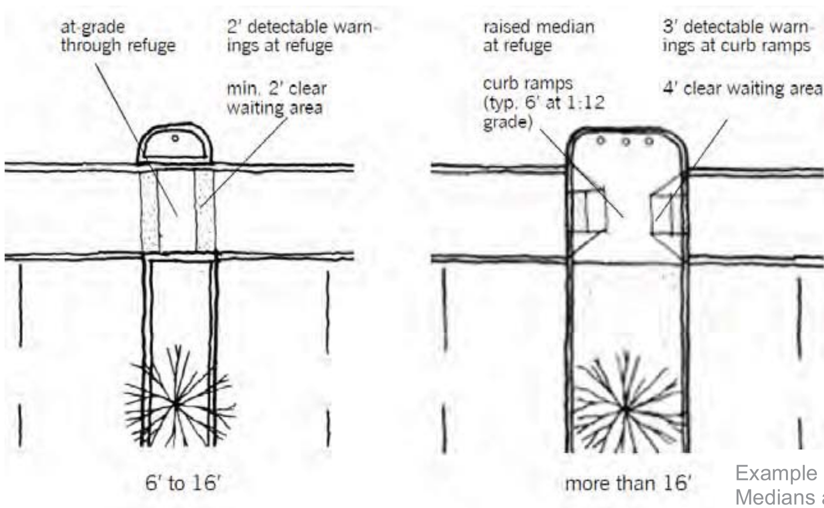
Top: Partial Street Closure; Bottom: Leland Avenue Intersection (SF Planning)

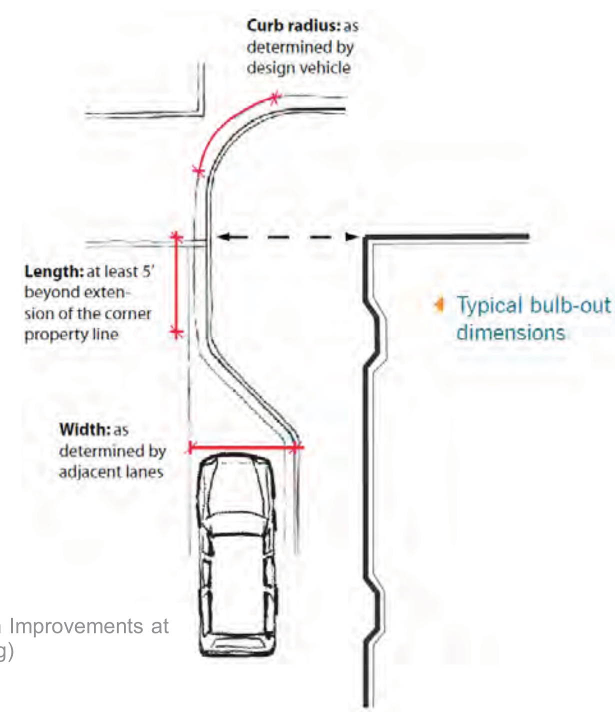
### 1.4.1 *Traffic Calming in San Francisco*

In San Francisco, the climate for improving pedestrian safety and reducing the impacts of traffic on neighborhoods is particularly strong. The City recently adopted the Better Streets Plan to guide decision-making on street improvements, and both the Metropolitan Transportation Agency and the Planning Department are focused on creating more livable streets. Specific programs in the Livable Streets initiative include a Traffic Calming Program, Bicycle Program, Pedestrian Program, and School Area Safety Program at the SFMTA and the Pavement to Parks and Better Streets Plan at the Planning Department.

The Better Streets Plan, intended to assist in coordinated decision-making for better streets, provides guidelines and design recommendations to create pedestrian-oriented and multi-functional streets. It includes elements from the City's Transit-First, Better Streets and Complete Streets Policies, all adopted by the City of San Francisco to prioritize street improvements that enhance transit, pedestrian, bicycle, and carpool trips over other transportation modes. Goals of the Better Streets Plan include safe streets that support diverse public life, promote human use and comfort, and create convenient connections.

Plan highlights include: distinctive, unified overall design; space for public life; pedestrian safety and priority; universal design; integrating pedestrians and transit; and reclaiming excess street space. The Better Streets Plan includes a range of approved strategies for improving streets, including traffic calming, sidewalk improvements, and sustainability measures such as visible and shorter pedestrian crossings, slower vehicular turning speeds, unobstructed sidewalks, bus bulbouts and boarding islands, traffic circles and landscaped medians, parklets, and innovative stormwater management. The ideas presented in the Traffic Calming Plan are based on city-endorsed ideas in the Better Streets Plan.




Example Better Streets Plan Pedestrian Improvements at Medians and Corner Curbs (SF Planning)

## 1.5 POLICY FRAMEWORK

The following policies were reviewed and applied throughout the traffic calming process.

### *1.5.1 San Francisco General Plan*

The City of San Francisco's General Plan specifies the following policies and implementation programs related to transportation, safety and traffic calming:

General

***POLICY 1.1*** *Involve citizens in planning and developing transportation facilities and services, and in further defining objectives and policies as they relate to district plans and specific projects.*

***POLICY 1.2*** *Ensure the safety and comfort of pedestrians throughout the city.*

***POLICY 2.4*** *Organize the transportation system to reinforce community identity, improve linkages among interrelated activities and provide focus for community activities.*

Transportation Performance Measures

***POLICY 10.1*** *Assess the performance of the city's transportation system by measuring the movement of people and goods rather than merely the movement of vehicles.*

Transportation Systems Management

***POLICY 14.2*** *Ensure that traffic signals are timed and phased to emphasize transit, pedestrian, and bicycle traffic as part of a balanced multi-modal transportation system.*

***POLICY 15.1*** *Discourage excessive automobile traffic on residential streets by incorporating traffic-calming treatments.*

***POLICY 15.2*** *Consider partial closure of certain residential streets to automobile traffic where the nature and level of automobile traffic impairs livability and safety, provided that there is an abundance of alternative routes such that the closure will not create undue congestion on parallel streets.*

Parking Management

***POLICY 16.1*** *Reduce parking demand through the provision of comprehensive information that encourages the use of alternative modes of transportation.*

***POLICY 17.2*** *Encourage collaboration and cooperation between property owners, neighboring uses and developers to allow for the most efficient use of existing and new parking facilities.*

Vehicle Circulation

***POLICY 18.2*** *Design streets for a level of traffic that serves, but will not cause a detrimental impact on adjacent land uses, nor eliminate the efficient and safe movement of transit vehicles and bicycles.*

***POLICY 18.4*** *Discourage high-speed through traffic on local streets in residential areas through traffic "calming" measures that are designed not to disrupt transit service or bicycle movement.*

***POLICY 19.2*** *Promote increased traffic safety, with special attention to hazards that could cause personal injury.*

Pedestrians

***POLICY 23.1*** *Provide sufficient pedestrian movement space with a minimum of pedestrian congestion in accordance with a pedestrian street classification system.*

***POLICY 23.2*** *Widen sidewalks where intensive commercial, recreational, or institutional activity is present, sidewalks are congested, where sidewalks are less than adequately wide to provide appropriate pedestrian amenities, or where residential densities are high.*

***POLICY 23.6*** *Ensure convenient and safe pedestrian crossings by minimizing the distance pedestrians must walk to cross a street.*

***POLICY 23.7*** *Ensure safe pedestrian crossings at signaled intersections by providing sufficient time for pedestrians to cross streets at a moderate pace.*

***POLICY 23.9*** *Implement the provisions of the Americans with Disabilities Act and the city's curb ramp program to improve pedestrian access for all people.*

***POLICY 25.6*** *Provide enforcement of traffic and parking regulations to ensure pedestrian safety, particularly on streets within the Citywide Pedestrian and Neighborhood Networks.*

Bicycles

***POLICY 27.1*** *Expand and improve access for bicycles on city streets and develop a well-marked, comprehensive system of bike routes in San Francisco.*

Citywide Parking

***POLICY 33.2*** *Protect residential neighborhoods from the parking impacts of nearby traffic generators.*

### 1.5.2 Better Streets Plan

In December 2010, the Mayor and Board of Supervisors adopted the Better Streets Plan and accompanying legislation. The legislation took effect on January 16, 2011.

The Better Streets Plan is now an official plan of the City and County of San Francisco. It describes design guidelines for pedestrian and streetscape features in the public right-of-way in San Francisco.

### 1.5.3 San Francisco Municipal Transportation Agency Livable Streets Program

SFMTA's Traffic Calming Program, part of the Livable Streets division, is working on improving safety on San Francisco's streets. This program addresses some of the traffic problems associated with the growing number of cars in the City, by redesigning streets and sidewalks to make them friendlier for pedestrians, children, bicyclists, and motorists.

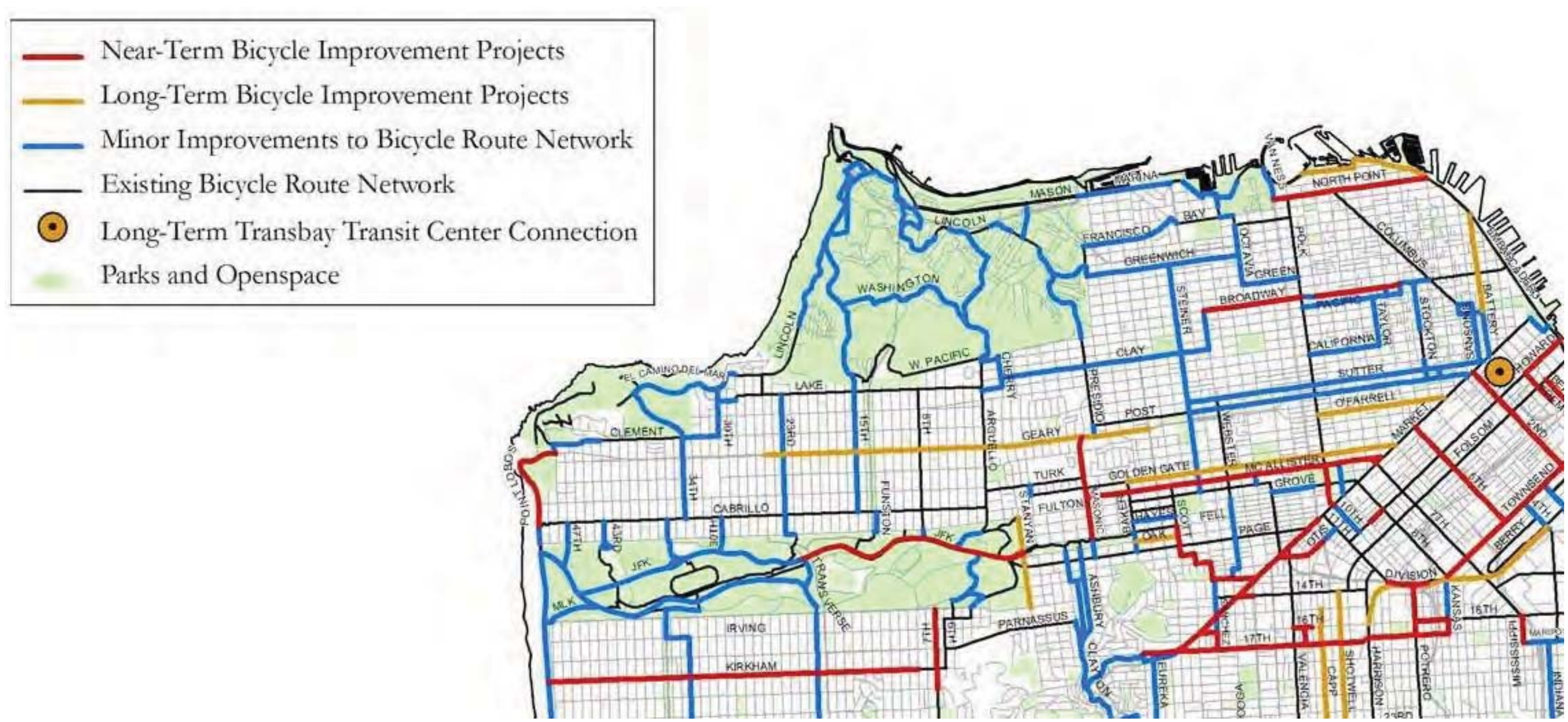

### *1.5.4 San Francisco Bicycle Plan*

The 2009 San Francisco Bicycle Plan is an update of the 1997 San Francisco Bicycle Plan. By maintaining an approved bicycle plan, the City and County of San Francisco is eligible for selected State and regional funds to develop bikeways and related facilities. Additionally, San Francisco City Charter Section 16.102 and Section 8A.113 state that San Francisco should develop "a safe, interconnected bicycle circulation network;" and that travel… "by bicycle and on foot must be an attractive alternative to travel by private automobile." The City Charter also states that "bicycling shall be promoted by encouraging safe streets for riding, convenient access to transit, bicycle lanes, and secure bicycle parking."

The Bicycle Plan contains specific proposed near-term bicycle route network improvement projects as well as long-term projects. Current bicycle facilities in the project area include Class II on-street bike lanes on Turk Boulevard and Golden Gate Avenue with Class III signed routes on Masonic Avenue and Parker Avenue as shown in **Figure 2**. The 2009 Bicycle Plan recommends near-term improvements on Masonic Avenue to improve bicycle facilities and create a safe cycling route.

.

**Figure 2 San Francisco Bike Plan**






UNIVERSITY OF SAN FRANCISCO
CHANGE THE WORLD FROM HERE

# CHAPTER 2. SITE ANALYSIS

In order to develop a clear understanding of the vehicular and pedestrian issues effecting University Terrace and the USF campus, the project team conducted a wide analysis that focused on issues that affect circulation, safety and livability in four main zones: the University Terrace neighborhood, along Turk Boulevard, Golden Gate Avenue, and the USF campus. The analysis included a walking tour of the neighborhood with University Terrace Association and USF representatives, site observation on multiple occasions, traffic data collection, review of overview materials provided by UTA members, and a survey of neighbor and USF communities.

## 2.1 METHODOLOGY

To evaluate the transportation conditions and specific traffic issues in the study area, the following steps, consistent with best practices for traffic calming programs[1] throughout the U.S., were conducted:

1. **Project Initiation**
   a. Review neighborhood concerns (identified in the settlement agreement and reinforced in subsequent discussions)
   b. Review previous planning efforts in the area
   c. Review city policies applicable to project
   d. Community outreach
2. **Project Development**
   a. Collected traffic data including speeds, volumes and collision data
   b. Observed conditions in the field
   c. Identified specific concerns through survey[2] of neighborhood and stakeholders
   d. Evaluated issues and identify potential traffic calming measures
   e. Evaluated alternatives through a series of workshops and public meetings.
3. **Project Approval**
   a. Neighborhood Traffic Committee formed to evaluate the four alternatives and to assist in building community consensus
   b. Neighborhood support for the plans assessed via ballot-like surveys
   c. Community consensus was reached and support from the City is currently being solicited
   d. Funding sources are currently being identified

[1] Based on U.S. Traffic Calming Manual, co-authored by Steve Brown, Principal at Fehr & Peers.

[2] See Appendix for Community Survey.

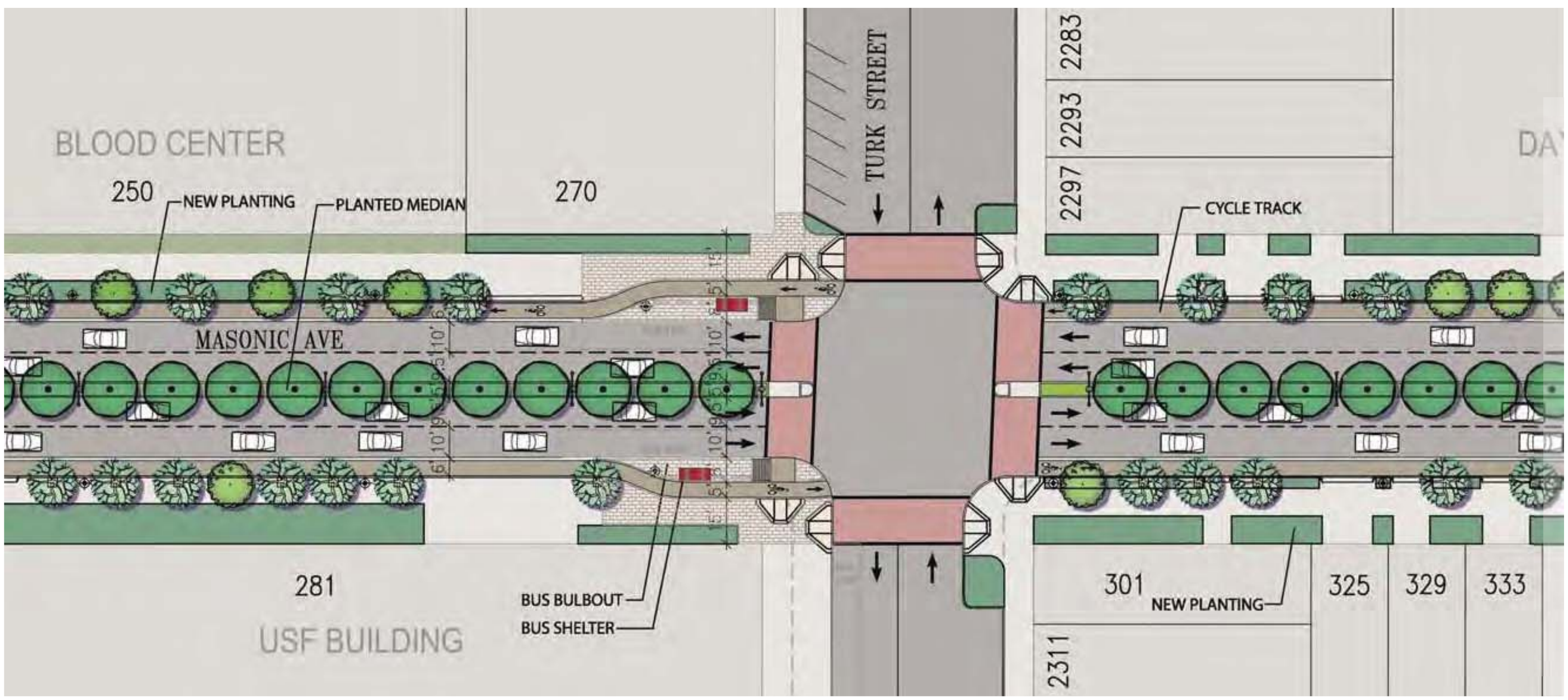
.

## 2.2 DATA COLLECTION

The project study area includes two major arterial street segments (Masonic Avenue and Turk Boulevard) and eight residential streets:

- Masonic Avenue, between Turk Boulevard and Golden Gate Avenue
- Turk Boulevard, between Parker Avenue and Masonic Avenue
- Golden Gate Avenue, between Parker Avenue and Masonic Avenue
- Parker Avenue, between Turk Boulevard and Golden Gate Avenue
- Temescal Terrace
- Chabot Terrace
- Kittredge Terrace
- Roselyn Terrace
- Tamalpais Terrace
- Annapolis Terrace

**Figure 3 Masonic Avenue Street Redesign Study**




Source: SF Planning Department, SFMTA, SFDPW; 2011

Masonic Avenue has recently been evaluated by the City of San Francisco Municipal Transportation Agency (MTA) and is undergoing a planning process for traffic calming improvements as shown in **Figure 3.** This traffic calming study is being coordinated with the City's efforts and therefore did not consider additional traffic calming measures on Masonic Avenue.

To evaluate the traffic volumes and vehicle speeds in the study area, Fehr & Peers collected vehicular, pedestrian, and bicycle data in October 2010 on two typical weekdays while school was in session. The data collection efforts are summarized in this section.

### *2.2.1 Vehicle Turning Movement Volume Data*

Vehicular turning movement counts were conducted on Thursday October 14th, 2010 and Tuesday October 19th, 2010 during morning and evening peak-hour periods: 7:00 to 9:00 AM and 4:00 to 6:00 PM. See **Figure 4** for the AM and PM peak hour average vehicular turning movement volumes at the following eight locations:

1. Golden Gate Avenue at Parker Avenue
2. Golden Gate Avenue at Chabot Terrace
3. Golden Gate Avenue at Roselyn Terrace
4. Golden Gate Avenue at Masonic Avenue
5. Turk Boulevard at Masonic Avenue
6. Turk Boulevard at Tamalpais Terrace
7. Turk Boulevard at Kittredge Terrace
8. Turk Boulevard at Parker Avenue

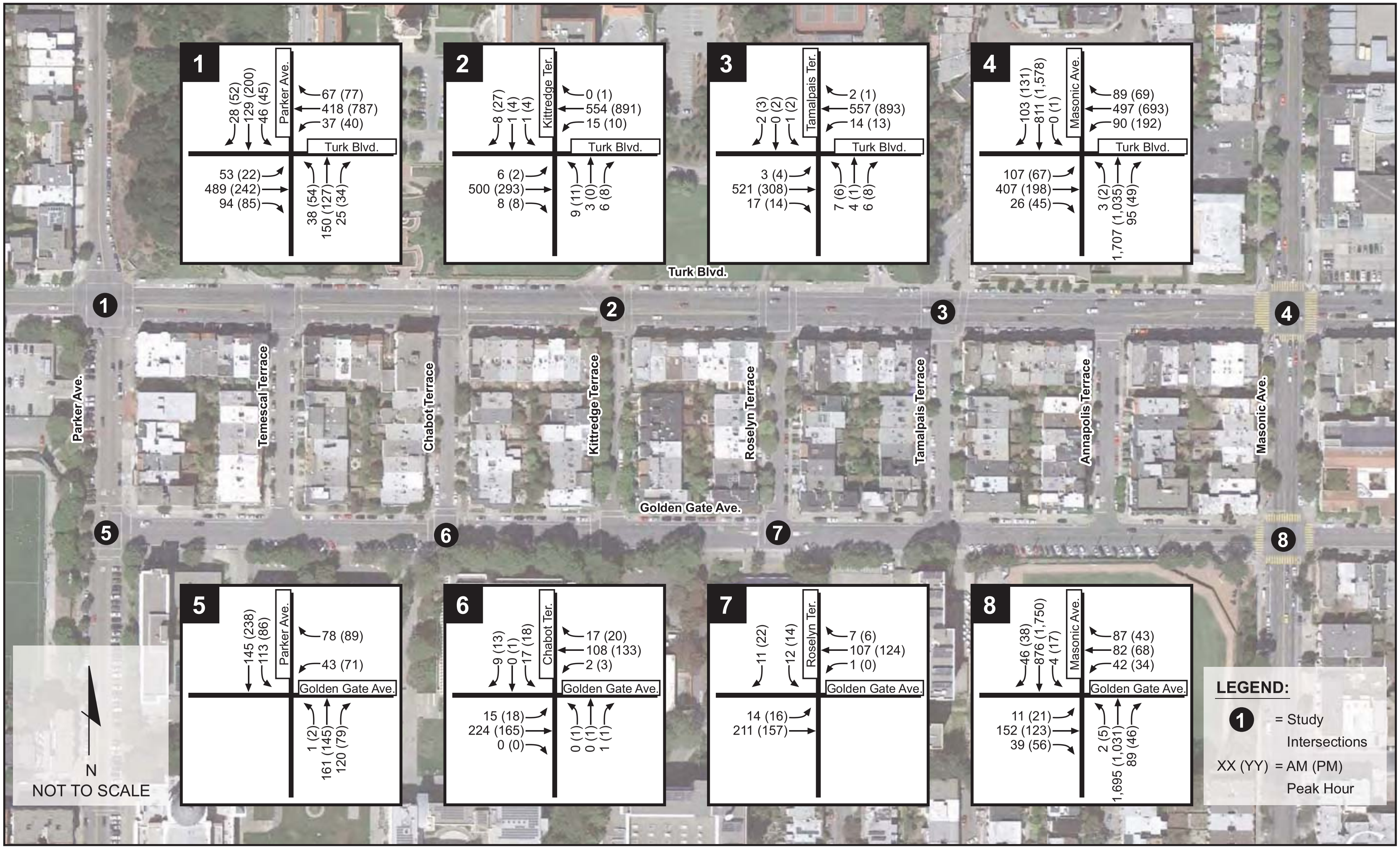
As shown in **Figure 4**, the intersection of Turk Boulevard at Masonic Avenue has the highest volume of turning movements. The turning movements to and from Turk Boulevard to the six residential terrace intersections range between 50 and 75 turns during the peak hour.

Although traffic analysis is typically based on the morning and evening peak hours, the travel patterns near universities often depend on class schedules and may have higher volumes of activity mid-day. Therefore, Fehr & Peers also conducted vehicular movement counts on Thursday October 19th, 2010 from 11:00AM to 1:00 PM.

**Figure 5** presents the mid-day peak hour turning movement volumes at the following locations:

1. Golden Gate Avenue at Parker Avenue
2. Golden Gate Avenue at Chabot Terrace
3. Golden Gate Avenue at Roselyn Terrace
5. Turk Boulevard at Masonic Avenue
6. Turk Boulevard at Tamalpais Terrace
7. Turk Boulevard at Kittredge Terrace

As shown in Figure 6, the highest number of vehicles was observed at the intersection of Turk Boulevard at Parker Avenue (395 turns). The peak hour turns on the residential terrace intersections ranges between 75 and 98 turns, which is approximately 1.5 times as many turns as are observed during either AM or PM peak hour. This equates to roughly 1.5 turns per minute for each intersection within the University Terrace neighborhood.




FEHR & PEERS

USF Traffic Calming

## USF STUDY AREA TURNING MOVEMENT AM (PM) PEAK HOUR VOLUMES

Dec 2010
SF10-0532\graphics\Tech Memo\0518-1

FIGURE 4


FEHR & PEERS

USF Traffic Calming

## USF STUDY AREA TURNING MOVEMENT MID-DAY PEAK HOUR VOLUMES

Dec 2010
SF10-0532\graphics\Tech Memo\0518-2

FIGURE 5

### 2.2.2 *Vehicle Volume and Speed Data*

In conjunction with the vehicular turning movement counts, Fehr & Peers also conducted 24-hour vehicle "tube counts" for the following four segments on Turk Boulevard and Golden Gate Avenue on October 14th, 2010 and October 19th, 2010:

1. Golden Gate Avenue from Temescal and Chabot
2. Golden Gate Avenue from Roselyn and Tamalpais
3. Turk Boulevard from Temescal and Chabot
4. Turk Boulevard from Roselyn and Tamalpais

Overall, traffic impacts the USF and UT communities significantly. The major streets leading to USF – Masonic Avenue, Turk Boulevard, Fulton Street, and Stanyan Street – carry approximately 34,000 vehicles, 10,000 vehicles, 9,000 vehicles, and 9,600 vehicles per day, respectively. Comparatively, the entire USF Hilltop Campus generates approximately 6,700 vehicle trips per day. The streets around USF have a substantially higher volume of pedestrians compared to surrounding neighborhood residential streets because of students walking between classes, and pedestrians cross these streets daily at both marked and unmarked crosswalks. Key factors were identified as speed, right-of-way violations by drivers, and the non-compliance with signals/signs.

The "tube data" includes all vehicle counts in both directions as summarized in **Table 1**.

**TABLE 1: EXISTING VEHICULAR VOLUME DATA**

| Location | Direction | Peak Hour Volume | | | Daily Volume |
|---|---|---|---|---|---|
| | | AM[1] | Midday[2] | PM[1] | |
| Golden Gate Avenue | EB | 147 (7%) | 163 (8%) | 150 (8%) | 1,976 |
| (Temescal – Chabot Terrace) | WB | 189 (8%) | 187 (8%) | 166 (7%) | 2,281 |
| Golden Gate Avenue | EB | 169 (7%) | 179 (8%) | 171 (7%) | 2,325 |
| (Roselyn – Tamalpais Terrace) | WB | 121 (7%) | 172 (9%) | 141 (8%) | 1,827 |
| Turk Boulevard | EB | 434 (11%) | 251 (6%) | 277 (7%) | 3,962 |
| (Temescal – Chabot Terrace) | WB | 405 (6%) | 413 (6%) | 572 (9%) | 6,564 |
| Turk Boulevard | EB | 466 (11%) | 276 (7%) | 328 (8%) | 4,191 |
| (Roselyn – Tamalpais Terrace) | WB | 476 (7%) | 440 (6%) | 775 (11%) | 7,129 |

Notes:

1 AM and PM peak hour vehicle counts are determined based on 24-hour tube counts conducted at the four designated locations on Thursday, October 14th, 2010.

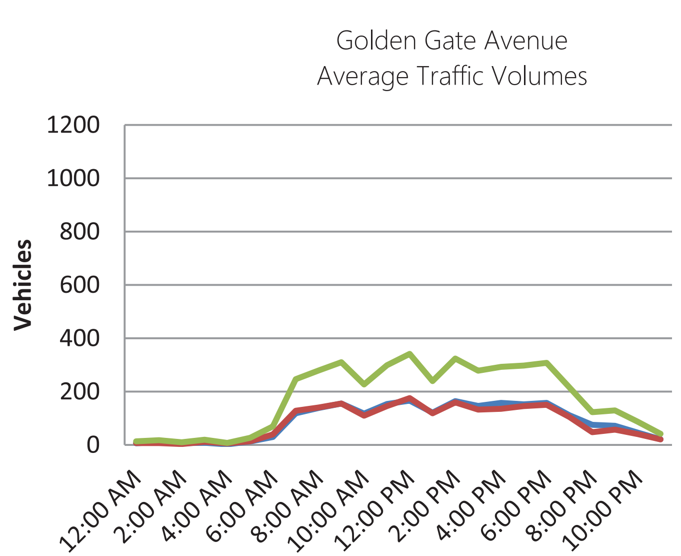
2 Mid-day peak hour vehicle counts are determined based on tube counts conducted at the four designated locations on Tuesday, October 19th 2010 from 11:00AM to 1:00PM.

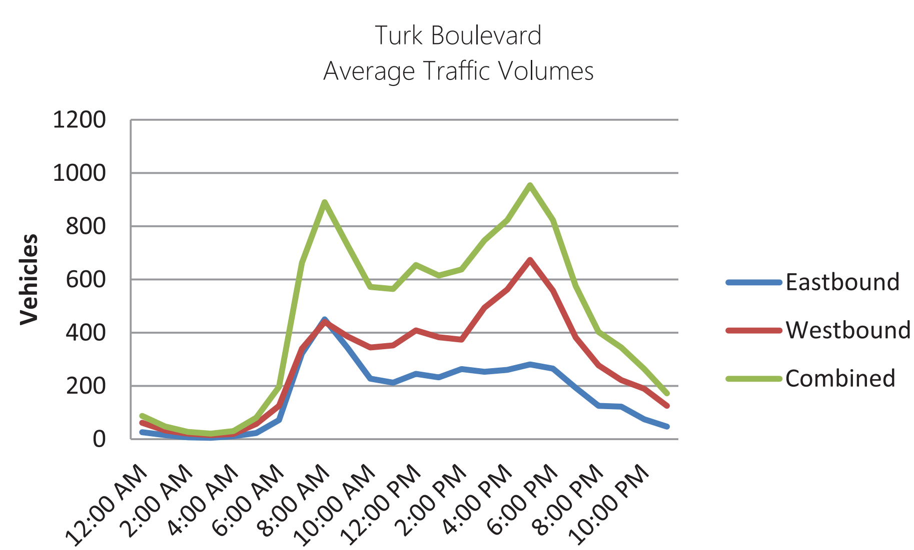
3 The speed limit along Turk Boulevard and Golden Gate Avenue is 25 mph.

Source: Fehr & Peers, 2010

As shown in **Table 1**, Turk Boulevard carries the heaviest vehicle volumes in the study area[3]. For all segments, between six and 11 percent of daily traffic occurs in either AM, mid-day, or PM peak hour, which is typical for local roadways. The highest peak hour volume happens on Turk Boulevard between Roselyn Terrace and Tamalpais Terrace; 775 vehicles (11%) travel westbound in the PM peak hour. This is equivalent to about one vehicle every five seconds. **Figure 6** illustrates the average vehicle volume profiles by time of day for Turk Boulevard and Golden Gate Avenue.

**Figure 6 Average Daily Traffic Volume Profiles**




3 Masonic Avenue carries the highest vehicle volumes in the study area; however, traffic calming measures are currently being evaluated on Masonic Avenue by MTA and therefore was not included in this study.

**TABLE 2: EXISTING MAJOR ROADWAY VOLUMES AND SPEEDS**

| Location | Direction | Median Speed (mph) | 85th Percentile Speed [2] | Maximum Speed [3] |
|---|---|---|---|---|
| Golden Gate Avenue (Temescal to Chabot Terrace) | EB | 19 | 24 | **43** |
| | WB | 16 | 22 | **38** |
| Golden Gate Avenue (Roselyn to Tamalpais Terrace) | EB | 19 | **27** | **43** |
| | WB | 18 | **26** | **63** |
| Turk Boulevard (Temescal to Chabot Terrace) | EB | 24 | **29** | **43** |
| | WB | 22 | **29** | **48** |
| Turk Boulevard (Roselyn to Tamalpais Terrace) | EB | 23 | **29** | **53** |
| | WB | **27** | **33** | **53** |

Notes:
1. Speed data are collected at the four designated locations on October 14th, 2010 during the 24-hour period.
2. The 85th percentile speed reflects the speed at which 85 percent of all traffic was operating at or below.
3. The maximum speed is the highest speed recorded on the segment during the 24-hour period
4. The speed limit on this street is 25 mph. **Bold** values exceed speed limit.

Source: Fehr & Peers, 2010

In addition to volume data, speed data was collected along Turk Boulevard and Golden Gate Avenue. Three speed profiles were captured for the roadway segments – median speed, 85th percentile speed, and maximum speed – and are shown in **Table 2**.

With the exception of Turk Boulevard east of Roselyn Terrace, which recorded a median speed of 27 miles per hour (mph), the median speeds on the other three street segments are below the posted speed limit of 25 mph. However, the 85th percentile speeds on Golden Gate Avenue east of Roselyn Terrace and on all study segments of Turk Boulevard exceed the speed limit of 25 mph.

The 85th percentile speed on Turk Boulevard east of Roselyn Terrace is 33 mph in the westbound direction. This is likely a function of the segment's two-lane operation, which results in a wider travel lane and provides more opportunity for vehicles to accelerate.

In general, the median and the 85th percentile speeds increase as vehicles travel east along both corridors from Parker Avenue to Masonic Avenue, and decrease as they travel westbound from Masonic Avenue. This is likely due to the roadway grades, which range between five and 10 percent on both Turk Boulevard and Golden Gate Avenue with a vertical crest near Chabot Terrace. The 85th percentile speeds of the study area are in the range of 22 to 33 mph with maximum speeds up to 63 mph.



UNIVERSITY OF SAN FRANCISCO
CHANGE THE WORLD FROM HERE

### 2.2.3 *Pedestrian Volume Data*

**Figure 7** illustrates the AM and PM peak hour volume of pedestrians that use the crosswalks at the eight intersections counted. During AM and PM, the intersection of Golden Gate Avenue at Parker Avenue had the most pedestrian traffic. The crosswalks at Turk Boulevard and Kittredge Terrace were used by the fewest number of pedestrians. Other intersections in the study area indicate heavy pedestrian use, as expected near a university.

During mid-day, the highest number of crossing pedestrians occurs at the Golden Gate Avenue/Chabot Terrace intersection (772, and likely continue across the Turk Avenue/Chabot Terrace intersection) as shown in **Figure 8**. Compared to the vehicle volumes at this intersection, there are nearly twice as many pedestrians as vehicles. All intersections had nearly twice as many pedestrians crossing during mid-day peak hour as during AM or PM peak hour.

**TABLE 3: BICYCLE EXISTING VOLUME DATA**

| Intersection | Parker | Temescal | Chabot | Kittredge | Roselyn | Tamalpais | Annapolis | Masonic |
|---|---|---|---|---|---|---|---|---|
| **AM (PM) Peak Hour Volumes[1]** | | | | | | | | |
| Turk Boulevard | 11 (10) | -- | -- | 1 (4) | -- | 6 (10) | -- | 12 (24) |
| Golden Gate Avenue | 19 (13) | -- | 19 (5) | -- | 19 (9) | -- | -- | 23 (25) |
| **Mid-Day Peak Hour Volumes[2]** | | | | | | | | |
| Turk Boulevard | 8 | -- | -- | 3 | -- | 4 | -- | -- |
| Golden Gate Avenue | 7 | -- | 10 | -- | 8 | -- | -- | -- |

Notes:
1. AM and PM peak hour bicycle counts were collected on Thursday, October 14th, 2010.
2. Mid-day peak hour bicycle counts were collected on Tuesday, October 19th 2010 from 11:00AM to 1:00PM.

Source: Fehr & Peers, 2010

### 2.2.4 *Bicycle Volume Data*

In addition to vehicle and pedestrian counts, AM, mid-day, and PM peak hour bicycle volumes were collected at eight intersections in the study area. As shown in **Table 3**, the number of bicyclists riding along Golden Gate Avenue is notably higher in AM peak hour than during mid-day and PM peak hour. The use of the bicycle lanes on Turk Boulevard is generally low. **Figure 9** illustrates the AM and PM peak hour counts for bicycles and **Figure 10** shows the mid-day peak hour volumes at these intersections.

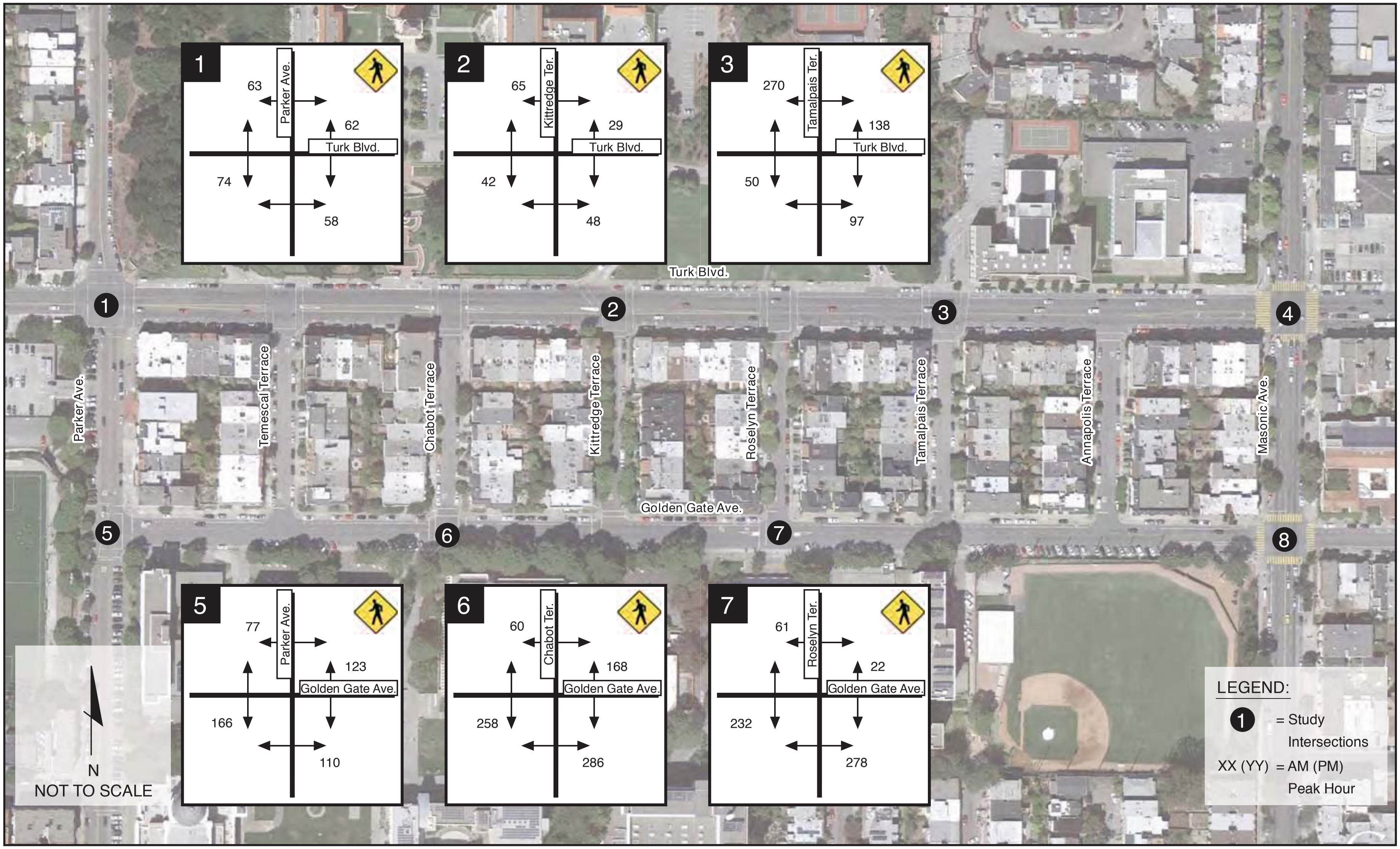

FEHR & PEERS

USF Traffic Calming

## USF STUDY AREA PEDESTRIAN AM (PM) PEAK HOUR COUNTS

Dec 2010
SF10-0532\graphics\Tech Memo\0518-3

FIGURE 7



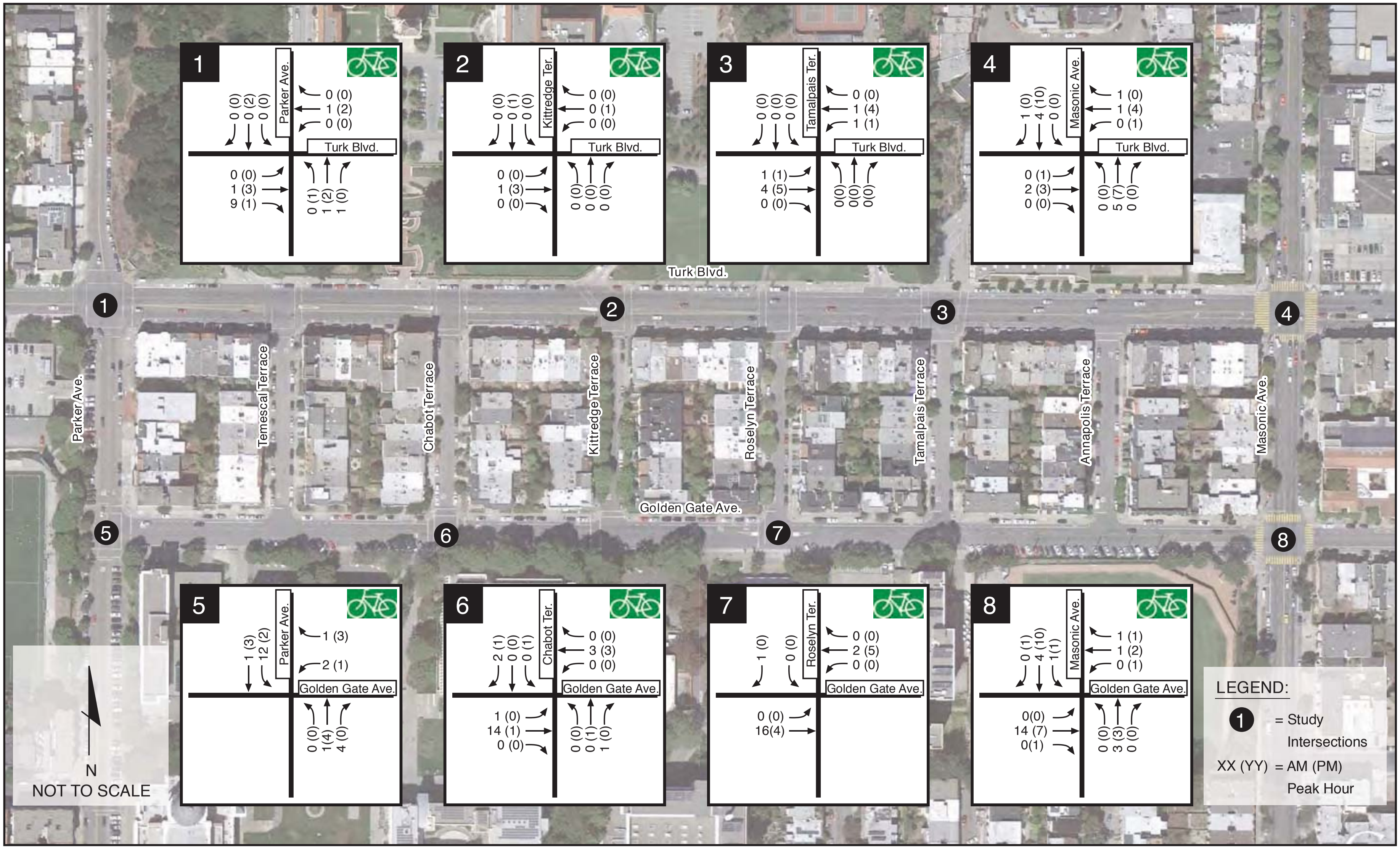

FEHR & PEERS

USF Traffic Calming

# USF STUDY AREA PEDESTRIAN MID DAY PEAK HOUR COUNTS

Dec 2010
SF10-0532\graphics\Tech Memo\0518-4

FIGURE 8



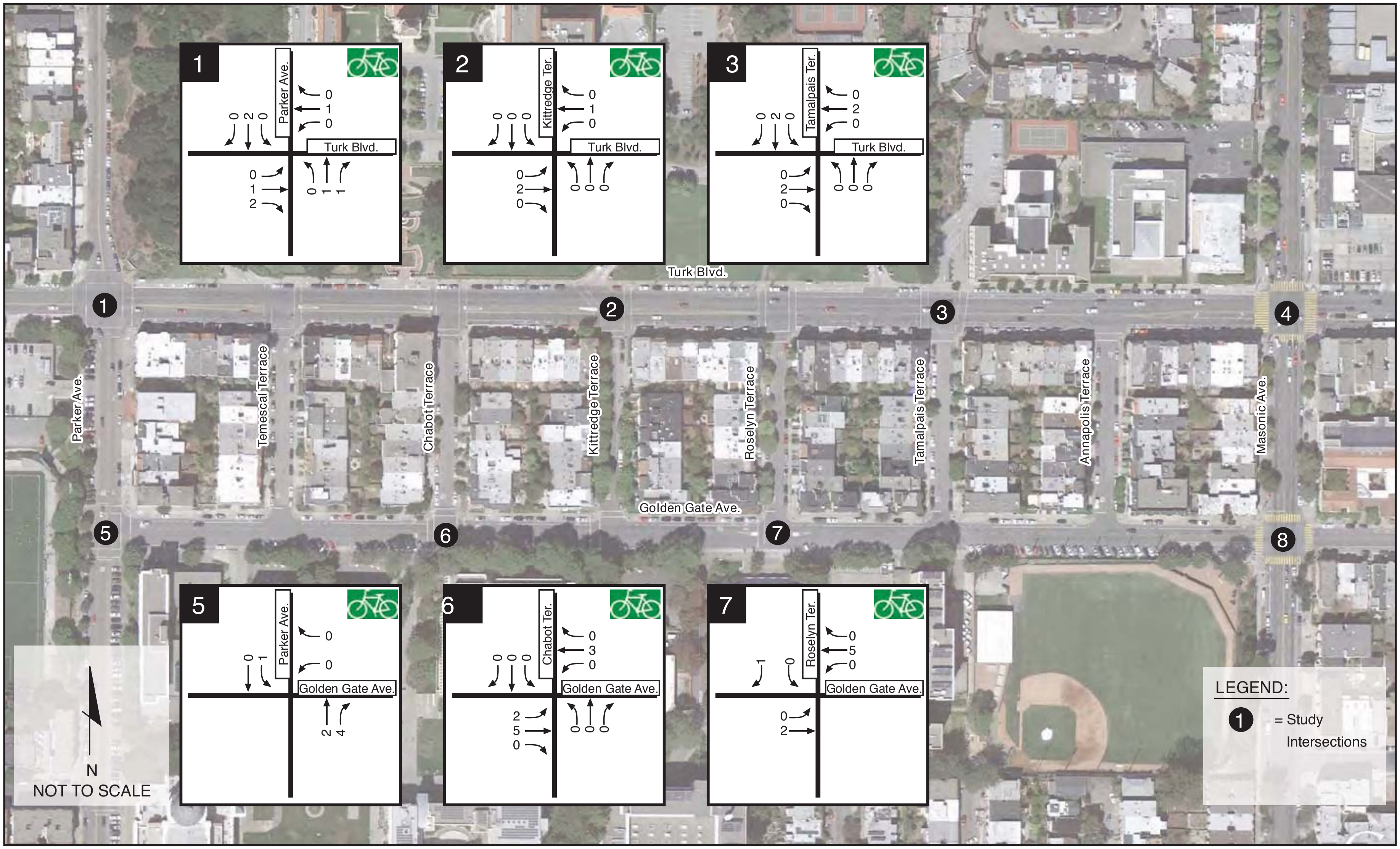

USF Traffic Calming

FEHR & PEERS

# USF STUDY AREA TURNING MO EMENT BIKE AM (PM) PEAK HOUR OL

Dec 2010
SF10-0532\graphics\Tech Memo\0518-1

FIGURE




USF Traffic Calming

FEHR & PEERS

USF STUDY AREA TURNING MO EMENT
BIKE MID DAY PEAK HOUR OL

FIGURE 1

Dec 2010
SF10-0532\graphics\Tech Memo\0518-2

### *2.2.5 Collision Data*

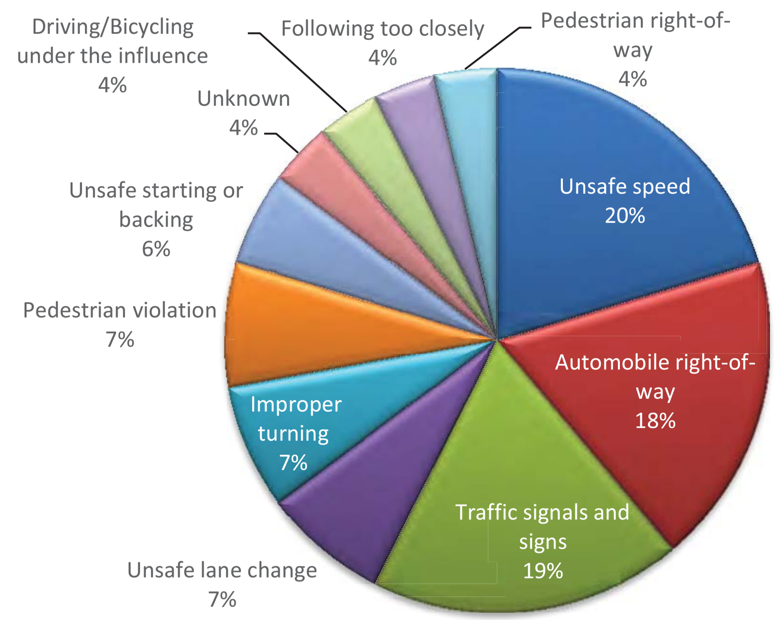
Fehr & Peers requested recent collision history for the roadway segments and intersections included within the study area. Collision data was obtained from the Statewide Integrated Traffic Records System (SWITRS), a database maintained by the California Highway Patrol (CHP) that collects and reports state-wide collision data gathered from a collision scene.

**Figure 11** summarizes the collision locations for the study area between January 2005 and December 2009. During the five-year period, 49 collisions were reported in the study area. The majority of the collisions (96%) occurred at intersections and mid-block locations along Turk Boulevard (61%) and Golden Gate Avenue (35%). The Turk Boulevard/Masonic Avenue intersection was the intersection with the highest number of collisions (24%).

Among the 49 reported collisions in the study area, 10 collisions involved at least one pedestrian (20%). In most cases, the pedestrians were crossing at an intersection. Three of these incidents resulted in severe injury; City staff also identified a fatal, sideswipe collision in 2007 at the intersection of Turk Boulevard and Chabot Terrace due to improper turning by the vehicle. The incident involved two vehicles and two pedestrians on the sidewalk and resulted in a fatality of an elderly pedestrian. Nine collisions involved a bicyclist (18%), one of which resulted in severe injury.

A summary of collisions in the study area are summarized by collision factor in **Figure 12**. The most common causes of collisions were unsafe speed (20%), disregard for traffic signals and signs (20%), and automobile right of way (18%). The collisions involving pedestrians occurred mostly at the intersections or mid-block location of small residential streets, and were mainly caused by vehicles not yielding to pedestrian right-of-way. The collisions involving bicyclists were mainly caused by vehicles improperly turning at intersections or driving at unsafe speeds.

**Figure 12 Collision Summary by Collision Factor**




FEHR & PEERS

USF Traffic Calming

LOCATION OF COLLISIONS (2 5 2 )

Dec 2010
SF10-0532\graphics\Tech Memo\0518-5

FIGURE 11

### *2.2.6 Parking*

The University Terrace streets currently experience higher than expected vehicle volumes primarily due to the availability of on-street parking in the area. Free parking is permitted throughout the neighborhood for up to two hours; vehicles with a "BB" permit may park on the street without time restrictions. The permits are part of the preferential residential parking system established by the City of San Francisco. The program is designed to reduce unnecessary personal motor vehicle travel, noise and pollution; promote improvements in air quality, convenience and attractiveness of urban residential living; and increase use of public mass transit. The main goal of the program is to provide more parking spaces for residents by discouraging long-term parking by people who do not live in the area.

**Table 4** summarizes the total number of available parking spaces in the University Terrace neighborhood.[4]

**TABLE 4: EXISTING ON-STREET PARKING SUPPLY**

| Street | On-street Parking Spaces |
|---|---|
| Parker Avenue | 33 |
| Temescal Terrace | 20 |
| Chabot Terrace | 16 |
| Kittredge Terrace | 18 |
| Roselyn Terrace | 18 |
| Tamalpais Terrace | 21 |
| Annapolis Terrace | 21 |
| Turk Boulevard | 93 |
| Golden Gate Avenue | 158 |
| **TOTAL** | **398** |

Notes:

Parking on Masonic Avenue was not included in parking inventory due to potential changes that may result from the on-going Masonic Avenue streetscape project.

[4] A comprehensive parking supply and demand study is being conducted as part of the University Institutional Plan process. Recommendations from this traffic calming study related to parking will be considered for implementation during the IMP process.

## 2.3 FIELD OBSERVATIONS

General site observations throughout the study area are presented below.

### 2.3.1 USF Campus

The University Terrace neighborhood is situated between the upper and lower campuses of USF and is used daily by students, faculty, staff, delivery vehicles and service vehicles traveling between the two campuses. During several field visits to observe travel patterns and behaviors, students were often jaywalking, walking in the middle of the Terrace streets and generally treating the neighborhood as part of the campus.

Throughout the week, numerous delivery vehicles were observed traveling to and from USF, particularly along Golden Gate Avenue where loading zones for deliveries and vendors are designated. Loading and service vehicles are often double-parked on Golden Gate Avenue, creating a less pedestrian-friendly environment along the campus edge.

### 2.3.2 University Terrace streets

Due to the proximity to campus, the University Terrace neighborhood has become a highly-desirable area for parking for the USF community. Parking is permitted on both sides of all University Terrace streets. However, due to the limited number of parking spaces available (114 on the Terrace streets), vehicles often circulate through the neighborhood in search of available parking. In some cases, vehicles were observed blocking driveways to residences in the study area.

Many vehicles were observed using Temescal Terrace as a cut-through trying to avoid the traffic lights on Turk Boulevard at Parker Avenue and Chabot Terrace. Similarly, vehicles use Annapolis Terrace as a cut-through to avoid the signals at Masonic Avenue. Several USF maintenance vehicles were observed on University Terrace Streets traveling between the upper and lower campuses.

Drivers circling the Terrace streets looking for parking or traveling between campuses were often not paying attention to pedestrians on the street or vehicles entering or exiting the driveways. In addition, several vehicles were observed travel along the Terrace streets at higher speeds than appropriate for a residential street, made wide turns across the opposing lane, and accelerated to reach the other end of the block. At the end of the block, many drivers did not make a complete stop before turning onto Golden Gate Avenue or Turk Boulevard.

Although the sidewalks in the area were initially designed for residential streets, they are not sufficient to accommodate the volumes of pedestrians adjacent to an institution and many are not compliant with the Americans with Disabilities Act (ADA) as their widths are less than the minimum requirement. The minimum width for an ADA-compliant sidewalk is 36 inches (three feet); if sidewalks are less than 60 inches (five feet) across, passing spaces for wheelchairs must be constructed at set intervals. These passing spaces must measure at least 60 inches on all sides, and must be located at least every 200 feet.

There are frequently obstructions in the pedestrian right-of-way including several trees that uproot the sidewalks, particularly on Kittredge Terrace and Roselyn Terrace, making it inconvenient and challenging to travel on sidewalks. Although some crosswalks are present in the neighborhood, they are typically faded and not always placed in locations where pedestrians typically cross.

### *2.3.3 Turk Boulevard*

Turk Boulevard is 70 feet wide with limited facilities for pedestrians. Most crosswalks are faded and not aligned with pedestrian desire lines to campus. The existing medians provide little refuge for pedestrians and signal timing along the corridor often provides just enough crossing time. The signal at Chabot Terrace only allocates 22 seconds of crossing time for pedestrians; the industry standard requires a minimum of seven seconds of green (walk) time plus a clearance interval (walk + flashing don't walk) that is calculated at 3.5 feet/second. Therefore a pedestrian typically should have at least 27 seconds of clearance to cross Turk Boulevard adequately. Given the high volumes of pedestrian near the University, the signal timing is insufficient.


A Class II on-street bike lane is provided on Turk Boulevard in each direction within the study area. However, the striping is not continuous due to the presence of Muni bus facilities (Route 31, 31AX and 31BX) along Turk Boulevard. Cyclists must often maneuver around buses into vehicular travel lanes, creating a potential conflict between numerous modes. As noted in the previous section, bicycle use on Turk is generally low and is less desirable given the high vehicle volumes and limited bicycle facilities.

In the study area, Turk Boulevard has significant grades (5-10%) with a peak at the Turk Boulevard/Chabot Terrace intersection. The grade creates sightline issues for vehicles in both directions as vehicles approach a vertical crest at Chabot Terrace, particularly during morning and evening commutes when the glare from sunshine can be very challenging to see approaching vehicles or pedestrians crossing ahead.

Parking is permitted on both sides of Turk Boulevard.

### *2.3.4 Golden Gate Avenue*

Golden Gate Avenue is 55 feet wide with one travel lane in each direction. A bike lane is present in the westbound direction for the entire length of Golden Gate Avenue within the study area. In the eastbound direction, there are no bicycle facilities with the exception of the section approximately 100 feet west of Golden Gate Avenue/Masonic Avenue intersection.

Along the north side of Golden Gate Avenue, parallel parking is permitted along the curb. The south side of the street is designated as angled parking. Since the eastbound travel lane is excessively wide to accommodate the parking aisle, it may encourage driver speeds due to the wide expanse of pavement available.

The wide roadway also creates long crossing distances for pedestrians at Chabot, Kittredge, and Roselyn Terrace intersections. There is a lack of crosswalks at the east end of the corridor. The roadway centerline is faded and does not clearly separate the opposing lanes. Students generally perceive Golden Gate Avenue as an extension of the USF campus and were observed jaywalking. Due to the grade on Golden Gate Avenue and limited traffic volumes, the street is generally popular with skateboarders.

### *2.3.5 Parker Avenue*

Parker Avenue is the western boundary of the University Terrace neighborhood and experiences moderate vehicle volumes due to the proximity to St. Ignatius Church at Fulton Street, the Fromm Xavier building at Golden Gate Avenue, the Koret Health and Recreation Center at Turk Boulevard and Negoesco Stadium located on the west side the street. The intersection of Parker Avenue and Golden Gate Avenue experiences high pedestrian volumes as students travel between the lower campus and the athletic facilities. The street is 56 feet wide with perpendicular parking on the west side of the street and parallel parking on the east side.

Residents noted that vehicles often queue at the intersection of Parker Avenue and Turk Boulevard and block driveways on the east side of the street, particularly during the afternoon and evening.

## 2.4 COMMUNITY OUTREACH

To understand the concerns and details about the issues in the project area, a comprehensive community outreach process was employed. We met with members of the University, University Terrace Association, students and the City of San Francisco on the following dates:

- Tuesday, September 14, 2010 (Kick-off meeting)
- Thursday, September 30, 2010 (Site Walk/Stakeholder Meeting)
- Wednesday, October 27, 2010 (USF client meeting)
- Friday, October 29, 2010 (SFMTA meeting)
- Wednesday, November 10, 2010 (UTA board)
- Monday, November 15, 2010 (USF client meeting)
- Monday, November 15, 2010 (UTA community meeting #1)
- Tuesday, December 21, 2010 (USF client meeting)
- Thursday, January 06, 2011 (USF client meeting)
- Wednesday, January 12, 2011 (Working committee)
- Wednesday, January 19, 2011 (Cabinet preparation)
- Wednesday, January 26, 2011 (Cabinet meeting)
- Wednesday, February 02, 2011 (UTA board)
- Monday, February 28, 2011 (Student senate)
- Monday, February 28, 2011 (UTA community meeting #2)
- Thursday, March 31, 2011 (Campus Town Hall)
- Thursday, March 31, 2011 (UTA Traffic Committee, work session 1)
- Thursday, April 07, 2011 (Campus Town Hall)
- Wednesday, April 27,2011 (UTA Traffic Committee, work session 2)
- Tuesday, June 14, 2011 (UTA Traffic Committee, work session 3)
- Wednesday, August 3, 2011 (UTA Traffic Committee, work session 4)
- Wednesday, September 14, 2011 (UTA Traffic Committee, work session 5)
- Wednesday, October 5, 2011 (UTA community meeting #3 Plan Review)

The goal of the meetings was to identify and prioritize community concerns in the study area and discuss potential traffic calming measures to alleviate concerns. The University Terrace Association appointed a Traffic Committee to evaluate the four alternatives on behalf of the UT community. The Committee met with Fehr & Peers, Urban Design+ and USF to evaluate the elements in each Alternative and determine which would be proposed to the University Terrace Community at-large.

In addition to the meetings listed above, we coordinated with the community and stakeholders including the San Francisco Planning Department and Campus Delivery Coordinator throughout the planning process via conference calls and emails.

## 2.5 SURVEY RESULTS

In addition to the neighborhood meetings, the project team conducted a survey via Survey Monkey that was distributed to University Terrace residents as well as USF faculty, staff and students. The purpose of this survey was to assist in identifying community concerns in the study area. This qualitative data was considered in conjunction to inputs from the neighborhood meetings among members of the University and UTA.

The survey included questions about transportation patterns, safety concerns, travel behavior and challenges to accessing campus and residences, among others. A copy of the survey questions can be found in the Appendix. A total of 1,076 respondents provided input on the survey. Highlights from the survey results are shown in the figures below.

**Figure 13** shows the mode share split among respondents who access the USF campus. Over two-thirds of the respondents access campus by modes other than automobile. Almost one-third of the respondents arrive by car despite the limited number of parking spaces available around the campus.

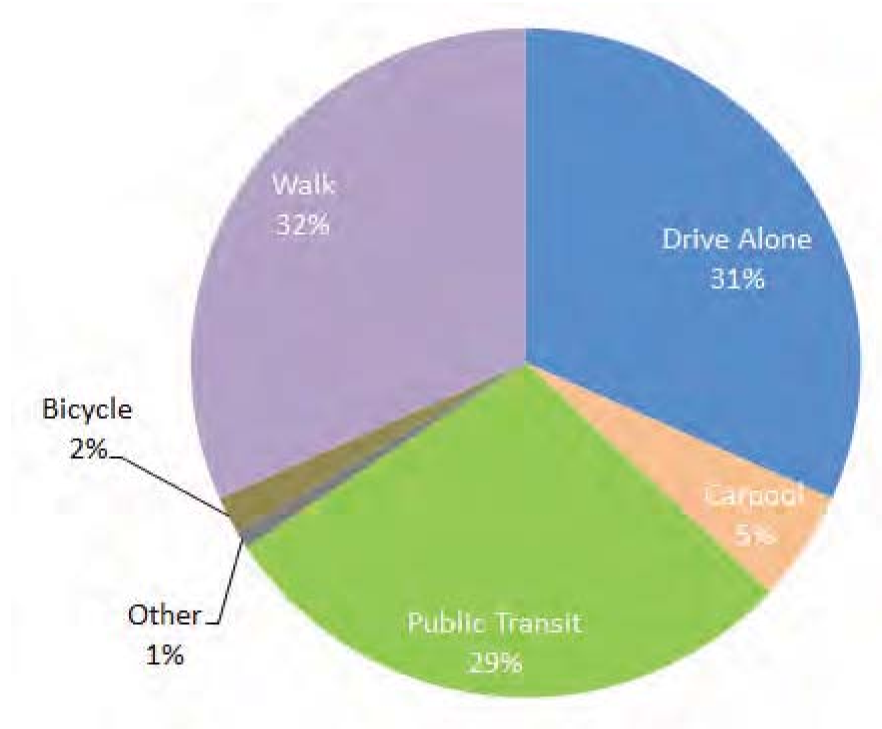



**Figure 13 Mode Share of Survey Respondents (Weighted)**

**Figure 14** identifies what respondents perceive to be the cause of the greatest safety issues in the study area. Approximately 60% of the respondents believe that driving under distraction, drivers' failure to yield right-of-way to pedestrians, and drivers looking for parking are the factors contributing to the greatest safety issues. These results are consistent with the major collision factors reported in the collision history records.

**Figure 14 Causes of Greatest Survey Respondent Safety Concerns**

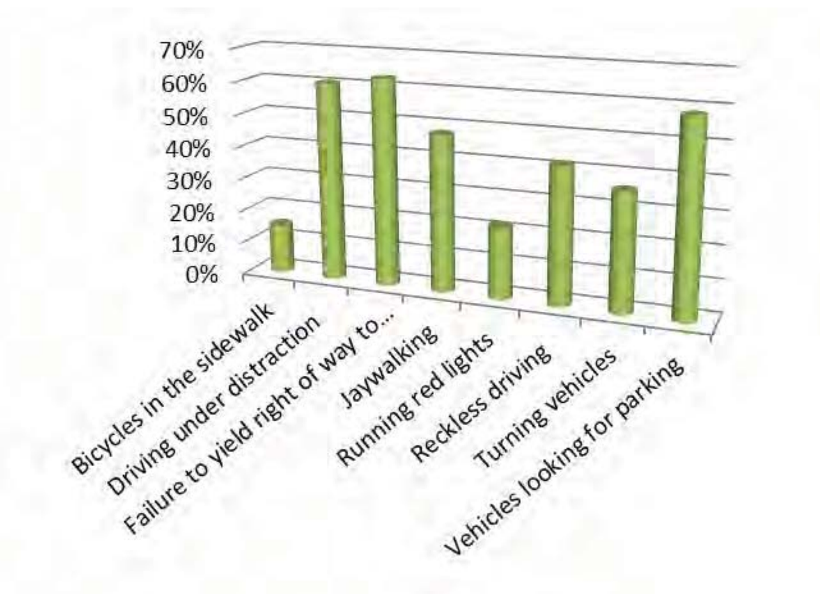
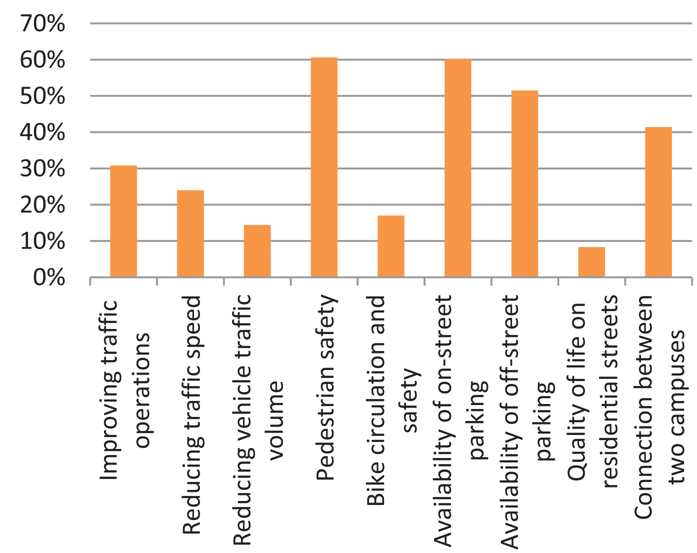



**Figure 15** indicates the types of street improvements the respondents believe should be prioritized. More than half of the respondents believe that increasing the number of on-street and off-street parking should receive the highest consideration. Sixty percent of the respondents also perceive pedestrian safety to be the top concerns when considering street treatments.

**Figure 15 Street Improvement Types, by Priority**



## 2.6 SITE ANALYSIS SUMMARY

This analysis identified a series of issues in five general categories:

### Parking Management in the UT Neighborhood

Parking in the UT neighborhood is impacted by members of the public, including the USF community, parking throughout the UT. These impacts include lack of parking for visitors, high traffic volumes created by people looking for parking, unsafe driving maneuvers including mid-block U-turns and inattentive and high speed turns, and blocking of residents' driveways.

### Traffic Management in the UT Neighborhood

The residential parking permit area in University Terrace (i.e., "BB") has a 2-hour time limit for non-residents which leads to regular turnover of the parking spaces. This space turnover ensures that if one looks long enough, odds are eventually a space will be found. The corollary to this turnover is that it creates traffic throughout the University Terrace streets as vehicles circulate looking for parking.

### Pedestrian Volumes in the UT Neighborhood

Throughout the day, members of the USF community walk back and forth between the Upper and Lower campuses. The resulting pedestrian volumes are significant. As the sidewalks in the University Terrace neighborhood were not designed for such volumes and are generally narrow and often obstructed, many people walk in the street, creating a potentially hazardous condition given the traffic volumes and frequently observed unsafe driving maneuvers.

### Pedestrian Safety on Golden Gate Avenue and Turk Boulevard

The high volume of pedestrians moving between the two USF campuses is evident on both Golden Gate and Turk and is impacted by dangerous conditions on each. On Turk, crossing signal timing at the signalized crosswalks is too short for the distance and volumes (22 seconds at Chabot Terrace); the medians are insufficient for safe refuge; the grade and sun angles impede sight distances on the street and for drivers making turns to/from the street; the downhill eastbound grade and unnecessarily wide street encourage speeding; the sidewalks at the bus stops are narrow; the bike lanes are not continuous; and distracted pedestrians jaywalk at both the intersections and mid-block (contributing are Upper Campus paths that are not aligned to the crosswalks). On Golden Gate, the street is unnecessarily wide (which encourages unsafe driving maneuvers such as mid-block U-turns); there are no signalized intersections; there is a high volume of pedestrians crossing in all directions; the bike lanes are not continuous; and the downhill grade encourages high vehicular speeds (including bikes and skateboards).

### Vehicular Impacts on USF Campus Edges

The edges of each of the campuses are inordinately impacted by vehicles. These impacts include parking, driveways, service vehicles, and the traffic volumes on both Golden Gate and Turk. Parking and services, which dominate the campus edges, create obstacles for pedestrians and cyclists, as does the interruption in public space between the two campuses. These issues challenge the university to provide safe, efficient operations and maintain a curb appeal within the community.

There is a broad menu of traffic calming devices that can effectively address some of the traffic issues identified as a result of the data collection and public outreach in University Terrace. These could be as simple as revised lane striping or more prominent crosswalk markings for the directional guidance of cars, bicycles and pedestrians; reducing speed and volume through various narrowing and volume devices; bulbouts that narrow the travel lane at intersections and create shorter crossing distance for pedestrians; and "road diets," which reduce the number of automobile travel lanes to benefit transportation modes (e.g. bike lanes, wider sidewalks.) or alternative uses (e.g. parklets, stormwater management). One of the more effective tools of traffic calming is full or partial-street closures that restrict the quantity and sometimes the type of travel on a given right-of-way.

The study team developed four alternative traffic calming scenarios. Each alternative is a combination of possibilities from an overall menu of ideas—the alternatives are organized around general themes, but many of the components can be recombined to generate other scenarios. A full description of the alternatives may be found in the Appendix. Regardless of the methods implemented, the ultimate evaluation of effectiveness is how well the measures meet the needs of street users and residents and provide consistency with community values and city policy. Potential traffic calming measures were identified and combined to form four alternatives for the communities to evaluate through a series of public and campus meetings. Neighborhood residents and other stakeholders evaluated the alternatives, selected the measures that were most effective to meet the project goals, and developed a preferred alternative.

Recognizing that no one idea will solve neighborhood and USF traffic issues, the community combined the most palatable elements of the four alternatives to develop a comprehensive plan that results in changes to address existing traffic behavior and retains appropriate access to University Terrace and USF. A successful solution will be a comprehensive solution that both mitigates the identified issues and creates a safer and more welcoming community.

# CHAPTER 3. ALTERNATIVES

At the outset, it is important to recognize that no one idea will solve the neighborhood and USF issues. A successful solution will be an integrated mix of ideas will be a comprehensive solution that both mitigates the identified issues and creates a safer and more welcoming community. Pedestrian safety, parking management, and traffic calming are integrally linked in the community, and no one issue can be solved in isolation. A comprehensive plan will involve changes in existing traffic movement and access in the University Terrace and USF neighborhoods.

While a piece meal approach will not address the range of issues, it is possible to develop low-cost and/or temporary measures that can be used to evaluate various proposals. Such an approach has precedent in San Francisco and is a reasonable idea for interim improvements. Equally as valid is an approach that incorporates a long-term goal with a range of phased improvements that will build that end result in time as funding becomes available.

The study team has developed four alternatives for discussion with the UT and USF communities. Each of these alternatives is a combination of possibilities from an overall menu of ideas—the alternatives are organized around general themes, but many of the components can be recombined to generate other scenarios. One could look at the alternatives as specific approaches or as a phased sequence of ideas leading to a comprehensive long-term solution.

Each of the ideas presented here are framed in this context with an underlying commitment to not just resolving the specific concerns, but also in creating a more livable and harmonious UT/USF community.

## 3.1 ALTERNATIVE 1: IMPROVE CURRENT CONDITIONS

Alternative 1 is designed as a menu of ideas that could be quickly implemented to mitigate immediate concerns at minimal cost. This alternative includes crosswalk restriping on Turk and Golden Gate to improve pedestrian safety, driveway striping (indicating the boundaries of legal parking spaces) and enhanced PCO enforcement in UT to slightly better manage parking in the neighborhood, back-in angled parking on Golden Gate to improve pedestrian and bicycle safety, a dedicated left turn lane from Parker to Turk to ease traffic flow, and a range of low-cost demonstration projects to test more capital intensive ideas such as sidewalk widening on UT streets, partial street closures, and turning restrictions.

Alternative 1 represents a starting point in solving the issues, but is not a comprehensive, long-term solution. While the demonstration projects may have significant short-term effect, they are not permanent solutions. Thus, although the overall cost of Alternative 1 is relatively low, the long-term impact on pedestrian safety and resolution of parking management concerns may be minimal.

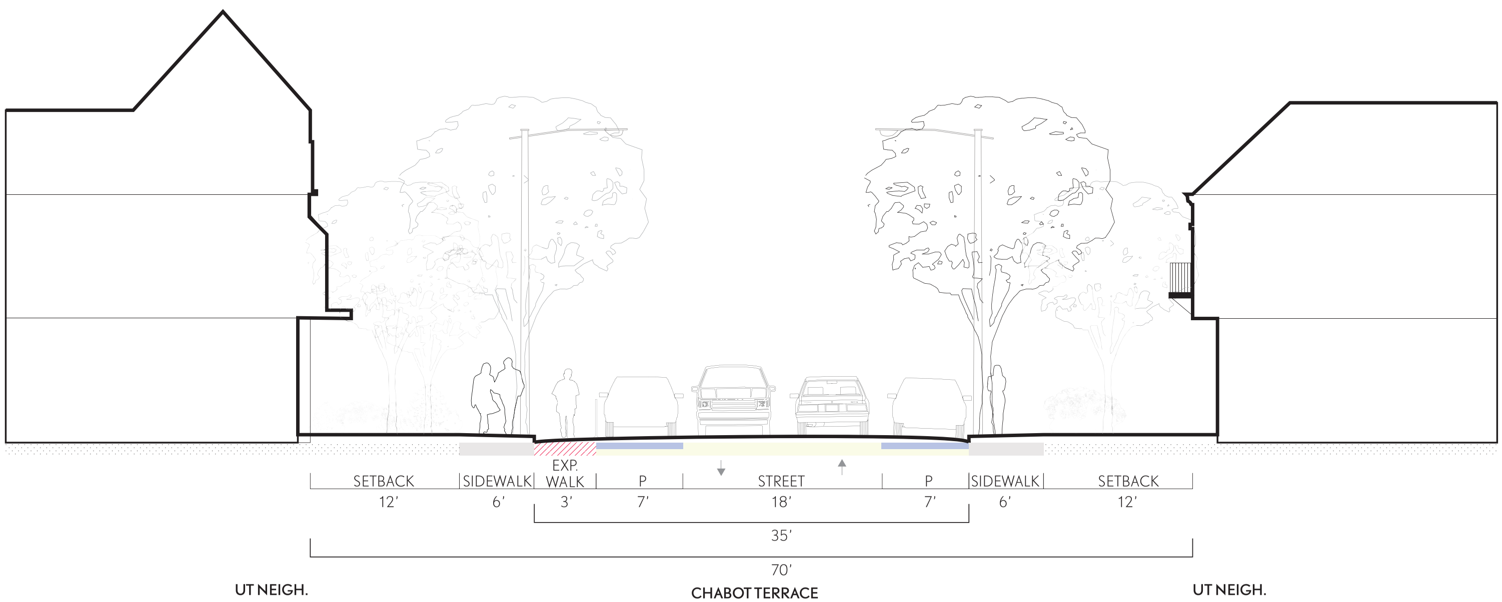

urban design planning sustainability
URBAN DESIGN+

**USF-Traffic Calming, Phase 1**
Alternative 1: Improve Current Conditions

**Project Team:**
Urban Design+
Fehr and Peers
Sasaki Associates

**Client:**
University of San Francisco

***Alternative 1: Improve Current Conditions***
***Demonstration Projects, Partial Sidewalk Widening***




**DRAFT**
For illustrative purposes only
and subject to change
06. January, 2011

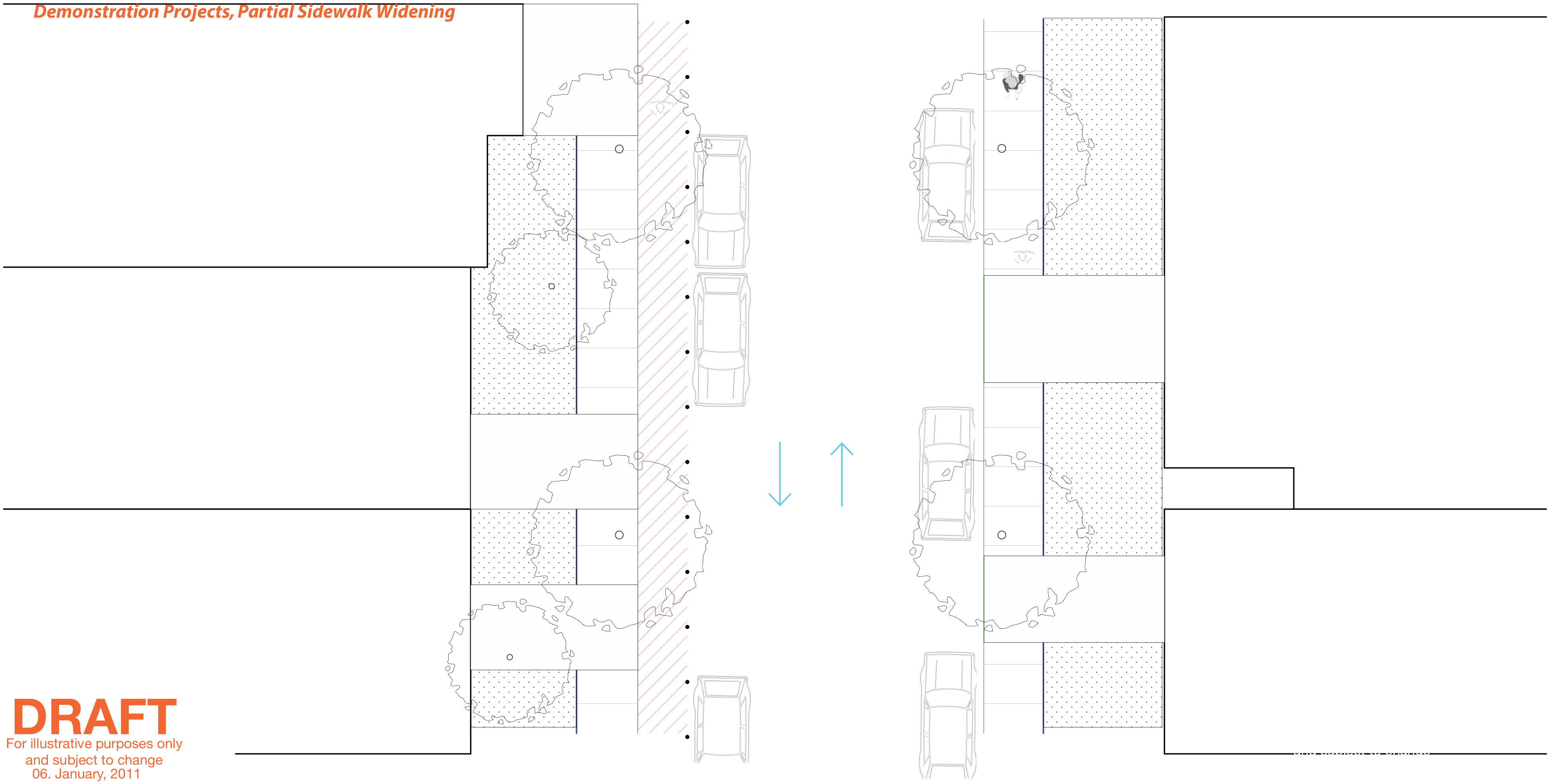
urban design planning sustainability
URBAN DESIGN+

**USF-Traffic Calming Master Plan**
Traffic Calming Ideas Matrix

**Project Team:**
Urban Design+
Fehr and Peers
Sasaki Associates

**Client:**
University of San Francisco

*Alternative 1: Improve Current Conditions*
*Demonstration Projects, Partial Sidewalk Widening*



**DRAFT**
For illustrative purposes only
and subject to change
06. January, 2011

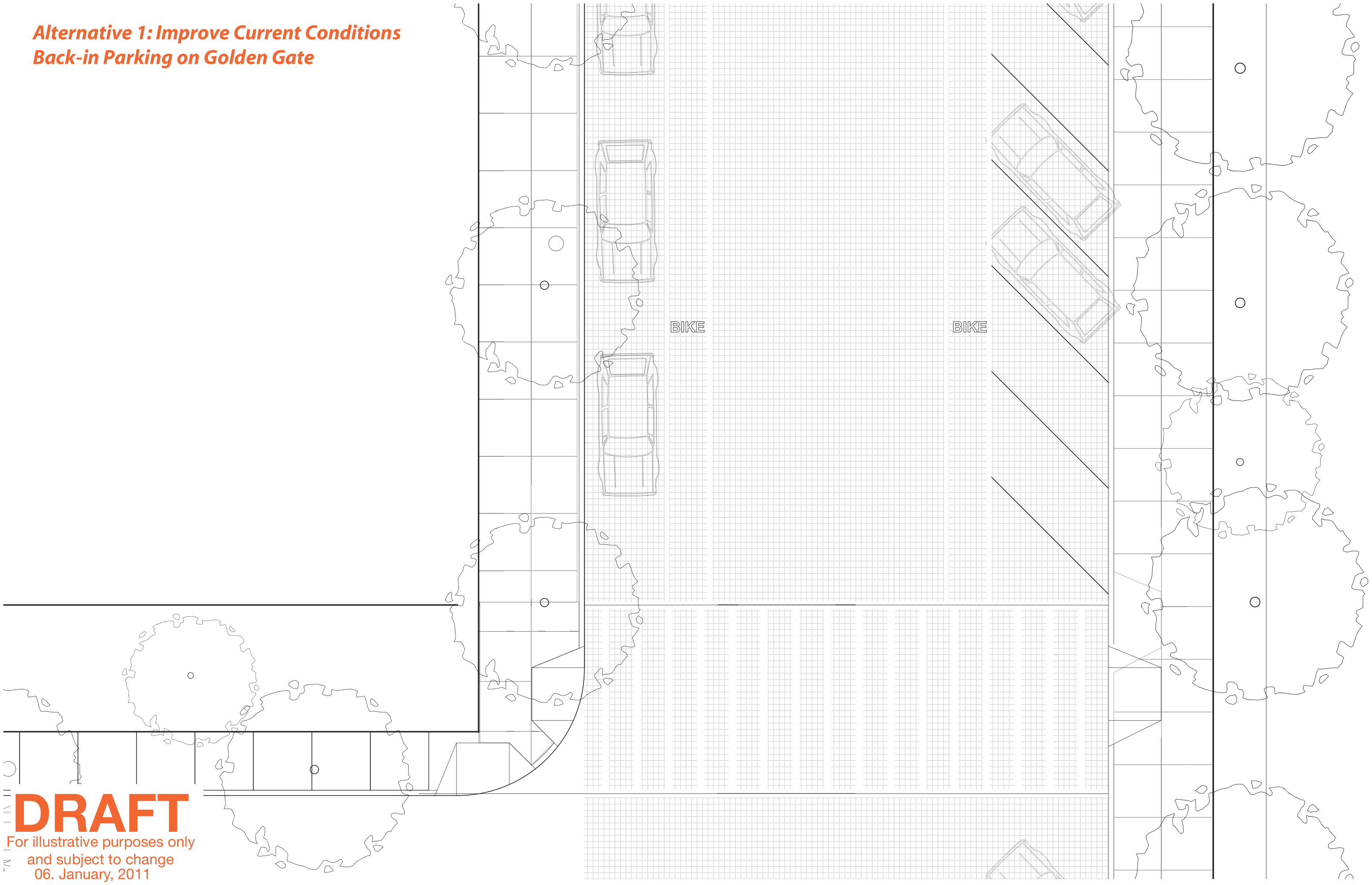
URBAN DESIGN+
urban design planning sustainability

**USF-Traffic Calming Master Plan**
Traffic Calming Ideas Matrix

**Project Team:**
Urban Design+
Fehr and Peers
Sasaki Associates

**Client:**
University of San Francisco

**Alternative 1: Improve Current Conditions**
**Back-in Parking on Golden Gate**




**DRAFT**
For illustrative purposes only
and subject to change
06. January, 2011

urban design planning sustainability
URBAN DESIGN+

**USF-Traffic Calming Master Plan**
Traffic Calming Ideas Matrix

**Project Team:**
Urban Design+
Fehr and Peers
Sasaki Associates

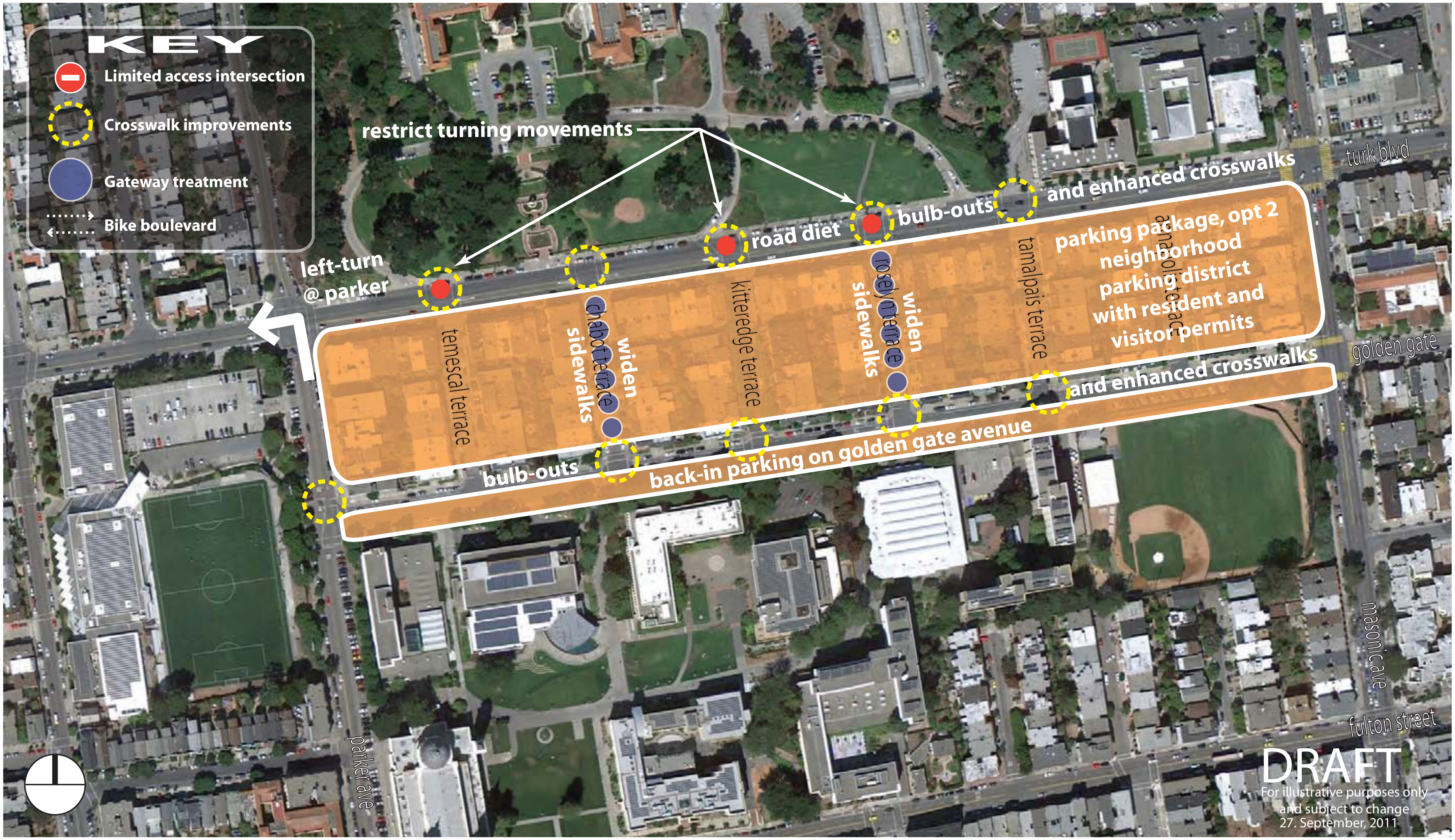
**Client:**
University of San Francisco

## 3.2 ALTERNATIVE 2: PARKING MANAGEMENT ON UT STREETS

Alternative 2 presents a more comprehensive model for resolving the most significant parking issues in University Terrace. The central idea is to reduce the time limit for non-resident parking such that it makes parking for USF community members difficult, if not impossible, on UT streets. Removing the UT streets from the everyday USF parking pattern will resolved neighborhood concerns with cars blocking driveways and insufficient available parking for visitors. As important, this idea will reduce the traffic volumes in the neighborhood and minimize the unsafe driving maneuvers generated by people looking for parking, both of which will minimize the identified impacts on the neighborhood and create a safer environment for the high volume of pedestrians.

Complementary enhancement on adjacent streets will further enhance safety, including a road diet for Turk Boulevard that will reduce traffic lanes and create more space for pedestrians and bicyclists—such space could be used for corner bulb outs to reduce crossing distances, bus stop improvements, and/or bicycle lanes; enhanced crosswalks on Turk and Golden Gate including possible crosswalk flashers; a new traffic light on Turk Boulevard at Roselyn Terrace in conjunction with left turn restrictions at Temescal and Kittredge to prevent neighborhood cut-throughs and unsafe turning movements; pedestrian safety and speed reducing improvements on Golden Gate including raised crosswalks and/or speed cushions and a gateway "choker" at Masonic; and potential sidewalk widening (one or both sides) on Chabot and Roselyn Terraces, the streets with the highest pedestrian volumes (and signalized crosswalks at Turk).

If the parking restrictions are targeted correctly, Alternative 2 may significantly minimize the parking impacts on the neighborhood and reduce the overall traffic volumes. However, without more substantial traffic movement restrictions, the neighborhood may still have relative high traffic volumes as people looking for parking on Turk and Golden Gate and others cutting through the neighborhood will still use the UT streets. This potential traffic will continue to create unsafe conditions for pedestrians.




urban design planning sustainability
URBAN DESIGN+

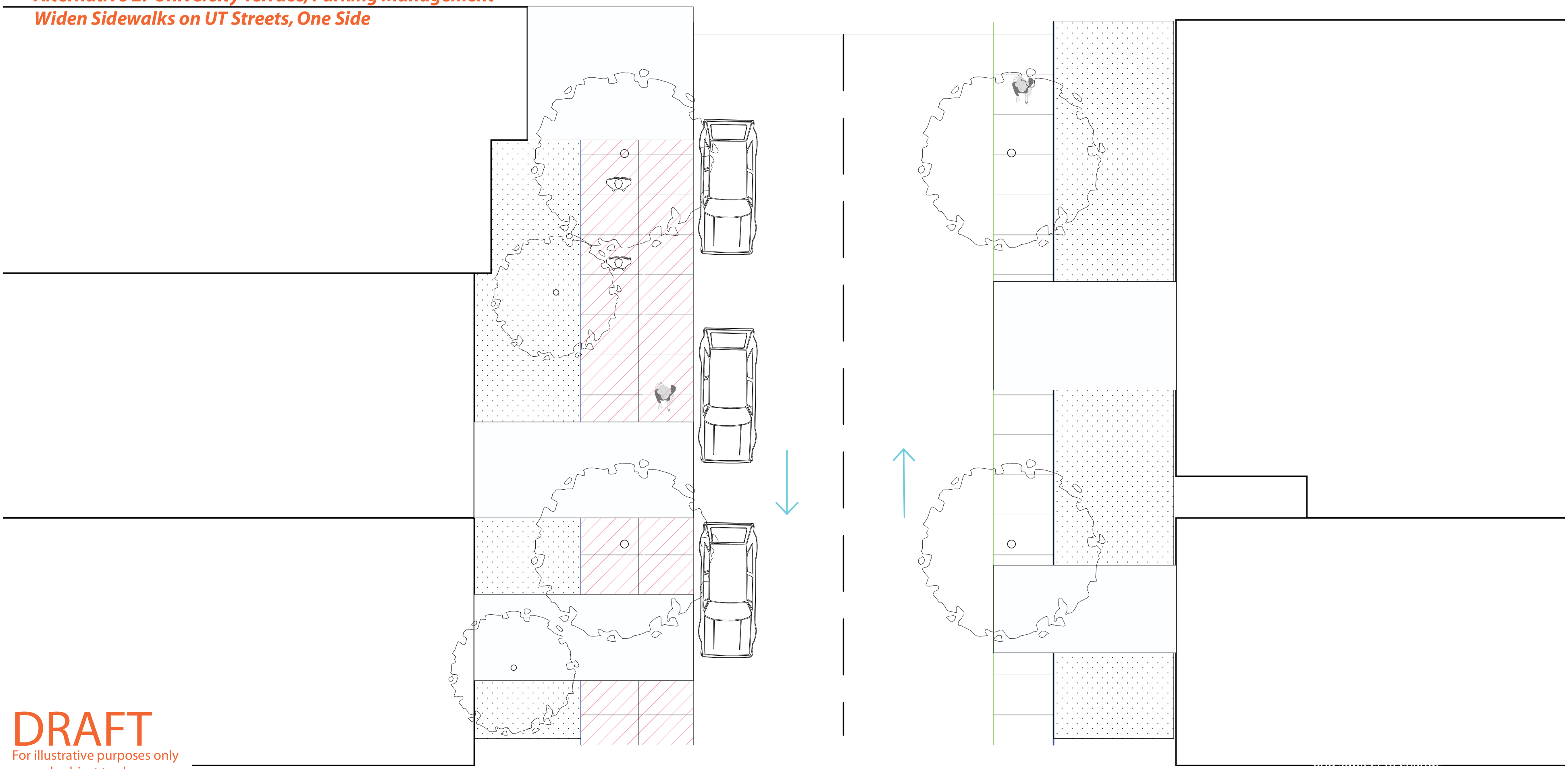
USF-Traffic Calming Master Plan

Alternative 2: University Terrace, Parking Management

Project Team:
Urban Design+
Fehr and Peers
Sasaki Associates

Client:
University of San Francisco

## Alternative 2: University Terrace, Parking Management
## Widen Sidewalks on UT Streets, One Side



DRAFT
For illustrative purposes only
and subject to change
06. January, 2011

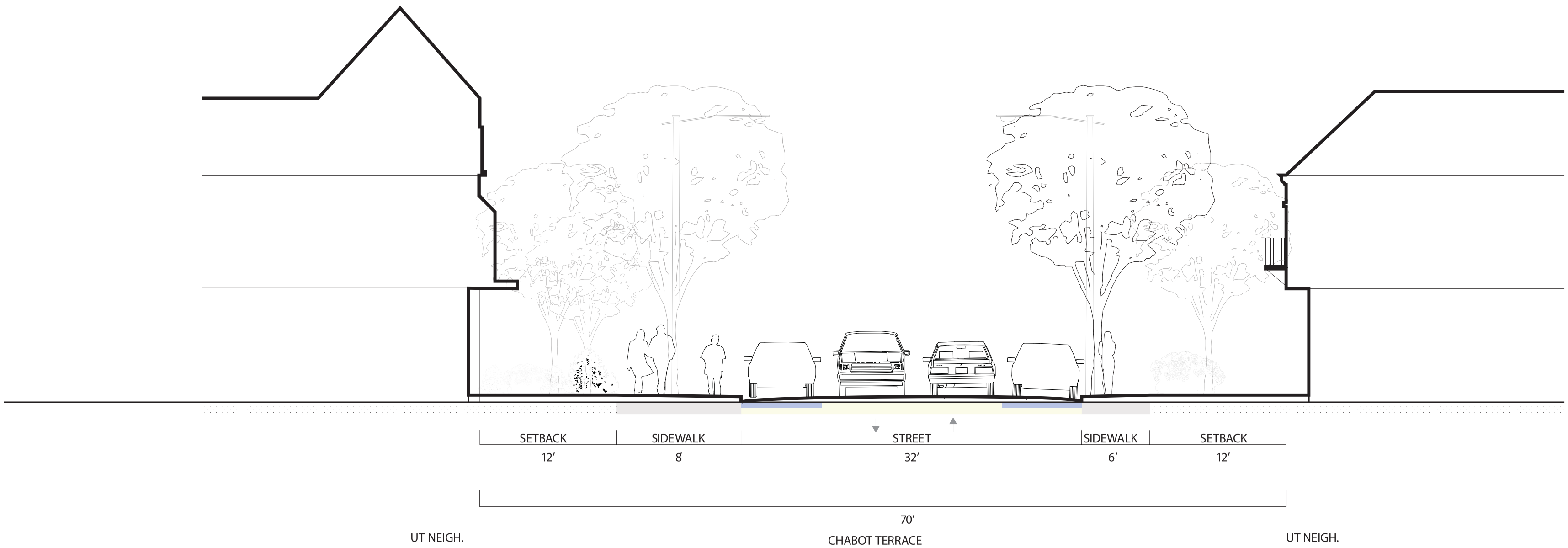
urban design planning sustainability
URBAN DESIGN+

USF-Traffic Calming Master Plan
Traffic Calming Ideas Matrix

Project Team:
Urban Design+
Fehr and Peers
Sasaki Associates

Client:
University of San Francisco

***Alternative 2: University Terrace, Parking Management***
***Widen Sidewalks on UT Streets, One Side***




DRAFT
For illustrative purposes only
and subject to change
06. January, 2011

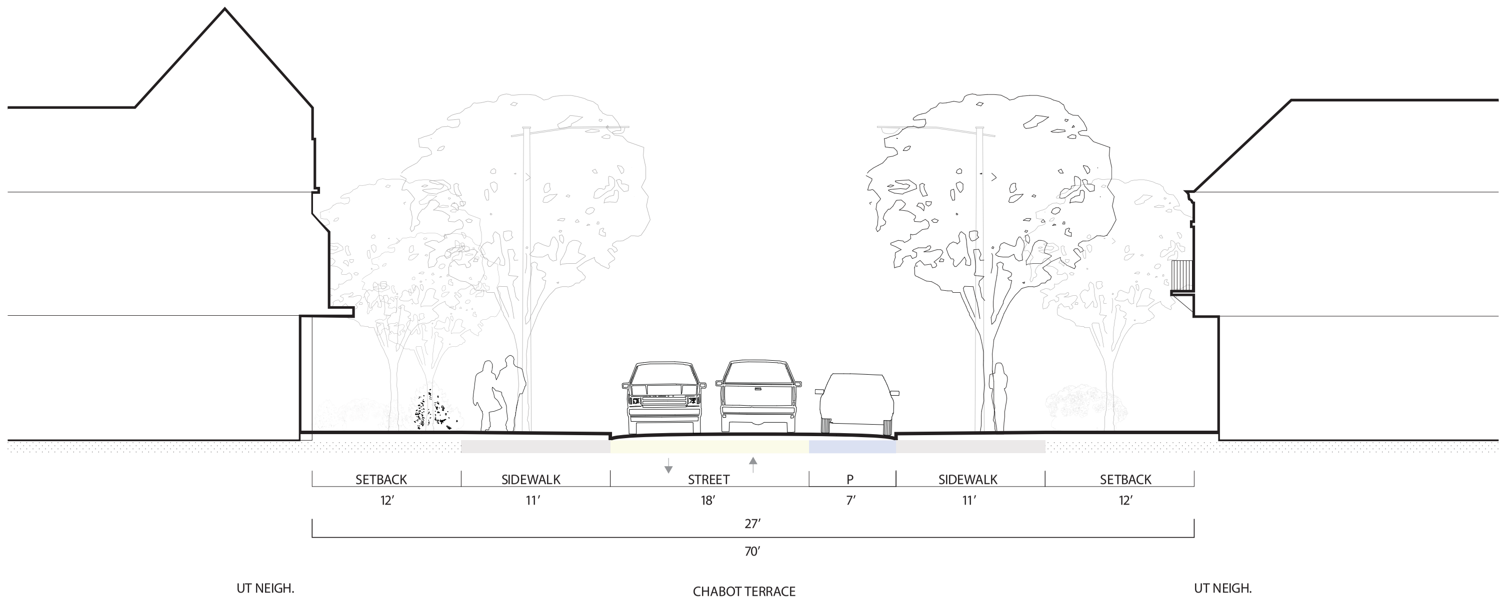
urban design planning sustainability
URBAN DESIGN+

USF-Traffic Calming Master Plan
Traffic Calming Ideas Matrix

Project Team:
Urban Design+
Fehr and Peers
Sasaki Associates

Client:
University of San Francisco

***Alternative 2: University Terrace, Parking Management***
***Widen Sidewalks on UT Streets, Both Sides***




DRAFT
For illustrative purposes only
and subject to change
06. January, 2011

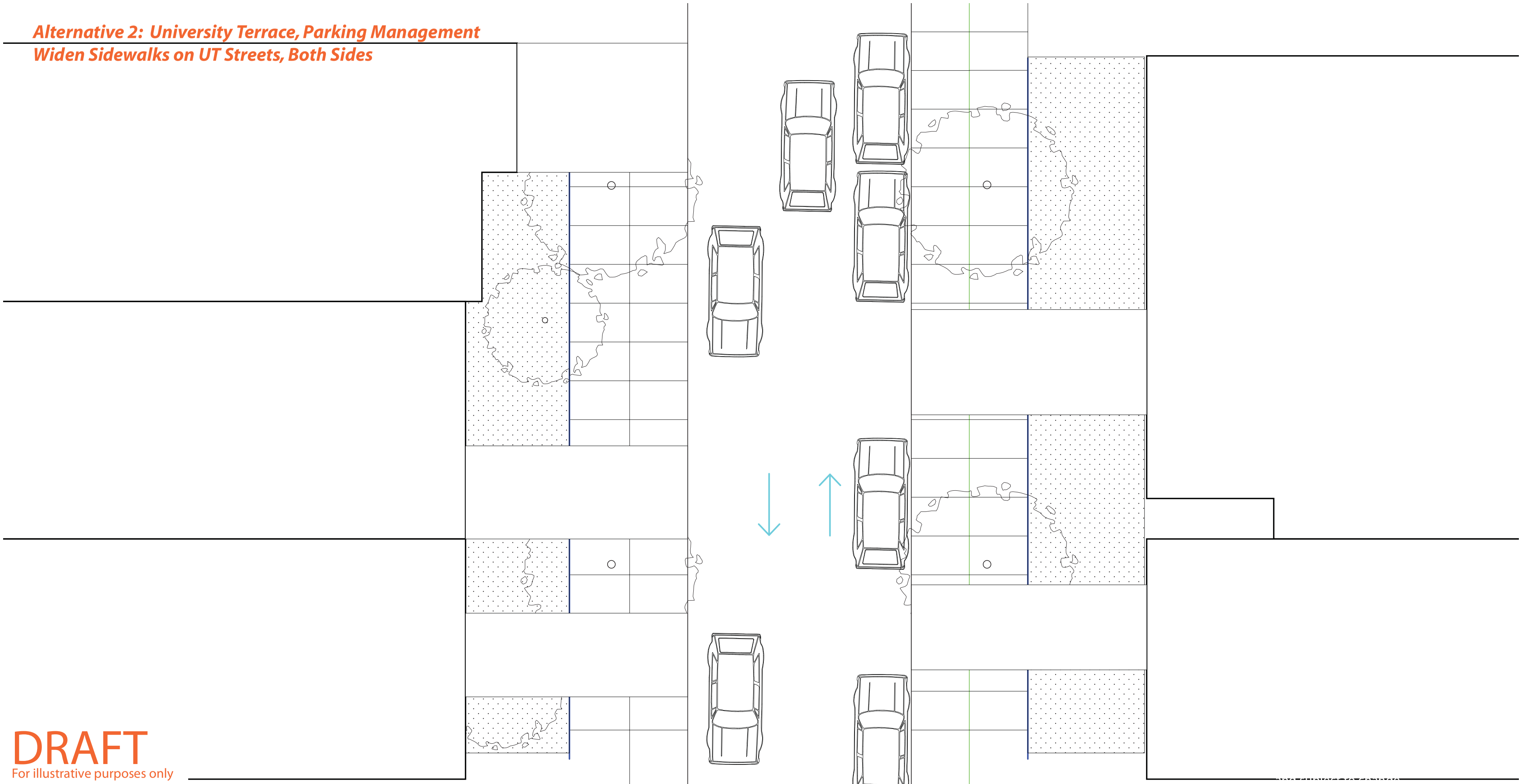
urban design planning sustainability
URBAN DESIGN+

USF-Traffic Calming Master Plan
Traffic Calming Ideas Matrix

Project Team:
Urban Design+
Fehr and Peers
Sasaki Associates

Client:
University of San Francisco

**Alternative 2: University Terrace, Parking Management**
**Widen Sidewalks on UT Streets, Both Sides**



DRAFT
For illustrative purposes only
and subject to change
06. January, 2011

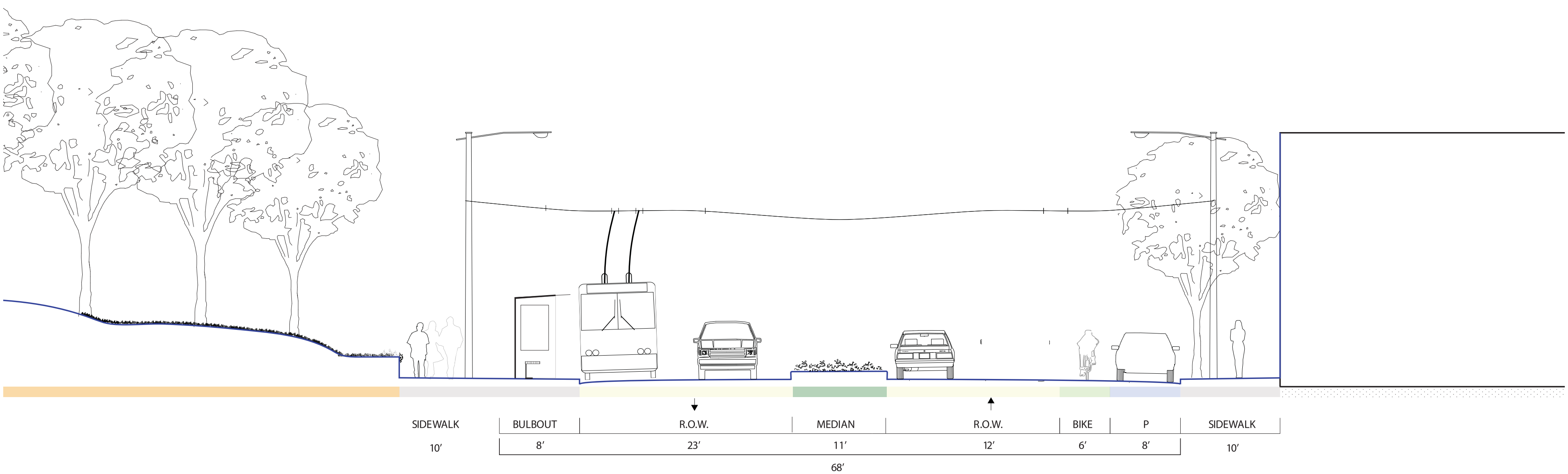
urban design planning sustainability
URBAN DESIGN+

USF-Traffic Calming Master Plan
Traffic Calming Ideas Matrix

Project Team:
Urban Design+
Fehr and Peers
Sasaki Associates

Client:
University of San Francisco

## *Alternative 2: University Terrace, Parking Management*
## *Bulbouts and Enhanced Crossings on Turk*




DRAFT
For illustrative purposes only
and subject to change
06. January, 2011

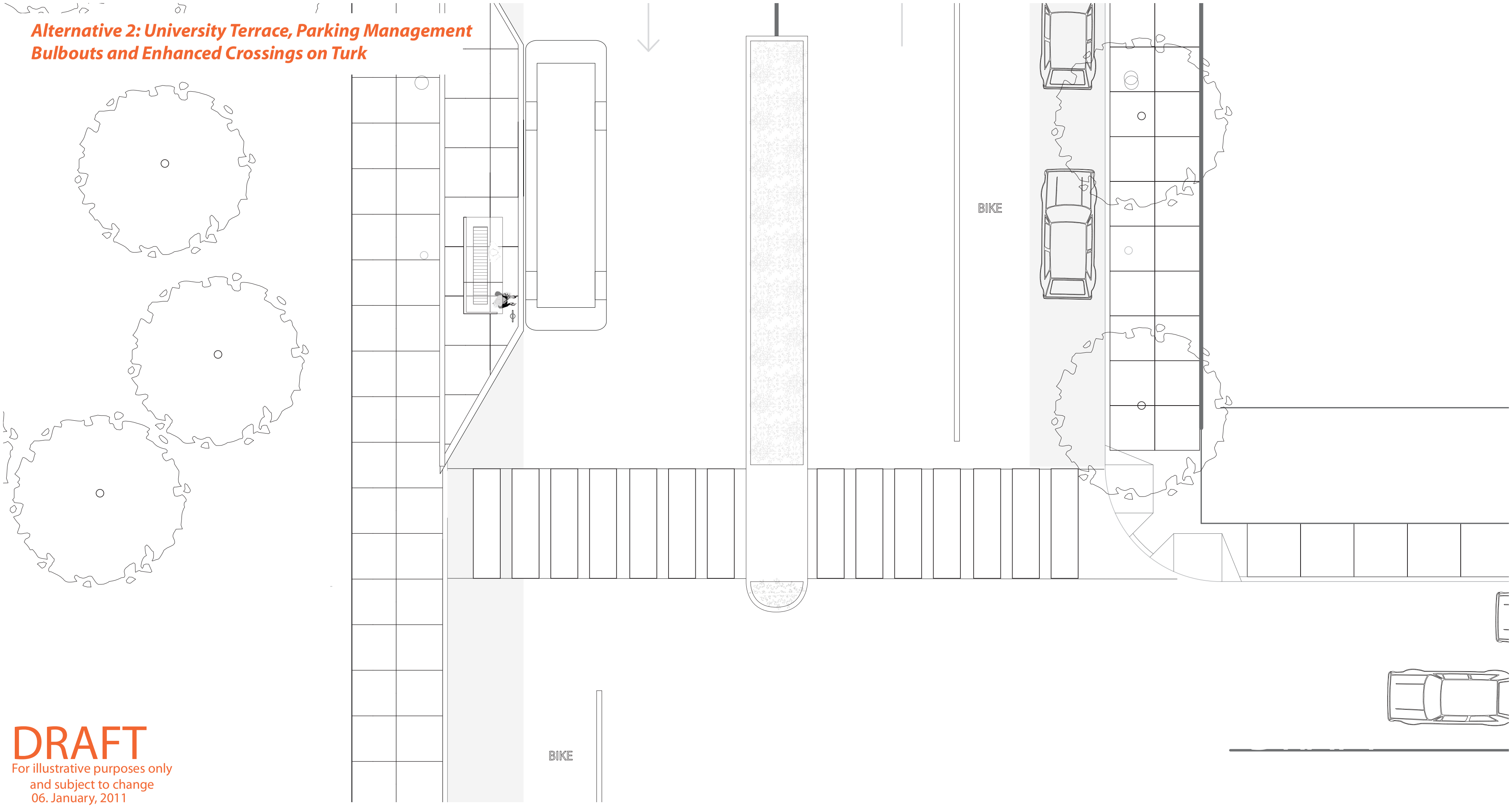
urban design planning sustainability
URBAN DESIGN+

USF-Traffic Calming Master Plan
Traffic Calming Ideas Matrix

Project Team:
Urban Design+
Fehr and Peers
Sasaki Associates

Client:
University of San Francisco

## Alternative 2: University Terrace, Parking Management Bulbouts and Enhanced Crossings on Turk




DRAFT
For illustrative purposes only
and subject to change
06. January, 2011

urban design planning sustainability
URBAN DESIGN+

USF-Traffic Calming Master Plan
Traffic Calming Ideas Matrix

Project Team:
Urban Design+
Fehr and Peers
Sasaki Associates

Client:
University of San Francisco

## 3.3 ALTERNATIVE 3: ENHANCE GOLDEN GATE AND TURK

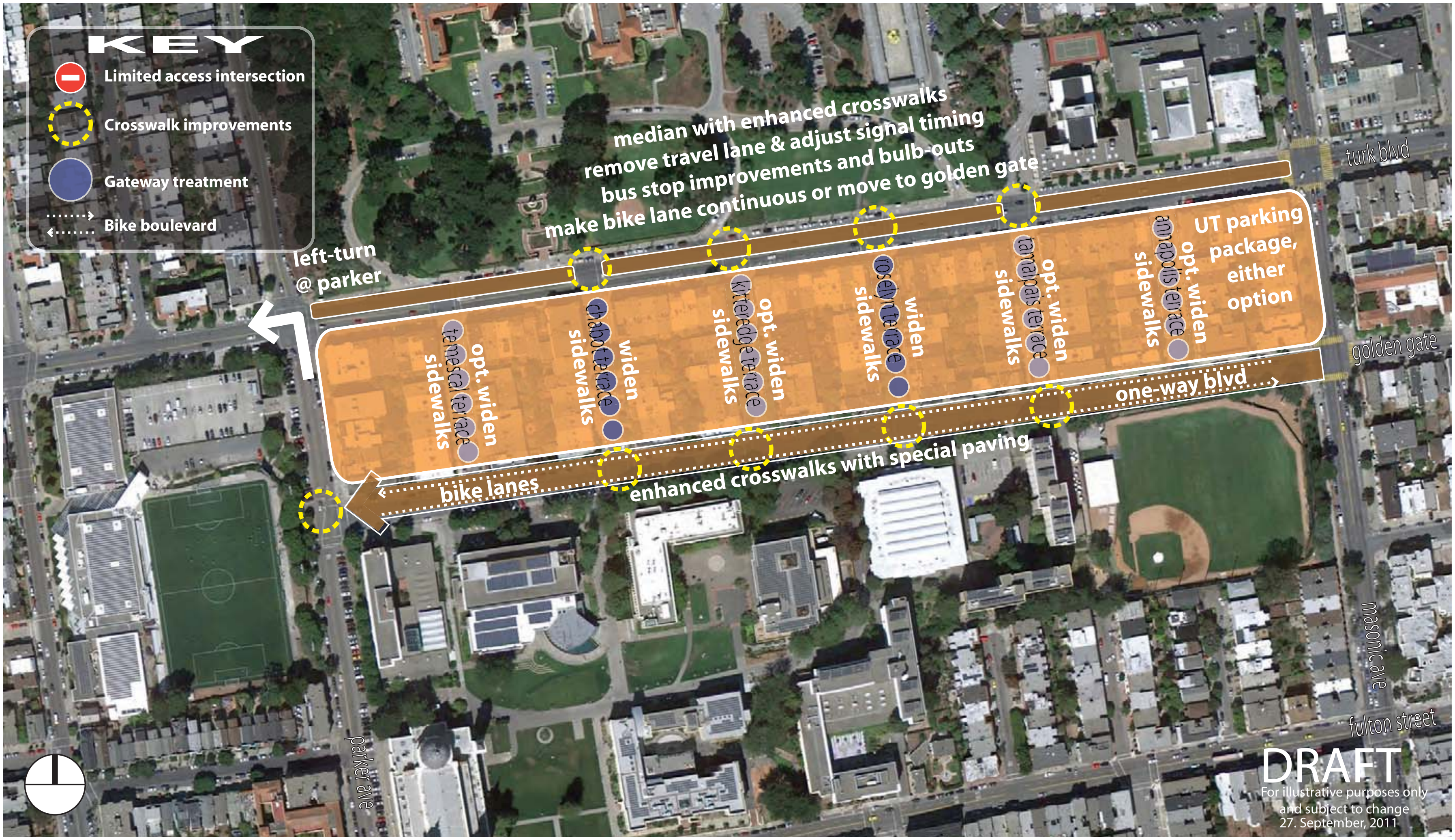
Alternative 3 is directed to improvements that will maximize pedestrian safety on the east-west streets, recognizing that the vehicular speeds on these streets present the greatest hazard to pedestrians. The alternative could work with either of the parking management ideas outlined in alternatives 1 and 2.

On Turk Boulevard, a continuous planted median will reduce traffic space (and speeds), offer safe havens for pedestrians in the crosswalks, and create an opportunity to significantly enhance the character of the neighborhood and the university community. This proposed median would be continuous with breaks only at signalized intersections (that may have adjusted signal timing to increase pedestrian crossing times), thereby reducing a number of the unsafe turning movements along the street. Across the City, existing and new planted medians define neighborhoods and create safer streetscapes—it is envisioned that there is enough space on Turk to create a substantial median, one that could feature signature trees and sustainable landscaping. Moreover, the addition of parallel parking spaces along the median will nearly match the number of spaces currently found on the UT streets.

Complementing the median, the reduction in traffic space offers opportunities to install corner bulbouts to further reduce pedestrian crossing distance and bus bulbouts to create more space for riders and make transit movements more efficient in the street.

Improvements on Golden Gate would include enhanced crosswalks (raised crosswalks, corner bulb outs, special paving) that would slow traffic, make for safer pedestrian movement, and create a distinct design identity for the street (and the campus edge); continuous bike lanes in both directions (these could be designed as a bike boulevard and could replace the discontinuous bike lanes on Turk); and the option to make Golden Gate a one way street to further discourage through traffic and free more space for pedestrian/bicycle improvements.

Within the University Terrace, Alternative 3 envisions potential sidewalk widenings on the streets with the most significant pedestrian volumes, Chabot and Roselyn Terraces, with an option to widen the sidewalks on the remaining four Terrace streets.



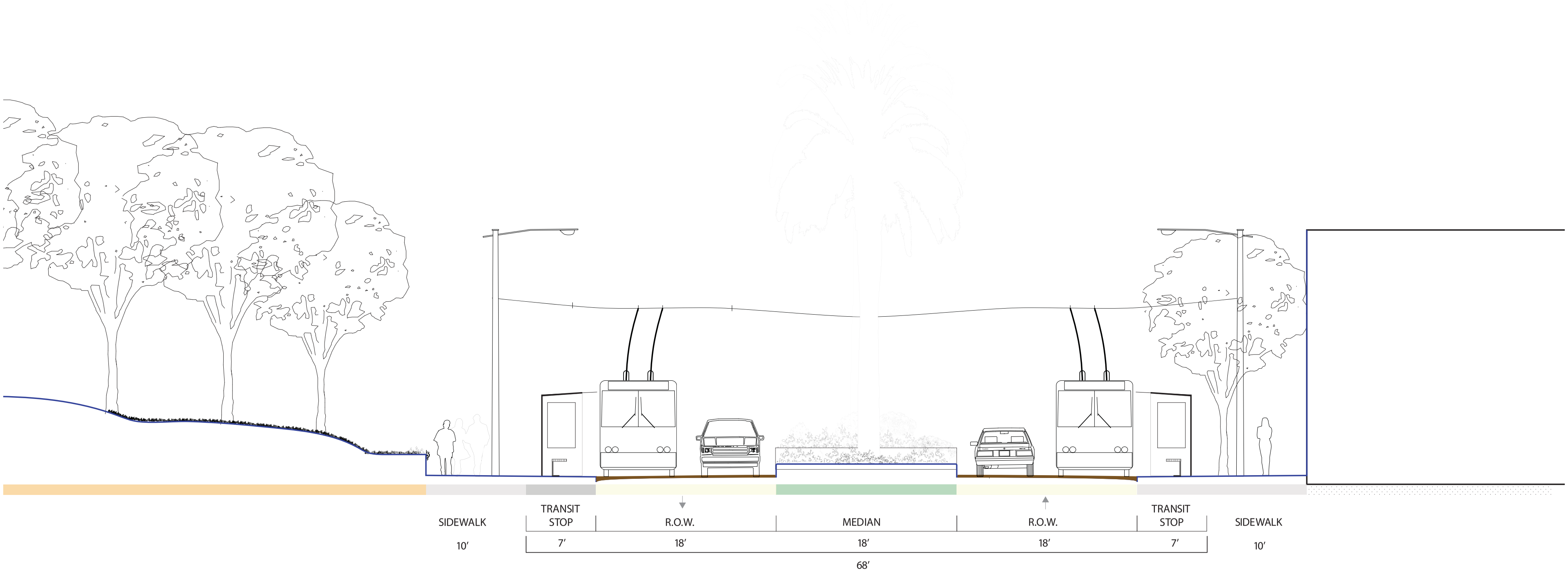

urban design planning sustainability
URBAN DESIGN+

USF-Traffic Calming Master Plan
Alternative 3: Enhance Golden Gate and Turk

Project Team:
Urban Design+
Fehr and Peers
Sasaki Associates

Client:
University of San Francisco

***Alternative 3: Enhance Golden Gate and Turk***
***Median on Turk, broken only at Chabot and Tamalpais***




DRAFT
For illustrative purposes only
and subject to change
06. January, 2011

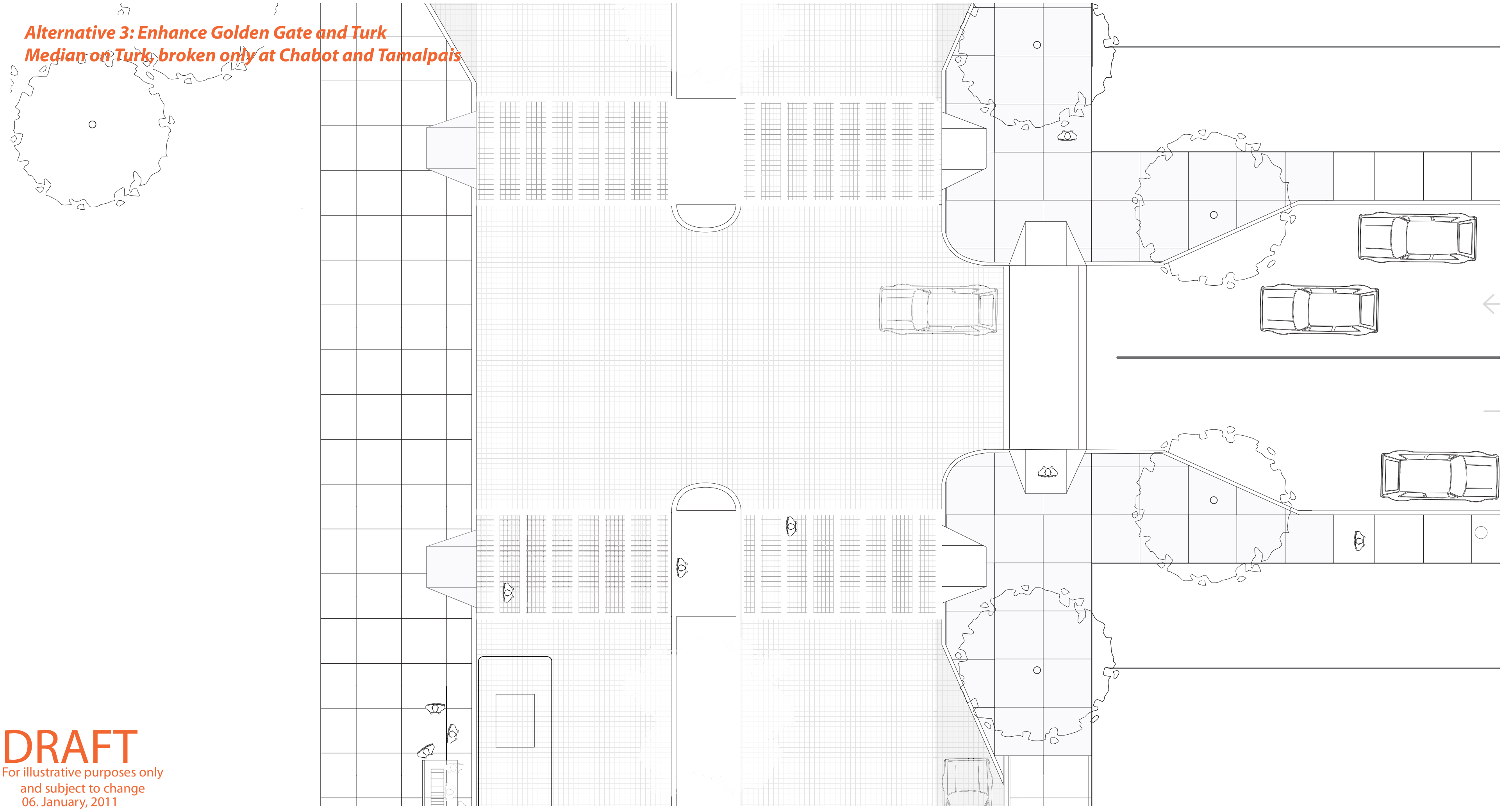
urban design planning sustainability
URBAN DESIGN+

USF-Traffic Calming Master Plan
Traffic Calming Ideas Matrix

Project Team:
Urban Design+
Fehr and Peers
Sasaki Associates

Client:
University of San Francisco

***Alternative 3: Enhance Golden Gate and Turk***
***Median on Turk, broken only at Chabot and Tamalpais***



DRAFT
For illustrative purposes only
and subject to change
06. January, 2011

urban design planning sustainability
URBAN DESIGN+

USF-Traffic Calming Master Plan
Traffic Calming Ideas Matrix

Project Team:
Urban Design+
Fehr and Peers
Sasaki Associates

Client:
University of San Francisco

## 3.4 ALTERNATIVE 4: LIMITED ACCESS STREETS

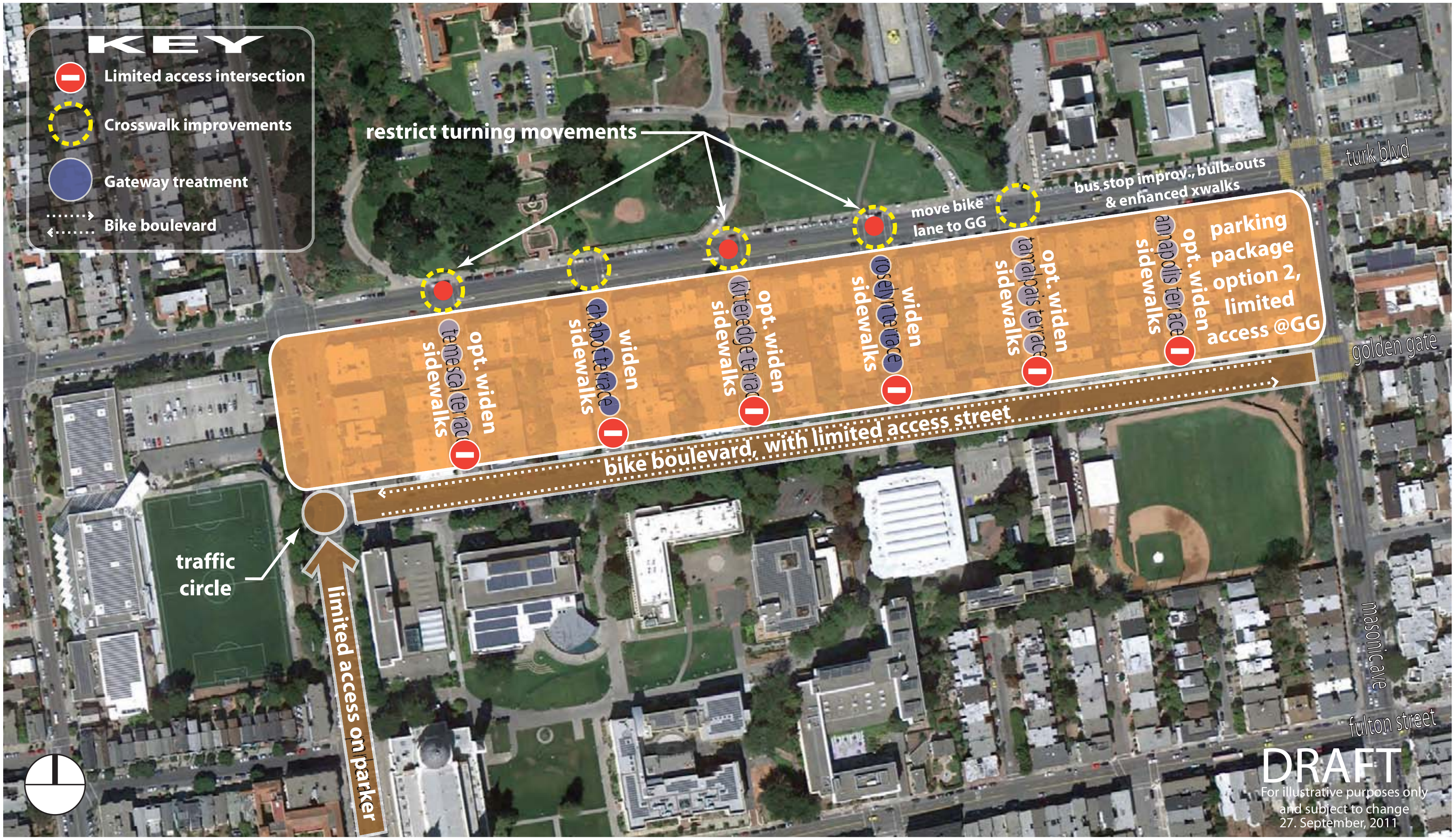
Alternative 4 builds on the ideas in the other alternatives to enhance and calm the streets. These include restricting the turning movements to signalized intersections on Turk Boulevard to prevent cut-through traffic on the University Terrace streets, pedestrian and bus stop enhancements along Turk Boulevard, and sidewalk widening on the Terrace streets.

The key element in this alternative, though, is a reframing of the streets in the University Terrace neighborhood and adjacent to USF. To truly minimize traffic impacts, this alternative proposes to restrict through traffic movement in the neighborhood and on Golden Gate and Parker. Each of the UT streets would become limited access at Golden Gate and Golden Gate and Parker would be limited access, no through traffic streets within the overall city street network. Essentially, the UT streets would become dead end streets at Golden Gate (one option is a complete dead end, another option is southbound traffic can enter Golden Gate), similar to the dead end streets on the south side of the USF campus.

Combined with the managed parking restrictions proposed in Alternative 2, this idea would significantly decrease the amount of vehicular traffic on UT streets and create a more neighborly environment for the community and a much safer environment for pedestrians.

On Golden Gate Avenue, limiting access along the street offers multiple opportunities for pedestrian, bicycle, and crosswalk enhancements such as those identified in Alternative 3. In addition, an option of repaving the street from Parker to Masonic might create a more attractive and seamless edge between the UT and USF.

Similarly, limiting access on Parker Street will create much safer conditions for the campus community, enhance connections to the Koret Center and soccer field, and create a more attractive campus entry and edge.




urban design planning sustainability
URBAN DESIGN+

USF-Traffic Calming Master Plan
Alternative 4: Limited Access Streets

Project Team:
Urban Design+
Fehr and Peers
Sasaki Associates

Client:
University of San Francisco

## 3.5 SUMMARY OF BENEFITS

Alternative 1, Improve Current Conditions has minimal safety benefits. Increased enforcement may reduce some of the more dramatic student/UT incidents, but it will not improve pedestrian safety. The most significant feature of Alternative 1 is that the recommended demonstration projects will facilitate the study of unintended consequences of traffic changes setting the stage for more permanent improvements.

The strategies in Alternative 2, Manage Parking will reduce the parking for students, but will be a major improvement in pedestrian safety by reducing turning movements and traffic on UT streets. The widening of University Terrace sidewalks may slightly reduce parking spaces for the neighborhood. Reducing traffic volume and speeds on Turk Boulevard and added turning restrictions on the Boulevard may increase traffic on Chabot and Tamalpais Terraces. Crosswalk improvements on Turk and Golden Gate will increase pedestrian safety.

Alternative 3, Enhancing Golden Gate Avenue and Turk Boulevard would significantly improve bicycle and pedestrian safety on both Turk and Golden Gate while enhancing neighborhood character and increasing parking capacity. Depending on how parking is managed on the UT streets, this alternative may have limited impact on specific UT concerns.

Alternative 4, Limited Access on Golden Gate and Parker Avenues will maximize pedestrian and bicycle safety, but may increase traffic on Turk and Fulton. This alternative removes most USF traffic from University Terrace Streets, which will have a short-term impact on established traffic patterns, but will significantly improve pedestrian safety. Crosswalk improvements on Turk Boulevard will also increase pedestrian safety.

# CHAPTER 4. PREFERRED PLAN

The University Terrace Association appointed a Traffic Committee to evaluate the four traffic calming alternatives. The Committee met over the course of the spring and summer of 2011. Representatives from Fehr & Peers, Urban Design+, and USF attended most meetings. The Committee developed a fifth alternative (the "Preferred Plan"), which included elements from each of the four original plans that the Committee judged to most effectively address the traffic calming goals of the University Terrace Association. The Preferred Plan was presented to the University Terrace community at-large at a public meeting on October 5, 2011. The UT community was then asked to vote on each of the major elements in the Plan. The voting process was implemented by the University Terrace Association and ballots were delivered to each University Terrace address. Thirty-nine ballots were returned; each major element of the Plan was approved by majority vote.

The Preferred Plan includes components of each of the four draft alternatives to create an alternative focused on safe and welcoming university neighborhood. This Preferred Plan, "A Great Neighborhood" includes a number of key concepts such as restricting the turning movements to signalized intersections on Turk Boulevard to prevent cut-through traffic on the University Terrace streets, pedestrian and bus stop enhancements along Turk Boulevard, and the reframing of the streets in the University Terrace neighborhood and adjacent to USF.

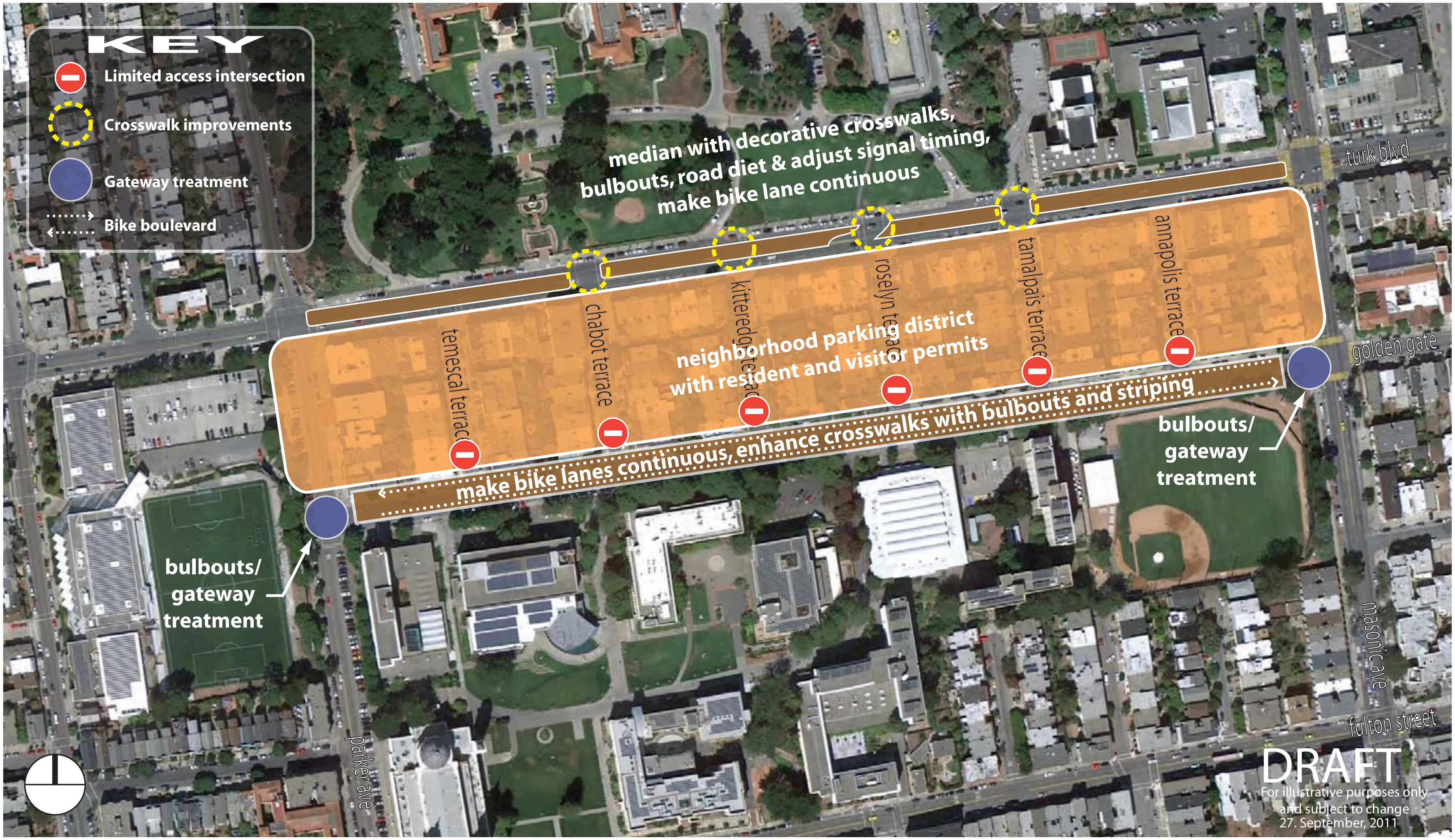
On Turk Boulevard, a continuous planted median will reduce traffic space (and speeds), offer safe havens for pedestrians in the crosswalks, and create an opportunity to significantly enhance the character of the neighborhood and the university community. This proposed median would be continuous with breaks only at signalized intersections, thereby reducing a number of the turning movements along the street. Continuous bicycle lanes could also be accommodated with a westbound lane reduction. To accommodate the median and the continuous bike lanes, one westbound travel lane would be removed, such that Turk would have only one vehicle travel lane in each direction.

To create a very welcoming, high quality university neighborhood, this Preferred Plan restricts through traffic movement in the neighborhood and on Golden Gate. Each of the UT streets would become limited access at Golden Gate with southbound access from the Terraces to Golden Gate allowed, but no access from Golden Gate in the northbound direction would be permitted.

Combined with the managed parking restrictions (including a modified BB permit being proposed separately by the UTA, with support from USF) proposed in Alternative 2, this idea would significantly decrease the amount of vehicular traffic on UT streets and create a more neighborhood-oriented environment for the community and a much safer environment for pedestrians.

On Golden Gate Avenue, bulbouts and/or gateway treatments at Parker and Masonic will highlight and create clear entries into the neighborhood. There are also locations along the street that offer opportunities for pedestrian, bicycle, and crosswalk enhancements such as those identified in Alternative 3. In addition, an option of repaving the street from Parker to Masonic might create a more attractive and seamless edge between the UT and USF.

This Preferred Plan represents an overall concept for improvements in the University Terrace and USF district, one that can both resolve the parking and traffic safety issues and create a more welcoming environment for residents and members of the USF community alike. Going forward, concept development will develop each of the design ideas in more detail, working closely with the community to ensure that all ideas work together, are relatively easily implemented, and can be maintained over time.




urban design planning sustainability
URBAN DESIGN+

USF-Traffic Calming, Phase 1
Preferred Plan: A Great Neighborhood

Project Team:
Urban Design+
Fehr and Peers
Sasaki Associates

Client:
University of San Francisco

# APPENDIX A: TRAFFIC CALMING TOOLBOX

**UNIVERSITY TERRACE TRAFFIC CALMING TOOLBOX**

The traffic calming measures that are most appropriate for the University Terrace neighborhood are those that balance the interests of UTA with the University community and are consistent with the City of San Francisco's policies and guidelines. Based on the data collected and analyzed, measures that control volume are recommended along the Terrace streets, while measures to control speed are recommended primarily along the east-west corridors on Turk Boulevard and Golden Gate Boulevard. "Non-physical" measures, including increased enforcement and education to the community, are recommended throughout the study area.

For each device in the toolbox, the following discussions are provided:

- Description of the measure
- Photograph and/or schematic
- List of advantages and disadvantages
- Data sheet indicating speed, volume, or collision reduction potential

### *NON-PHYSICAL DEVICES*

Non-physical devices include any measure that does not require physical changes to the roadway. Non-physical devices are intended to increase drivers' awareness of surroundings and influence driver behavior without physical devices. Because these devices are not self enforcing, they have limited effectiveness as stand alone devices. Non-physical devices should be used to supplement physical devices. This category includes the following devices:

- Targeted Speed Enforcement
- Speed Feedback Sign
- Centerline/Edgeline Lane Striping
- Signage

***Targeted Speed Enforcement***

Staff or Neighborhood Traffic Committee (NTC) identifies locations for temporary targeted enforcement, based on personal observations and survey comments. A request can be submitted to the City of Anaheim Police Department for the desired enforcement. Depending on police department resources, the targeted enforcement may be limited in duration. Targeted enforcement may also be used in conjunction with new neighborhood traffic management devices to help drivers become aware of the new restrictions.


**Advantages**

- Inexpensive if used temporarily
- Does not physically slow emergency vehicles or buses
- Quick implementation

**Disadvantages**

- Expensive to maintain an increased level of enforcement
- Effectiveness may be temporary

***Speed Feedback Sign***

Speed feedback signs measure each approaching vehicle's speed. Real-time speeds are relayed to drivers and flash when speeds exceed the limit. Speed feedback signs are typically mounted on or near speed limit signs and are most common in school zones.

**Advantages**

- Real-time speed feedback
- Does not physically slow emergency vehicles or buses
- Permanent installation

**Disadvantages**

- May require power source
- Only effective for one direction of travel
- Long-term effectiveness uncertain
- Subject to vandalism

***Centerline/Edgeline Lane Striping***

Lane striping can be used to create formal bicycle lanes, parking lanes, or edge lines. As a neighborhood traffic management measure, they are used to narrow the travel lanes for vehicles, thereby inducing drivers to lower their speeds. However, the past evidence on speed reductions is inconclusive.

**Advantages**

- Inexpensive
- Can be used to create bicycle lanes or delineate on-street parking
- Does not slow emergency vehicles

**Disadvantages**

- Has not been shown to significantly reduce travel speeds
- Requires regular maintenance

***Signage***

Signage that can be used as a neighborhood traffic management measure include:

- Truck Restriction Signs
- "Not a Through Street" Signs

*Note Turn-movement restriction signs have been included in the Volume Control Devices section.*


**Advantages**

- Inexpensive
- Truck restrictions can reduce through truck traffic
- Does not slow emergency vehicles or buses

**Disadvantages**

- Requires regular maintenance
- Speed limit signs are not applicable because they do not necessarily change driver behavior. If speed limit is set unreasonably low, drivers are more likely to exceed it.

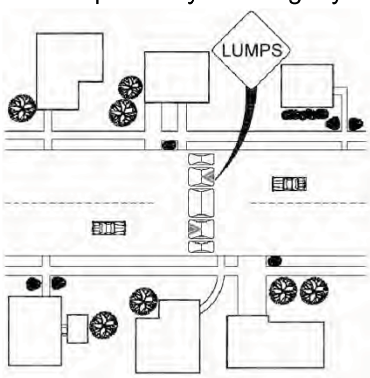
## *SPEED CONTROL - VERTICAL DEVICES*

Vertical deflection devices use variations in pavement height and alternative paving materials to physically reduce travel speeds. These devices are designed for travel speeds over the device of approximately 15 to 20 MPH depending on the device. The vertical deflection devices in the toolbox include:

- Speed Lumps
- Speed Table
- Raised Crosswalk

## ***Speed Lumps***

Speed lumps are rounded raised areas placed across the road with two wheel cut-outs designed to allow large vehicles, such as emergency vehicles and buses, to pass with minimal slowing. The design limits passenger cars and mid-size SUVs from fully passing through the cut-outs and requires travel over the lump. They are slightly less than four inches high, typically parabolic in shape, and have a design speed of 15 to 20 MPH. They are usually constructed with a taper on each side to allow unimpeded drainage between the lump and curb. When placed on a street with rolled curbs or no curbs, bollards are placed at the ends of the speed lump to discourage vehicles from veering outside of the travel lane to avoid the device.




The magnitude of reduction in speed is dependent of the spacing of speed lumps between points that require drivers to slow (see page 35).

Speed lumps are similar when compared to speed humps, therefore, the measured effectiveness of speed humps is shown (there is insufficient data to predict the effectiveness of speed lumps).

**Advantages**

- Effective in reducing speeds
- Maintains rapid emergency response times
- Relatively easy for bicyclists to cross

**Disadvantages**

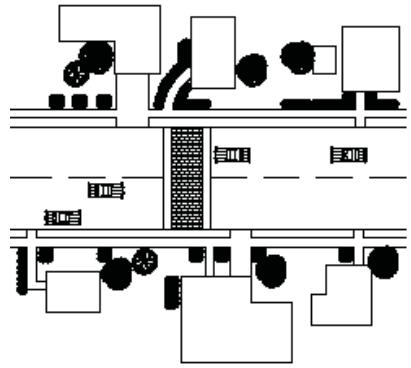
- Vehicles with wide wheel base can pass through the lump using the wheel cut-outs
- Increased noise
- Aesthetics
- Signs may be unwelcome by adjacent residents

.

| Measured Effectiveness (of Speed Humps) | | |
|---|---|---|
| Speed Impacts | **Reduction in 85th Percentile Speeds between Slow Points** | **-22%** |
| Volume Impacts | **Reduction in Average Daily Traffic** | **-18%** |
| Safety Impacts | **Reduction in Average Annual Number of Collisions** | **-13%** |
| Source: *Traffic Calming: State of the Practice*, 1999. | | |

## Speed Table

Speed tables are flat-topped speed humps approximately 22 feet long, which is typically long enough for the entire wheelbase of a passenger car to rest on top. Their long flat fields, plus ramps that are more gently sloped than speed lumps, give speed tables higher design speeds than lumps and thus may be more appropriate for streets with higher ambient speeds. Brick or other textured materials improve the appearance of speed tables, draw attention to them, and may enhance safety and speed reduction.



The magnitude of reduction in speed is dependent of the spacing of speed tables between points that require drivers to slow (see page 35). On average speed tables achieve an 18% reduction in speeds.

| Measured Effectiveness | | |
|---|---|---|
| Speed Impacts | **Reduction in 85th Percentile Speeds between Slow Points** | **-18%** |
| Volume Impacts | **Reduction in Vehicles per Day** | **-12%** |
| Safety Impacts | **Reduction in Average Annual Number of Collisions** | **-45%** |
| Source: *Traffic Calming: State of the Practice*, 1999. | | |

**Advantages**

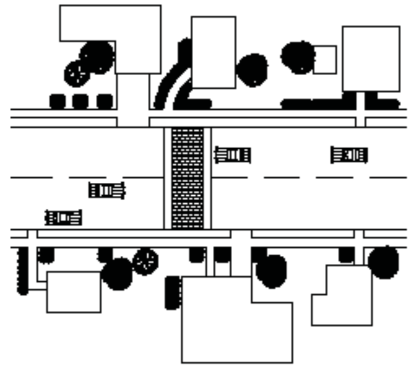
- Effective in reducing speeds, though not to the extent of speed lumps

**Disadvantages**

- Aesthetics of device
- Increased noise
- Textured materials, if used, can be expensive
- Signs may be unwelcome by adjacent residents

***Raised Crosswalk***

Raised Crosswalks are speed tables striped with crosswalk markings and signage to channelize pedestrian crossings, providing pedestrians with a level street crossing. Also, by raising the level of the crossing, pedestrians are more visible to approaching motorists.



The magnitude of reduction in speed is dependent of the spacing of raised crosswalks between points that require drivers to slow (see page 35). On average raised crosswalks achieve an 18% reduction in speeds.

| Measured Effectiveness | | |
|---|---|---|
| Speed Impacts | **Reduction in 85th Percentile Speeds between Slow Points** | **-18%** |
| Volume Impacts | **Reduction in Vehicles per Day** | **-12%** |
| Safety Impacts | **Reduction in Average Annual Number of Collisions** | **-45%** |
| Source: *Traffic Calming: State of the Practice*, 1999. | | |


**Advantages**

- Improve safety for both vehicles and pedestrians
- Aesthetic upgrades can have positive aesthetic value
- Effective in reducing speeds, though not to the extent of speed lumps

**Disadvantages**

- Textured materials, if used, can be expensive
- Impact to drainage needs to be considered
- Textured pavement can increase noise to adjacent residences
- Signs may be unwelcome by adjacent residents

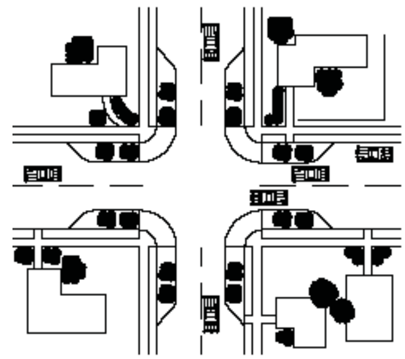
### *SPEED CONTROL - NARROWING DEVICES*

Narrowing devices use raised islands and curb extensions to narrow the travel lane for motorists. The narrowing devices in the toolbox include:

- Neckdown/Bulbout
- Center Island Narrowing/Entry Feature
- Two-Lane Choker

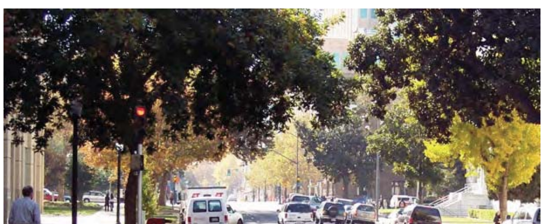
## ***Neckdown/Bulbout***

Neckdowns/bulbouts are raised curb extensions that narrow the travel lane at intersections or mid-block locations. Neckdowns/bulbouts "pedestrianize" intersections by shortening the crossing distance and decreasing the curb radii, thus reducing turning vehicle speeds. Both of these effects increase pedestrian comfort and safety at the intersection.



The magnitude of reduction in speed is dependent of the spacing of neckdowns between points that require drivers to slow. On average neckdowns achieve a 7% reduction in speeds.

| Measured Effectiveness | | |
|---|---|---|
| Speed Reduction | **Reduction in 85th Percentile Speeds between Slow Points** | **-7%** |
| Volume Reduction | **Reduction in Vehicles per Day** | **-10%** |
| Safety Reduction | **Reduction in Average Annual Number of Collisions** | **I/D** |
| Note: I/D = Insufficient data to predict reduction effect.<br>Source: *Traffic Calming: State of the Practice*, 1999. | | |



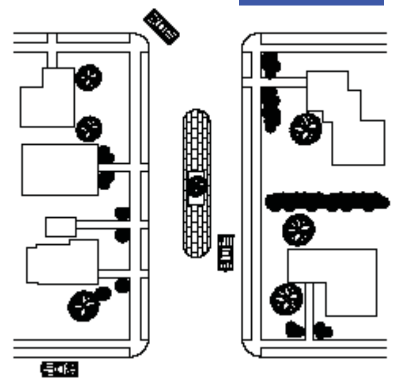
**Advantages**

- Reduces pedestrian crossing distance and exposure to vehicles
- Through and left-turn movements are easily negotiable by large vehicles
- Creates protected on-street parking bays
- Reduces speeds (especially right-turning vehicles) and traffic volumes

**Disadvantages**

- Effectiveness is limited by the absence of vertical or horizontal deflection
- May slow right-turning emergency vehicles
- Potential loss of on-street parking
- May require bicyclists to briefly merge with vehicular traffic

## ***Center Island Narrowing/Entry Feature***



Center island narrowings are raised islands located along the centerline of a street that narrow the travel lanes at that location. Placed at the entrance to a neighborhood, and often combined with textured pavement, they are referred to as "Entry Features." Fitted with a gap to allow pedestrians to walk through at a crosswalk, they are often called "pedestrian refuges." They can also be landscaped to increase visual aesthetics.

The magnitude of reduction in speed is dependent of the spacing of center island narrowings between points that require drivers to slow. On average center island narrowings achieve a 7% reduction in speeds.

| Measured Effectiveness | | |
|---|---|---|
| Speed Reduction | **Reduction in 85th Percentile Speeds between Slow Points** | **-7%** |
| Volume Reduction | **Reduction in Vehicles per Day** | **-10%** |
| Safety Reduction | **Reduction in Average Annual Number of Collisions** | **I/D** |
| Note: I/D = Insufficient data to predict reduction effect.<br>Source: *Traffic Calming: State of the Practice*, 1999. | | |

Center Island as
"Pedestrian Refuge"

Center Island as
"Entry Feature"

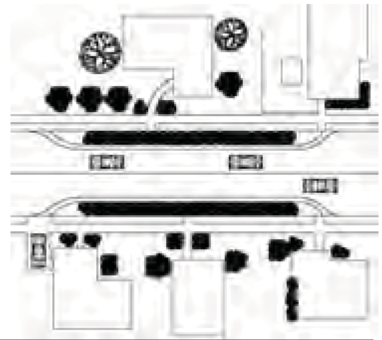
**Advantages**

- Can increase pedestrian safety
- Aesthetic upgrades can have positive aesthetic value
- Reduces traffic volumes if alternative routes are available

**Disadvantages**

- Effect on vehicle speeds is limited by the absence of vertical or horizontal deflection
- Potential loss of on-street parking

## *Two-Lane Choker*



Chokers are curb extensions at midblock that narrow a street. Chokers leave the street cross section with two lanes that are narrower than the normal cross section.

The magnitude of reduction in speed is dependant of the spacing of two-lane chokers between points that require drivers to slow. On average two-lane chokers achieve a 7% reduction in speeds.

| Measured Effectiveness | | |
|---|---|---|
| Speed Reduction | **Reduction in 85th Percentile Speeds between Slow Points** | **-7%** |
| Volume Reduction | **Reduction in Vehicles per Day** | **-10%** |
| Safety Reduction | **Reduction in Average Annual Number of Collisions** | **I/D** |
| Note: I/D = Insufficient Data to predict reduction effect.<br>Source: *Traffic Calming: State of the Practice,* 1999. | | |

**Advantages**

- Easily negotiable by emergency vehicles and buses
- Can have positive aesthetic value
- Reduces both speeds and volumes

**Disadvantages**

- Effect on vehicle speeds is limited by the absence of vertical or horizontal deflection
- May require bicyclists to briefly merge with vehicular traffic
- Loss of on-street parking
- Build-up of debris in gutter

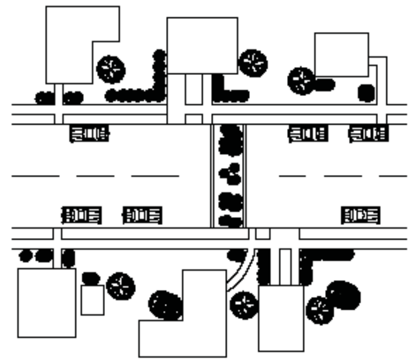
***VOLUME CONTROL DEVICES***

Diversion devices use raised islands and curb extensions to preclude particular vehicle movements, such as left-turn or through movements, usually at an intersection. The volume control devices in the toolbox include:

- Full Closure
- Partial Closure
- Diagonal Diverter
- Forced-Turn Island
- Turn-Movement Restrictions

## *Full Closure*

Full street closures are barriers placed across a street to close the street completely to through traffic, usually leaving only sidewalks or bicycle paths open. The barriers may consist of landscaped islands, walls, gates, side-by-side bollards, or any other obstructions that leave an opening smaller than the width of a passenger car. Emergency vehicles are accommodated via removable bollards or similar devices.



| Measured Effectiveness | | |
|---|---|---|
| Speed Reduction | **Reduction in 85th Percentile Speeds between Slow Points** | **I/D** |
| Volume Reduction | **Reduction in Vehicles per Day** | **-44%** |
| Safety Reduction | **Reduction in Average Annual Number of Collisions** | **I/D** |
| Note: I/D = Insufficient data to predict reduction effect.<br>Source: *Traffic Calming: State of the Practice*, 1999. | | |

**Advantages**

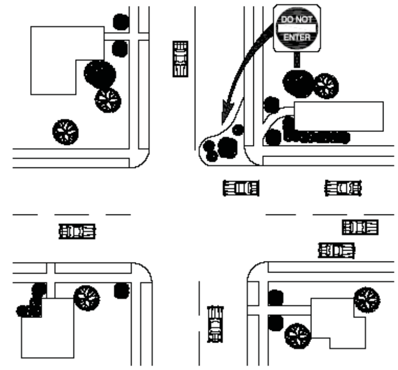
- Very effective in reducing cut-through traffic volumes
- Able to maintain pedestrian and bicycle connectivity

**Disadvantages**

- Requires statutory actions for public street closures
- Causes circuitous routes for local residents
- Diverts traffic to another street
- Delays for emergency services unless through access is provided for
- May limit access to businesses
- Cost

## *Partial Closure*

Partial closures (or half street closures) are barriers that block travel in one direction for a short distance on otherwise two-way streets. Partial closures are the most common volume control measure after full street closures. Partial closures are often used in sets to make travel through neighborhoods with "gridded" streets circuitous rather than direct.




| Measured Effectiveness | | |
|---|---|---|
| Speed Reduction | **Reduction in 85th Percentile Speeds between Slow Points** | **-19%** |
| Volume Reduction | **Reduction in Vehicles per Day** | **-42%** |
| Safety Reduction | **Reduction in Average Annual Number of Collisions** | **I/D** |
| Note: I/D = Insufficient data to predict reduction effect.<br>Source: *Traffic Calming: State of the Practice*, 1999. | | |


**Advantages**

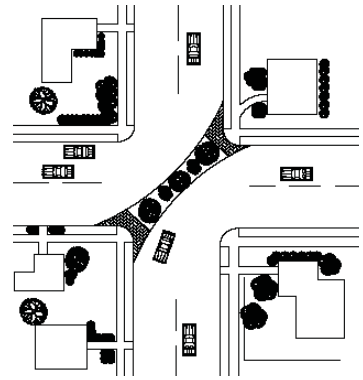
- Able to maintain two-way bicycle access
- Effective in reducing traffic volumes

**Disadvantages**

- Causes circuitous routes for local residents
- May limit access to businesses
- Drivers can bypass the barrier

### *Diagonal Diverter*

Diagonal diverters are barriers placed diagonally across an intersection, blocking through movement. Like half closures, diagonal diverters are usually staggered to create circuitous routes through neighborhoods.



| Measured Effectiveness | | |
|---|---|---|
| Speed Reduction | **Reduction in $85^{th}$ Percentile Speeds between Slow Points** | **-4%** |
| Volume Reduction | **Reduction in Vehicles per Day** | **-35%** |
| Safety Reduction | **Reduction in Average Annual Number of Collisions** | **I/D** |
| Note: I/D = Insufficient data to predict reduction effect.<br>Source: *Traffic Calming: State of the Practice*, 1999. | | |

**Advantages**

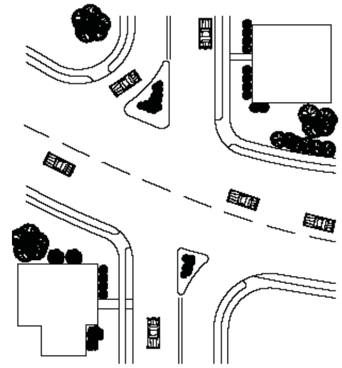
- Able to maintain full pedestrian and bicycle access
- Reduces traffic volumes

**Disadvantages**

- Causes circuitous routes for local residents
- Delays for emergency services
- May be expensive
- May require reconstruction of corner curbs

### *Forced-Turn Island*

Forced-turn islands are raised islands that prohibit certain movements on approaches to an intersection.



| Measured Effectiveness | | |
|---|---|---|
| Speed Reduction | **Reduction in 85th Percentile Speeds between Slow Points** | **I/D** |
| Volume Reduction | **Reduction in Vehicles per Day** | **-31%** |
| Safety Reduction | **Reduction in Average Annual Number of Collisions** | **I/D** |

Note: I/D = Insufficient data to predict reduction effect.
Source: *Traffic Calming: State of the Practice*, 1999.


**Advantages**

- Can improve safety at an intersection by prohibiting critical turning movements
- Reduces traffic volumes

**Disadvantages**

- If designed improperly, drivers can maneuver around the island to make an illegal movement
- May divert a traffic problem to a different street

## *Turn-Movement Restrictions*

Turn-movement restrictions involve the use of signs to prevent undesired turning movements without the use of physical devices. The restrictions may generally apply to turning movements in or out of a residential street to a larger street. The turn-movement restrictions may be permanent or only during peak commute hours.

| Measured Effectiveness | | |
|---|---|---|
| Speed Reduction | **Reduction in 85th Percentile Speeds between Slow Points** | **I/D** |
| Volume Reduction | **Reduction in Vehicles per Day** | **I/D** |
| Safety Reduction | **Reduction in Average Annual Number of Collisions** | **I/D** |
| Note: I/D = Insufficient data to predict reduction effect. | | |





**Advantages**

- Can reduce cut-through traffic at specific time-of-day
- Can increase safety at an intersection by prohibiting certain turning movements
- Low cost

**Disadvantages**

- Restrictions apply to resident and non-residents
- Requires enforcement during time of restriction to be effective
- May divert a traffic problem to another street

OFFICE & PROFESSIONAL EMPLOYEES
INTERNATIONAL UNION • LOCAL NO. 3 • AFL-CIO

**Hang Le To**
President

**Natalie Naylor**
Business Manager/
Secretary-Treasurer

**Jocelyn Olick**
Union Representative

**Jane Bosio**
Union Representative

March 5, 2014

Planning Commission
Mary Woods
1650 Mission, Suite 400
San Francisco, CA 94103

Dear Ms. Woods,

I am the Secretary-Treasurer/ Business Manager of OPEIU Local 3. We represent over 200 Program and Office Assistants at the University of San Francisco. We have a good collective bargaining agreement built over decades of productive collective bargaining.

OPEIU Local 3 fully supports the University of San Francisco's Institutional Master Plan (IMP) that includes the construction of a new dormitory. (Detailed in this link) http://www.usfca.edu/Business_and_Finance/Project_Management/Master_Plan_Documentation

Not only is the University of San Francisco a fully unionized university campus, the proposed construction project would also provide good union construction jobs that are much-need in our community. We believe that the proposed project is good for the long-term survival of the University of San Francisco as not only an important educational institution but as a good union employer in San Francisco.

OPEIU Local 3 strongly advocates that the University of San Francisco's Institutional Master Plan be approved by the Planning Commission on March 13, 2014.

Sincerely,

Natalie Naylor
Secretary-Treasurer/ Business Manager

1050 SO. VAN NESS AVE., SUITE 201, SAN FRANCISCO, CA 94110 • TELEPHONE (415) 647-7776 • FAX (415) 647-7778

**Woods, Mary**

**From:** martin.macintyre@juno.com
**Sent:** Wednesday, March 05, 2014 1:18 PM
**To:** Woods, Mary
**Subject:** Commentos on USF's IMMP for March 13, Hearing
**Attachments:** USF IMP comments by M MacIntyre 4-5-14.doc

Dear Mary,

I hope that the attached statement can be supplied to the Commissionsers prior to the hearing. If not, let me know if it isn't too late, what format it must be in, e.g. many hard copies etc.

Martin

Martin L. MacIntyre, March 5, 2014
41 Temescal Terrace
San Francisco, CA 94118
martin.macintyre@juno.com

**Comments on USF's IMP Parking Analysis for the March 13, 2014 Hearing.**

**What do the residents of Lone Mountain surrounding USF want?**

1. Accurate, valid and timely physical data on parking in the LM neighborhoods by USF.

2. At least one available parking space within a block of our homes.

3. No blocked driveways

4. No vandalism and physical/verbal abuse from drivers.

LM residents want safe access to our driveways and reasonable priority access to on-street parking near our residences. We don't want our homes vandalized or to be verbally and physically abused by USF drivers. We pay for a RPP permit system to achieve these goal and avoid these problems by excessing parking demand from USF drivers and poor enforcement by SFMTA have overwhelmed the parking supply. We expect USF to do everything they can to help us, as other schools have done for their local residents. These are reasonable goals that have been obviated by the ever-increasing parking demands by USF affiliates and guests who pay no fee and are rarely ticketed. As a result, residents have been suffering an increasingly negative quality of life without any parking mitigation by USF or SFMTA.

**What does USF say?**

USF doesn't even admit that they are the cause of the parking problem. The conclusions in the 2012 USF-IMP parking analysis are that at the peak parking hour, USF-related cars account for a maximum of 25% of the parking demand and that there are sufficient unoccupied on-street parking spaces to meet the demand from 1,100 additional USF commuters in the next decade. USF has no plans to cap their population growth. USF will say they are actively meeting with LM resident to solve the parking problem as seen by the residents, but their proposed solutions won't reduce the parking demand and they haven't changed the false claims in the IMP, which they refer to as "the past".

**The Truth.**

The current and past USF data and analysis are patently false. The actual on-street parking spaces occupied by USF affiliates and guests is 75% - 90% within a reasonable walking distance in a two-hour zone and it is almost a 100% occupancy 24/7 in the 550 unrestricted parking spaces on the USF border. The 2004 IMP said USF affiliates occupied 46% of the on-street spaces when there were 2,350 fewer USF commuters but now it is miraculously only 25%. The 1980 IMP admitted that the on-street parking was insufficient, although there were 4,000 fewer commuters and over three times the number of on-campus commuter parking spaces!

The present USF transportation consultants have shamelessly used false statistics and double accounting to fib for USF, in order for you to allow USF to have unfettered growth ($) without expanding their land and with almost no increase in classroom space. Since 1980, the USF-related population has **increased 50%,** from 8,100 to 12,000 and they want to add another 1,100. At the same time, the on-campus parking spaces have **decreased over 50%** from the planned 1,738 to the present 860 spaces. However, it is really a **67% decrease** because only 550 or fewer of the spaces are available to USF affiliates commuters. USF has selfishly dumped these car commuters onto the surrounding residential street claiming that their affiliates have just as much right to these public parking spaces as resident despite the RPP. USF has even assisted dorm students get RPP permits although they are already storing their cars 24/7 on the 550 unrestricted curb spaces surrounding USF.

**The key question is, does it matter to commissioners if USF is telling the truth?** USF counts the cars parked 24.7 by dorm student as being parked by residents and they turn around and count dorm students as walking commuters to make it look like they have converted drivers into walkers. Yes, this is unbelievable but just ask them at the hearing and they will have to admit it or deny the truth. If they can't answer right away, hold a second hearing in a month or two to give them a chance to answer.

The IMP doesn't count 1,100 daily USF guests as USF-related, even though they provide them with 30% of the on-campus parking permits, (500) and only provide 150 permits for USF students. Unbelievable? At the hearing, please ask the USF team if the above is true? They have to admit it or deny the truth or say they don't know.

Ask them if they did an on-street count of the cars of USF affiliates, residents and others or instead, used a voluntary, non-random on-line Survey Monkey poll to estimate the parked cars and then put the data into a convoluted formula that is clearly bogus and not "best practices", as claimed.

The IMP actually states that the close-in parking occupancy "doesn't exceed 100%" at the peak hour, as if this is good, which concedes that it is possible to exceed 100% by blocking driveways, parking cars in motorcycle spaces, and in the public right-of-way. They avoid estimating or counting the percentage of USF affiliates and USF guests occupying these close-in parking spaces where LM residents live. The most obvious reason for this data omission is that it would contradict their claims and question the viability of USF's goals.

**The statements on parking in the IMP are neither accurate nor truthful and are simply meant to absolve USF from any legal or moral obligation to mitigate the parking problem or to control their unfettered population growth so they can continue to build. The truth is that long before 2004, USF had already reached their maximum growth in terms of residential beds and classroom space and had surpassed the parking limits back in 1980. Now, in 2014, USF expects you to believe their claim that they have, and will continue to have, "less than as significant (negative) impact" on parking in our residential neighborhood despite 5,000 additional commuters and 1,100 fewer on-campus parking spaces. If you believe that and ignore what isn't in the IMP, then don't ask them to explain the unexplainable or even have a hearing.**

**The above truthful information is just the tip of the iceberg. I can provide the more if you are interested.**

**Sincerely,**

**Martin MacIntyre, Past President of the University Terrace Association and accepted as the local expert on the parking problem.**

**From:** Anne-Marie Pierce <anne-mariep@sbcglobal.net>
**Sent:** Thursday, February 27, 2014 3:27 PM
**To:** Woods, Mary
**Subject:** USF IMP hearing- UTA statement
**Attachments:** UTA-IMP hearing statement.docx

Dear Ms. Woods,

Please find attached the statement that I plan to make at the hearing you will see that University Terrace Association supports the IMP while expressing some very real concerns.

All the best,

Anne-Marie Pierce
President, University Terrace Association
536 Parker Avenue
San Francisco, CA 94118

Tel: 415-386-4008 415-386-4001
Fax: 415 386-4003

Cell: 415-671-9943 415-671-9943

February 27, 2014

Dear Ms. Woods,

Please find below the statement that will be delivered on March 13th at the USF IMP hearing.

This statement is made on behalf of the entire University Terrace Association ten-member board over which I have presided for the past two years. It has been shared with all UTA neighbors.

I have participated in all the IMP meetings and hearings open to UTA. This was in addition to meetings of the traffic calming committee, the PCI (Progress and Current Issues) committee, and others with various consultants adding up to over 70 meetings.

Throughout this long process, I found the USF representatives and their consultants to be **open to suggestions**, **transparent** and **collaborative**.

New positions to meet neighborhood issues:

After entering into a comprehensive Settlement Agreement with our neighborhood, USF has demonstrated its **goodwill** by creating several new positions to address our neighborhood problems and to liaise with UTA and other nearby neighborhoods.

- Liz Miles, Master Plan Manager. Liz provides a conduit between USF on the progress of the Settlement Agreement, the IMP, and construction.
- Marc' Bady, Assistant Director of Office of Student Conduct, Rights & Responsibilities & Community Relations. Marc' handles student conduct issues.
- Patrick Custer, Project Traffic Coordinator.

All have been **responsive** to inquiries and complaints and all have kept us apprised of relevant upcoming events.

Neighborhood issues addressed:

USF has instituted new programs to respond to neighborhood concerns:

- Increased litter pick up,
- Increased neighborhood awareness raising during student orientation,
- Pro active efforts when events may result in more litter, noise, or parking conjestion,
- Regular communications including heads up on special events,

The number of individual neighbor complaints has been greatly reduced.

The updated PA system and lighting at the soccer field have eliminated the negative impacts to the neighborhood. The sound proofing of the batting cage at the baseball field has reduced noise. All this is much appreciated.

USF has provided early opportunity to offer input regarding new projects. A case in point was the recent preliminary meeting about the proposed residential project on Lone Mountain. A meeting was called for UTA to express concerns as soon as an architect was selected and before any design was started.

The construction process for the recently completed Center for Science and Innovation was very well managed, an effort for which University Terrace residents have been grateful. We trust that all the strategies which delivered such a result will be put into effect for any future construction projects. Therefore our concerns do not reside as much with construction as with density, hence our reservations to support any future construction that would translate into added student/staff population or result in undesirable visual impact.

Some problems remain: The most aggravating being the parking saturation in the neighborhood. USF has created a special task force chaired by Peter Novak, Vice Provost, to work with the Lone Mountain Coalition of Neighborhoods to find creative solutions and improve the current untenable parking situation. We remain hopeful that improvements can be made

With regard to the enrollment projections proposed in this IMP, 10% over the next ten years is probably the outer limit of this growth and may be unsustainable since we are already at saturation. If all the proposed construction sites in the IMP were to be implemented, the campus density would alter the neighborhood character disastrously. However, we understand that the exhaustive list of potential projects reflect options rather than reality.

At this juncture, UTA is primarily concerned with traffic calming and parking issues and looks forward to the implementation of the most promising solutions outlined in the IMP's TDM or new solutions developed in the related committee. UTA initiated a Progress and Current Issues Committee to monitor the Settlement Agreement and the IMP implementation. In this context UTA expects a yearly Annual Assessment Report in mid October from USF which will document student enrollment and items from the IMP to be implemented during the academic year.

We appreciate USF willingness to work collaboratively with us, and we plan to continue to work with USF in this manner.

Cordially,

Anne-Marie Pierce, UTA Board President 536 Parker Ave San Francisco, 94118
Mira Ringler, Past President
Kirstine Schaeffer, Vice President
Katharine Holden, Vice President
Barbara Kiley, Treasurer
Sharon Gocha, Secretary

Walt Gmelch
Evelyn Manies
Dana Reinhardt
Gerard Westmiller

## Woods, Mary

**From:** Aruna Busacca <abusacca@dslextreme.com>
**Sent:** Tuesday, February 25, 2014 7:43 PM
**To:** Woods, Mary
**Subject:** Coalition Letter for submittal with USF's IMP
**Attachments:** IMP letter from LMNC 140225.pdf; ATT00001.htm

Hi Mary,

Please find attached a letter regarding USF's IMP that the Lone Mountain Neighborhood Coalition would like to submit to the Planning Commission. The letter is addressed to the Vice Provost, Mr. Peter Novak, and has been carbon copied to you. A copy of the letter has already been sent to Mr. Novak and he has been made aware that we are submitting it to the Commission. Please let me know how to proceed to get the letter into the right hands and if the letter should be modified in any way to address commission members. Thank you very much for all your help. I look forward to hearing from you. Please feel free to call me, if that's easier for you. My cell is 415-640-6894.

Best,

Aruna

# LMNC

## Lone Mountain Neighborhood Coalition

McAllister St • The Terraces • Francisco Heights • Stanyan St. • Turk St.

February 19, 2014

Mr. Peter Novak
Vice Provost of Student Life
University of San Francisco
2130 Fulton Street
San Francisco CA 94117-1080

Re: University of San Francisco's Institutional Master Plan Presentation to San Francisco Planning Commission, March 13, 2014

Dear Peter,

The University's Institutional Master Plan [IMP] will be presented to the Planning Commission at a public hearing on March 13th, 2014. The Lone Mountain Neighborhood Coalition [LMNC] would like to make the presentation an opportunity to thank you and the rest of your team for your consideration and efforts to reduce the negative impact USF has on parking and traffic on the surrounding community. We also would like to urge USF to continue with future steps towards improving conditions along its borders with abutting residential neighborhoods.

As you know, many LMNC members have lived in this community for 20 years or more. As the University has grown over time, so has its negative impact on our quality of life. The USF affiliated Hilltop campus population has increased in the last 20 years by 3,500, almost 50%. To give some further history on the expansion, in the school's 1994 IMP, the total population was about 7,500. In 2011 it was almost 11,000, which is a 45% increase. In between, the 2004 IMP stated that the population would increase by 350 affiliates, followed by no further increases up to 2015; instead, it increased by 2,350. The present IMP plans for an additional 1,000 affiliates, within the same land boundaries, and with no future cap on population growth. In addition, the IMP excludes the 1,100 daily non-USF affiliate visitors to the Fromm program and Koret center from the population count. The effect on the surrounding community of this rapid and substantial population growth has been to clog the streets with traffic and make it unsafe to cross our streets and difficult to park our cars.

Different sub-groups of our coalition have worked with the University over the years to alleviate the institution's effects on the community. These groups came together in a coalition that began working with the school in June of last year. We first met at a community meeting to ask the University to tell us what specific things it would do to produce a significant and noticeable improvement in the parking and traffic situation as of the following September.

Unfortunately, at the time of writing this letter – some seven months later – the Coalition has not experienced a significant, nor noticeable, improvement in conditions. Although we have not yet reached a satisfactory result, the University has made significant efforts that we would like to gratefully acknowledge. All their efforts are fully elucidated in the Traffic Demand Management Program [TDM] of the IMP, but some standouts are:

- Commitment of significant personnel resources to addressing neighbors' quality of life concerns.
- Development of policy and marketing materials to dissuade incoming freshman and dorm residents from bringing cars to campus.
- Efforts to use on-campus parking more efficiently, for example the elimination of the PAN parking system and the addition of valet parking.
- Partnership with MUNI to add an express bus line and provide fast passes to all qualifying students.
- Encouragement of car pools, car sharing and bike usage through programs such as: dedicated car-pool parking spots, increase in number of cars available for car-sharing program and plans to build a substantial bike shelter.

This list is by no means exhaustive and we are very thankful for all of the efforts the University has made thus far. Since, unfortunately, the LMNC has not yet seen a noticeable improvement in conditions, we have made the following specific requests to the University and believe that these steps must be taken to achieve the results our community needs:

1. Keep a current registry of all student, faculty and staff cars. The University has a policy that prohibits freshman students and dorm residents from bringing cars to school. This policy is not, and cannot be, enforced until the school knows which car belongs to whom.
2. Provide adequate enforcement of the no-car policy for freshman and dorm students and existing on-street parking regulations. The SFMTA does not provide sufficiently rigorous parking enforcement to induce USF affiliates to abide by existing parking restrictions, such as the time limits imposed by Residential Parking Permits. We strongly urge the school to partner with the SFMTA to provide the necessary supplemental enforcement.
3. Open the Koret Center parking lot to both facility and neighborhood users in the evening to address demand for parking during the busy evening class times.
4. Ensure that on-campus parking is being fully utilized when school is in session.

5. The LMNC has found inconsistencies in key parts of the survey data contained in the TIS of the IMP being submitted. The Coalition understands that currently the University is taking steps to ensure the accuracy of the data and we look forward to their response.

   Although the data inconsistencies must be addressed, there is a critical underlying issue that must also be dealt with. The IMP concludes that there is enough parking available within a ½ mile radius around the school to support the needs of the current population and the planned population growth.

   This conclusion is *completely out-of-step* with the real world experience of the Coalition – most of whom live within ¼ of a mile from the school. It is irresponsible, at best, for the IMP to ignore that the University's impact increases dramatically as you get closer to the school and that the parking availability is woefully inadequate to meet the needs of the *current* population, not to mention completely unable to support population growth. This disconnect must be addressed in a real and substantial way before the IMP's conclusion can be accepted.

6. The University has plans to conduct another survey in the near future. Much of the former and current survey relies on self-selected, on-line respondents. We understand that USF has concerns about conducting on-street surveys, but we feel they are an essential tool to cross-check the self-reporting survey data and that the new survey must be taken using objective methodology, such as:

   - obtain enough information about car owners through representative interviews and license plate searches to understand why people park where they do.
   - focus survey on conditions during the am and pm peak hours when USF and other commuter traffic is heaviest, not just the noon hour.
   - collect sufficient on-campus parking data to evaluate which uses generate additional on-street parking and where any remaining on-campus capacity may exist.
   - re-define the survey area to better capture conditions at the school's border. Rather than lumping up all data into a large study area that extends to Geary, add a focus upon the blocks most impacted by USF parking. This would include all streets with a roughly one-block radius of campus; area to be confirmed with a map (covering approximately to Willard North, Masonic, Hayes and Anza).
   - conduct at least two on-street surveys when USF is not in session to establish a no-school baseline.
   - share preliminary survey approach and information with neighbors to avoid later disputes.

- perform surveys regularly (every one to two years) to develop metrics by which we can evaluate progress.

This methodology will produce the physical, objective data required to identify the true scope of the University's impact, help the University know where to target their efforts and give us metrics for defining success.

In closing, Peter, we thank you and your team wholeheartedly for all the good work that you've done thus far. We urge you to take the steps we have identified above, as well as to maintain your commitment to reducing the University's impact on our community. We look forward to our continued work together.

With Regards,

***Lone Mountain Neighborhood Coalition***

Represented by:

Aruna Busacca
Joanna Callenbach
Geoff Hunt
Bob Lee
Marty Macintyre
Eva Muntean
Stephen Papale
Anne-Marie Pierce
Mike Smith
Kelley Watts

C.C. Mary Woods, Planner, Northwest
Quadrant, Current Planning
Planning Department, City and County
of San Francisco

**From:** Lynn Austin <laustin395@gmail.com>
**Sent:** Wednesday, November 20, 2013 4:11 PM
**To:** Woods, Mary
**Cc:** John Munz; Jennifer March Soloway
**Subject:** University of San Francisco Institution Master Plan Submission
**Attachments:** 13-11-18 Mike London USF IMP Letter.pdf

**Dear Ms. Woods:**

**Please accept the attached letter as a submission from the Ewing Terrace Neighborhood Association in connection with the University of San Francisco's draft Institutional Master Plan.**

**Lynn Austin, Secretary**
**Ewing Terrace Neighborhood Association**

154 Ewing Terrace
San Francisco CA 94118-4407
November 18, 2013

Mr. Michael London
Assistant Vice President, Facilities Management
Hayes Healy Hall
University of San Francisco
2130 Fulton Street
San Francisco, CA 94117

Dear Mr. London:

I am sorry that my calendar was a problem last week. I am summarizing the points we want to discuss below. As I have said several times, we sincerely want to support USF. We are not opposed to USF building more dormitories or academic buildings. We do, however, have concerns about the proposal made in the draft IMP that are not dealt with in your November 6 draft Supplement. Some of these concerns might be dealt with during the post-IMP planning and design process as you have suggested, but we believe that others should be dealt with in the IMP.

Scale and Density

As we have discussed, we are concerned about the density of the development and about the scale of the buildings in the project sited immediately adjacent to Ewing Terrace.

The original draft IMP proposed a development project that would have been significantly less dense and would have limited the height buildings on the site adjacent to Ewing Terrace to three stories.

The revised draft IMP proposed a development that would be significantly more dense and would raise the height of the buildings to be built on the hill immediately above Ewing Terrace to four stories.

We believe the 635 unit proposal is too big for the site the IMP allots to it. The Planning Code seems to say that an RH2 Use District is mostly two family homes but does allow Group Housing (Section 206.1 RH2) subject to density limitations. Table 208 requires 415 sq. ft. of lot area for each bedroom and Section 209.2 (c)(Other Housing) states that the "density limitations shall be as set forth in 208."

I believe that these rules apply to dormitories. At a minimum, however, they provide guidance as what is and is not appropriate density in RH2 Use Districts. The area proposed for development in the draft IMP (the "Underhill" site) is only large enough to support between 450 and 480 bedrooms using the Planning Code criteria. At 635 units, the proposed development is much too large for the site. Trying to accommodate that sized development in the space being allotted for it creates serious adverse impacts on our neighborhood.

As discussed below, we are concerned that the developer's on-going ownership of the project may have caused the developer to press the University to amend its development plan to include more units than are appropriate for the currently proposed site in the amended IMP.

Consideration of Impacts and of Alternatives and Mitigations

Section 304.5(c)(3)(B) requires an IMP to identify the impact on the ***character and scale*** of the surrounding neighborhood. At the top of page 6 in the Supplement, suggests that "4 story over parking" is consistent with the surrounding neighborhoods. That fails to acknowledge that, Ewing Terrace unlike the USF property, is zoned RH1.

All of the houses on Ewing Terrace adjacent to the proposed development are two-stories tall, mostly 20 feet in height (as are all of the other houses on Ewing Terrace that are not connected to Anza Street). Planning Code section 206.1 describes our neighborhood's ***character and scale*** this way: ***"They (sic)…tend to be uniform within tracts developed in distinct time period. Though built on separate lots, the structures have the appearance of small scale row housing, rarely exceeding 35 feet in height."*** Even structures in adjacent RH2 districts tend to be 3 stories or 30 feet in acknowledging the character of our neighborhood. The existing buildings along Turk are mostly 100 feet distant and except for articulated portions and do not exceed 3 stories until about 180 feet distant. The ***character and scale*** of our neighborhood was respected in the Draft IMP but not in the Final IMP. We ask that you explore alternatives that acknowledge the context in which the project will be built.

Section 304.5(c)(3)(C) requires consideration of alternatives which ***might avoid, or lessen adverse impacts on that neighborhood***, including location and configuration alternatives. It does not simply require consideration of "alternative scenarios to the overall master plan" as suggested by the fifth bullet point in on page 1 of USF's draft November 6th IMP Supplement.

The supplement suggests that the selection of Underhill is the "alternative". We disagree! Since the oversized scheme was inserted into the area above Ewing Terrace referred to as the "Underhill" site, we have repeatedly asked for alternatives that would distribute the excess units in order to avoid or lessen adverse impacts on our neighborhood. We have not asked USF to reconsider the use of the "Underhill" area as a site for dormitories. We accept that USF believes "Underhill" is best suited for housing but request that alternatives be included in the IMP that woould avoid or lessen the impact of that selection by expanding the size of the Underhill site or moving some units to other locations. Alternatively, the number of units to be included in the development could be reduced. 635 units are targeted in the revised draft IMP, but there is nothing magical about that number

So far as we can tell, USF has not considered our suggestions to:

1. Expand or enlarge the housing site to include additional land to the south and west. "Underhill" has no specific boundaries and is not a platted 'parcel". Expanding the area being used for the dormitories would reduce density and allow better mitigation of the adverse effects the development would otherwise have on Ewing

Terrace. An expansion might (or might not) reduce the size a future dormitory or academic building on Turk Street, but the IMP identifies several secondary sites that could be used when and if USF decides to build a new building in the future.

2. Move some of the proposed dormitory buildings to the top of Lone Mountain or to Anza Street adjacent to Loyola Village (land currently shown as the site of possible future tennis courts). The Anza location is in scale with neighborhood General Plan guidelines and was a part of the original Loyola Village development plan.

3. Limit the height of the eastern-most buildings (those to be built along the 100 ft. setback from Ewing Terrace) to two or three stories. Some units may be lost neither of our first two suggestions is used, but 635 units is just a target.

We ask that these alternatives be included in the IMP so that when architects are selected and begin the Conditional Use Permit design they will have these to consider as well.

<u>USF's Relationship with Its Developer</u>

We believe that the description of USF's relationship with the developer on page 6 of the draft November 6 Supplement is misleading. The supplement says that, "In late 2012, a University donor approached the University with a proposal to support construction of a larger [dormitory than had been proposed in the original IMP] by offering significant financial support." This suggests that a gift is being offered similar to the gift that allowed the construction of the Koret Center.

The relationship between USF and the dormitory developer would be better described as a joint venture in which the developer is the dominant partner. USF will provide the land and the developer will build and own the dormitory, deprecating it for federal and state income tax purposes. The developer looks up this as a profit making venture. Neither you nor developer could tell us more, but we assume that the only "donation" is a possible transfer of the building to USF at some point in the future. From the developer's perspective, there would seem to no cost to that "donation" since it is offset by its ability to use land it would never otherwise be able to buy or develop.

We would be more comfortable if the University were developing the buildings itself. We worry that the developer will have relatively little concern about the appearance or quality of the buildings or the effects that they may have on the University's neighbors. He wants make a profit over the life of joint venture but will have no interest in the value of the building when the joint venture terminates We are concerned that the University will have little ability to influence the developer.

Squeezing this sized-development into the space currently proposed for it would have serious adverse impacts for our neighborhood. We worry that it is also what a developer trying to maximize its profits would do and reiterate our request that the alternatives I list above (or other, better alternatives) be considered.

Road Re-Alignment

At our last meeting we discussed USF's plans to realign the roads on its campus coming off of Turk Street. We discussed, we are concerned that the proposed realignment could limit changes to the dormitory development plan which in turn might limit possible mitigations to the adverse effects that the dormitory development project would have to the people living on Ewing Terrace. We do not believe that any actual grading or construction work should be done to re-align the roads close to the proposed dormitories until the actual dormitory design process has been completed.

Construction

I appreciate the information about USF's management of the construction of the center for Sciences and management in the last paragraph of the Supplement. That project seems to have gone very well.

As you know, there were several construction management problems when Loyola Village was built. Noisy construction work was done outside the days and hours we had agreed to, days of pile driving within 15 feet of houses on Ewing Terrace did substantial damage to several homes (and to some people's nerves), and a number of large trees that were supposed to have been left in place were removed.

While I am confident you and Elizabeth will try to avoid similar problems during construction on the "Underhill" site, I am sure that you understand the concerns of the many of our neighbors.

As you state in your letter, you did not agree to make changes to the IMP submission during your meetings with us. We believe, however, that an examination of alternatives that can accomplish both parties' goals is one of the purposes of the IMP process and can help get us move to a mutually acceptable plan and result. Understanding this, I would hope that you would include alternatives and mitigations along the general lines of those we have been discussing in the Final IMP.

I look forward to discussing these points with you on Thursday.

Sincerely,

John H Munz, President
Ewing Terrace Neighborhood Association

cc: Elizabeth Mills
Jennifer Soloway
Lynn Austin
Mary Woods
Eric Mar

154 Ewing Terrace
San Francisco CA 94118-4407
June 12, 2013



Mary Woods
San Francisco Planning Department
1650 Mission Street, Suite 400
San Francisco, CA 94103-2479

Re: Final Draft University of San Francisco Institutional Master Plan;
Case No. 2012.0355i

Dear Ms. Woods:

I am enclosing copies of letters that have been sent to the University of San Francisco by the Ewing Terrace Neighborhood Association and by individual neighbors living on Ewing Terrace.

We have met with USF three times in the past three weeks to discuss plans they are now considering to build dormitories near the edge of a slope immediately above Ewing Terrace. We are discussing a number of concerns and alternatives and mitigations with USF. These concerns and the alternatives and mitigations we propose are explained in the enclosed letters.

The concerns are not new. We met with representatives of USF prior to and during their development of their draft master plan and consistently said that we do not believe that dormitories should be built on the hill immediately above Ewing Terrace. We also believe that the buildings in USF's new massing study are too tall and too close to the homes below them on Ewing Terrace. I have enclosed a picture of the proposed buildings from the massing study.

We understand you are evaluating the final draft IMP prior to submitting it for acceptance at the Planning Commission. As we understand the purpose of section 304.5 an IMP is to provide enough background information to allow a full dialog with the affected parties. In that spirit we ask that you consider requesting the following information from USF prior to scheduling a Commission hearing so it can inform and allow a full discussion of the priorities.

> Section 304.5 c (3) calls for indicating site area, ground coverage and building bulk. While building bulk is defined by the code, the change in grade of the hillside is substantial and germane to the discussion. We ask that a specific lot area be defined within the larger Lone Mountain plot and that several graphic sections showing a true scale height change and relationship of proposed building bulk along Ewing Terrace's western property lines be included to help in the discussion of scale and mitigation.

Section 304.5 c (3) (B) calls for showing the anticipated impact of the development on the character and scale in the surrounding neighborhood. Again, true sections would help to show the impact of the immense, institutional proposal directly adjacent to our 2 story residential neighborhood. We have asked for some indication how they intend to mitigate the scale along our western boarder and have been told that it will come when an architect is chosen, but showing or listing some ideas for breaks in scale or reduction in height and mass as an example of acceptable future development in the IMP would provide at least a basis for discussion and for analysis for future plans.

Section 304.5 c (3) (C) calls for showing alternatives that would lessen or avoid adverse impacts including location and configuration alternatives. We have seen none; in fact the latest proposal is twice and dense as that in the 3/20 draft. We ask that more specifics be included into the IMP document. These could include enlarging the site to reduce density or moving some of the bulk of the proposed development to the south or west to ease the scale conflicts. Such alternatives are not considered all. Showing such alternatives as options that would lessen the adverse impacts on our neighborhood would facilitate a better discussion.

Finally, on a more detailed level than perhaps appropriate for an IMP, we have been told that there will be a 100' setback along our property (nowhere is it specifically stated) and that within that zone a two lane road with setback from the building will allow fire access and access to parking within the dormitories. That does not appear to allow enough space to preserve the large mature growth trees along our boarder and on the top of the hill...trees that could provide some mitigation and that are a landmark in the neighborhoods around Loan Mountain. We suggest a more detailed plan and tree location map be included as a part of the IMP.

We would be grateful if you would request additional information from USF addressing our concerns and the alternatives and mitigations we propose before submitting their IMP to the Commission.

Sincerely,

John H Munz
President
Ewing Terrace Neighborhood Association

Enclosures:
Photos from USF community presentation on Massing Study
Photo of USF Upper Campus showing site and Ewing Terrace
John Munz to Mike London letter
Lynn Austin to Mike London email
ETNA to Mike London letter
Tom Gerfen to Mike London letter
Jessica Dines to Mike London letter
Pamela Chuey to Mike London letter

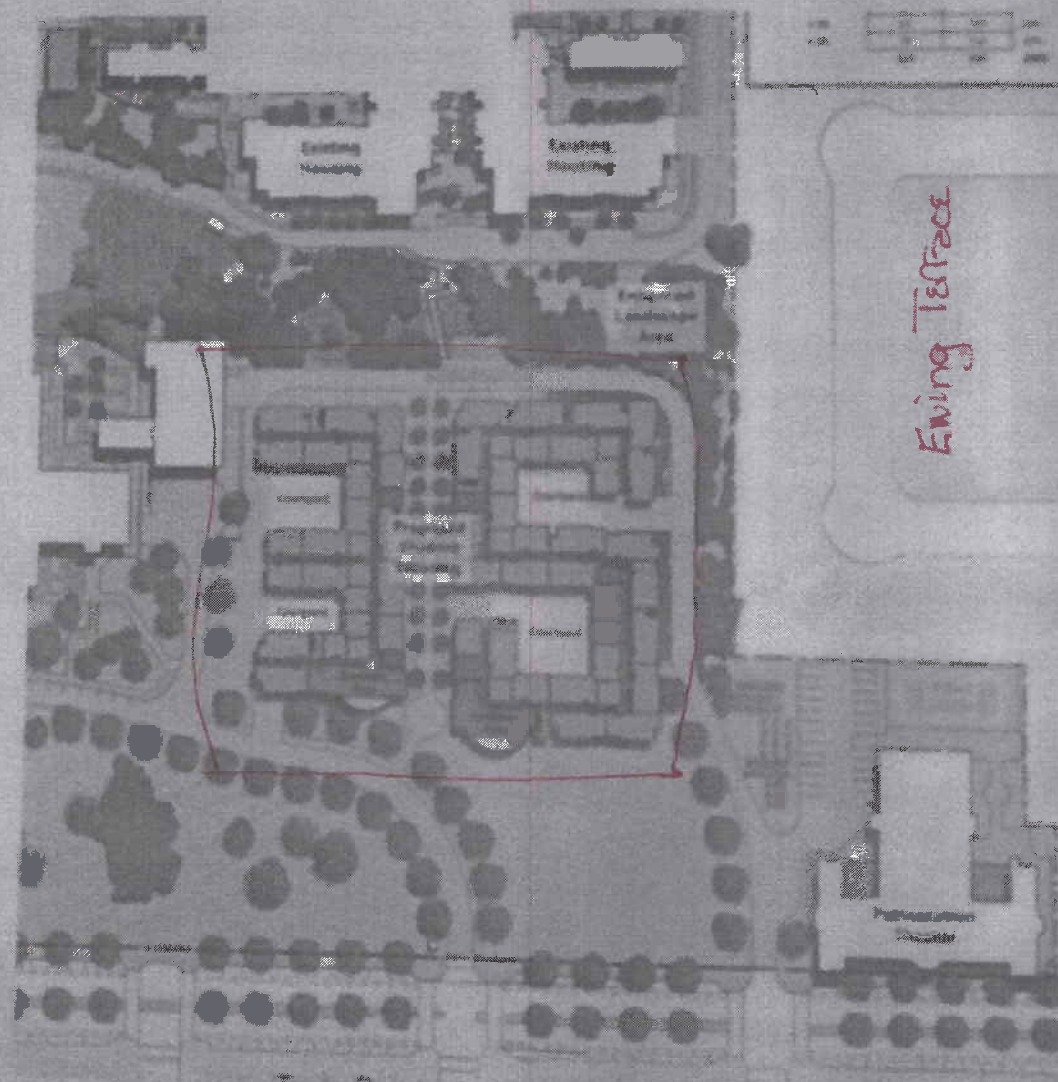
cc:
Michael London, USF Assistant Vice President, Facilities Management
Eric Mar, Supervisor, City and County of San Francisco
Radhika Aggarwal – Vice President ETNA
Lynn Austin – Secretary ETNA
Jennifer Soloway – Secretary ETNA
Doris Kobuchi – Treasurer ETNA
Ruth Levy – Treasurer ETNA

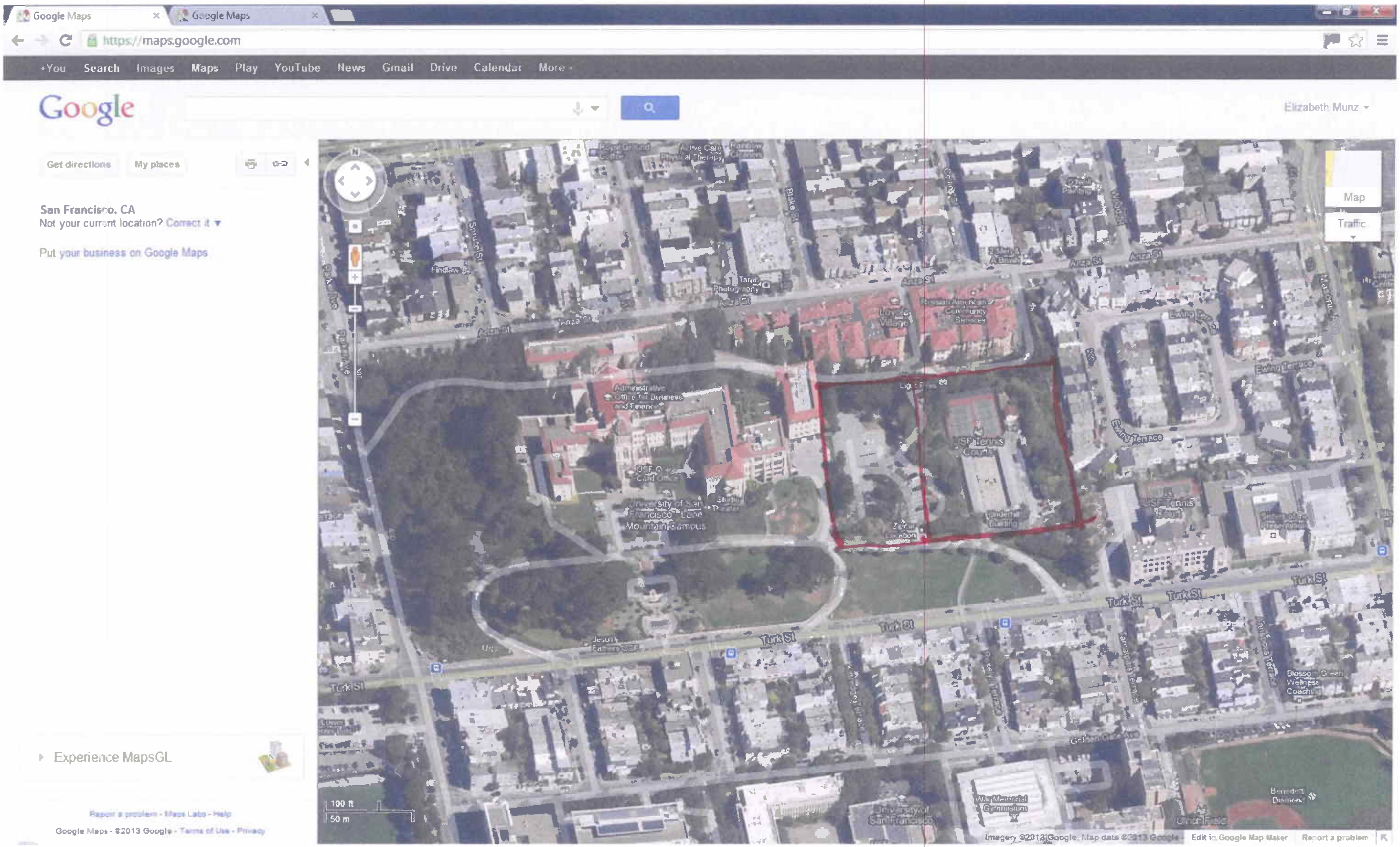

35

# New Residence Hall

**Design Considerations**

- Buffer from Ewing Terrace (100' + trees)
- Noise abatement
- More direct pathways to Loyola Village
- Set back from University Terraces
- Roof slope can be adjusted





Google Maps
Google Maps
https://maps.google.com
+You Search Images Maps Play YouTube News Gmail Drive Calendar More
Google
Elizabeth Munz
Get directions
My places
San Francisco, CA
Not your current location? Correct it
Put your business on Google Maps
Experience MapsGL
Report a problem - Maps Labs - Help
Google Maps - ©2013 Google - Terms of Use - Privacy
Map
Traffic
Anza St
Ewing Terrace
Administrative Office for Business and Finance
USF Tennis Courts
University of San Francisco - Lone Mountain Campus
Turk St
Golden Gate Ave
War Memorial Gymnasium
University of San Francisco
Benedetti Diamond
100 ft
50 m
Imagery ©2013 Google, Map data ©2013 Google
Edit in Google Map Maker
Report a problem

RECEIVED

JUN 19 2013

CITY & COUNTY OF S.F.
PLANNING DEPARTMENT
NEIGHBORHOOD PLANNING

154 Ewing Terrace
San Francisco CA 94118-4407
May 27, 2013

Mr. Michael London
Assistant Vice President, Facilities Management
Hayes Healy Hall
University of San Francisco
2130 Fulton Street
San Francisco, CA 94117

Dear Mr. London:

Thank you for all of the time that you and Liz have given us. We appreciate both the amount of time you have been willing to give us and the time of day that you have been willing to give it to us.

As you know; we have several concerns about the number of student who would be living in the project as it is now proposed, its size and density, and its siting so close to and immediately above the houses on the west side of Ewing Terrace. The officers of the Association have talked with many of our neighbors and have a number of ideas that I would like to go over with you and Liz and your consulting architect. Hopefully, USF can use some or all of the ideas to mitigate the adverse effects of the proposed development would have on the people living in our neighborhood while sill accomplishing the University's goals.

***Concerns***

We have seven concerns:

1. Noise

We are concerned about noise from parties, loud music, deliveries, and garbage collection.

2. Privacy

The neighbors on the west side of Ewing Terrace are concerned about having large numbers of students living immediately above them in rooms that look down into their backyards and bedroom windows.

3. Appearance

We have three concerns about appearance. The first is about the out-of-place appearance of four-story dormitories above and close to the houses on Ewing Terrace.

The second is that the design of the dormitories and the quality of the materials used make sense in the context of the traditional appearance of Lone Mountain and, to the extent the dormitories can be seen from Ewing Terrace, in the context the Rousseau-style design of our homes.

The third is that the trees presently growing on Lone Mountain west of Ewing Terrace be preserved rather than removed or damaged during any construction.

4. Parking

Adding 650 residential students will obviously increase demand for 24 hour parking in the neighborhood. We hope that USF will continue to keep both its property and the students living in its dormitories out of the L and BB residential parking areas.

5. Odors

We know that the current massing study includes new dining facilities located higher on Lone Mountain than the dormitories we are concerned about. If the University's plans should change and the proposed dining facilities be moved closer to Ewing Terrace, we would hope that the dining facilities and kitchens would not be vented in a manner that would bring residual cooking smells to Ewing Terrace. We would also hope that garbage would not be stored near Ewing Terrace.

6. Earthquakes and Heavy Rains

Many neighbors are concerned about the stability of the hillside above Ewing Terrace after construction. It is very steep, and there is concern that construction close to Ewing Terrace may make the hillside more prone to collapse and more prone to collapse with greater damage.

7. Construction

We have all the obvious concerns about noise and dust. We also a particular concern about pile driving. As you know, pile driving during USF's last construction project near Ewing Terrace caused considerable noise, vibration, and damage.

***Possible Solutions - Site and Layout***

We have several specific ideas about the siting, size, and layout of the dormitories that we would like USF and its architects to consider.

We would obviously like the dormitories to be set back as far from Ewing Terrace as possible. One possibility would be to move some of the buildings a) to sites to the south of the proposed construction, b) to the top of the Lone Mountain to the site the draft master plan would use as a parking lot,[1] and/or c) west of Loyola Village on Anza Street.

Alternatively, the footprint of the whole project could be shifted farther west. Even 20 or 30 feet would help a great deal. It would also help a great deal if the height of the dormitories adjacent to Ewing Terrace were reduced by two stories and an additional story or two added to the dormitories in the center and western sections of the project. The height of the project immediately above Ewing Terrace could also be reduced by excavating the site west of the access for fire trucks by 8 or 10 feet.

A number of variations are possible.

We would also recommend that the plan include a berm at the top of the slope leading down to Ewing Terrace and that the western side of the berm be backed by a wall that extends above the top of the berm by six feet.

From Ewing Terrace, the berm and wall would make the hill lock like it is several feet taller with a wall at the top. The wall would look much taller from the dormitories but could be made quite attractive if covered with Bougainvillea, honeysuckle, or jasmine and given appropriate low-level lighting at night.

A Berm and wall would both help the trees included in the plan screen the dormitories and act as at least a partial barrier to noise.

Some combination of these ideas would substantially reduce problems with noise, privacy, and appearance and would remove concerns about earthquake safety.

***Possible Solutions – Building Design (noise reduction)***

The neighbors on the west side of Ewing Terrace have had a continuing problem with noise from Loyola Village. We think the potential for similar problems with the proposed dormitories would be reduced if;

1. The dormitories do not have balconies.
2. The dormitories do not have outdoor spaces facing Ewing Terrace or Loyola Village that could be used for parties. (The problem not being with gardens or outdoor spaces per se, but with outdoor spaces whose designs encourage parties – particularly nighttime parties.)
3. The windows used for the dormitories are sound resistant and the sections of the windows that open are as small as allowed by building codes and open the smallest distance allowed by building codes.

Thank you for agreeing to consider our concerns and suggestions. I look forward to discussing them with you after you return from your trips.

Sincerely,

John H. Munz
President
Ewing Terrace Neighborhood Association

cc: Elizabeth Miles – USF
Radhika Aggarwal - Vice-President - ETNA
Lynn Austin – Secretary - ETNA
Jennifer Soloway – Secretary - ETNA
Doris Kobuchi – Treasurer – ETNA
Ruth Levy – Treasurer - ETNA

[1] The small building there could be replaced with a much larger dormitory extending farther south and west. Parking could be added beneath the new building

RECEIVED

JUN 19 2013

CITY & COUNTY OF S.F.
PLANNING DEPARTMENT
NEIGHBORHOOD PLANNING

*(sent via email)*

Dear Mr. London,

Thank you very much for involving the surrounding neighborhoods in discussions about the USF Institutional Master Plan. I am a homeowner on Ewing Terrace in San Francisco, a neighborhood located directly below USF's Lone Mountain campus. A few weeks ago I attended a community meeting at USF about the master plan, especially the proposed dormitory to be built on the "Underhill" site. Currently at that location are the ROTC buildings and tennis courts.

The presentation showed a new **650 resident, 4 story building** with a subterranean garage. This was quite a surprise as the original master plan document, filed with the San Francisco Planning Department, called for a **350 resident building.**

After speaking with many of our neighbors, I would like to share our concerns *before* any plans are approved. We would like to encourage USF to consider an alternate location and/or scale down and re-design the dorm if the Underhill site is the only option.

Below are some major concerns:

1. Size and Location

The preliminary drawings show a huge structure looming over Ewing Terrace, visible for miles around, impacting views, sunlight and privacy. Our neighbors have suggested alternate locations on USF property that could be utilized:

- Main campus below Hayes-Healey Hall on Ulrich Field (on Masonic Ave.)
- Western side of Lone Mountain on Parker Street
- Western side of Loyola Village on Anza Street
- Southern side of Lone Mountain, adjacent to the School of Education (former Presentation High School) along Turk Street

2. Appearance

Judging by the preliminary drawings, the out-of-place appearance of a four-story dormitory high atop Long Mountain and close to the houses on

Ewing Terrace seems to be inappropriate, not only to the University campus, but to the neighborhood and the city.

Secondly, the design of the dormitories and the quality of the materials used should make sense in the context of the City of San Francisco and the traditional appearance of Long Mountain campus buildings. The preliminary drawings indicate a generic, institutional look. Also, as Lone Mountain stands above everything in this part of the city, the buildings will be highly visible from all sides. Thus, they should be constructed with a view to fit in to the context of the traditional University architecture and the Rousseau-style design of the neighborhood houses.

3. Privacy

The houses on the Western side of Ewing Terrace are situated such that their bedrooms and backyards are on that side. The neighbors are concerned about having large numbers of students living above them in rooms that look down into their backyards and bedroom windows.

4. Stability, Earthquakes, Heavy Rain and Erosion

Many neighbors are concerned about the stability of the hillside above Ewing Terrace during and after construction. It is very steep, and there is concern that construction close to Ewing Terrace may make the hillside more prone to collapse with potential for great damage. As the area is prone to earthquakes, it is a major worry.

5. Construction

We have all the obvious concerns about noise, dust, debris, heavy equipment, etc., especially since it is on the hillside above the houses. We also have a particular concern about the pile driving necessary for the construction of the foundations of the buildings. Pile driving during USF's last construction project (Loyola Village) near Ewing Terrace cause considerable disruption, vibration and damage to our residences.

6. Parking and Traffic

Adding 650 single residential units will obviously increase demand for 24 hour parking in the neighborhood. We are told that the subterranean parking garage below the dormitory will be solely for faculty and staff. This will leave the student residents with no place to park besides our neighborhood streets. In addition, the proposed road above and along the Ewing property line into the USF garage is a concern as there will be two-way traffic all day with attendant noise, pollution and potential for erosion.

7. Noise

We are concerned about noise from the construction – and then later – from parties, loud music, deliveries, and garbage collection. The prevailing winds come from the West, which would carry the noise directly into our neighborhood and homes.

8. Odors

We know that the current massing study includes new dining facilities above the proposed dormitories. Given that the prevailing winds come from the West, we are concerned that the dining facilities and kitchens would bring residual cooking odors to the neighborhood. In the same vein, we are worried about garbage and hope that the storage and collection areas would not be located above and near Ewing Terrace.

We do understand that USF aims to provide housing, facilities and services for students and staff, especially with the proposed growth. We welcome the opportunity to work with you as the master plan moves forward, taking into consideration all interested parties' concerns.

Sincerely,
Lynn Austin
395 Ewing Terrace

RECEIVED

JUN 19 2013

CITY & COUNTY OF S.F.
PLANNING DEPARTMENT
NEIGHBORHOOD PLANNING

May 16, 2013

Mr. Michael London
Assistant Vice President, Facilities Management
University of San Francisco
Hayes Healy Hall; 2130 Fulton Street
San Francisco, CA 94117

Dear Mr. London:

We on Ewing Terrace appreciate that USF has reached out to discuss your upcoming plans on the upper campus at Lone Mountain. We have followed the Institutional Master Plan process with some apprehension given our experience with the Loyola Village development. As a group of homeowners we may speak in generalities but I believe the following characterizes our concern.

Probably not to your surprise, we would prefer that no development occur on the Tennis Court and ROTC sites, but given that may not fit your needs, we ask you to consider using the site on Turk assigned to "academic structure" in the Master Plan in lieu of this site. That would solve two of our concerns. It would separate the dormitory/dining uses; which have the negative potential of noise, invasion of privacy, a large transient community and potential food service invasions of smell and trash, from our homes. It would still allow a site to develop academic space at a future date, but more importantly, it would better match use cycles and mitigate conflicts; i.e. noise from students during the evening hours which would be further away while academic use would occur during the day when many of our residents are up and about or away from homes at work.

If for some reason that cannot fit within your overall goals for highest and best neighborhood use, then we have the following concerns about scale, privacy, health and construction impacts.

Scale: 100 feet seems wide and 4 stories seem low but in this context, neither is the case. The proposed site is substantially higher than our homes and therefore the potential to mitigate with landscape, even mature landscape, is reduced and 4 stories becomes equivalent to 7 or 8. On the other hand, the site terraces up to the much taller existing buildings to the west. We ask that you consider expanding the 100-foot setback and limiting the height on the eastern edge to 2 stories maximum, making up the difference on the western edge where height is more in scale.

Privacy: Placing 4 floors of dormitory units parallel to our property line has them looking directly into our bedrooms. Some might say, "well, that's city living", but this is different. A dorm is transient, like having a hotel with 100% occupancy all the time, in your backyard. Not really reinforcing community and potentially reducing the home value of those affected. We ask that you consider limiting the number of windows placed parallel to our property line, either by adjusting the building configuration or by lowering the height to a maximum of 2 stories, which, even with the elevation of the site, still has a chance of being shielded. Increasing the setback would allow increased plantings and a potential reverse berm/wall at the top to mitigate noise impact.

Noise: We applaud USF's code of student conduct and resident advisor programs; but, let's face it, students are young adults whose enthusiasm, still developing self-restraint and awake times lead to many cases of after hours, late night parties, noise and interference with neighbors. They are transients who leave at the end of the semester and have no real stake in respecting community living norms. Living with Loyola Village has given us first-hand experience. From that real world observation, we respectfully ask that no exterior decks, terraces, courtyards or anything that encourage social gatherings be allowed on the side of the facility facing Ewing Terrace. In addition, we ask that windows have limited opening capability and dense enough materials to keep blaring stereos and the natural exuberance of young people from disturbing our natural expectation of a peaceful night's sleep. We appreciate your diligence and actions after being notified, but it is not enough and not particularly helpful once we are already awake.

Health/Environment: With food service come 2 major concerns: hours of delivery and smell/hygiene/vermin. The current proposal puts service for the dining commons directly behind our homes. We respectfully request that any service delivery/removal be restricted to reasonable hours: after 8am, before 5pm and not on weekends. In addition we ask that any trash be secured in an enclosed, conditioned space that is kept shut. It is a windy area and we are downwind. Any loose materials will blow and do. When the recycling center was on the Loyola Village site this was a constant problem that USF claimed to have no control over since the center was a long-term tenant. In this case you do have control and we ask that it be exercised meticulously.
(By the way, this is another issue that could be mitigated by locating the dorm/dining area on the Turk site where it could share service with the Presentation Theater building)

Construction Impact: Most of the physical damage inflicted on Ewing Terrace during the construction of Loyola Village was a direct result of the sheet and pile driving to create the deeply cut driveway. Our homes are 75 years old and built on sand. They do not respond well to the type of pounding that construction technique requires. Often the damage is not readily visible and only manifests itself in leaks and water damaged interiors years later; well past any recourse. We request that your plans minimize major cut and retaining operations that require such techniques.

We look forward to working with you to create a better community for us all to share and enjoy.

Sincerely,

Lynn Austin – Secretary
Ewing Terrace Neighborhood Association
John Munz, President
Radhika Aggarwal - Vice-President
Jennifer Soloway – Secretary
Doris Kobuchi – Treasurer
Ruth Levy – Treasurer

cc: Eric Mar, Supervisor
cc: Mary Woods, San Francisco Planning Department

May 26, 2013

RECEIVED

JUN 1 9 2013

CITY & COUNTY OF S.F.
PLANNING DEPARTMENT
NEIGHBORHOOD PLANNING

Mr. Michael London
Assistant Vice President, Facilities Management
Hayes Healy Hall; 2130 Fulton Street
San Francisco, CA 94117

USF Institutional Master Plan case # 2012.0355i

Dear Mr. London:
I was unable to attend the presentation on May 16th with my Ewing Terrace neighbors to hear about development plans for the "Underhill" site on the Upper Campus, but the reports that returned were very disturbing. I would like to confirm their impressions so I understand clearly.

First, I was surprised to hear that USF was planning 650 on site student beds w/services. This is substantially greater than the 350 presented on p.68 of the IMP. The massing presented on Thursday is dramatically different than the density shown on p.69 of the IMP and the impact on Ewing Terrace considerably more overwhelming than the 3-4 story mass blocked out on p.71.

My question: have you changed your approach since the IMP with the intent to resubmit it? Won't such increases in density change the car and foot traffic projected in the report and require that you reconsider the neighborhood mitigations called for in your conclusions?

If true, this proposal pushes the limit of "maximizing the site envelope". Instead of integrating the campus into the 2-3 story housing you laud on p. 37 of the narrative, it creates a looming mass without any attempt to mitigate the character and scale differences. While only a master plan, the masses presented are caricatures of the overdevelopment prevalent in the relatively flat Silicon Valley like Sobrato Hall/Loyola RLC at Santa Clara Univ. developed by your partner.

My second question: how do you plan to mitigate the looming, out of scale mass along with the increase in noise and loss of privacy to adjacent neighbors as you did at Loyola Village? It would help if you provided a section from the south loop of Ewing Terrace through the proposed site to study if reducing the adjacent height to 2-3 stories would help because of the grade differential.

Given the dramatic increase in density it seems that other mitigating ideas should be reopened.

My third question: If you are intent on using the "Underhill site" for dormitories, have you considered expanding its southern border to incorporate the "Academic Building Site" in order to accommodate the increased density and mass? This would relieve some of the "overstuffed" impression in the rendering and allow better scale integration. You have several other sites designated for future development which could be used when the academic building develops.

We understand you need to grow but are asking you to compromise to balance both our needs.
Sincerely,
Thomas B. Gerfen, FAIA
234 Ewing Terrace

Jessica Love Dines
288 Ewing Terrace
San Francisco CA 94118-4407
June 11, 2013

RECEIVED
JUN 1 9 2013
CITY & COUNTY OF S.F.
PLANNING DEPARTMENT
NEIGHBORHOOD PLANNING

Mr. Michael London
Assistant Vice President, Facilities Management
Hayes Healy Hall
University of San Francisco
2130 Fulton Street
San Francisco, CA 94117

Cc: Eric Mar, San Francisco City Supervisor
Mary Woods, San Francisco City Planning Department

RE: Underhill Site Proposal presented 5/16/2013
SF Planning Department Case No. 2012.0355i
USF Institutional Master Plan Final Report 3/20/2012

Dear Mr. London:

Thank you for all of the time and consideration that you and Elizabeth Miles have given the Ewing Terrace Neighborhood Association. We know that you are receiving other letters describing our concerns over the plans you presented for the building of the dorms on the Underhill site. The purpose of this letter is to focus mainly on the concerns of those residents whose homes are closest to the site and are thus most directly impacted by the current plan. We respectfully request that the next draft of your building plan addresses each of the safety, health and nuisance issues listed below:

- Structural/foundation risks to our homes associated with building a 4-story building with underground garage on a hill of sand and shale above our homes (sinking, shifting, earthquake, etc). Several long-time residents reported there was significant damage to Ewing Terrace homes and a subsequent USF financial settlement resulting from Loyola Village construction. We would rather avoid the issue with appropriate construction techniques this time around rather than a settlement.
- Increased density far beyond what was stated in the master plan (650 beds vs. the originally proposed 300-350 beds). Even the original 350 beds 100 feet from our property is too much density to mitigate our concerns
- Character and scale of structures inappropriate to our adjacent neighborhoods. The massive 4story; unrelieved institutional blocks in the images presented make no attempt to adjust or connect to the scale to our two story single family homes. A continuous 4 story roof -line looms over our rear yards. Loyola Village; while larger than our neighbors wanted, at least reduced the scale of the 4 floor mass with 2 story projections and 3 story breaks in the overall height…and that site was not looming 20 feet above us because of the grade change, to begin with. Further mitigation is needed.
- An upshot of the mass is a drastic reduction of direct sunlight for the majority of the adjacent Ewing Terrace properties in the afternoon, those most proximal being most affected
- Student noise at unacceptable hours—please be realistic that you will not be able to control the behavior of the students, least of all at night; you will only be able to control their proximity to

Ewing Terrace by building further away. We are currently awakened by the sound of the garbage trucks working at the Underhill site in the early hours; we were told that 7am was the start time, but dumpsters were delivered at 5:30am this past Monday. Planting enough trees on the hill between the dorm and our homes to absorb the noise would pose additional safety risk to us from the trees themselves.

- Losing our privacy—dorm residents able to see into our backyards and bedroom windows. Again, you cannot plant enough trees on the hill to block visibility (those you do plant will have no effect at all for several years) but moving the building and reducing the number of stories sufficiently can mitigate this problem
- Removing a portion of the green canopy and the changing the character of Lone Mountain that is visible all over the city. Your presentation said there would be a 100' setback from our property lines to the dormitories and within that space a 2 lane road to provide parking access. There does not appear to be enough space for this road without removing a number of large existing trees at the crest of the hillside that provide some visual buffer or affecting them during construction so that they may become a hazard in the future.
- Construction dust in air getting inhaled into our lungs, particularly those of infants and the elderly
- Car noise from the road into the parking, noise from car alarms inside the garage and exhaust fumes
- Pests and vermin from garbage storage areas.
- Wind tunnel effects that blow trash from the food service area into our back yards unless the fence and screening called out on page 107 of your plan is put at the top of the hill.

Can you please send us a copy of the plan that was presented at the 5/16/2013 meeting? Electronic versions of these documents are preferred, a cross-sectional drawing extending from Ewing Terrace up the hill through the dorm building, showing the height of the dorm building relative to our houses and the Ewing Terrace property line would be helpful in us understanding the impact of your proposal. May we also ask that you keep us updated on any major changes to the plan moving forward?

Finally; when they are available, can you please send copies of all reports relevant to the dorm plan, including:

- Environmental Impact Report
- Civil / Architectural / Structural / Plumbing / Mechanical Drawings
- Geotechnical Report

Thank you for considering our concerns and suggestions and for the open communication.

Sincerely,

Jessica Love Dines
288 Ewing Terrace

Ivan Resnikoff
288 Ewing Terrace

Additional Ewing Terrace resident signatures:

ROSE ANN BALISTRERI.

Rose Ann Balistreri

126 Ewing Terrace

San Francisco Ca 94118

Daniel Guthrie

DANIEL GUTHRIE

126 Ewing Terrace

San Francisco Ca 94118

Nick Stielau

Nick Stielau

190 Ewing Ter

San Francisco, CA 94118

J K Stielau

Jessica Stielau

190 Ewing Terrace

San Francisco CA 94118

Cissy Lee

CISSY LEE

277 Ewing Terrace

San Francisco, CA-94118

Additional Ewing Terrace resident signatures:

[signature]
Larry Hilty
320 Ewing Terrace.
SF, CA. 94118.

[signature]
DONALD C. RATHBONE
320 EWING TERRACE
SF, CA 94118

[signature]
240 EWING TERRACE
SAN FRANCISCO, CA 94118

C. Abbott
166 Ewing Terrace
SF, CA 94118

Patrick G Devlin
Patrick Devlin
142 Ewing Terrace
SF, CA 94118.

Additional Ewing Terrace resident signatures:

Lynn Austin

Lynn and Stephen Austin
395 Ewing Terrace

JOHN MEYER
338 EWING TERRACE

148 Ewing Terrace
Alexander Wong

KEVIN NIDUABA
300 EWING TERRACE
S.F. CA

Brian McNamee
368 Ewing terrace
SF CA

Additional Ewing Terrace resident signatures:

[signature]

RAYMOND M AKASHI
276 EWING TERRACE
S.F. CA. 94118

Ingrid & Gary Apter, M.D.
196 Ewing Terrace
S.F. CA 94118

Ingrid Apter
Gary Apter M.D

Judy McElree-ORR and John McKee
(See attached e-mail)
216 Ewing Ter.

Pamela G. Gerfen
Pamela G. Gerfen
234 Ewing Terrace
SF, CA 94118

Radhika Aggarwal-
Radhika Aggarwal
356 Ewing Terr
San Francisco CA 94118

Additional Ewing Terrace resident signatures:

Velma Kwan

Velma Kwan
138 Ewing Terrace
San Francisco, CA 94118

Phil Lang
114 Ewing Terrace
San Francisco, CA 94118

JULIA CHEW
125 EWING TER.
San Francisco, CA
94118

John myrick
101 Ewing ter
San Francisco, CA
94118

Kyle FRANCIS
326 EWING TER
SF CA 94118

Shigemi Pang
326 Ewing Ter
SF CA 94118

Additional Ewing Terrace resident signatures

EDWARD YUK
272 EWING TERRACE, S.F. 94118

RUTH LEVY
160 Ewing Terrace

Additional Ewing Terrace Resident Signatures
(intent to sign received electronically; documentation included with original)

Sue Hom
386 Ewing Terrace

David Kase
345 Ewing Terrace

Nancy Vernon
365 Ewing Terrace

RECEIVED

JUN 19 2013

CITY & COUNTY OF S.F.
PLANNING DEPARTMENT
NEIGHBORHOOD PLANNING

Pamela Chuey
240 Ewing Terrace
San Francisco CA 94118

June 17, 2013

Mr. Michael London
Assistant Vice President, Facilities Management
Hayes Healy Hall
University of San Francisco
2130 Fulton Street
San Francisco, CA 94117

Cc: Eric Mar, San Francisco City Supervisor
Mary Woods, San Francisco City Planning Commission

RE: Underhill Site Proposal presented 5/16/2013
SF Planning Department Case No. 2012.0355i
USF Institutional Master Plan Final Report 3/20/2012

Dear Mr. London:

Thank you in advance for your time and consideration both you and Elizabeth Miles have given the Ewing Terrace Neighborhood Association. I, along with my other neighbors, have concerns about the dormitory plans you presented on the Underhill site. The reason for my concern is I am on the West side of Ewing Terrace and the proposed dormitories will be right above my property.

The objective of my letter is to focus on the impacts to my home by the current plan. I would like to respectfully ensure that you will address the following concerns in the next draft of your building plan with regard to safety, health and nuisance issues listed below:

Structural / Foundational

- Structural/foundation risks to homes associated with building a 4-story building with underground garage on a hill of sand / shale above our homes (sinking, shifting, earthquake, etc).
- As a 20 year resident and being a part of the Loyola Village construction, my home was damaged. If you could refine construction methods to avoid damages to surrounding properties, this would be optimal.

Density

- Increasing density by 86% from the master plan (650 beds vs. the originally proposed 300-350 beds), was disappointing.
- Understanding the need for on-campus housing, the original proposed density of 350 beds would have created much concern. However, the new plan for increased density (650 beds) only one

hundred (100) feet from our property line may provide an insurmountable challenge to mitigating our concerns.

Character & Scale Inappropriate Considering Surrounding Structures

- Character: Unrelieved institutional blocks of the four-story building in the images presented make me believe that no attempt was made to account for the scale to the two-story single family homes of Ewing Terrace.
- Scale: The proposed continuous four-story roof -line would loom over Ewing terrace.
  - Massive scale of the proposed dormitory not consistent with the adjacent neighborhoods.
  - Loyola Village, while larger than our neighbors wanted, at least reduced the scale of the four story mass with 2 story projections and 3 story breaks in the overall height. This change made the property more visually appealing. Keeping in mind Loyola Village is not looming over 20 feet over Ewing Terrace properties. Further mitigation strategies needs to be considered.

Sunlight

- Although you have probably done sunlight studies, we would like to see them as my garden rarely gets any sunlight today. With a large building looming in my backyard, my concern is that the impact could be greater than anticipated.

Wind

- Wind tunnel effects that blow trash from the food service area into our back yards unless the fence and screening called out on page 107 is put at the top of the hill...again is there enough room here or should the building be moved back 125'-150' feet from the property line to allow enough area to capture and buffer us from this support area debris.

Noise

- Currently, there is already a litany of noises from the Loyola Village location: trash pickup early in the morning before sunrise, yelling and shouting from students partying at night, and music playing either instruments or stereos in the evening is already suboptimal.
- Please ensure there will be a disciplined approach to monitoring and management of student behavior and other operational needs after sundown and before sunrise.
- Consideration: move dormitory further away from Ewing Terrace property lines.
- Possible Mitigation: As Mike London mentioned, planting mature trees, of at least the height of the building on the hill between the dorm and our homes may absorb some of the noise.

Driveway

- Car alarms and noises, from driveway into the parking and inside the garage, as well as exhaust fumes.
- Mike London's presentation showed a 100' setback from the property lines to the dormitories. Provisions for this space include a two-lane road to provide parking access. Is there enough room for this road considering the large existing trees at the crest of the hillside?
  - Or would you have to remove existing trees to make room for the new road?

Loss of Privacy

- Dorm windows will face the bedrooms of those homes along the West side of Ewing Terrace. This creates a great loss of privacy for its residents.
- Mitigation: Planting trees may help, but the density would have to be significant to mitigate this issue.
- Consideration: Moving the building further West and reducing the number of stories, at least the side that borders Ewing Terrace, would sufficiently mitigate this issue.

Pollution

- As it is today, there has been a significant rise in litter in Ewing Terrace following the construction of the Loyola Village property.
- Pests, vermin and smells from additional garbage storage areas.
- Consideration: Please ensure there are appropriate measures to ensure pollution and unwanted garbage is monitored and controlled to avoid negative impacts to Ewing Terrace residents.

Please send me an electronic copy of the plan presented at the May 16th 2013 meeting to include the following:

- Cross-sectional drawing extending from Ewing Terrace up the hill through the dorm building, showing the height of the dorm building relative to our houses and the Ewing Terrace property line.
- Any updates on any major changes to the plan moving forward as they are being released.
- Consideration: Wood frame to help us better physically visualize the size and mass of the proposed dormitory with Ewing Terrace in foreground.

Finally; when available, would you please send copies of all reports relevant to the dorm plan, including:

- Environmental Impact Report
- Civil / Architectural / Structural / Plumbing / Mechanical Drawings
- Geotechnical Report

Thank you in advance for your consideration of our concerns and suggestions. Once again, thank you for the open communications to date.

Best Regards,
Pamela Chuey

June 5, 2013

FILE

Liz Miles
Master Plan Manager
University of San Francisco
2130 Fulton Street
San Francisco, CA 94117

Dear Liz:

Respectfully, the undersigned residents living near USF would like the university administration and affiliated community members to take immediate, short-term and long-term steps to alleviate the impact of car trips and parking generated by activities at USF. The number of cars on our streets and the lack of parking have become intolerable and have a significant negative effect on surrounding resident's quality of life.

This issue has grown substantially over the last ten years as enrollment has increased. We would like to use the current open communication and community groundswell to oblige USF to institute an enforceable Traffic Demand Management program with clearly defined measurable objectives. We believe that USF should be the architect of the program, but with agreement by the neighbors who live within the university's sphere of influence as related to parking and traffic. Enforcement of the TDM program should be by the City of San Francisco, in the form of a legally binding agreement between USF and the surrounding neighborhoods.

There are many schools and communities with similar challenges who have solved similar problems. Enrollment caps on university growth have been imposed in connection with zoning controls in a number of instances at colleges and universities through out the country. Caps and controls have been established particularly where the local community or neighborhood was concerned about mitigating adverse effects of unrestricted growth and the concurrent problems posed on the quality of life of those communities and neighborhoods by various university activities.

In the immediate Bay Area, the County of Santa Clara responded to community outcry and required Stanford University to put a TDM program in place that defined the results that Stanford was required to achieve. To ensure compliance, the County would cap Stanford's growth if the agreed results were not met. While we understand that each situation is slightly different, it is our intention to work with: the San Francisco Board of

Supervisors; Planning Department; and other appropriate agencies to make future building projects and enrollment growth contingent upon the implementation of a TDM at USF that results in the agreed upon goals.

Members of the community have spent countless hours studying this issue as it regards our quality of life and USF's role has effected that quality. We have some ideas and possible suggestions for how USF can decrease traffic and parking on the surrounding streets. Toward that goal, we have been in communication with the head of Stanford's TDM program, who graciously offered his council to both USF and City agencies. However, we believe that the initial design of such should come from USF in hopes that the university can successfully manage to achieve the desired results.

We fully realize that USF and University Terrace Association have an agreement related to traffic calming and we welcome that to the extent that it supports the above mentioned objectives. However, it is important that this agreement will not move problems from one neighborhood to another.

We stand ready to help when help is needed to achieve success for all, in a partnership that can be held as an example to others, of how the spirit of cooperation can be positive for both the university and the surrounding neighborhood. We look forward to working in partnership with USF and the City to achieve safe streets and a restored quality of life for USF's neighbors and a thriving University of San Francisco.

Signed:

Aruna Busacca, 2540 McAllister Street
Joanna Callenbach, 219 Stanyan Street
Geoff Hunt, 2523 McAllister Street
John Munz, President, Ewing Terrace Association
Jennifer Solloway, 265 Ewing Terrace
Bob Lee, 363 Parker Avenue, Past President FHCA, 1981-2000
& Board Member 2000-Present
Anne-Marie Pierce, 536 Parker, Current President UTA
Martin Macintyre, 41 Temescal Terrace, Past President UTA, 2000-03
Marie Hurabiell, 2633 Turk Blvd, past UTA Board Member
Richard Rabbit, 55 Temescal Terrace, Past President UTA, 2009
Michael Smith, 2576 McAllister Street
Aurelia Woodard, 117 Beaumont Avenue, past FHCA Board Member, 1980-2011

Wendy Miller, 58 Rossi Avenue, Former President & VP, Curent Board, FHCA

Other Names To Follow