TRANSPORTATION IMPACT ANALYSIS GUIDELINES

FINAL DRAFT

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San Francisco Planning

ACKNOWLEDGEMENTS

Planning Department

John Rahaim
Director of Planning

Lisa Gibson
Environmental Review Officer/ Director of Environmental Planning

Devyani Jain
Deputy Environmental Review Officer/ Deputy Director of Environmental Planning

Wade Wietgrefe
Transportation Team Manager

Manoj Madhavan
Transportation Team Lead Planner

Rhia Bordon
Megan Calpin
Colin Clarke
Jenny Delumo
Debra Dwyer
Christopher Espiritu
Sherie George
Rachel Schuett
Ryan Shum
Elizabeth White
Lana Wong
Daniel Wu

Municipal Transportation Authority

Edward Reiskin
Director of Transportation

Sarah Jones
Planning Director

Ricardo Olea
City Traffic Engineer

Forrest Chamberlain
Mari Hunter
Scott Jefferis
Sean Kennedy
Paul Kniha
Sandra Padilla
Carli Paine
Charles Rivasplata
Felipe Robles
Alex Ryder
James Shahamiri
Adam Smith
Dustin White
Annette Williams
Hank Willson
Norman Wong

San Francisco County Transportation Authority

Tilly Chang
Executive Director

Joe Castiglione
Deputy Director for Technology, Data and Analysis

Drew Cooper
Bhargava Sana
Dan Tischler

City Attorney's Office

Andrea Ruiz-Esquide

San Francisco Planning Commission

Rich Hillis
Commission President

Myrna Melgar
Commission Vice-President

Rodney Fong
Milicent A. Johnson
Joel Koppel
Kathrin Moore
Dennis Richards

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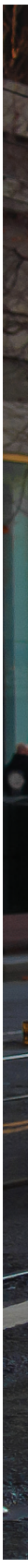


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I. INTRODUCTION

The Environmental Planning Division within the San Francisco Planning Department reviews projects for potential impacts on the environment, a process known as environmental review. The department conducts reviews pursuant to the California Environmental Quality Act (CEQA) and Chapter 31 of the San Francisco Administrative Code. As part of environmental review, the department reviews background technical studies, such as transportation impact studies, to assess a project's effects on the physical environment.

These background technical studies support the conclusions of the environmental impact evaluation and guide decision-makers during the project approval process. To assist in the preparation of transportation impact studies, the department provides to consultants and city staff a guidance document, the Transportation Impact Analysis Guidelines. The department periodically updates the guidelines, with the prior comprehensive update in 2002.

The guidelines are just that, a document to provide guidance to city staff and consultants on how to undertake environmental review. The guidelines provide basic details regarding methodologies and criteria, but individual transportation impact study scopes of work are required to provide a level of detail tailored to fit the size and complexity of transportation issues associated with projects. Once the department approves a scope of work, the specific direction contained within that scope will provide more details than that which appears in the guidelines.

This document updates the prior guidelines. The department prepared the update to the guidelines in consultation with stakeholders (e.g., city and county agencies, consultants). For this update, the department prepared memoranda to cover the following topics:

- Transportation Review Process
- Update Process and Style Guide
- Travel Demand
- *Walking/Accessibility*
- *Bicycling*
- *Public Transit*
- *Emergency Access*
- *Loading*
- *Vehicle Miles Traveled/Induced Automobile Travel*
- *Driving Hazards*
- *Construction*
- *Vehicular Parking*
- Supplementary Guidance

The *italicized* memoranda provide detailed guidance regarding methodology and impact analysis for land use development projects, area plans, infrastructure, and other types of projects. This document summarizes the content within those memoranda for land use development projects. All topics, including the non-italicized topics, provide more details about their topic matter than provided herein. Those memoranda serve as appendices to these guidelines. The memoranda also include attachments for use as additional resources. The department may update the attachments to the memoranda more frequently than this document and the body of the memoranda.

The organization of this document is as follows:

I. Introduction
II. Update Process and Style Guide
III. Transportation Review Process
IV. Project Description
V. Significance Criteria
VI. Existing and Existing plus Project
    a. Methodology
    b. Existing Baseline
    c. Impact Analysis
VII. Cumulative
    a. Methodology
    b. Impact Analysis
VIII. Other (covers different types of projects and situations)

Appendices and attachments

A basic purpose of CEQA is to "inform governmental decision makers and the public about the potential, significant environmental effects of proposed activities." San Francisco Administrative Code Chapter 31 directs the department to identify environmental effects of a project using as its base the environmental checklist form set forth in Appendix G of the CEQA Guidelines. The department uses significance criteria to facilitate the transportation analysis and address the Appendix G checklist. The guidelines, unless otherwise noted and depending on the characteristics of the project, focus on existing and cumulative conditions, methodology, and impact analysis needed to address the significance criteria.

II. UPDATE PROCESS AND STYLE GUIDE

The update process and style guide memorandum describe some of the reasons that the department may update the guidelines and the level of precision that the department will use in the presentation of any transportation analysis in tables, figures, or text within a transportation impact study or section.

The department does not intend to update this document or the main body of the topic memoranda frequently. At a minimum, the department will assess the necessity of updates approximately every four years, following the periodic updates to the San Francisco County Transportation Plan, or following updates to the San Francisco General Plan, or Transportation Element of the San Francisco General Plan. The department may update the attachments of the topic memoranda more frequently than the main body. At a minimum, the department will assess the necessity of attachment updates approximately every two years. In most instances, when the department updates this document or the main body of the topic memoranda or attachments, it will supersede the previous documents.

Refer to the update process and style guide memorandum for more details regarding updates and levels of precision and its associated attachment for acronyms, terms, and definitions.

III. TRANSPORTATION REVIEW PROCESS

Figure 1 flowchart on the following page provides an overview of transportation review process. The transportation report prepared will be a site circulation memorandum, a transportation impact study, or a draft environmental impact report section. The flowchart includes generalized steps for coordinating with other agencies.

Within the transportation review process, a transportation determination identifies, among others, the level of transportation review anticipated, including key transportation issues. To assist with this, the department includes screening criteria for the following transportation topics: public transit delay, vehicle miles traveled/induced automobile travel, construction, and vehicular parking. If a project meets the screening criteria, then the project would not require any detailed analysis in that topic. Refer to transportation review process memorandum for more details regarding the process and those topic specific memoranda for the screening criteria.

PLACEHOLDER FOR TRANSPORTATION REVIEW PROCESS FLOWCHART

IV. PROJECT DESCRIPTION

This section describes project description features, figures, and tables as it relates to transportation topics. This section also describes approvals from agencies other than the department that a project sponsor may need to obtain for those features.

Basics

This sub-section describes the typical physical, additional physical, and programmatic features for existing and project conditions to the extent applicable. The geographic extent of these features must, at a minimum, include the project's frontage and may include the entirety of the project's block.

Typical Physical Features

Appendix A, Table 1 identifies the typical physical features the project description must include to the extent applicable.

Additional Physical Features

Appendix A, Table 2 identifies the additional physical features the project description may include to the extent applicable. The department will determine applicability of the additional proposed physical features based upon whether the project would change some of these features and the extent this information may be necessary to inform the impact determination.

Programmatic Features, if applicable

Appendix A, Table 3 identifies the additional programmatic features the project description may include to the extent applicable. The department will determine project description applicability based upon whether these features are inherent features of the project, which may typically be considered, or whether they are actions related to project construction or operations that are used to avoid a significant impact (e.g., funding mechanisms), which may typically not be considered, and the extent this information may be necessary to inform the impact determination.

Approvals

Appendix A, Table 4 provides a non-exhaustive list of approvals from agencies other than the department that a project sponsor may need to obtain for the project description features described above.

Appendix A also provides examples of project description figures and tables.

V. SIGNIFICANCE CRITERIA

San Francisco Administrative Code Chapter 31 directs the department to identify environmental effects of a project using as its base the environmental checklist form set forth in Appendix G of the CEQA Guidelines. As it relates to transportation and circulation, Appendix G asks whether the project would:

- Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities
- Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses
- Result in inadequate emergency access

The department uses significance criteria to facilitate the transportation analysis and address the Appendix G checklist. The department separates the significance criteria into construction and operation.

Construction
Construction of the project would have a significant effect on the environment if it would require a substantially extended duration or intense activity; and the effects would create potentially hazardous conditions for people walking, bicycling, or driving, or public transit operations; or interfere with emergency access or accessibility for people walking or bicycling or substantially delay public transit.

Operation

The operational impact analysis addresses the following six significance criteria. A project would have a significant effect if it would:

- Create potentially hazardous conditions for people walking, bicycling, or driving or public transit operations
- Interfere with accessibility of people walking or bicycling to and from the project site, and adjoining areas, or result in inadequate emergency access
- Substantially delay public transit
- Cause substantial additional VMT or substantially induce additional automobile travel by increasing physical roadway capacity in congested areas (i.e., by adding new mixed-flow travel lanes) or by adding new roadways to the network
- Result in a loading deficit and the secondary effects would create potentially hazardous conditions for people walking, bicycling, or driving; or substantially delay public transit
- Result in a substantial vehicular parking deficit and the secondary effects would create potentially hazardous conditions for people walking, bicycling, or driving; or interfere with accessibility for people walking or bicycling or inadequate access for emergency vehicles; or substantially delay public transit[1]

[1] Given the limited possibility for projects to have significant impacts regarding a substantial vehicular parking deficit, the remainder of this guidelines document does not address these impacts. Refer to vehicular parking memorandum for details regarding such analysis.

VI. EXISTING AND EXISTING PLUS PROJECT

Methodology

This section describes the typical methodology required to address the significance criteria. The methodology section identifies the collection, generation, and approach to analyze data. The department will determine the appropriate methodology as necessary to inform the analysis.

Geography

The methodology will typically focus on the streets adjacent to the project site, the intersections within one block (e.g., 275 to 800 feet) of the project site, and nearby transit stations/stops (e.g., crosswalks, sidewalks) and major destinations. For projects that require a transportation impact study, the department may typically extend the methodology to two to five block radii or further for public transit delay, depending on the size of the blocks and the size of the project. When a project may impact a wide area, the department will select streets and intersections most impacted by the project to represent the impacts that may occur at other locations.

Period

In San Francisco, the weekday extended p.m. peak period (Tuesday, Wednesday, or Thursday, 3 p.m. to 7 p.m.) is typically the period when the most overall travel happens.[2] Although a substantial amount[3] of travel occurs throughout the day and impacts from projects would typically be less during other periods, the methodology should typically focus on this period (including limiting the hours within the extended p.m. peak period) as changes in travel demand or public right-of-way would be acute during these periods compared to other times of the day and days of the week. In some instances, the most overall travel may occur at different periods (a.m., midday, post p.m. peak, and/or weekend) for smaller geographic areas (e.g., a segment of a street) in existing conditions or as a result of the project, or the project may result in substantial disparity in travel demand at different periods (e.g., special events). In these instances, the methodology may substantiate the use of periods in addition to or other than the weekday p.m. peak.

For loading, the methodology typically uses the 11 a.m. to 2 p.m. period to assess commercial vehicle loading demand and 5 p.m. to 8 p.m. period to assess passenger vehicle loading demand. Refer to the loading memorandum for more details.

[2] Examples that illustrate this statement: within the San Francisco County Congestion Management Program network transit and vehicular travel speeds are lower during the p.m. peak period (4:30-6:30 p.m.) than during the a.m. peak period (7-9 a.m.) as documented in San Francisco County Transportation Authority, *Congestion Management Program*, December 2015; demand at transit stations is consistent and generally higher throughout the p.m. peak period relative to demand at transit stations during the a.m. peak period, as documented in the Metropolitan Transportation Commission, *Core Capacity Transit Study Briefing Book*, July 2016; the weekday peak period for for-hire vehicles occurs from 6:30 p.m. to 7p.m., as documented in San Francisco County Transportation Authority, *TNCs Today: a Profile of San Francisco Transportation Network Company Activity, June 2017*.

[3] Throughout the guidelines, the term "substantial number" is used but not defined. This is because what constitutes a substantial number of people, vehicles, etc., depends on the context in which the project is being evaluated (e.g., existing conditions, proposed land uses, and other variables).

Existing Conditions

The existing conditions methodology should include counts of people using the transportation system, a visual analysis with recorded observations, and a description of street characteristics. The following identifies the typical existing conditions methodology, separated by topic. Refer to applicable memoranda for more details.

Regional and Local Roadways

The existing conditions should describe the closest regional roadways to the project site, including on- and off-ramps. In addition, the existing conditions should describe the existing local roadways in the study area, including their geographic extent; San Francisco General Plan, Better Streets Plan, Key Walking Street, and High Injury Corridor designation to the extent applicable; speed limit; and number and type of travel lanes and directions. For those existing streets adjacent to the project site, the existing conditions should also describe the width of the roadway, including travel lanes, and any potentially or observed vehicle to vehicle hazardous conditions (driving hazards). Lastly, the existing conditions should describe the number of people driving at study intersections.

A typical figure includes the transportation impact study area and study intersections and driveways, including counts. Typical tables include a description of local roadways and intersection and driveway vehicular turning movement counts.

Walking/Accessibility Conditions

The existing conditions should describe the absence, discontinuity, or presence of features related to people walking[4] in the study area. In addition, the existing conditions should identify any potentially or observed hazardous conditions at locations that people walk. Lastly, the existing conditions should describe the number of people walking at study intersections.

A typical figure includes the walking network, including any high injury corridor streets. A typical table includes walking counts.

Bicycling Conditions

The existing conditions should describe the absence, discontinuity, or presence of features related to people bicycling in the study area. In addition, the existing conditions should identify any potentially or observed hazardous conditions at locations that people bicycle. Lastly, the existing conditions should describe the number of people bicycling at study intersections.

A typical figure includes the bicycling network, including any high injury corridor streets. A typical table includes bicycling counts.

Public Transit Conditions

The existing conditions should describe the local and regional public transit service in the study area, including their geographic extent; scheduled frequency; and transit stop proximity to the project site. In addition, the existing conditions may quantify transit travel times for certain routes and identify observed conditions which delay public transit.

A typical figure includes transit service network. Typical tables include transit service and local transit travel times.

[4] People walking includes people with disabilities that may or may not require personal assistive mobility devices.

Emergency Access Conditions

The existing conditions should describe the closest emergency access facilities to the project site. In addition, the existing conditions should identify any observed delays to emergency access operators adjacent to the project site.

Vehicle Miles Traveled

The existing conditions should describe vehicle miles traveled metrics, including the existing vehicles miles traveled metrics for the project site transportation analysis zone and region, and the modeling parameters for those metrics.

Typical figures include infographic explaining vehicle miles traveled and regional vehicle miles traveled map. A typical table includes vehicle miles traveled by the project site transportation analysis zone and region.

Loading Conditions

The existing conditions should describe the absence, discontinuity, or presence of features related to people loading in the study area. The existing conditions description should include an assessment of commercial and passenger on and off-street spaces, hour restrictions, and usage. In addition, the existing conditions should identify any potentially or observed hazardous conditions or delays to public transit because of loading activities.

A typical figure includes loading locations. A typical table includes loading counts.

Existing plus Project Conditions

The following identifies the typical existing plus project conditions methodology, separated by topic. Refer to applicable memoranda for more details.

Travel Demand Analysis

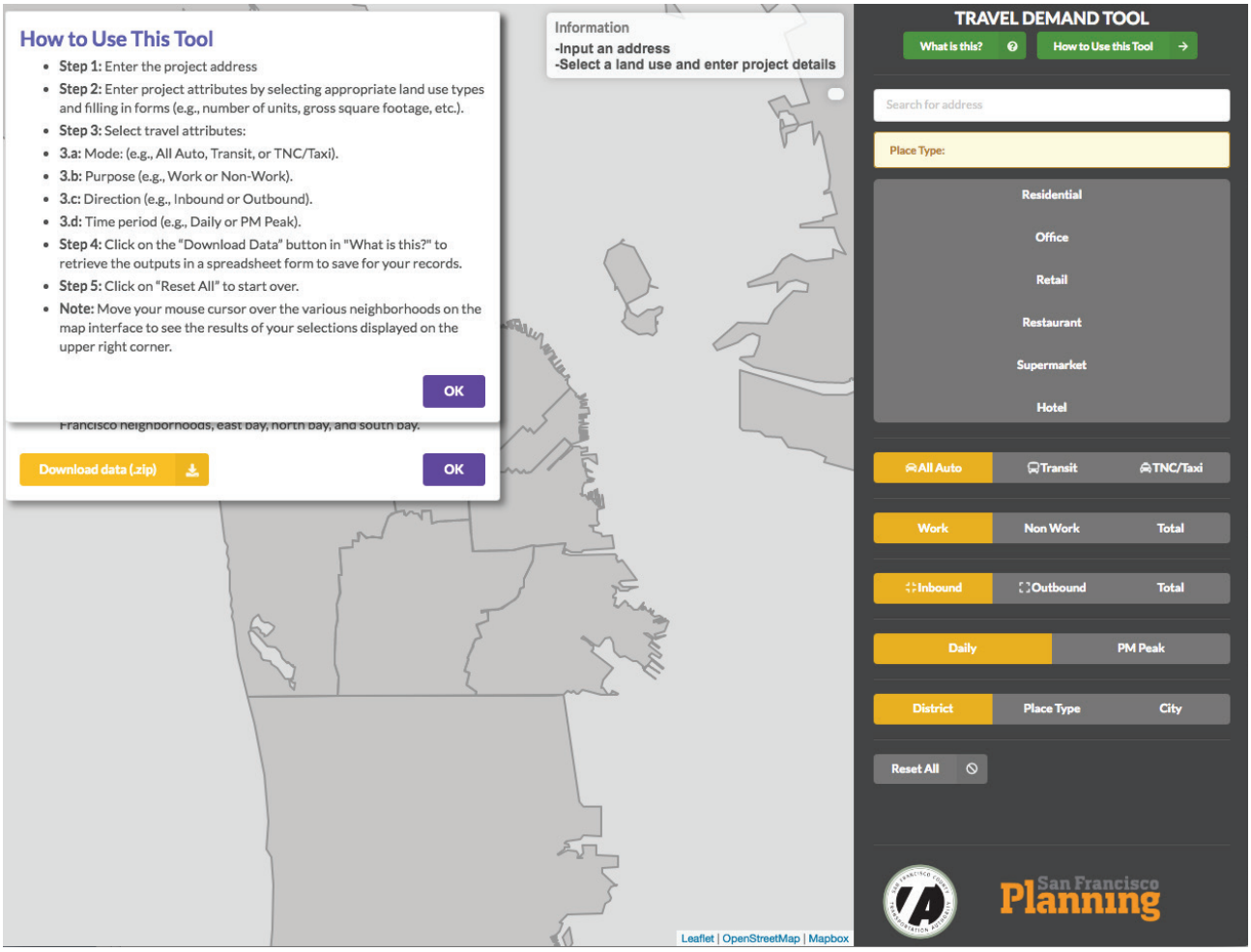
Project travel demand refers to the number, type, and common destinations of new trips that people would take to and from the project. The following summarizes the typical methodology.

Existing Site Trips

Projects may include trip credits, based on empirical data collection at the site. The methodology may then subtract or credit the existing site trips from the project trips for net new trips. Refer to supplementary guidance memorandum for more details.

Project Trips

The typical methodology consists of four steps: 1) trip generation, 2) ways people travel, 3) common destinations, and 4) assignment. The following summarizes each of these steps.



Step 1. Trip Generation

Trip generation refers to the number of estimated trips people would take to and from the project, regardless of the way they travel (see step 2 below). The following refers to these trips as person trips. The methodology should apply person trip rates, accounting for the size and type of land use, to estimate the number of project person trips. Select the trip generation rate most applicable to the project's land uses. Refer to the travel demand memorandum for trip generation rates.

A typical table includes the estimated number of daily and p.m. peak period project person trips by land use.

Step 2. Ways People Travel

Ways people travel, also known as mode split, refers to the estimated way or method people travel. The methodology defines five methods: walking, bicycling, public transit, for-hire vehicle, automobile (driving alone or with passengers).[5] The mode split percentage accounts for three different geographic contexts of San Francisco: urban high, urban medium, and urban low density. Select the geographic context most appropriate for the project site. Refer to the travel demand memorandum for mode splits.

Typical tables include the estimated p.m. peak period percentage of trips by way of travel and estimated number of p.m. peak period project trips by different ways of travel.

Step 3. Common Destinations

Common destinations, also known as trip distribution, refers to the estimated number of trips people would take to (inbound) and from (outbound) the project and another place (e.g., another neighborhood). Common destinations consist of eight San Francisco neighborhoods, east bay, north bay, and the south bay. Select the appropriate distribution method most appropriate for the project site. Refer to the travel demand memorandum for common destinations.

Typical figures include the estimated percentage of p.m. peak period project vehicle and trip trips to the common destinations. A typical table uses the same information from the figures in tabular form.

Step 4. Assignment

Assignment refers to the location or assignment of project vehicle trips to different streets, on-street loading zones, and driveways, and project transit trips to specific transit routes. In other words, assignment uses the results of step 2, number of project trips by different ways of travel, and step 3, percentages of those projects trips to and from common destinations, to place project vehicle and transit trips onto physical locations. Roadway assignment between an origin or destination and the project site can be based on factors such as consideration for one-way versus two-way streets, access to on and off-ramps, or prohibited movements in the study area intersections. Transit assignment between an origin and destination can be based on factors such as transit travel time, number of transfers, and location of transit stop. Select and document factors most appropriate for the project.

In some instances, the methodology may also assign or describe other types of person trips to and from a project site (e.g., walking, bicycling, etc.).

A typical figure includes the estimated number of p.m. peak period project vehicle trips to the intersections and driveways in the study area. A typical table includes the estimated number of p.m. peak period project transit trips to the transit routes in the study area.

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[5] While private transit trips are included as a percentage of the observed total person trips, the department excludes private transit from impact analysis. Therefore, private transit is not mentioned as a method.

Project Loading Demand

Loading demand consists of the estimated number of project delivery, service, and passenger vehicle trips. The methodology applies loading demand rates, accounting for the size and type of land uses, to estimate the demand. Select the loading demand rates most applicable to the project's land uses. Refer to the travel demand memorandum for loading demand rates.

A typical table includes daily and average peak period project delivery, service, and passenger vehicles and associated demand.

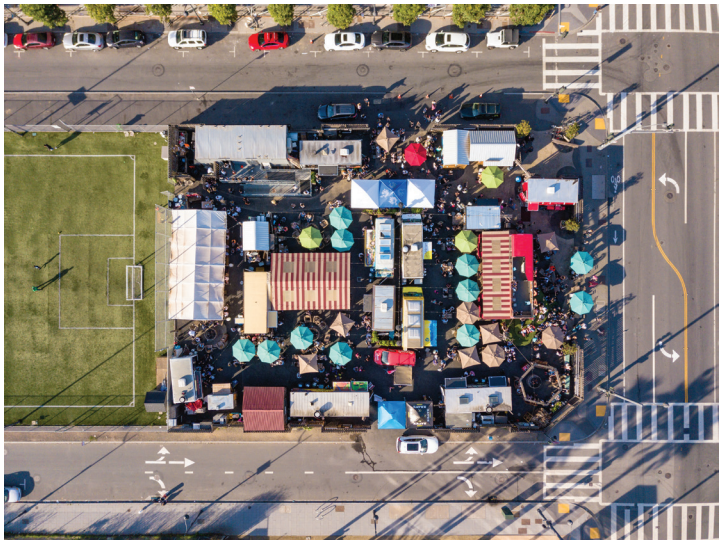
Construction Impacts

The analysis for addressing project construction impacts uses preliminary project construction information. The evaluation addresses the staging and duration of construction activities, estimated daily worker and truck trips, truck routes, roadway and/or sidewalk closures, and evaluates the effects of construction activities on people walking, bicycling, or driving, and riding public transit and emergency vehicle operators. Refer to the construction memorandum for more details.

Operational Impacts

The following describes the methodology for analysis of operational impacts, by significance criterion.

Potentially Hazardous Conditions



A "hazard" refers to a project generated vehicle potentially colliding with a person walking, bicycling, or driving or public transit vehicle that could cause serious or fatal physical injury, accounting for the aspects described below. Human error or non-compliance with laws, weather conditions, time-of-day, and other factors can affect whether a collision could occur. However, for purposes of CEQA, hazards refer to engineering aspects of a project (e.g., speed, turning movements, complex designs, substantial distance between street crossings, sight lines) that may cause a greater risk of collisions that result in serious or fatal physical injury than a typical project. This analysis focuses on hazards that could reasonably stem from the project itself, beyond collisions that may result from aforementioned non-engineering aspects or the transportation system as a whole.

Therefore, the methodology should qualitatively address the potential for the project to exacerbate an existing or create a new potentially hazardous condition to people walking, bicycling, or driving, or public transit operations. The methodology should account for the amount, movement type, sightlines, and speed of project vehicle trips and project changes to the public right-of-way in relation to the presence of people walking, bicycling, or driving or public transit vehicle. Refer to the walking/accessibility, bicycling, driving hazards, and public transit memoranda for more details.

Accessibility

The methodology should qualitatively address the potential for the project to interfere with the accessibility of people walking or bicycling or results in inadequate emergency access. The methodology should account for the amount, movement type, sightlines, and speed of project vehicle trips and project changes to the public right-of-way in relation to the presence of people walking and bicycling or emergency service operator facilities. Refer to the walking/accessibility, bicycling, and emergency access memoranda for more details.

Public Transit Delay

The department uses a quantitative threshold of significance and qualitative criteria to determine whether the project would substantially delay public transit. For individual Muni routes, if the project would result in transit delay greater than or equal to four minutes, then it might result in a significant impact. For individual Muni routes with headways less than eight minutes, the department may use a threshold of significance less than four minutes. For individual surface lines operated by regional agencies, if the project would result in transit delay greater than one-half headway, then it might result in a significant impact. The department considers the following qualitative criteria for determining whether that delay would result in significant impacts due to a substantial number of people riding transit switching to riding in private or for-hire vehicles: transit service headways and ridership, origins and destinations of trips, availability of other transit and modes, and competitiveness with private vehicles.

The methodology should assess and, if necessary, report p.m. peak hour transit delay for public transit routes using traffic congestion, transit reentry, and passenger boarding delays; Transit Cooperative Research Program 165[6] methodology, or other methodologies. Refer to the public transit memorandum for more details.

VMT Analysis

Land Use Components

The department uses the following quantitative thresholds of significance to determine whether the project would generate substantial additional VMT:

- For residential projects, if it exceeds the regional household VMT per capita minus 15 percent.
- For office projects, if it exceeds the regional VMT per employee minus 15 percent.
- For retail projects, if it exceeds the regional VMT per retail employee minus 15 percent.
- For mixed-use projects, evaluate each land use independently, per the thresholds of significance described above.

The department uses VMT efficiency metrics (per capita or per employee) for thresholds of significance. VMT per capita reductions mean that individuals will, on average, travel less by automobile than previously but, because the population will continue to grow, it may not mean an overall reduction in the number of miles driven.

The department uses a map-based screening criterion to identify types and locations of land use projects that would not exceed these quantitative thresholds of significance. The department also uses other screening criteria (e.g., the size of the project and its proximity to transit stations) for further presumptions regarding VMT impacts.

For projects that include a substantial amount of vehicular parking or do not meet the

[6] Transit Cooperative Research Program 165 is a reference document that provides research-based guidance and quantitative techniques for calculating transit delays and other operational characteristics.

map-based screening criteria, the department may compare the project's vehicular parking with the neighborhood parking rate and quantify or qualitatively describe the effects of transportation demand manage measures on VMT. Refer to the VMT/induced automobile travel memorandum for more details.

Transportation components

The department uses the following quantitative threshold of significance and screening criteria to determine whether transportation projects may substantially induce additional automobile travel: 2,075,220 VMT per year. This threshold is based on the fair share VMT allocated to transportation projects required to achieve California's long-term greenhouse gas emissions reduction goal of 40 percent below 1990 levels by 2030.

The department uses a list of transportation components that are presumed not to exceed this quantitative threshold of significance. If a project fits within the general types of projects (including combinations of types) in the VMT/induced automobile travel memorandum, then the department presumes that VMT impacts would be less than significant. Refer to the VMT/induced automobile travel memorandum for more details.

Loading

The methodology should assess the potential for convenient off- and on-street loading facilities to meet the project's loading demand during the average peak period. For the purposes of this topic, convenient refers to facilities within 250 linear feet of the project site.

If convenient loading facilities meet the estimated demand, the analysis is complete. If convenient loading facilities do not meet the demand, then the methodology should qualitatively address the potential for the project to exacerbate an existing or create a new potentially hazardous condition to people walking, bicycling, or driving or substantially delay public transit. Refer to the loading memorandum for more details.

Existing Baseline

The existing baseline must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced (e.g., department notification of project receiving environmental review), from both a local and regional perspective. While the existing baseline subsection may repeat existing conditions features described in the project description, the existing baseline will also present (text, figure, or table) the elements included in the methodology as it relates to those features. For example, the project description describes the physical location of an existing curb-cut. The existing baseline conditions refers to the physical location of an existing curb-cut and describes any existing potential or observed hazards between people driving and people walking at the curb-cut. In addition, the existing baseline conditions must indicate the date and time that counts, visual observations, etc. occurred.

Refer to supplementary guidance memorandum for details concerning the use of a near-term baseline.

Impact Analysis

The purpose of the impact analysis is not to exhaustively repeat information from elsewhere. Instead, the impact analysis should present the findings of the analysis based upon the methodology(ies) applied to gather information. The impact analysis must only provide information that is relevant to the significance criterion. The impact analysis section should present a format (text, figure, or table) consistent with earlier sections of the guidelines for easy comparison between existing and existing plus project conditions.

Construction

For the significance criterion, the analysis must (in the order presented):

1) Address the project's direct and indirect physical changes to the existing baseline conditions. Describe the intensity (e.g., number of construction trips), location (e.g., driveway, particular streets), duration, and other construction features (e.g., anticipated staging areas, sidewalk closures and detours, travel lane closures) that may be relevant to address the significance criterion. Be specific (e.g., the project would generate an average of between 10 – 20 construction truck trips traveling to the site daily), do not generalize (e.g., the project would generate a modest number of truck trips). The impact analysis shall assume the project will comply with laws and regulations, including the public works code and the blue book. The analysis shall describe how compliance would occur, what it would entail, and how it may reduce impacts. Note: most projects will rely on screening criteria. Refer to construction memorandum for examples of circumstances that could lead to significant impacts.

2) Identify an impact finding without mitigation: no impact, less-than-significant impact, or a significant impact. Ensure that step 1 substantiates the rationale for that impact finding with substantial evidence.

   2.A) If the project would result in no impact or a less-than-significant impact, the impact analysis is complete.

   2.B) If the project would result in a significant impact, if applicable, introduce the title of a mitigation measure in paragraph form to reduce the impact. The title should briefly convey what the measure involves. Briefly describe the nexus and rough proportionality to the extent applicable between the mitigation measure and the impact. Briefly describe how the mitigation measure would reduce the impact and briefly analyze separately whether the mitigation measure itself would have any environmental impacts of its own.

3) If the impact requires mitigation, begin the text of the mitigation measure with its title. Measure text should clearly explain who is responsible for what, where, and when. Mitigation measure text should attempt to reduce the impact below the threshold of significance. If the mitigation measure does not reduce the impact below the threshold of significance, but it still reduces the impact, explain qualitatively how the impact is reduced, and why it is not reduced below the threshold of significance.

4) If the project would result in a significant impact, identify the conclusion impact finding: less than significant with mitigation, significant and unavoidable, or significant and unavoidable with mitigation.

Operation

Potentially Hazardous Conditions

For the significance criterion, the analysis must (in the order presented):

1) Address the project's direct and indirect physical changes to the existing baseline conditions. Describe the intensity (e.g., number of vehicle trips), location (e.g., driveway, particular streets), and other project features that may be relevant to address the significance criterion. Be specific (e.g., the project would generate 120 vehicle trips into the driveway during the p.m. peak hour), do not generalize (e.g., the project would generate a modest number of vehicle trips). The impact analysis shall assume the project will comply with laws and regulations. The analysis shall describe how compliance would occur, what it would entail, and how it may reduce impacts. Refer to walking/accessibility, bicycling, driving hazards, and public transit memoranda for examples of circumstances that could lead to significant impacts.

Repeat steps 2 through 4 described under construction.

Accessibility

For the significance criterion, the analysis must (in the order presented), conduct step 1 under potentially hazardous conditions and steps 2 through 4 under construction. Refer to walking/accessibility, bicycling, and emergency access memoranda for examples of circumstances that could lead to significant impacts.

Public Transit Delay

For the significance criterion, the analysis must (in the order presented):

1) Address the project's direct and indirect physical changes to the existing baseline conditions. Describe the intensity (e.g., number of vehicle trips), location (e.g., driveway, particular streets), and other project features that may be relevant to address the significance criterion. Be specific (e.g., the project would generate 120 vehicle trips into the driveway during the p.m. peak hour which is adjacent to the [transit route(s) name] during the p.m. peak hour), do not generalize (e.g., the project would generate a modest number of vehicle trips that would cross the [transit route(s) name]). The impact analysis shall assume the project will comply with laws and regulations. The analysis shall describe how compliance would occur, what it would entail, and how it may reduce impacts. Note: most projects will rely on screening criteria. Refer above for thresholds of significance and to public transit memorandum for examples of circumstances that could lead to significant impacts.

Repeat steps 2 through 4 under construction.

VMT/Induced Automobile Travel

VMT Assessment

For the significance criterion, the analysis must (in the order presented):

1) Address the project's direct and indirect physical changes to the existing baseline conditions. Describe the intensity (e.g., VMT per capita) and other project features that may be relevant to address the significance criterion. Be specific (e.g., based on the project's location, the department estimates the project would result in an average daily 7.0 VMT per capita), do not generalize (e.g., the project would result in a modest level of VMT per capita). The impact analysis shall assume the project will comply with laws and regulations. The analysis shall describe how compliance would occur, what it would entail, and how it may reduce impacts. Note: most projects will rely on screening criteria. Refer above for thresholds of significance and to VMT/induced automobile travel memorandum for examples of circumstances that could lead to significant impacts.

Repeat steps 2 through 4 described under construction.

Induced Automobile Travel Assessment

For the significance criterion, the analysis must (in the order presented):

1) Address the project's direct and indirect physical changes to the existing baseline conditions. Describe the project features (e.g., active transportation or minor transportation project) that may be relevant to address the significance criterion. Be specific (e.g., the project results in two new curb-cuts and one bulb-out), do not generalize (e.g., the project would result in some minor transportation changes). The impact analysis shall assume the project will comply with laws and regulations. The analysis shall describe how compliance would occur, what it would entail, and how it may reduce impacts. Note: most projects will rely on screening criteria. Refer above for thresholds of significance to VMT/induced automobile travel memorandum for examples of circumstances that could lead to significant impacts.

Repeat steps 2 through 4 described under construction.

Loading

For the significance criterion, the analysis must (in the order presented):

1) Address the project's direct and indirect physical changes to the existing baseline conditions. Describe the intensity (e.g., number of loading trips), location (e.g., driveway, particular streets), and other project features that may be relevant to address the significance criterion. Be specific (e.g., the project would generate four commercial loading trips into the off-street loading zone during the p.m. peak period), do not generalize (e.g., the project would generate a modest number of commercial loading trips). The impact analysis shall assume the project will comply with laws and regulations. [include as a footnote any correspondence with the SFMTA regarding their inclination to grant proposed on-street loading zones.] The analysis shall describe how compliance would occur, except to the extent existing observations indicate otherwise, what it would entail, and how it may reduce impacts. Refer to loading memorandum for more specific steps in conducting the analysis and examples of circumstances that could lead to significant impacts.

Repeat steps 2 through 4 under construction.

VII. CUMULATIVE

The cumulative subsection will present the applicable elements included in the methodology.

Methodology
This section describes the typical cumulative methodology required to address the significance criteria. If there are no other cumulative projects or information is not practically or reasonably available to conduct cumulative analysis regarding related impacts, then the methodology for cumulative analysis can state that. The section for cumulative only needs to expand upon the methodology section for existing and existing plus project to the extent the methodology differs. The department will determine the appropriate methodology as necessary to inform the analysis.

Geography
The geography for the cumulative impact analysis will typically be the same as that used for existing and existing plus project conditions, as described further below.

Period
The period for cumulative is typically the same as that used for existing and existing plus project conditions except projected out to a future year based upon reasonably foreseeable projects (see modeling below for more details). Future year estimates should typically be between 10 and 25 years. In some instances, the most overall travel may occur at different periods (a.m., midday, post p.m. peak, and/or weekend) as a result of a cumulative project (e.g., an event center), or the project may result in substantial disparity in travel demand at different periods. In these instances, and in consultation with the department, the methodology may substantiate the use of periods in addition to or the other peak periods described above.

Construction
Generally, the cumulative study area is limited to within the project block or along to network changes near the project site that could affect truck routing.

Operation

Potentially Hazardous Conditions
Generally, the cumulative study area is limited to within the project block or study area intersections to analyze combined network changes and projects vehicle trips effects.

Accessibility
Generally, the cumulative study area is limited to within the project block to look at accessibility challenges or further if other projects propose re-routed transit or new major destinations.

Public Transit Delay
Generally, the cumulative study area is like the existing plus project study area, but the department may select streets and intersections along transit route(s) most impacted by cumulative projects to evaluate potential delays to public transit that may occur at additional locations along the transit route(s) than analyzed under existing plus project conditions.

VMT/Induced Automobile Travel
VMT by its nature is largely a cumulative impact. The number and distance of vehicular trips associated with past, present, and future projects might cause contribute to the secondary physical environmental impacts associated with VMT. It is likely that no single project by itself would be sufficient in size to prevent the region or state in meeting its VMT reduction goals. Instead, a project's individual VMT contributes to cumulative VMT impacts. Therefore, the study area for cumulative conditions, like existing plus project conditions, is regional.

Loading
Generally, the cumulative study area is limited to within convenient loading locations of the project site to analyze combined loading demand from projects or the removal of loading from future transportation projects.

Modeling

For future year VMT estimates, traffic volumes, and transit service and ridership, the methodology typically relies on projections of travel demand model outputs, such as the San Francisco County Transportation Authority San Francisco chained activity modeling process. Inputs to the model should typically include:

- infrastructure projects listed in the latest adopted region's Sustainable Communities Strategy
- infrastructure projects listed in San Francisco's Countywide Transportation Plan, Capital Plan, or a San Francisco agency's (e.g., SFMTA) Capital Improvement Program
- infrastructure, private development, or area plan projects actively undergoing environmental review, recently completed environmental review, or the department anticipates undertaking environmental review soon because they have received sufficient project definition
- land use growth based upon estimates of projections developed in preparation of the latest adopted region's Sustainable Communities Strategy

Adjustments

The methodology must adjust future year projections, street conditions, or volumes based on reasonably foreseeable projects, typically using a list-based approach (see above modeling for different bulleted lists), to the extent applicable. The methodology must document rationale for adjustments (e.g., travel demand outputs) and describe changed conditions, in consultation with the department. Appendix B, Table 1 lists examples of changes from cumulative projects that may result in adjustments.

A typical figure includes the transportation impact study area and study intersections and driveways, including future year adjusted counts.

Impact Analysis

This section ties the methodology and description of cumulative conditions together to address the significance criteria for cumulative conditions. The impact analysis section should present a format (text, figure, or table) consistent with earlier sections of the guidelines for easy comparison between existing and cumulative conditions, including the project's contribution to those cumulative conditions to the extent applicable.

Basics

No cumulative analysis is required for each significance criterion if the existing plus project impact analysis found no impact. However, if the analysis found less than significant impacts, then an analysis of cumulative impacts are required for each significance criterion. For each significance criterion for which the project has some level of impact, the analysis must (in the order presented):

1) Address whether the project in combination with the reasonably foreseeable projects (i.e., cumulative projects) results in a significant impact. The discussion shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the existing plus project impact analysis. The discussion of cumulative impacts shall focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact. The impact analysis shall assume the projects will comply with laws and regulations and the analysis shall describe how compliance would occur, what it would entail, and how it may reduce impacts.

2.) Identify an impact finding without mitigation for the cumulative projects: less-than-significant impact or a significant impact. Ensure that step 1 substantiates the rationale for that impact finding with substantial evidence. Cumulative impacts should use the same methodology as existing plus project conditions, which includes a combination of a quantitative and qualitative approach.

   2.A) If the cumulative projects would result in a less-than-significant cumulative impact, the impact analysis is complete.

   2.B) If the cumulative projects would result in a significant cumulative impact, identify whether the project's contribution is cumulatively considerable.

   2.C) If the project would not contribute considerably to the significant cumulative impact, the impact analysis is complete.

   2.D) If the project would contribute considerably to the significant cumulative impact, if applicable, introduce the title of a mitigation measure in paragraph form to reduce the impact, which may be a same mitigation measure as an existing plus project conditions mitigation measure. Briefly describe the nexus and rough proportionality to the extent applicable between the mitigation measure and the impact. Briefly describe how the mitigation measure would reduce the impact and briefly analyze separately whether the mitigation measure itself would have any environmental impacts of its own.

3) If the impact requires mitigation, begin the text of the mitigation measure with its title. Measure text should clearly explain who is responsible for what and where and when. Mitigation measure text should attempt to reduce the impact below the threshold of significance. The mitigation measure should also describe the project's fair share contribution.

4) If the project would contribute considerably to the significant cumulative impact, if applicable, identify the conclusion impact finding: less than significant with mitigation, significant and unavoidable, or significant and unavoidable with mitigation.

Construction and Operation Topics

Refer to topic memoranda for examples of circumstances that could lead to significant impacts. Generally, the same examples as provided in the topic memoranda for existing plus project conditions apply here, except for cumulative conditions.

VIII. OTHER

The guidance provided herein assumes a land use development project located outside of an area plan that requires a transportation impact study.

Land Use Development Project Located within an Area Plan
For projects that are consistent with an area plan for which an environmental impact report (EIR) was certified, pursuant to CEQA guidelines section 15183, the assessment must limit its analysis to such conditions specified in that section. The assessment must include a project description, discussion of existing baseline conditions (including infrastructure changes), and analysis of existing plus project and cumulative conditions. Typically, the assessment will use the significance criteria and approach identified above and identify if there are any mitigation or improvement measures applicable from the area plan environmental impact report that should apply to the project. The cumulative impact analysis shall limit assessment to new cumulative projects that were not known at the time of the environmental impact report certification and, if applicable, whether any new impacts would occur from those cumulative projects.

As of February 2019, the Planning Commission certified the following area plan EIRs (in order of certification): Rincon Hill Area Plan, Market & Octavia Neighborhood Plan, Visitation Valley Redevelopment Plan, Balboa Park Station Area Plan, Eastern Neighborhoods Rezoning and Area Plan (Mission, Showplace Square/Potrero, Central Waterfront, East SoMa), Treasure Island and Yerba Buena Island Redevelopment Plan, Glen Park Community Plan, Transit Center District Plan, Western SoMa Community Plan, and Central SoMa Plan.

Area Plans, Infrastructure, and Other Types of Projects
Refer to topic memoranda for the type of additional or different information that may be necessary to address impacts for area plans, infrastructure, or other types of projects.

Supplementary Guidance
In addition, the supplementary guidance memorandum provides guidance for situations that may occur during the development of a project's transportation analysis (e.g., trip credits, identification of mitigation measures, informational analysis).

APPENDICES

TRANSPORTATION IMPACT ANALYSIS GUIDELINES

APPENDIX A
TRANSPORTATION REVIEW PROCESS

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TRANSPORTATION IMPACT ANALYSIS GUIDELINES

APPENDIX B
UPDATE PROCESS & STYLE GUIDE

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TRANSPORTATION IMPACT ANALYSIS GUIDELINES

APPENDIX C
PROJECT DESCRIPTION

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TRANSPORTATION IMPACT ANALYSIS GUIDELINES

APPENDIX D
CUMULATIVE CONDITIONS ADJUSTMENTS

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TRANSPORTATION IMPACT ANALYSIS GUIDELINES

APPENDIX E
SAMPLE QUEUE ABATEMENT LANGUAGE

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TRANSPORTATION IMPACT ANALYSIS GUIDELINES

APPENDIX F
TRAVEL DEMAND

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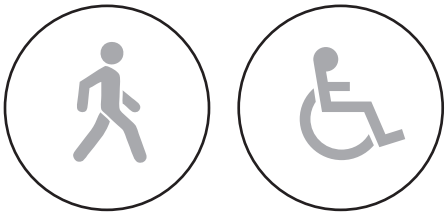
TRANSPORTATION IMPACT ANALYSIS GUIDELINES

APPENDIX G
WALKING/ACCESSIBILITY



San Francisco Planning

ATTACHMENT A

Existing and Proposed Project Figure and Table Examples

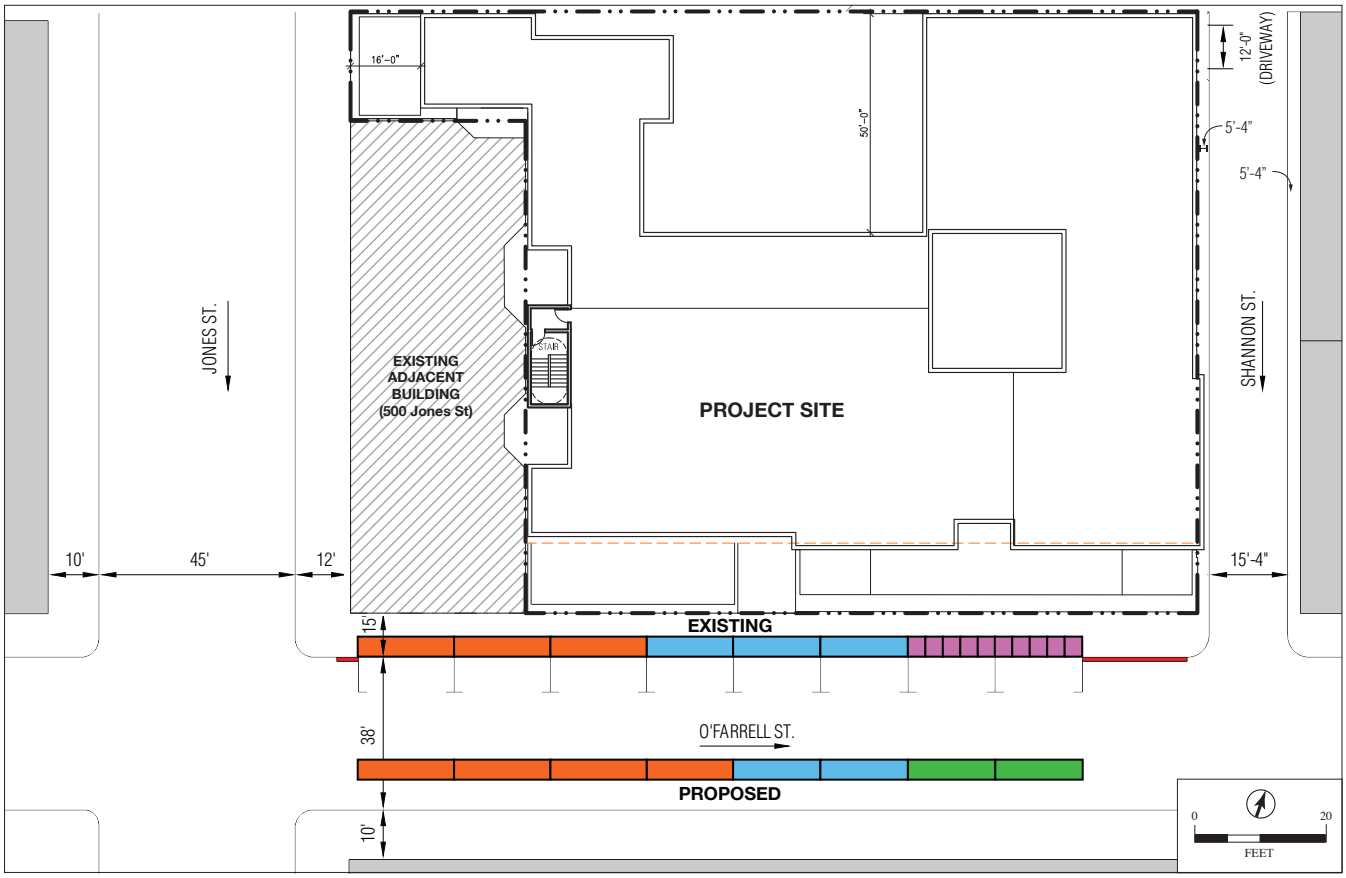
Introduction

Attachment A represents typical figures necessary to illustrate walking conditions included in a transportation study. All figures should include basic elements (e.g., north arrow, title, legend, references, acronyms, etc.). Symbology should reflect that documents may be printed in black and white. All figures and tables should include all the information the reader would need to understand the information presented. The figures presented below were from previous transportation studies and are illustrative only and may not include all the basic elements.

FIGURE 1

Site Plan/Ground Floor Plan

Figure 1 is an example of a site plan that includes a detailed description of existing and proposed on-street loading. When developing a map similar to the one shown, include the linear dimensions of the existing and proposed loading zones, match the color of the zones to those used in the SFMTA Color Curb Program, and make existing and proposed changes explicit.



PARKING SPACE KEY

- YELLOW ZONE - COMMERCIAL LOADING SPACE (METERED M-F 9AM-4PM)
- GENERAL PARKING SPACE (METERED)
- GENERAL PARKING METERED/PASSENGER LOADING/UNLOADING ZONE DURING CHURCH SERVICES
- PASSENGER LOADING/UNLOADING AT ALL TIMES

FIGURE 2

Walking/Accessibility Circulation

Figure 2 shows a walking and accessibility circulation map, including circulation from surrounding streets and internal circulation. The dotted lines represent primary street access for people walking and the straight lines represent secondary access.

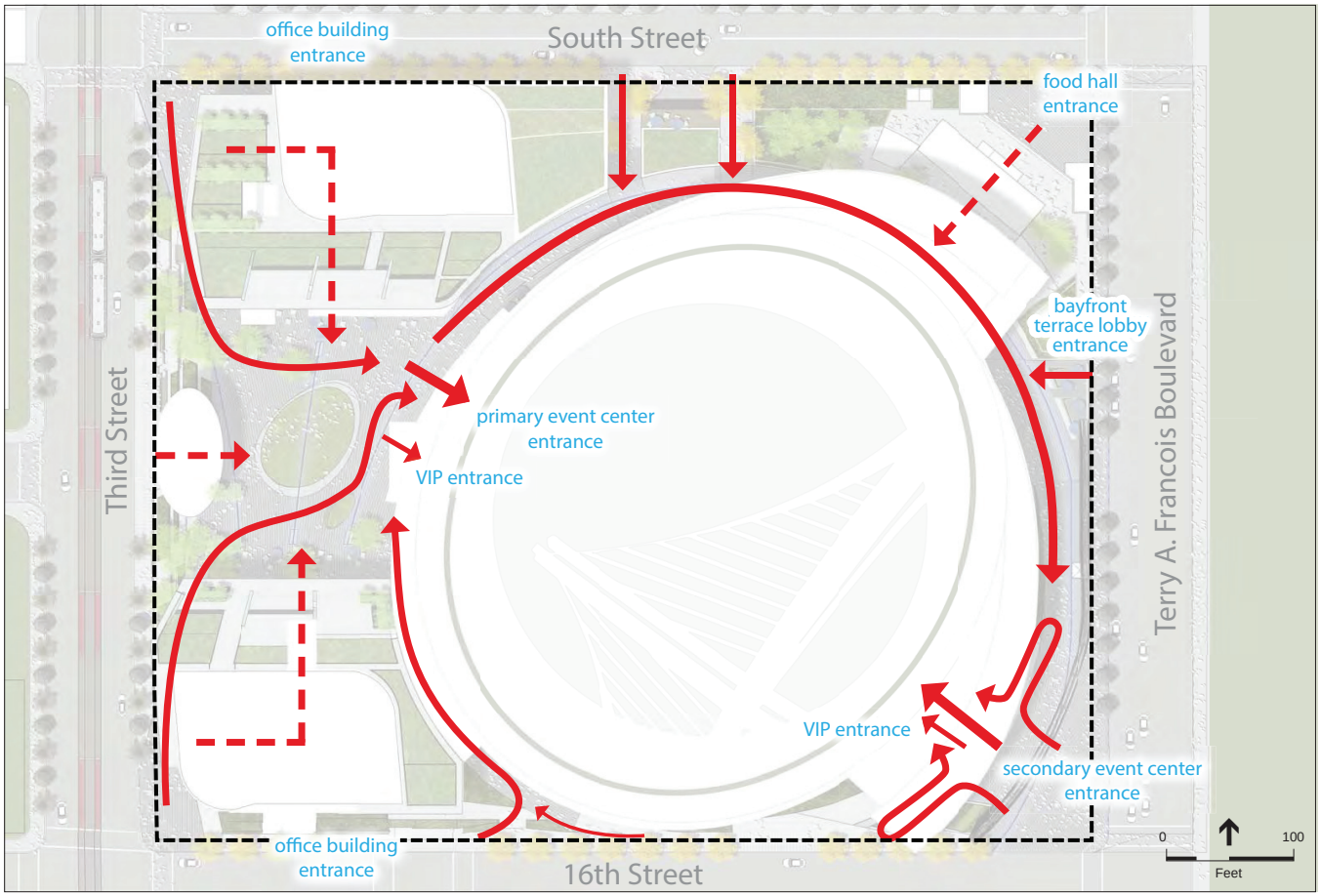


TABLE 1

Existing Project Site Characteristics

Table 1 below presents typical project characteristics for existing conditions on the project site. The table should include all necessary information to describe the existing conditions (e.g., existing land use types, parking, and loading information). As shown in Table 1, 'x' represents numerical values that would need to be provided and be consistent with project plans.

Existing Project Site Characteristics		Address (Building 1)	Address (Building 2)	TOTAL
Gross Square Footage by Use	Land Use 1	**XXX,XXX**	**XXX,XXX**	**XXX,XXX**
	Land Use 2	**XXX,XXX**	**XXX,XXX**	**XXX,XXX**
	Land Use 3	**XXX,XXX**	**XXX,XXX**	**XXX,XXX**
Residential Unit Mix	Two-bedroom units+	**X**	**X**	**X**
	TOTAL	**X**	**X**	**X**
Affordable Housing Units (by age and/or income level)	Percentage by income level	**X**	**X**	**X**
	Percentage by age	**X**	**X**	**X**
Hotel Rooms	Number of rooms	**X**	**X**	**X**
Entertainment Venues	Number of seats	**X**	**X**	**X**
Schools	Number of students	**X**	**X**	**X**
Freight/Service Loading		**Number, location, and dimensions of on-street and/or off-street freight/service loading associated with the uses at this building location**	**Number, location, and dimensions of on-street and/or off-street freight/service loading associated with the uses at this building location**	**X**
Passenger Loading		**Number, location, and dimensions of on-street and/or off-street passenger loading associated with the uses at this building location**	**Number, location, and dimensions of on-street and/or off-street passenger loading associated with the uses at this building location**	**X**
Automobile Parking and Car-share	Number of spaces	**X**	**X**	**X**

Source: **xxxxxx**

TABLE 2

Proposed Project Characteristics/Project Summary

Table 2 below presents typical project characteristics for proposed project conditions on the site. The table should include all necessary information to describe the proposed project conditions (e.g., proposed land use types, parking, and loading information). Similar to Table 1, 'x' represents numerical values that would need to be provided and be consistent with project plans.

Project Characteristic		Address (Building 1)	Address (Building 2)	TOTAL
Gross Square Footage by Use	Land Use 1	**xxx,xxx**	**xxx,xxx**	**xxx,xxx**
	Land Use 2	**xxx,xxx**	**xxx,xxx**	**xxx,xxx**
	Land Use 3	**xxx,xxx**	**xxx,xxx**	**xxx,xxx**
Residential Unit Mix	Two-bedroom units+	**x**	**x**	**x**
	TOTAL	**x**	**x**	**x**
Affordable Housing Units (by age and/or income level)	Percentage by income level	**x**	**x**	**x**
	Percentage by age	**x**	**x**	**x**
Hotel Rooms	Number of rooms	**x**	**x**	**x**
Entertainment Venues	Number of seats	**x**	**x**	**x**
Schools	Number of students	**x**	**x**	**x**
Freight/Service Loading		**Number, location, and dimensions of on-street and/or off-street freight/service loading associated with the uses at this building location**	**Number, location, and dimensions of on-street and/or off-street freight/service loading associated with the uses at this building location**	**x**
Passenger Loading		**Number, location, and dimensions of on-street and/or off-street passenger loading associated with the uses at this building location**	**Number, location, and dimensions of on-street and/or off-street passenger loading associated with the uses at this building location**	**x**
Automobile Parking and Car-share	Number of spaces	**x**	**x**	**x**

Source: **xxxxxx**

TABLE 3

Peak Hour Counts for People Walking at Study Intersections

Table 3 below shows the typical format to present counts of people walking at all identified project intersections/street segments. 'X' represents the volume of people walking that were observed during counts.

Intersection	Intersection Leg Counts at Peak Period (INSERT TIME)				TOTAL
	North	South	East	West	
Intersection 1	x	x	x	x	x
Intersection 2	x	x	x	x	x
Intersection 3	x	x	x	x	x
Intersection 4	x	x	x	x	x

FIGURE 3

Walking Network

Figure 3 is an example of mapping the existing network as it relates to people walking within a project study area, with a focus on missing features for the network. Inclusion of this figure would be appropriate in the Existing Baseline section.

ATTACHMENT B

Mitigation and Improvement Measures

MITIGATION MEASURES FOR LAND USE DEVELOPMENT PROJECTS LOCATED WITHIN AN AREA PLAN

Eastern Neighborhoods Rezoning and Area Plan

Improvement Measure E-1: Pedestrian Circulation E.1.a. As an improvement measure to improve pedestrian conditions in the Eastern Neighborhoods, community-supported planning efforts as part of MTA's Livable Streets program should be conducted to identify specific improvements to enhance pedestrian travel and safety in each neighborhood.

E.1.b. As an improvement measure to facilitate completion of the sidewalk network in areas where substantial new development is projected to occur, property owners should be encouraged to develop improvement or assessment districts to fund improvements to the sidewalk network adjacent to parcels where new development is not anticipated to occur.

Balboa Park Station Area Plan

Improvement Measure: Provide signals with countdown indicators at all major intersections and at crosswalks that connect to the MUNI light rail stops and Balboa Park BART Station.

Transit Center District Plan and Transit Tower

M-TR-4a: Widen Crosswalks. To ensure satisfactory pedestrian level of service at affected crosswalks, the Municipal Transportation Agency, Sustainable Streets Division, could conduct periodic counts of pedestrian conditions (annually, for example) and could widen existing crosswalk widths, generally by 1 to 3 feet, at such times as pedestrian LOS is degraded to unacceptable levels.

M-TR-5: Garage/Loading Dock Attendant. If warranted by project-specific conditions, the project sponsor of a development project in the Plan area shall ensure that building management employs attendant(s) for the project's parking garage and/or loading dock, as applicable. The attendant would be stationed as determined by the project specific analysis, typically at the project's driveway to direct vehicles entering and exiting the building and avoid any safety-related conflicts with people walking on the sidewalk during the a.m. and p.m. peak periods of traffic and pedestrian activity, with extended hours as dictated by traffic and pedestrian conditions and by activity in the project garage and loading dock. (See also Mitigation Measure M-TR-4b, above.) Each project shall also install audible and/or visible warning devices, or comparably effective warning devices as approved by the Planning Department and/or the Sustainable Streets Division of the Municipal Transportation Agency, to alert people walking of the outbound vehicles from the parking garage and/or loading dock, as applicable.

Rincon Hill Plan

No applicable mitigation and improvement measures were identified.

Market and Octavia Neighborhood Plan

No applicable mitigation and improvement measures were identified.

Visitacion Valley Redevelopment Plan

No applicable mitigation and improvement measures were identified.

Treasure Island and Yerba Buena Island Redevelopment Plan

No applicable mitigation and improvement measures were identified.

Glen Park Community Plan

No applicable mitigation and improvement measures were identified.

Western SoMa Community Plan

No applicable mitigation and improvement measures were identified.

Central SoMa Plan

No applicable mitigation and improvement measures were identified.

MITIGATION AND IMPROVEMENT MEASURE EXAMPLES

The following lists the typical types of measures that can mitigate or lessen impacts to people walking for each significance criterion:

EXAMPLE 1 Potentially Hazardous Conditions

- Establish safe site distances (e.g., daylighting, relocation of curb cuts or new structures);
- Widen existing sidewalks or install sidewalks where none exist;
- Relocate entrances/exits for people walking away from off-street garage/loading docks;
- Manage freight and service deliveries (e.g., active loading managment plan)
- Employ queue abatement measures or pursue deisgn modifications to off-street vehicular entrances/exits to accommodate queing vehicles (see queue abatement language below)
- Install visible and/or audible warning devices at off-street vehicular driveways to alert both people walking and driving of activity at the driveway;
- Provide on-site signage promoting safety for people walking (e.g., signage at the garage exit reminding motorists to slow down and yield to people walking in the sidewalk);
- Facilitate safe crossings (e.g., stop-controlled intersections, installation of signal heads with countdown timers; installation of audible warning devices, refuge islands);
- Provide roadway designs that slow vehicle speeds such as traffic calming measures (e.g., bulb-outs, chicanes, speed humps, tighter turning radii)
- Remove turn pockets
- Signalize vehicle turning movements and restrict vehicle movements on red
- Signal changes such as reducing signal cycle lengths or leading intervals for people walking; and
- Provide network improvements such as crosswalks, shorter blocks, mid-block crossings, or mid-block alleys between the project site and intersections, adjacent transit stations/stops, and other major destinations

EXAMPLE 2 Accessibility

- Construct, upgrade, or redesign curb ramps and sidewalks to be ADA compliant;
- Provide adequate sidewalks (e.g., effective widths, paths of travel)
- Widen existing sidewalks or install sidewalks where none exist);
- Employ queue abatement measures or pursue design modifications to off-street vehicular entrances/exits to accommodate queuing vehicles (see queue abatement language below)
- Povide network improvements such as crosswalks, shorter blocks, mid-block crossings, or mid-block alleys between the project site and intersections, adjacent transit stations/stops, and major destinations
- Place physical structure underground or in another location to maintain access for people walking
- Place wayfinding signs to direct people walking towards entrances/exits

TRANSPORTATION IMPACT ANALYSIS GUIDELINES

BICYCLING
MEMO APPENDICES

Updated October 1, 2018

San Francisco Planning