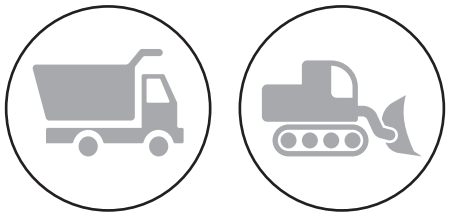
TRANSPORTATION IMPACT ANALYSIS GUIDELINES

APPENDIX N
CONSTRUCTION



San Francisco Planning

SAN FRANCISCO
PLANNING DEPARTMENT

MEMO

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

Reception:
415.558.6378

Fax:
415.558.6409

Planning
Information:
415.558.6377

Appendix N
Construction Memorandum

Date: February 14, 2019
To: Record No. 2015-012094GEN
Prepared by: **Sherie George, Debra Dwyer, and Elizabeth White**
Reviewed by: Manoj Madhavan and Wade Wietgrefe
RE: **Transportation Impact Analysis Guidelines Update, Construction**

INTRODUCTION

This memorandum updates the prior guidance provided in the Transportation Impact Analysis Guidelines for the transportation-related construction[1] topic. The department prepared this memorandum in consultation with stakeholders (e.g., city and county agencies, consultants). The department will issue memoranda that provide updates to other topics (e.g., transit, loading) within the guidelines. When the department issues a memorandum about a topic, it will supersede existing guidance regarding that topic.

This memorandum provides specific guidance on the methodology and impact analysis required for the construction transportation topic. Overall guidance on conducting transportation analysis for environmental review, including developing the project description, how to address the significance criteria, methodology, and impact analysis, is in the Transportation Impact Analysis Guidelines.

The guidance provided herein assumes a land use development project located outside of an area plan that requires a transportation study. Guidance on other types of projects, such as projects located in an area plan or infrastructure projects, is discussed below under the "Other" subsection. The department may use this guidance for multiple projects, but the department has discretion on applying the guidance on a project-by-project basis.

The organization of the memorandum is as follows:

1) Project Description
2) Significance Criteria
3) Existing and Existing plus Project
   a) Methodology
   b) Existing Baseline
   c) Impact Analysis
4) Cumulative
   a) Methodology
   b) Impact Analysis
5) Other (covers different types of projects)

[1] This memorandum addresses transportation impacts from project construction activities to people walking, bicycling, taking transit and/or transit operations, or vehicular circulation and accessibility in the public right-of-way and in the study area.

Attachments to this memorandum are under separate cover and are attached to the end of this memorandum. The department may update the attachments to the memoranda more frequently than the body of the memoranda.

PROJECT DESCRIPTION

Refer to the Transportation Impact Analysis Guidelines Appendix A, Tables 1-3, for a list of the typical physical, additional physical, and programmatic features for existing and existing plus project conditions, as 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. Appendix A,

Table 4 of the guidelines provides a non-exhaustive list of approvals from agencies other than the planning department that a project sponsor may need to obtain for the project description features described in the guidelines. Construction activities affecting the public right-of-way within San Francisco must comply with the San Francisco Transportation Code, and the San Francisco Public Works Code. The transportation code provides the authority for the San Francisco Municipal Transportation Agency's Regulations for Working in San Francisco Streets, also known as the blue book. The blue book is a manual for city agencies, utility crews, private contractors, and others doing work in San Francisco streets. Among other things, the public works code regulates construction operations (excavation) in public right-of-way such that these actions are carried out while preserving and maintaining the public health, safety, welfare, and convenience. Depending on the type of construction activity (i.e., proposed long-term travel lane and sidewalk closures, additional street space), a permit approval by the San Francisco Municipal Transportation Agency (SFMTA) may first require recommendation for approval from the Transportation Advisory Staff Committee, a multi-agency review body. For most large projects and in certain zoning districts, public works requires a contractor to prepare and submit a contractor parking plan, which requires transportation demand management measures.

Attachment B of this memorandum includes examples of figures that illustrate how to graphically represent construction conditions. Attachment C provides guidance on presenting estimates of various construction details.

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 California Environmental Quality Act (CEQA) Guidelines. Appendix G states: "would the project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?" The department uses the following significance criteria to evaluate that question: A project would have a significant impact if in consideration of the project setting the project's temporary construction activities:

> 1A) require a substantially extended duration or intense activity; and
> 1B) the effects would create potentially hazardous conditions for people walking, bicycling, driving, or riding public transit; or
> interfere with emergency access [2] or accessibility for people walking or bicycling; or
> substantially delay public transit.

[2] Emergency service operator facilities include police departments, fire departments, hospitals, or other public safety buildings for emergency vehicle fleets.

Attachment A of this memorandum includes screening criteria to determine whether or not a significant construction-related transportation impact could occur. The screening criteria are a two-step approach. First it considers project context. If project site context includes travel activity that could be substantially disrupted by project construction activities (e.g., location and amount of excavation), then it would consider the duration and magnitude of construction activity to determine if further analysis is warranted.

If a project meets the screening criteria, then further analysis is not required.

EXISTING AND EXISTING PLUS PROJECT CONSTRUCTION

Methodology

This section describes the typical methodology required to address the significance criteria should a detailed construction analysis be required. The methodology section identifies the collection, construction-related travel demand, and approach to analyze data. The department will determine whether to adjust the methodology as necessary to inform the analysis.

The guidelines provide direction on the typical geographical area and period required for analysis. Additional guidance on the appropriate period of study for transportation-related construction trips and the typical methodology for evaluating existing and existing plus project construction conditions for this topic, including data collection, is provided below. This section also indicates in bracketed text [ ] whether the presentation of typical methodological elements in other sections of a transportation study (e.g., baseline, impact analysis) could occur in text, a figure, and/or a table (see Appendix A of the guidelines for examples of typical tables and Attachment B of this memorandum for examples of emergency access-related figures).

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.[3] However, the methodology for construction-related transportation analysis should typically focus on an average daily period to determine the intensity of construction transportation activity and then provide an understanding of the extent to which these activities overlap with the typical peak transportation period. 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 or as a result of project construction activities), including by construction schedule phase. For example, construction activities occur primarily during daytime hours (e.g., 7:00 a.m. to 8:00 p.m.), five days a week, on weekdays and weekends and construction worker trips may occur outside of the peak period (e.g., one shift from 7:00 a.m. to 3:30 p.m.). Thus, the most construction activity may occur in varying periods during different phases of construction. In these instances, the methodology may substantiate the use of periods other than the weekday p.m. peak.

Existing Conditions

The following identifies the typical methodology for projects. The department will determine the appropriate methodology as necessary to inform the impact determination:

[4] For purposes of this memo, "accommodate" refers to design of the facility (e.g., can vehicles be accommodated without queuing based upon throat length, gate location, etc.) and not the capacity (e.g., does the number of spaces accommodate the demand) of the facility as many variables affect the demand to and from a facility.

Counts

The methodology may include prior counts collected from other studies or sources combined with (e.g., an average of three different dates with counts at the same intersection, global positioning system user data) or in isolation of counts collected for the project. The use of prior counts must be justified, in consultation with the department. Typically, the use of prior counts may occur if numbers have not changed substantially (e.g., due to lack of new development, circulation changes, or travel patterns). [text, table]

Visual Analysis with Recorded Observations

Data collection for the project should include a site visit for a visual analysis, with recorded observations of the absence, discontinuity, or presence of the features listed in the project description, a description of the weather conditions, and other relevant features. In addition, the site visit must record any existing potential or observed hazards at locations in the study area that people walk, bicycle, or access transit in the study area. The site visit should be given to project frontages and along routes of travel for people walking, bicycling, or taking transit to and from the study area between the project site and nearby transit stations/stops (e.g., crosswalks, sidewalks), major destinations (e.g., schools, event centers, recreational facilities, tourist activities, shopping districts, high-density residential or office areas, transit stations, and airports), or land uses with particularly vulnerable people (e.g., children, seniors, people with disabilities). [text, figure]

Street Design Characteristics

Obtain the following general characteristics of streets within the study area:

- Location and type of traffic control devices (e.g., stop signs, signals, crosswalk, countdown signals, audible warning devices) and presence of transit infrastructure (e.g., transit overhead wires) [text, figure]
- Number of travel lanes by type (e.g., mixed flow, parking, bicycle, transit-only, etc.) [text, figure]
- Posted speed limit and recorded speed observations or inferences about observed speeds [text]
- Presence of High-Injury Corridor [text, figure]

Obtain the following additional street characteristics within the study area to the extent applicable:

- Width of travel lanes for narrow roads or alleys that may result in tight turning movements by large trucks [text, figure]
- Number of travel lanes by type at intersections (if different from midblock) [text, figure]
- Size and slope of blocks [text, figure]
- Nearby transit stations/stops amenities (e.g., shelters) and service information (e.g., frequency) [text, figure, table]

Emergency Service Operator Facilities

Obtain the following additional information with the study area to the extent applicable:

- Emergency service operator facilities [text, figure]

Existing plus Project Conditions

The following identifies the typical methodology for assessing existing plus project construction conditions.

Construction-Related Travel Demand Analysis

The methodology may require a construction-related travel demand analysis, depending on the context and intensity of the project's construction activities. For instance, a project involving extensive excavation or demolition activities in an area with high volumes of bicycle, pedestrian, or transit activity may require additional construction-related analysis due to the sensitivity of the project setting (e.g. a project on Market or Mission streets). The same level of construction-related analysis may not be needed if the same project is located in an area that does not contain high volumes of bicycle, pedestrian, or transit activity (e.g. a project located on a street that does not provide sidewalks such as Toland Street or Rankin Street).

Project construction activities typically generate the following types of trips: construction workers, haul truck trips, and delivery trips. The magnitude of daily construction activity from the number of trips varies by construction phase. The methodology will estimate the average number of daily construction trips driving to and from the project by phase. [text, table]

For construction worker trips, the methodology should assume a daily trip generation rate of two person trips per worker, one inbound and one outbound.

For haul truck trips, the methodology should account for the amount of excavation and demolition, likely during early construction phases.

For delivery trips, the methodology depends on construction details regarding likely activities during all construction phases.

For all truck trips, the methodology should describe the anticipated routes for truck trips traveling to and from the project site, particularly the relationship between the project site configuration's entrance and exit locations and nearby transit stations/stops and major destinations. Turning templates or diagrams for large construction trucks moving in and out of on-and off-street loading or staging areas, may be requested as applicable. [text, figure]

Potentially Hazardous Conditions

Use the construction travel demand and project construction configuration to determine if the project's construction activities would cause potentially hazardous conditions. The methodology should assess to the extent applicable:

- The amount, movement type, sightlines, duration, and speed of project construction truck trips in and out of project staging area(s) based upon the design of such areas (e.g., curb cut dimensions, roadway speeds) in relation to the volume of vehicle trips on streets adjacent to the entrance to those staging areas and people walking, bicycling, and accessing transit at or near those locations [text, figure]

Accessibility

Use the construction-related travel demand and project construction configuration to determine if the project construction would substantially interfere with emergency access or accessibility for people walking, bicycling, or taking transit to and from the study area and around the site. The methodology should assess to the extent applicable:

- The number of people walking and bicycling, or taking transit to and from the study area and around the project site, taking into account the presence of physical obstructions or detours on sidewalks or travel lanes from project construction activities [text, figure]

- Any changes to the public right-of-way that would alter the ability of emergency service operators to access streets and buildings in the study area from project construction activities [text, figure]

Potential Transit Delays

Use the construction-related travel demand analysis and project construction configuration to determine if the project would cause potential delays to transit. Depending on the scope of the project, the methodology will use a quantitative or qualitative methodology to assess transit delay. The methodology should assess to the extent applicable:

- The number, movement type, sightlines, duration, and speed of project construction truck trips in and out of project staging area(s) based upon the design of such areas (e.g., curb cut dimensions, roadway speeds) in relation to the volume of vehicle trips on streets adjacent to the entrance to those staging areas and people walking, bicycling, and accessing transit at or near those locations [text, figure]
- The location of the project's staging area(s) in relation to the travel lanes where transit vehicles operate, transit stop/station locations, and high-frequency transit routes [text, figure]

Existing Baseline

Refer to the guidelines for direction on including existing baseline in transportation studies..

Impact Analysis

This section ties the project description, methodology, and existing baseline together to address the significance criteria for existing plus project construction conditions. This section addresses the typical approach for the impact analysis and provides more details related to hazards and accessibility impacts for people walking, bicycling, taking transit and/or transit operations, or driving. The impact analysis section should present a format (text, figure, or table) consistent with earlier sections of this memorandum for easy comparison.

If a project does not meet the screening criteria after considering the project site context and construction duration and magnitude, further construction analysis may be required.

If further construction analysis is required, the impact analysis must address whether duration and magnitude of construction activities would create potentially hazardous conditions for people walking, bicycling, riding transit and/or transit operations, or driving, whether the project's construction substantially interferes with emergency access or the accessibility of people walking, bicycling, or taking transit in the study area, and whether the project's construction would create public transit delay.

Potentially Hazardous Conditions

The department provides examples of some circumstances that may result in potentially hazardous conditions associated with the different ways people travel (e.g., people walking, bicycling, or driving) in the applicable transportation topic memorandum of these guidelines. The following examples are some of the additional non-exhaustive list of circumstances related to a project's construction activities that could result in potentially hazardous conditions that the department did not list in the other memoranda:

- A project's construction activities would generally not affect a project's loading operations given that the loading demand would not likely occur until construction completion and building occupancy. However, potential hazards could result if the operator of a commercial and passenger vehicle is loading within and blocking a travel lane, transit, bicycle facilities, and/or sidewalk when the loading space for neighboring uses is removed during project construction.

As a result unaccommodated loading demand occurs in the travel lane, transit, bicycle facilities, and/or sidewalk while the project is under construction.

- A project would be unable to accommodate a substantial number of construction truck trips into its off-street facilities or proposed on-street staging areas, resulting in the operator of a large construction truck within and blocking a travel lane, transit, bicycle facilities, and/or sidewalk used by a substantial number of people walking, bicycling, riding transit, or driving (e.g., based on counts, projections, or Muni service type designation)

Accessibility

The department provides examples of some of the circumstances that may result in interference with accessibility in the applicable transportation topic memorandum of these guidelines. However, the following examples illustrate circumstances in which a project's construction activities may substantially interfere with accessibility. This is not an exhaustive list of circumstances, under which, potential accessibility impacts would occur:

- A project's construction activities would close off or render existing ADA-compliant facilities for a substantial number of people walking challenging to use or inaccessible, without providing replacement facilities, and substantially increase the distance for people walking to safely cross streets or access neighborhoods, nearby transit stations/stops, and major destinations
- A project would be unable to accommodate[4] construction truck trips, in off-street facilities designated as staging areas, thereby blocking access to sidewalks or nearby crosswalks for a substantial number of people walking
- A project would be unable to accommodate construction truck trips, in on-street or off-street facilities designated as staging areas, thereby blocking access to bicycle lanes or travel lanes for a substantial number of people bicycling or taking transit
- A project's temporary construction activities result in the demolition or relocation of a key feature of public transit infrastructure (e.g., a bus stop or boarding island of a Muni Forward Rapid project marked by frequent transit service and high ridership) for a substantial period; requiring a substantial number of people to walk a greater distance and thereby eliminating access to an existing location
- A project's temporary construction activities would close or add a physical barrier[5] to a street restricting all vehicles, including emergency service operators, which would impede access to the surrounding area for a substantial duration of time affecting peak periods.

Potential Public Transit Delay

Below is a non-exhaustive list of circumstances that could result in public transit delay that are not provided in the transit memorandum.

- a project would be unable to accommodate a substantial number of construction truck trips into its off-street facilities or proposed on-street staging areas, resulting in the operator of a large

[4] For purposes of this memo, "accommodate" refers to design of the facility (e.g., can vehicles be accommodated without queuing based upon throat length, gate location, etc.) and not the capacity (e.g., does the number of spaces accommodate the demand) of the facility as many variables affect the demand to and from a facility.

[5] Permeant physical barriers refer to unmovable features that would not allow for emergency service operator vehicle access during an emergency (e.g., walls, inoperable bollards). Permanent physical barriers do not refer to physical features that an emergency service operator vehicle could mount or navigate around during an emergency (e.g., curbs such as raised bicycle facility or bulb out, a parking lane, cones, safe hit posts, operable bollards).

construction truck within and blocking a transit lane used by a substantial number of people riding transit (e.g., based on counts, projections, or Muni service type designation)

- a project's temporary construction activities result in the demolition or relocation of a key feature of public transit infrastructure (e.g., a bus stop or boarding island of a Muni Forward Rapid project marked by frequent transit service and high ridership) for a substantial period resulting in public transit delay

CUMULATIVE

Methodology

The guidelines detail the typical methodology for cumulative analysis, including the geographical area, period, cumulative projects, and adjustments (refer to Appendix B of the guidelines) under cumulative conditions. Additional guidance on the appropriate period of study for project construction under cumulative conditions is provided below. The cumulative section in transportation studies must present (text, figure, or table) the applicable elements included in the methodology.

Period

The period for cumulative construction analysis is typically the same as that used for existing and existing plus project construction conditions taking into account reasonably foreseeable projects with construction schedules that overlap with the project (see below for more details). 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 construction activities or the project's construction 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 other than the weekday p.m. peak.

Impact Analysis

This section ties the methodology and description of cumulative conditions together to address the significance criteria for cumulative conditions. Refer to the guidelines for direction on what to typically consider when conducting the cumulative impact analysis and how to present the findings. Further guidance on conducting an impact analysis for project construction under cumulative conditions is provided below. The same examples of the types of circumstances that could result in a potential hazardous condition impact, accessibility impact, or public transit delay that were provided for existing plus project construction conditions apply here, except for cumulative conditions.

Project Site Context and Construction Duration and Magnitude

The first step in the cumulative analysis is to determine whether there are reasonably foreseeable cumulative projects in the project study area which have construction timelines that could overlap with project construction. **If the reasonably foreseeable projects' construction timelines do not have the potential to overlap with that of the project, then the analysis is complete.**

If multiple projects within the study area have anticipated construction schedules that would be concurrent, then consider the study area context in terms of geography, level of travel activity and the duration and magnitude of construction for all projects identified. The same screening analysis examples provided for existing plus project construction conditions apply here, however for cumulative conditions the additive amount of construction activities would be of similar or greater intensity to create a localized impact.

Potentially Hazardous Conditions, Accessibility, and Public Transit Delay

If cumulative projects do not meet the screening criteria after considering the project site context and construction duration and magnitude for the cumulative projects identified, further construction analysis may be required. If so, the impact analysis must address whether the cumulative projects' construction activities would create potentially hazardous conditions for people walking, bicycling, taking transit, and/or transit operations, or with other vehicles. The impact analysis must address whether the cumulative projects' construction activities would substantially interfere with emergency access or the accessibility of people walking or bicycling to the study area; or substantially interfere with public transit service such that a substantial transit delays results. The same examples as provided for existing plus project construction conditions apply here, except for cumulative conditions.

OTHER

The guidance provided in this memorandum assumes a land use development project located outside of an area plan that requires a transportation impact study. This section describes the type of additional or different information that may be necessary to address construction-related transportation impacts for the following circumstances: land use development project located within an area plan, an area plan, or infrastructure project (which may be located in a different county than San Francisco).

Land Use Development Project Located within an Area Plan

For projects that are consistent with an area plan, pursuant to CEQA Guidelines section 15183 for which an environmental impact report (EIR) was certified, the assessment must limit its analysis to such conditions specified in that section. The guidelines provide direction on how to analyze a land use development project in an area plan and lists area plan EIRs that have been certified as of February 2019.

Attachment D of this memorandum identifies mitigation and improvement measures from area plan EIRs related to loading.

Area Plans

For area plans, the assessment will typically use the significance criteria identified herein. The following subsections describe the type of additional or different information that may be necessary to address construction-related transportation impacts for project description, methodology, and impact analysis. For area plans that also include infrastructure changes (e.g., street redesigns), please see the Infrastructure Project subsection for additional or different information that may be necessary.

Project Description

Typically, the department conducts an analysis to estimate the amount of future development that could occur in the plan area as a result of its implementation. The department typically does not have all the project description details regarding land use development, including the construction timelines for subsequent development projects. In addition, the project description may include transportation infrastructure provided for the area plan that may relate to the methodology and impact analysis (e.g., location and dimensions of proposed bike lanes, removal of on-street parking, sidewalk widenings or other proposed street network changes).

Methodology

The assessment will typically use the same methodology identified herein, except the methodology will use the plan area and require less site-specific information (e.g., staging locations at each site) An area plan's construction activities may not require some elements listed in the Existing and Existing plus Project Construction Methodology subsection, area plans typically will not include all of these elements.

Impact Analysis

As described above, all project construction activities would be required to meet city rules and guidance (i.e., the blue book and public works code requirements). This would ensure that construction activities are conducted safely and with the least possible interference with people walking, bicycling, or taking transit and/or transit operations, and with other vehicles. Therefore, impact analysis for area plans is more generally addressed as a plan itself would not result in direct physical changes to the environment. However, area plan impact analysis should address the effects of construction activity that could result from specific development that could occur under the Plan. Additionally, the analysis may address project-specific impacts from proposed development or potential infrastructure or open space improvements included as part of the plan. Construction-related impact analysis for these project-specific features of an area plan, should be addressed similar to how projects are analyzed under the Existing plus Project Construction and Cumulative Impact Analysis subsections. If the area plan includes infrastructure changes (e.g., street redesigns), given the potential time gap between land use development and completion of infrastructure changes, the analysis should discuss the potential short-term effects of that potential time gap in a lesser level of detail than that provided for overall effects. However, the analysis should assume individual land use development projects within the area plan would be subject to property specific infrastructure changes (e.g., Better Streets Plan).

Examples of circumstances that would result in significant impacts are described under the Existing plus Project Construction Impact Analysis subsection.

Infrastructure Project

For infrastructure projects (e.g., trails, new roads, bridge repair, sewer line, rail service, roadway modifications, etc.), the assessment of the project description, significance criteria, and impact analysis should be similar to the construction of private development projects. The analysis typically does not require trip generation analysis as infrastructure projects usually do not generate trips.[6] However, infrastructure projects may generate short-term trips due to construction workers and vehicles accessing the project site. As for development projects, the level of detail needed regarding construction workers and vehicles accessing the project site depends upon the project context, magnitude, and duration of the infrastructure project.

Project Description

The project description must describe the typical physical construction configuration and activities as applicable. The project description must provide the geographic boundaries of the project and street cross sections.

Methodology

The assessment will typically use the same methodology identified herein, except the methodology will pay particular attention to proposed right-of-way closures and rerouting of the path of travel for people walking, bicycling, and taking transit and/or transit operations.

Impact Analysis

The analysis of potentially hazardous conditions and accessibility impacts should be similar to that described under the Existing plus Project Construction and Cumulative Impact Analysis subsections. The

[6] Governor's Office of Planning and Research, *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA,* January 20, 2016.

same construction screening criteria regarding project context, magnitude and duration would also apply to infrastructure projects.

Potentially Hazardous Conditions, Accessibility, and Public Transit Delay

If an infrastructure project does not meet the screening criteria after considering the project site context and construction duration and magnitude, further construction analysis may be required. The impact analysis must address whether an infrastructure project's construction activities would create potentially hazardous conditions for people walking, bicycling, taking transit, and/or transit operations, or with other vehicles. The impact analysis must address whether an infrastructure project's construction activities would substantially interfere with emergency access or accessibility of people walking or bicycling to the study area; or substantially interfere with public transit service such that a substantial transit delays results. The department provides examples of some of the circumstances that may result in potentially hazardous conditions substantial interference with accessibility, and substantial delay to public transit under the Existing plus Project Construction and Cumulative Impact Analysis subsections.

Attachment A

Construction Analysis Screening Criteria Checklist

General construction activities result in temporary conditions, and usually do not result in permanent changes to the environment, in particular, changes to the transportation circulation network. Compliance with city codes and regulations typically ensures that construction activities do not result in potentially hazardous conditions to people walking, bicycling, riding transit and/or transit operations. Below are screening criteria for determining whether or not further analysis is needed relating to potential construction impacts.[1] The screening criteria is a two-step approach. First consider project context. If the project context is such that there is relatively little travel activity that could be disrupted by construction activities, then detailed construction analysis is not needed. If, however, the project site context includes travel activity that could be substantially disrupted by project construction activities, then consider the duration and magnitude of construction activity to determine if further analysis is warranted.

PROJECT SITE CONTEXT

☐ 1. The level of travel activity in the project site study area (site context) including volumes of people walking, bicycling, riding transit, and driving, as well as the presence of transit facilities (routes and/or stops) and emergency service operator facilities are such that further construction analysis would not be needed. Describe briefly:

The following are examples of project site context such that further construction analysis would not be needed. This is not an exhaustive list of circumstances and the items listed should be considered comprehensively:

- The site surrounding is not well-served by multiple other ways of travel (e.g., people walking bicycling, riding public transit) and may be characterized by a lack of or substandard sidewalks, bicycle facilities, or transit routes or transit stops in the study area such that there would be little interference with modes of travel due to project construction activities; and
- The amount of excavation is less than two levels below ground surface; and/or
- The amount of demolition would result in less than 20,000 cu yards of material removed from the site.

CONSTRUCTION DURATION AND MAGNITUDE

☐ 2. The level of intensity of project construction activities as well as the anticipated duration for project construction is a circumstance such that further construction analysis would not be needed. Describe briefly:

The following are examples under which the construction magnitude and duration would be such that further construction analysis would not be needed. This is not an exhaustive list of circumstances and the items listed should be considered in conjunction with the project site context:

- Construction is anticipated to be completed in 30 months or less.
- Construction of a project is not multi-phased (e.g., construction and operation of multiple buildings planned over a long time period)

Projects that meet the criteria described above would not result in significant construction-related transportation impacts and do not warrant further analysis.

[1] Compiled background historical review of past projects and impact conclusions related to construction are on file with department.

ATTACHMENT B

Existing and Proposed Project Figures and Table Examples

Introduction

Attachment B represents typical figures necessary to illustrate conditions that could result in transportation impacts from the project construction activities 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. Some of the figures presented below were from previous transportation studies and are illustrative only and may not include all the basic elements.

FIGURE 1

Study Area for Project Construction

Figure 1 is an example of the study area for project construction activities. As shown the study area has frontages on multiple streets. All frontages should be considered for possible construction staging.

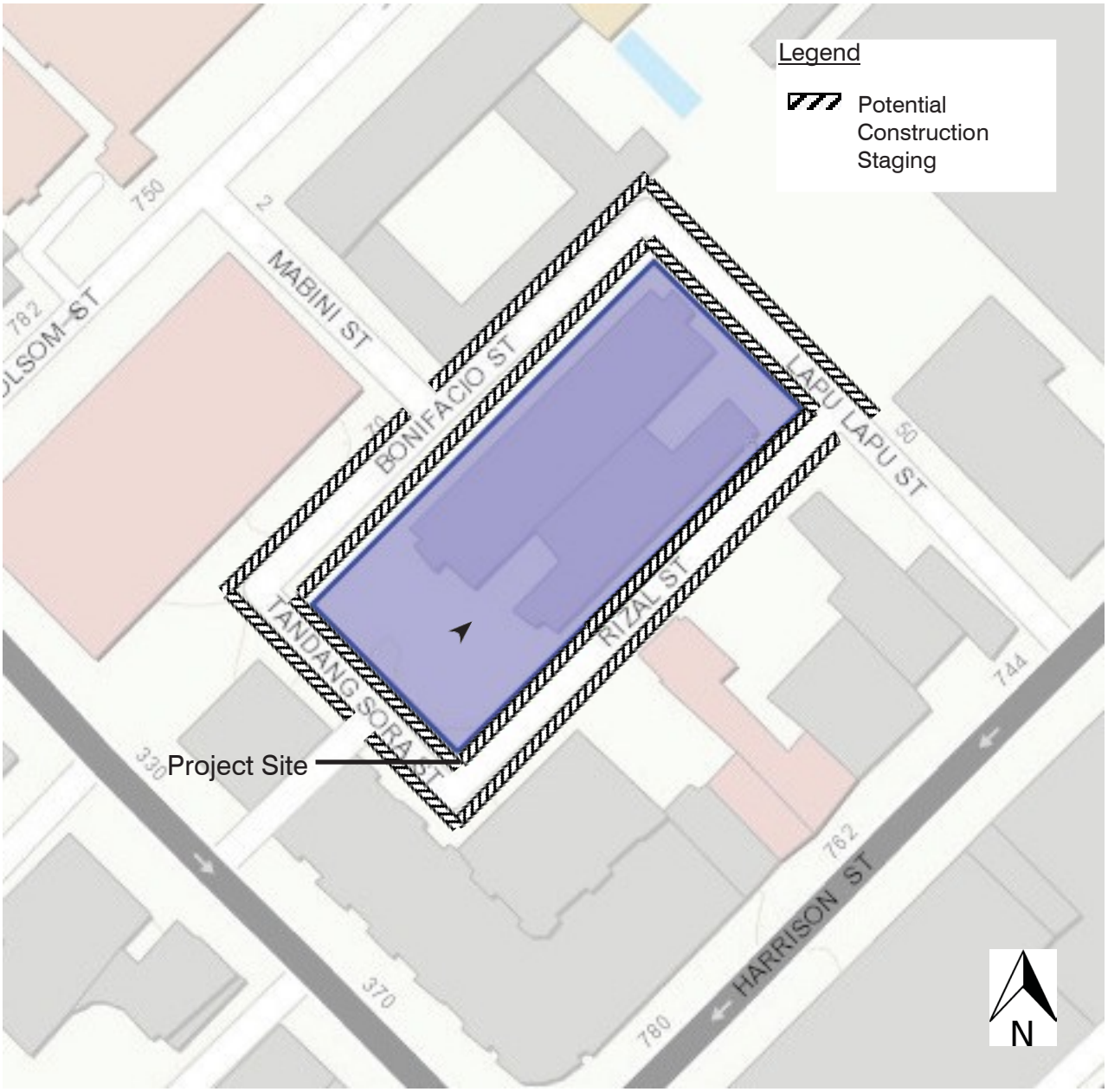


FIGURE 2

Existing On-street Site Plan

Figure 2 below is an example of a site plan that includes a detailed description of existing on-street conditions adjacent to the project site including commercial and passenger loading, and existing parking. When developing a map similar to the one shown, include the linear dimensions of the existing and proposed curb cuts. Loading zones should be dimensioned and match the color of the zones to those used in the SFMTA Color Curb Program. The existing conditions should be explicit to identify potential transportation impacts from the project construction activities.

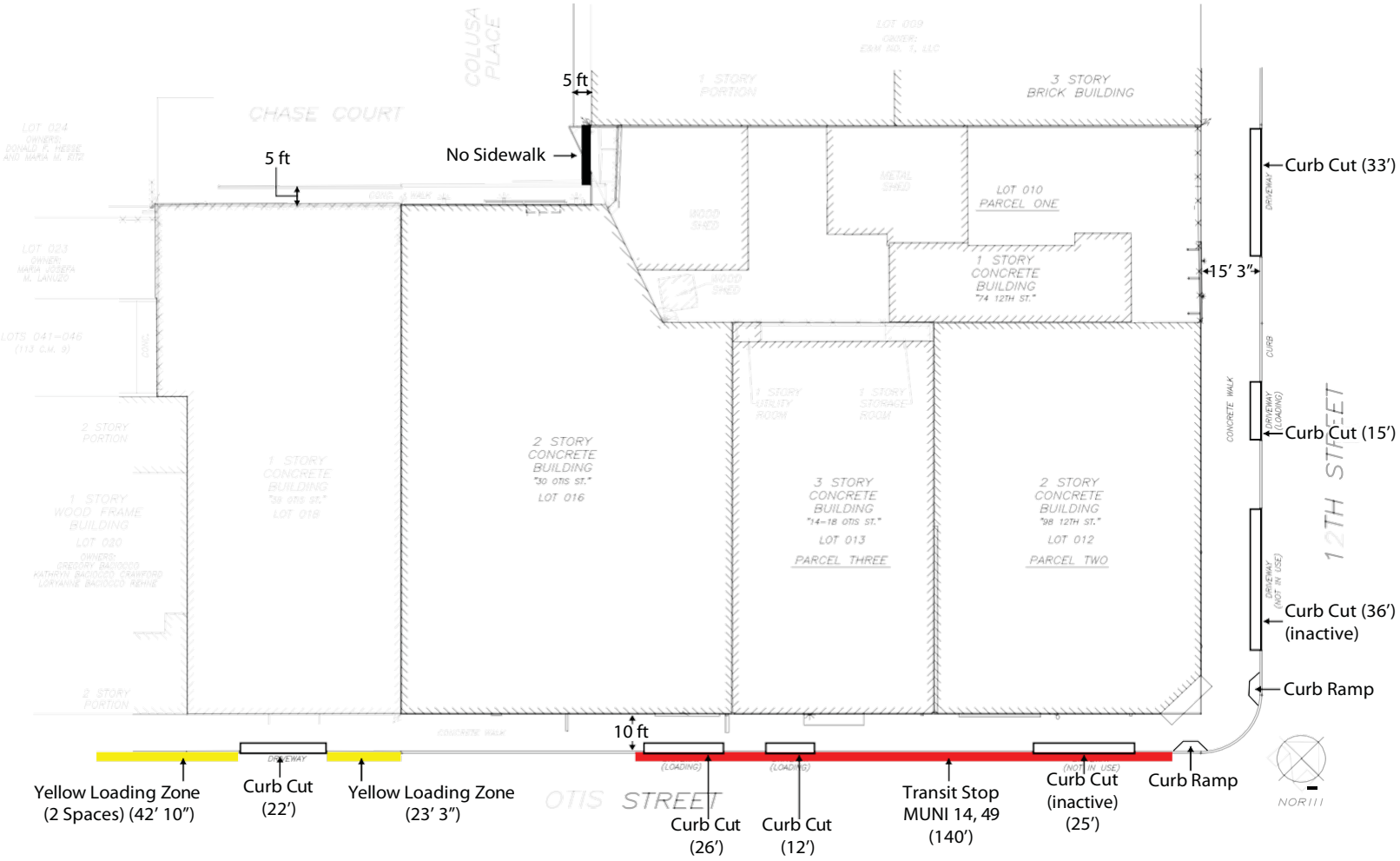


FIGURE 3

Construction Access to Site

Figure 3 below shows the typical format to identify the truck route access to locations where construction staging would occur in the area of the proposed project. The request for a figure that demonstrates construction access to the site would be determined by the department in the project scoping process.

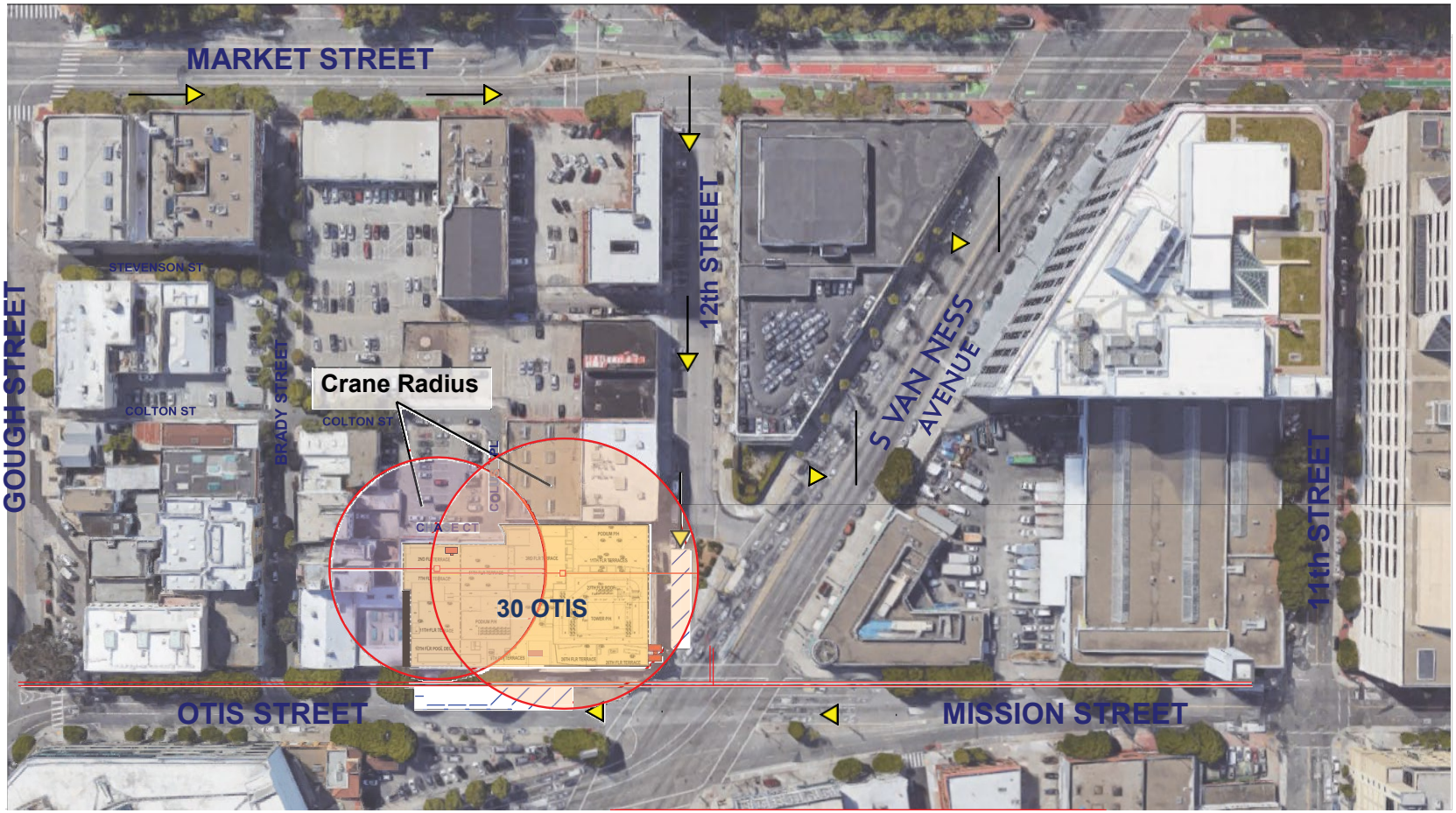


FIGURE 4

Construction Staging Site

Figure 4 below shows the typical format to identify the truck route access to locations where construction staging would occur in the area of the proposed project. The request for a figure that demonstrates construction access and staging to the site would be determined by the department in the project scoping process.

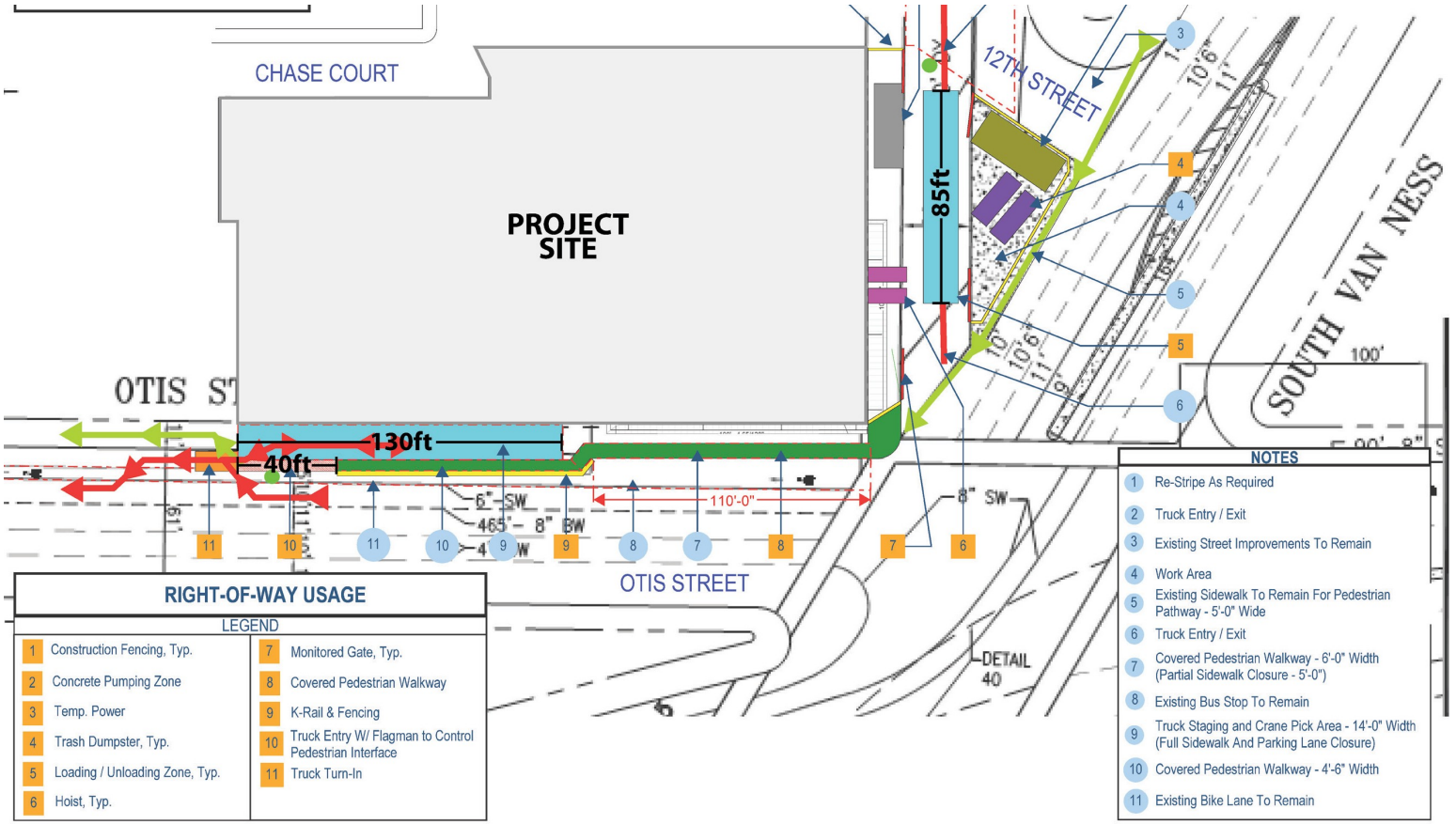


FIGURE 5

Turn Template Into/Out of On-Street Loading Space for Construction Staging

Figure 5 below shows the typical format to present large construction trucks moving in and out of an on-street loading space used for construction staging.

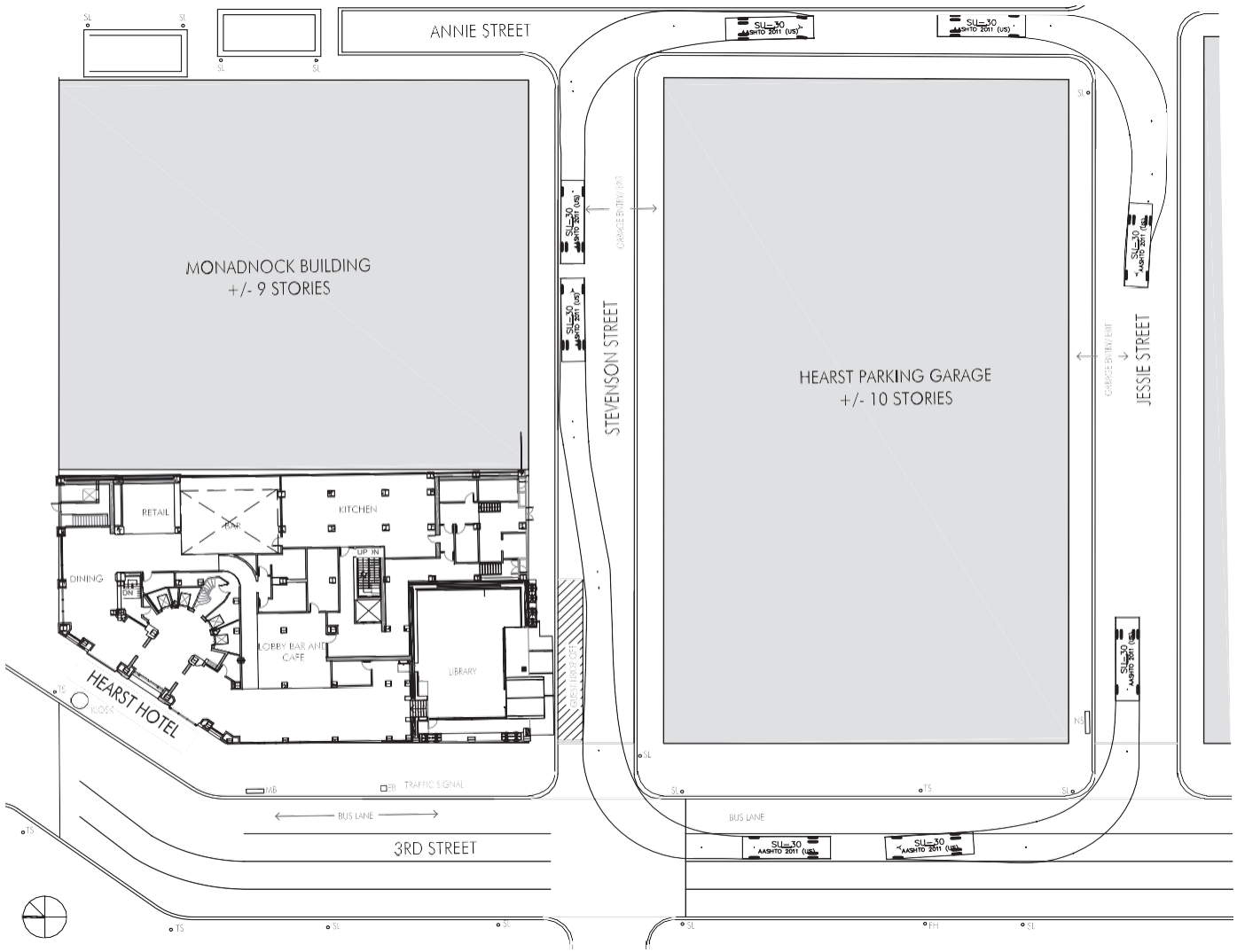
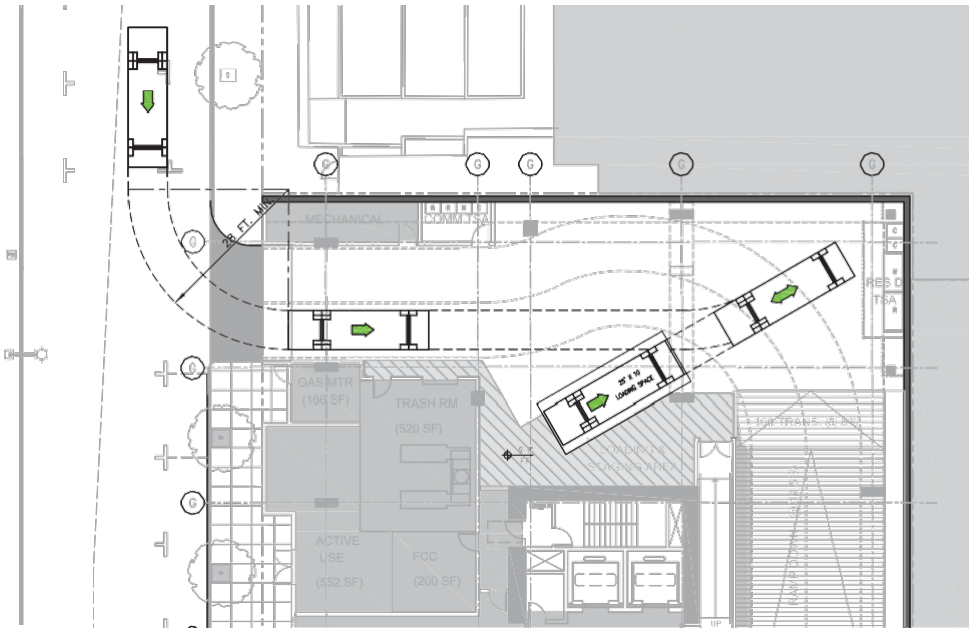


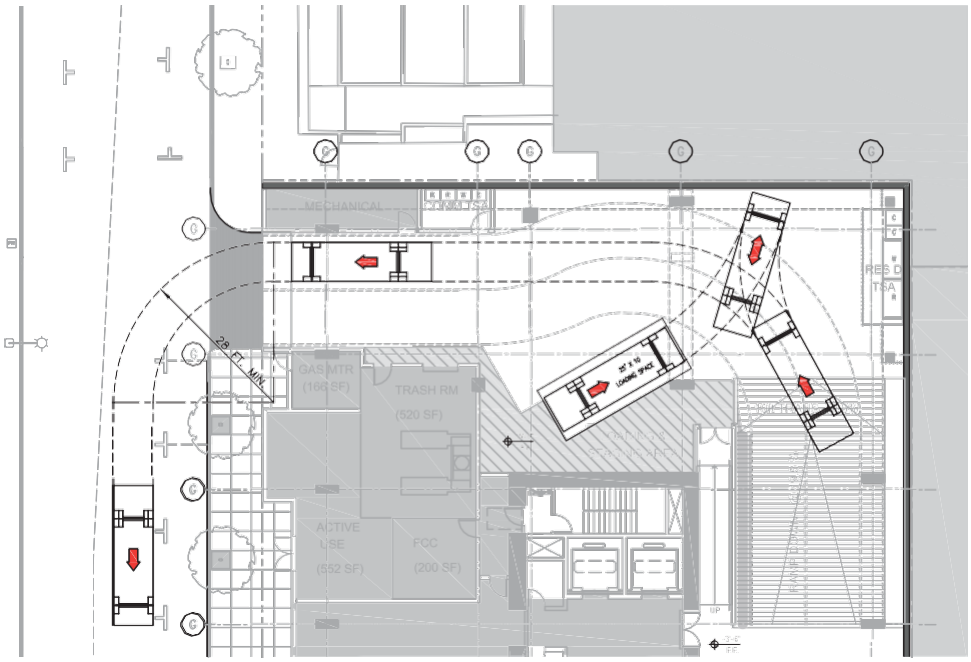
FIGURE 6

Study Area for Project Construction

Figure 6 below shows the typical format to present off street truck turn templates into the loading and construction staging area.



Loading Turning Radii
25' x 10' Vehicle INBOUND



Legend
- entry route
- exit route

Loading Turning Radii
25' x 10' Vehicle OUTBOUND

LOADING DIAGRAMS
SCALE: 1/16" = 1'-0"

FIGURE 7

Construction Plan and Phasing Template Sample

Figure 7 below shows the typical formats to summarize the construction phases, including daily and average trucks and workers. The figures presented below were from previous transportation studies and are illustrative only and may not include all the basic elements.

Table XX
Proposed Project
Summary of Construction Phases and Duration, and
Daily Construction Trucks and Workers by Phase

Phase	Duration (months)[1]	Number of Daily Construction Trucks		Number of Daily Construction Workers	
		Peak	Average	Peak	Average
Demolition and Site Prep	1	10	6	15	10
Excavation and Shoring	0.5	10	5	20	10
Foundation	1	20	5	30	25
Base Building	6.5	20	10	100	75
Exterior and Interior Finishing	4	20	10	75	50
Sidewalks and Landscaping	3	5	3	25	20

Note:
[1] Total proposed project construction duration would be 15 months, and some construction phases would partially overlap (e.g., exterior and interior finishes, and site work).

FIGURE 8

Construction Plan and Phasing Template Sample (continued)

Project Name Summary of Construction Phases and Duration, and Daily Construction Trucks and Workers by Phase													
Phase (revise as appropriate)	Start Date	End Date	Duration (months)	Number of Daily Construction Trucks (1)		Number of Daily Construction Workers		Parking for Construction Workers	Heavy Duty Construction Equipment				
				Peak	Avg.	Peak	Avg.		Type of Equipment	Duration on Site (months)	Capacity (hp or tons)	Fuel Type	Quantity
Demolition	June 11, 2018	July 20, 2018	1	25	15	10	10	Not provided	Excavator	1	242 hp	Diesel	1
Excavation and Shoring	July 20, 2018	Sept 29, 2018	2.0	75	50	20	10	Not provided	Excavator Dozer	2 2	242 hp 205 hp	Diesel Diesel	2 1
Foundation & Below Grade Construction	Sept 29, 2018	May 13, 2019	7.5	15	7	50	30	Not provided	Mobile Crane	1	5 ton	Diesel	1
Base Building (incl int framing/rough-in)	May 14, 2019	June 15, 2020	13	25	12	200	140	Not provided	Mobile Crane Manlift 1 Manlift 2 Forklifts	intermittent 9 8 15	5 ton 3 ton 1.5 ton 20 hp	Diesel Elect from Grid Elect from Grid Diesel	1 1 1 2
Exterior Finishing	July 22, 2019	March 23, 2020	8	17	5	55	35	Not provided	Manlift 1 Manlift 2	In base building	3 ton	Elect from Grid	1
Interior Finishing	June 10, 2019	July 27, 2020	13.5	20	10	120	100	Not provided	Manlift 1 Manlift 2 Forklifts	5 4 8	3 ton 3 ton 1.5 ton	Elect from Grid Elec from Grid Diesel	1 1 2
TCO / Occupancy		Aug 6, 2020		N/A	N/A	N/A	N/A	Not provided					

(1) All trucks arriving at site. Include multiple trips to site by same truck.

ATTACHMENT C

Construction Plan and Phasing

Attachment C provides the CalEEMod[2] default values and rates for daily construction worker trips, vendor trips, and hauling trips per each construction phase to inform a typical project's detailed air quality analysis. The CaleEEMod User's Guide (as of November 9, 2017) and associated Appendix (October 2017) provides the detailed analysis and data supporting these values. The CalEEMod Construction Worker and Vendor Trip Rates are associated with vehicle miles traveled. The department's Project Application requires the project sponsor/contractor to provide project specific construction information, such as the estimated construction schedule, approximate depth, area, and amount of excavation. The project sponsor/ contractor generally provides the estimated amount of material transport and estimated number of deliveries. If details are unknown, the project sponsor/contractor may use default values from CalEEMod, which tend to result in conservative (i.e., greater) estimates than that may occur.

Building Construction Worker and Vendor Trip Rates

Land Use SubType	Rate Metric	Worker Trip Rate	Vendor Trip Rate
Single Family	Daily Trips per DU	0.36	0.1069
Multi-Family	Daily Trips per DU	0.72	0.1069
Commercial/Retail	Daily Trips per 1000 sqft	0.32	0.1639
Office/Industrial	Daily Trips per 1000 sqft	0.42	0.1639
Source: SCAQMD's analysis of SMAQMD Building Construction Worker and Vendor trip rates found in Appendix E.			

CalEEMod separates construction into the following default phases: Demolition, Site Preparation, Grading, Building Construction, Architectural Coatings, and Paving. The above rates are used to determine the number of worker trips and vendor trips for the 'Building Construction' phase only. For the Architectural Coating phase, the number of workers is approximately 20% of the number of workers estimated for the Building Construction phase. For all other phases, CalEEMod quantifies the number of construction workers by multiplying 1.25 times the total number of pieces of equipment. CalEEMod provides default estimates of the total number of pieces of equipment used per phase.

Haul trips are based on the amount of material that is demolished, imported or exported assuming a truck can handle 16 cubic yards (20 tons) of material. For phased trips, the truck is assumed to be full both ways. For non-phased trips, the truck is assumed to be empty one direction and thus results in more haul trips calculated.

[2.] The California Emissions Estimator Model® (CalEEMod) is a statewide land use emissions computer model used for a variety of purposes and designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas (GHG) emissions associated with both construction and operations from a variety of land use projects. The CalEEMod user guide may be accessed at the following web address: http://www.aqmd.gov/caleemod/user's-guide

ATTACHMENT D

Mitigation and Improvement Measures

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

Ricon Hill Area Plan

No applicable mitigation or improvement measures were identified.

Market and Octavia Neighborhood Plan

No applicable mitigation or improvement measures were identified.

Visitacion Valley Redevelopment Plan

No applicable mitigation or improvement measures were identified.

Balboa Park Station Area Plan

Improvement Measure Balboa Park Station Area Plan: To minimize disruption of the general traffic flow on adjacent streets during the a.m. and p.m. peak periods, limit truck movements to the hours between 9:00 a.m. and 3:30 p.m. (or other times, if approved by MTA). In addition, have all construction contractors meet with representatives of MTA and the Planning Department to determine feasible measures to reduce traffic congestion, including transit disruption and pedestrian and bicycle circulation impacts during construction of individual projects within the Project Area.

Improvement Measure Truck Loading Phelan Loop Site: To minimize disruption of the general traffic flow on adjacent streets during the a.m. and p.m. peak periods, limit truck movements to the hours between 9:00 a.m. and 3:30 p.m. (or other times, if approved by MTA). In addition, have all construction contractors meet with representatives of MTA and the Planning Department to determine feasible measures to reduce traffic congestion, including transit disruption and pedestrian and bicycle circulation impacts during construction of individual projects within the Project Area.

Eastern Neighborhoods Rezoning and Area Plan

No applicable mitigation or improvement measures were identified.

Treasure Island and Yerba Buena Island Redevelopment Plan

Mitigation Measure M-TR-1: Construction Traffic Management Program. The project sponsors shall develop and implement a Construction Traffic Management Plan ("CTMP"), consistent with the standards and objectives stated below and approved by TIDA, designed to anticipate and minimize transportation impacts of various construction activities associated with the Proposed Project.

The Plan shall disseminate appropriate information to contractors and affected agencies with respect to coordinating construction activities to minimize overall disruptions and ensure that overall circulation on the Islands is maintained to the extent possible, with particular focus on ensuring pedestrian, transit, and bicycle connectivity and access to the Bay and to recreational uses to the extent feasible. The CTMP shall supplement and expand, rather than modify or supersede, any manual, regulations, or provisions set forth by SFMTA, Department of Public Works ("DPW"), or other City departments and agencies.

Specifically the plan shall:

- Identify construction traffic management best practices in San Francisco, as well as other jurisdictions that, although not being implemented in the City, could provide valuable information for a project of the size and characteristics of Treasure Island and Yerba Buena Island.

- As applicable, describe procedures required by different departments and/or agencies in the City for implementation of a Construction Traffic Management Plan, such as reviewing agencies, approval processes, and estimated timelines.
  - For example: The construction contractor will need to coordinate temporary and permanent changes to the transportation network on Treasure Island and Yerba Buena Island with TIDA. Once Treasure Island streets are accepted as City streets, temporary traffic and transportation changes must be coordinated through the SFMTA's Interdepartmental Staff Committee on Traffic and Transportation ("ISCOTT") and will require a public meeting. As part of this process, the CTMP may be reviewed by SFMTA's Transportation Advisory Committee ("TASC") to resolve internal differences between different transportation modes.
- For construction activities conducted within Caltrans right-of-way, Caltrans Deputy Directive 60 (DD-60) requires a separate Transportation Management Plan and contingency plans. These plans shall be part of the normal project development process and must be considered during the planning stage to allow for the proper cost, scope and scheduling of the TMP activities on Caltrans right-of-way. These plans should adhere to Caltrans standards and guidelines for stage construction, construction signage, traffic handling, lane and ramp closures and TMP documentation for all work within Caltrans right-of-way.
- Changes to transit lines would be coordinated and approved, as appropriate, by SFMTA, AC Transit, and TITMA. The CTMP would set forth the process by which transit route changes would be requested and approved. Require consultation with other Island users, including the Job Corps and Coast Guard, to assist coordination of construction traffic management strategies. The project sponsors shall proactively coordinate with these groups prior to developing their CTMP to ensure the needs of the other users on the Islands are addressed within the Construction Traffic Management Plan.
- Identify construction traffic management strategies and other elements for the Proposed Project, and present a cohesive program of operational and demand management strategies designed to maintain acceptable levels of traffic flow during periods of construction activities. These include, but are not limited to, construction strategies, demand management activities, alternative route strategies, and public information strategies. For example, the project sponsors may develop a circulation plan for the Island during construction to ensure that existing users can clearly navigate through the construction zones without substantial disruption.
- Require contractors to notify vendors that STAA trucks larger than 65 feet exiting from the eastbound direction of the Bay Bridge may only use the off-ramp on the east side of Yerba Buena Island.

Glen Park Community Plan

Mitigation Measure M-TR-12A: Construction Transportation Management Plan. In the event that two or more major proposed transportation improvements (specifically the bus loop, roundabout, or widening of the northbound approach of Diamond Street) are constructed simultaneously, SFMTA, BART, and any other agency that may have jurisdiction shall develop and implement a Construction Transportation Management Plan (TMP) to anticipate and minimize impacts of potentially overlapping construction activities. The TMP would coordinate construction activities to minimize disruptions and ensure that overall circulation is maintained to the extent possible, with particular focus on ensuring pedestrian, transit, and bicycle connectivity. The TMP would supplement and expand, rather than modify or supersede, any existing regulations and requirements. The TMP shall be submitted to SFMTA Traffic Engineering Division, the Department of Public Works (DPW) and presented as part of review by the Transportation Advisory Staff Committee.

Transit Center District Plan and Transit Tower

M-TR-9: Construction Coordination. To minimize potential disruptions to transit, traffic, and pedestrian and bicyclists, the project sponsor and/or construction contractor for any individual development project in the Plan area shall develop a Construction Management Plan that could include, but not necessarily be limited to, the following:

- Limit construction truck movements to the hours between 9:00 a.m. and 4:00 p.m. (or other times, if approved by the Municipal Transportation Agency) to minimize disruption of traffic, transit, and pedestrian flow on adjacent streets and sidewalks during the weekday a.m. and p.m. peak periods.
- Identify optimal truck routes to and from the site to minimize impacts to traffic, transit, pedestrians, and bicyclists; and,
- Encourage construction workers to use transit when commuting to and from the site, reducing the need for parking.

The sponsor shall also coordinate with the Municipal Transportation Agency/Sustainable Streets Division, the Transbay Joint Powers Authority, and construction manager(s)/contractor(s) for the Transit Center project, and with Muni, AC Transit, Golden Gate Transit, and SamTrans, as applicable, to develop construction phasing and operations plans that would result in the least amount of disruption that is feasible to transit operations, pedestrian and bicycle activity, and vehicular traffic.

Western SoMa Community Plan

No applicable mitigation or improvement

Central SoMa Plan

Mitigation Measure M-TR-9: Construction Management Plan and Construction Coordination.

Construction Management Plan— For projects within the Plan Area, the project sponsor shall develop and, upon review and approval by the SFMTA and Public Works, implement a Construction Management Plan, addressing transportation- related circulation, access, staging and hours of delivery.

The Construction Management Plan would disseminate appropriate information to contractors and affected agencies with respect to coordinating construction activities to minimize overall disruption and ensure that overall circulation in the project area is maintained to the extent possible, with particular focus on ensuring transit, pedestrian, and bicycle connectivity. The Construction Management Plan would supplement and expand, rather than modify or supersede, any manual, regulations, or provisions set forth by the SFMTA, Public Works, or other City departments and agencies, and the California Department of Transportation.

If construction of the proposed project is determined to overlap with nearby adjacent project(s) as to result in transportation-related impacts, the project sponsor or its contractor(s) shall consult with various City departments such as the SFMTA and Public Works, and other interdepartmental meetings as deemed necessary by the SFMTA, Public Works, and the Planning Department, to develop a Coordinated Construction Management Plan. The Coordinated Construction Management Plan, to be prepared by the contractor, would be reviewed by the SFMTA and would address issues of circulation (traffic, pedestrians, and bicycle), safety, parking and other project construction in the area. Based on review of the construction logistics plan, the project may be required to consult with SFMTA Muni Operations prior to construction to review potential effects to nearby transit operations.

The Construction Management Plan and, if required, the Coordinated Construction Management Plan, shall include, but not be limited to, the following:

- Restricted Construction Truck Access Hours — Limit construction truck movements during the hours between 7:00 and 9:00 a.m. and between 4:00 and 7:00 p.m., and other times if required by the SFMTA, to minimize disruption to vehicular traffic, including transit during the a.m. and p.m. peak periods.

- *Construction Truck Routing Plans*—Identify optimal truck routes between the regional facilities and the project site, taking into consideration truck routes of other development projects and any construction activities affecting the roadway network.
- *Coordination of Temporary Lane and Sidewalk Closures*—The project sponsor shall coordinate travel lane closures with other projects requesting concurrent lane and sidewalk closures through interdepartmental meetings, to minimize the extent and duration of requested lane and sidewalk closures. Travel lane closures shall be minimized especially along transit and bicycle routes, so as to limit the impacts to transit service and bicycle circulation and safety.
- *Maintenance of Transit, Vehicle, Bicycle, and Pedestrian Access*—The project sponsor/construction contractor(s) shall meet with Public Works, SFMTA, the Fire Department, Muni Operations and other City agencies to coordinate feasible measures to include in the Coordinated Construction Management Plan to maintain access for transit, vehicles, bicycles and pedestrians. This shall include an assessment of the need for temporary transit stop relocations or other measures to reduce potential traffic, bicycle, and transit disruption and pedestrian circulation effects during construction of the project.
- *Carpool, Bicycle, Walk and Transit Access for Construction Workers*—The construction contractor shall include methods to encourage carpooling, bicycling, walk and transit access to the project site by construction workers (such as providing transit subsidies to construction workers, providing secure bicycle parking spaces, participating in free- to-employee ride matching program from www.511.org, participating in emergency ride home program through the City of San Francisco (www.sferh.org), and providing transit information to construction workers).
- *Construction Worker Parking Plan*—The location of construction worker parking shall be identified as well as the person(s) responsible for monitoring the implementation of the proposed parking plan. The use of on-street parking to accommodate construction worker parking shall be discouraged. All construction bid documents shall include a requirement for the construction contractor to identify the proposed location of construction worker parking. If on-site, the location, number of parking spaces, and area where vehicles would enter and exit the site shall be required. If off-site parking is proposed to accommodate construction workers, the location of the off site facility, number of parking spaces retained, and description of how workers would travel between off-site facility and project site shall be required.
- *Project Construction Updates for Adjacent Businesses and Residents*—To minimize construction impacts on access for nearby institutions and businesses, the project sponsor shall provide nearby residences and adjacent businesses with regularly-updated information regarding project construction, including construction activities, peak construction vehicle activities (e.g., concrete pours), travel lane closures, and lane closures. At regular intervals

MITIGATION AND IMPROVEMENT MEASURE EXAMPLES

Please Note: The following mitigation measure applied to a large project in a constrained area with other several large adjacent projects that would also be under construction under cumulative conditions. Conditions should be updated to reflect project-specific circumstances.

The department continues to coordinate with the San Francisco Municipal Transportation Agency on the applicability of some construction traffic management plan conditions post-EIR, given the nature of conditions that change by the time of construction. Mitigation and improvement measures must be be monitored successfully.

The following lists the typical types of measures that can mitigate or lessen transportation impacts from project construction activities:

Potentially Hazardous Conditions, Accessibility, and Public Transit Delay

Coordinated Construction Traffic Management Plan

The project sponsor shall participate in the preparation and implementation of a coordinated construction traffic management plan that includes measures to reduce hazards between construction-related traffic and pedestrians, bicyclists, and transit vehicles. The coordinated construction traffic management plan shall be prepared in coordination with other public and private projects within a one block radius that may have overlapping construction schedules and shall be subject to review and approval by the Transportation Advisory Staff Committee. The plan shall include, but not necessarily be limited to the following measures:

» **Construction Staging**– The project sponsor shall provide a design for the construction staging zone on INSERT NAME OF Street that allows for front-in access with final access to the INSERT NAME OF Street staging area to be determined by the approved construction management plan.

» **Restricted Construction Truck Access Hours** – Limit truck movements and deliveries requiring lane closures to occur between 9 a.m. to 4 p.m., outside of peak morning and evening weekday commute hours.

» **Construction Truck Routing Plans** – Identify optimal truck routes between the regional facilities and the project site, taking into consideration truck routes of other development projects and any construction activities affecting the roadway network.

» **Coordination of Temporary Lane and Sidewalk Closures** – The project sponsor shall coordinate lane closures with other projects requesting concurrent lane and sidewalk closures through the Transportation Advisory Staff Committee and interdepartmental meetings process above, to minimize the extent and duration of requested lane and sidewalk closures. Lane closures shall be minimized especially along transit and bicycle routes, so as to limit the impacts to transit service and bicycle circulation and safety.

» **Proposed Project Construction Updates for Adjacent Businesses and Residents** – Provide regularly updated information regarding project construction, including a construction contact person, construction activities, duration, peak construction activities (e.g., concrete pours), travel lane closures, and lane closures (bicycle and parking) to nearby residences and adjacent businesses through a website, social media, or other effective methods acceptable to the SFMTA.

» **Maintain Local Circulation** – Place signage for all vehicle, bicycle, transit, and pedestrian detours. Reimburse the SFMTA for temporary striping and signage during project construction. Provide a traffic control officer to direct traffic around the project site, if determined necessary by the SFMTA. Preserve pedestrian access during construction detours.