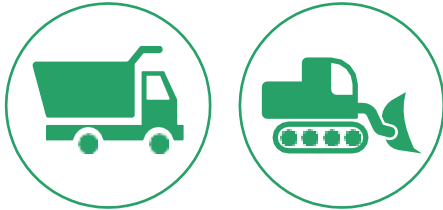


TRANSPORTATION IMPACT ANALYSIS GUIDELINES

CONSTRUCTION MEMORANDUM ATTACHMENTS





San Francisco
Planning

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.

Existing and Proposed Project Figures and Table Examples

Introduction

AttachmentB 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.

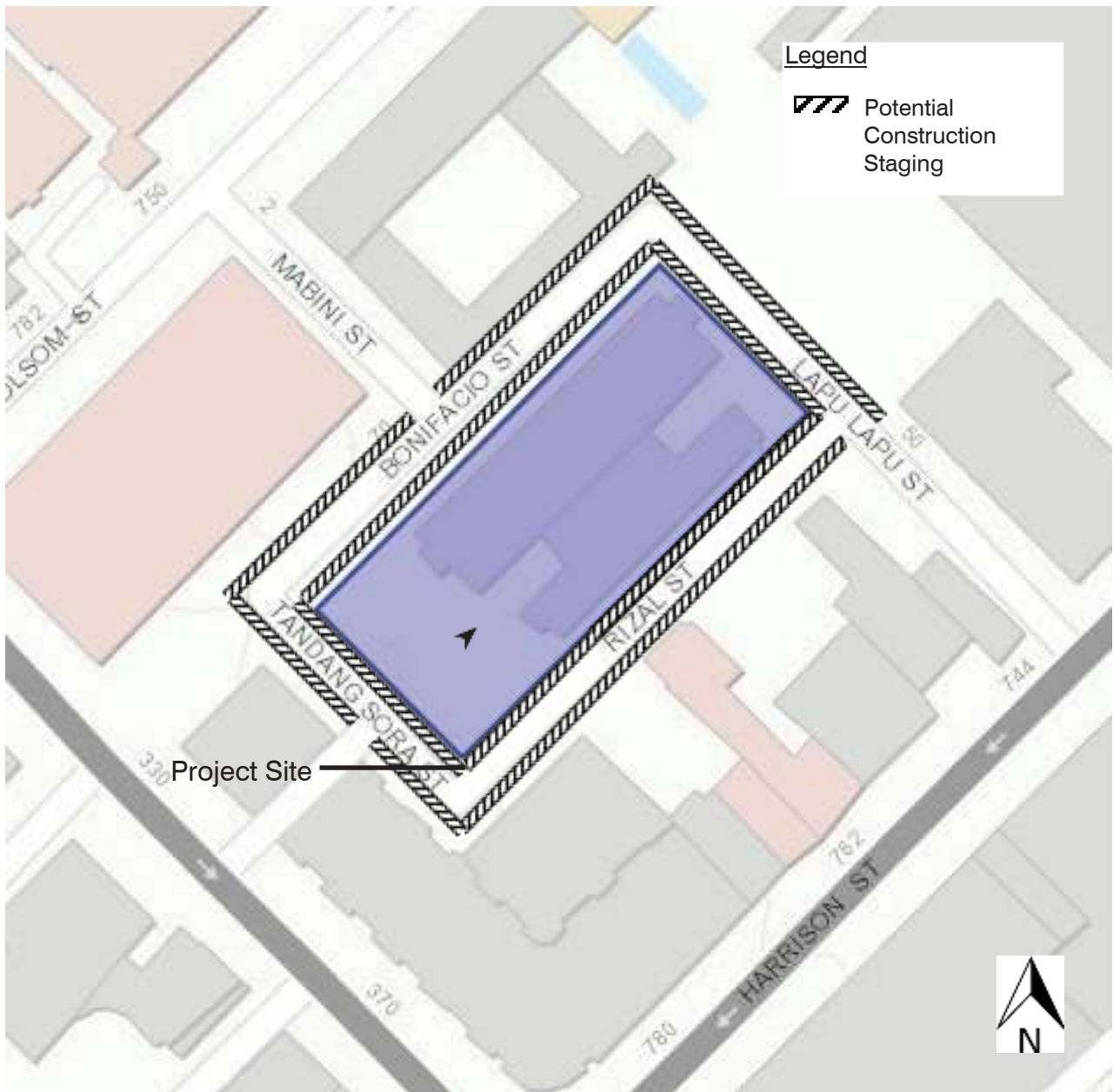


FIGURE 2

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.

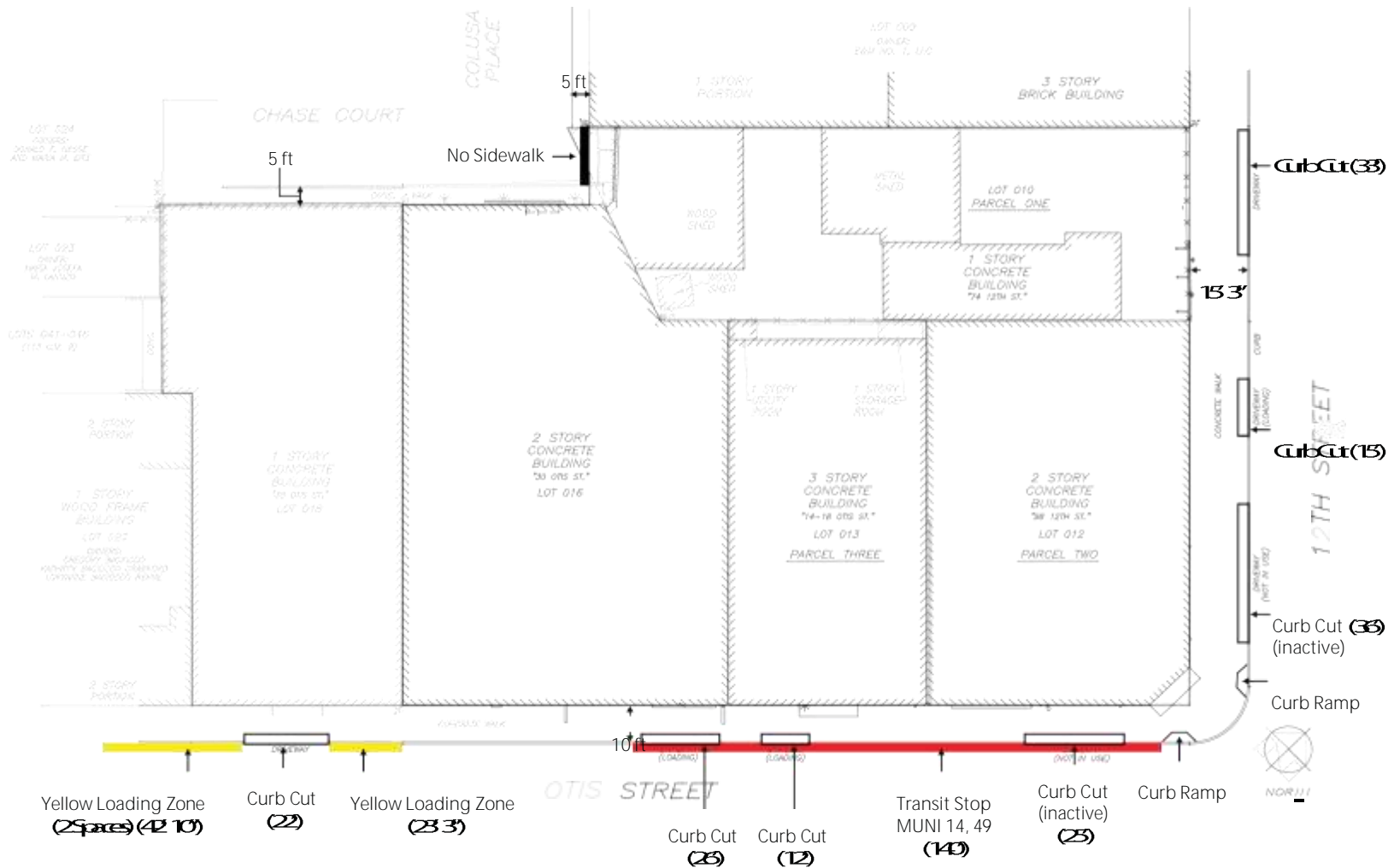


FIGURE 3

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.

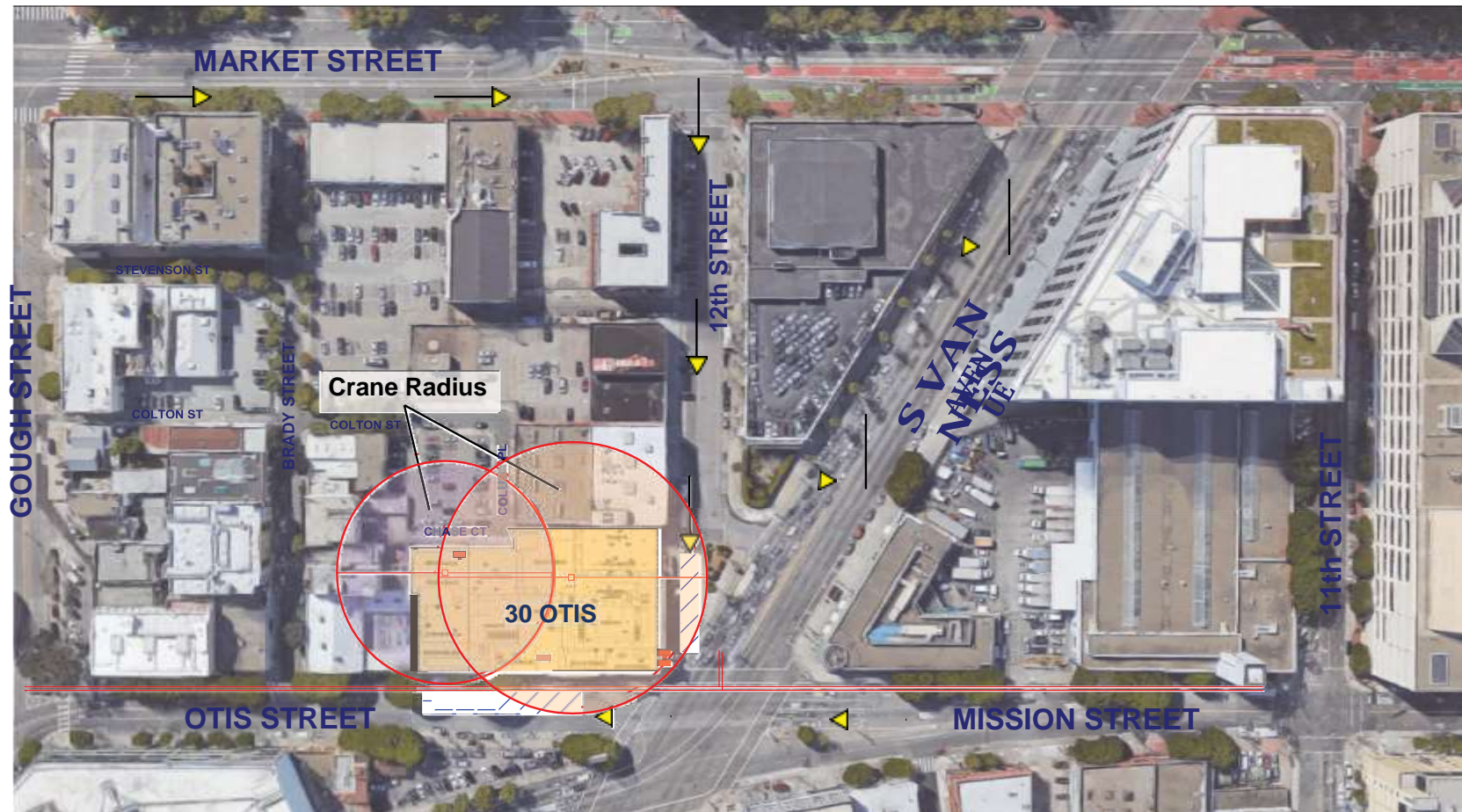


FIGURE 4

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.

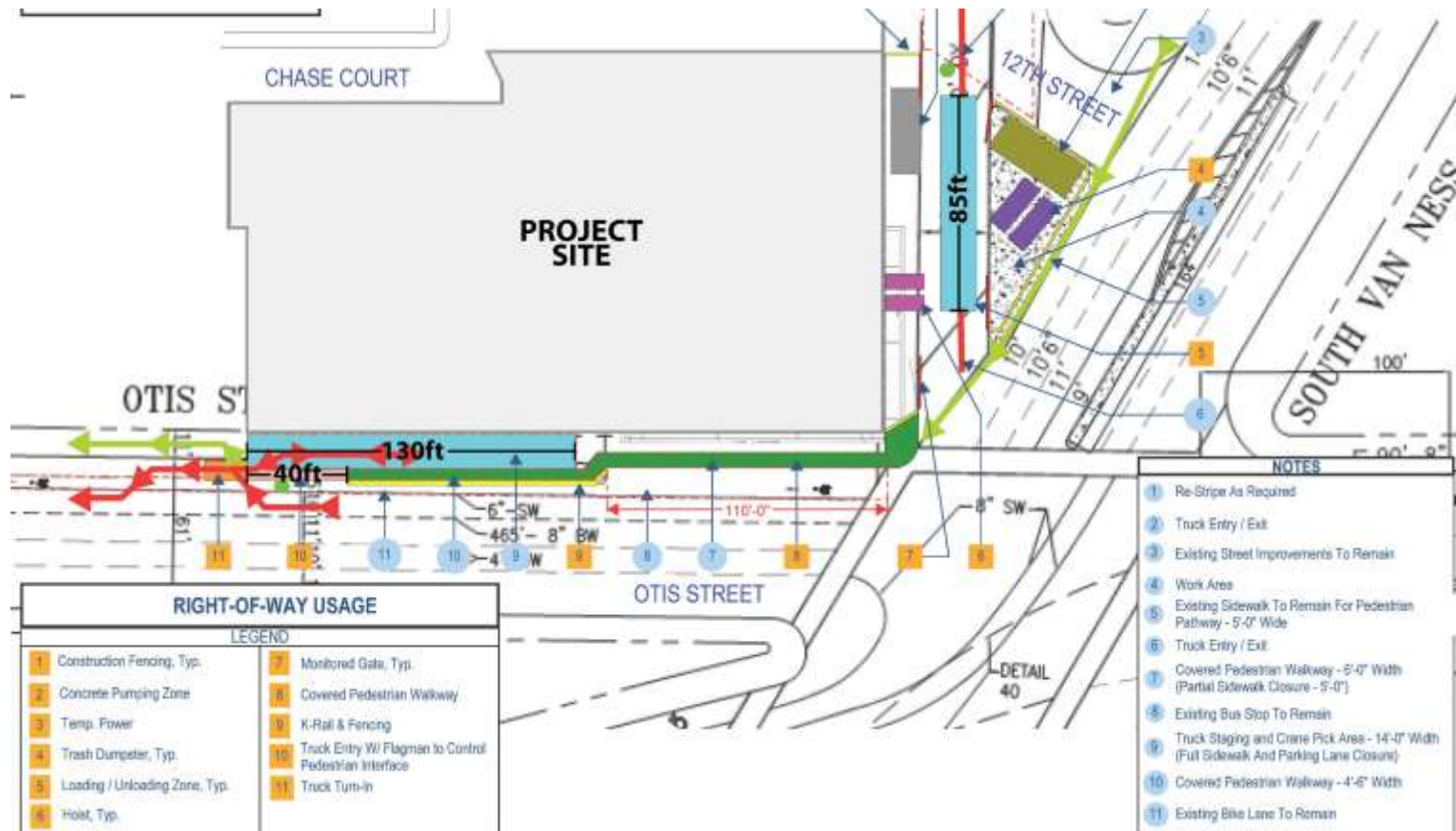


FIGURE 5

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.

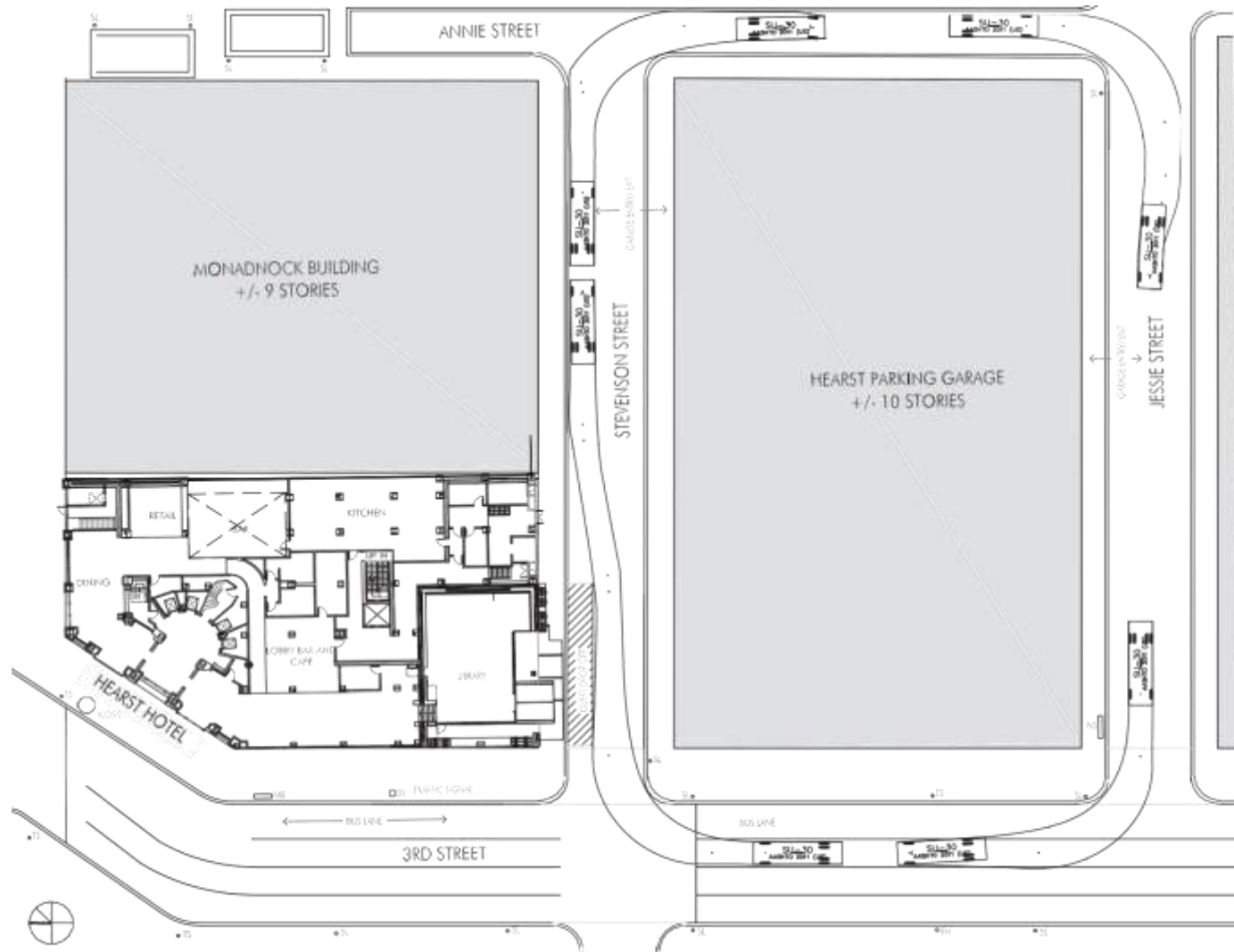
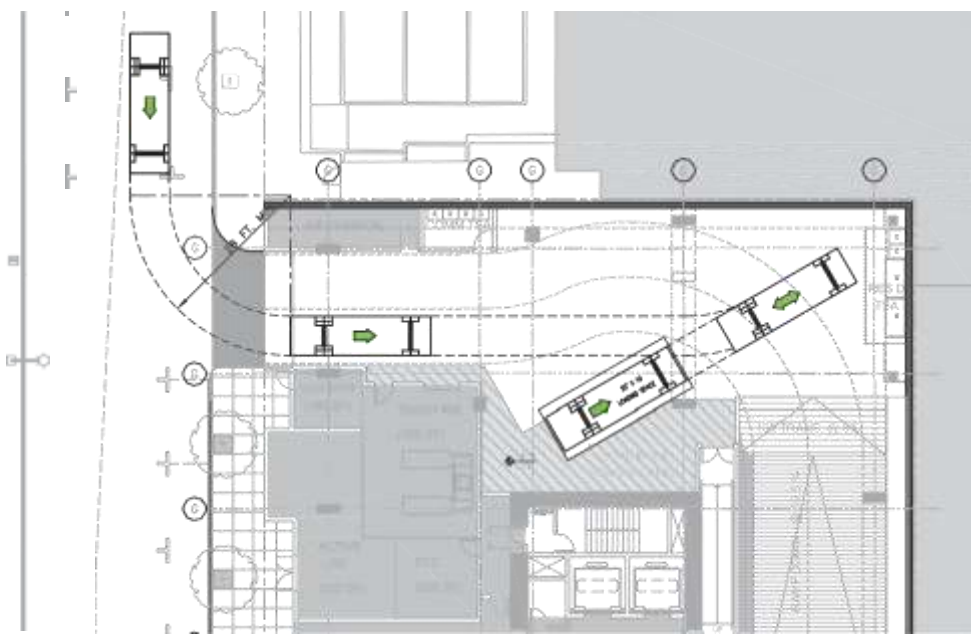


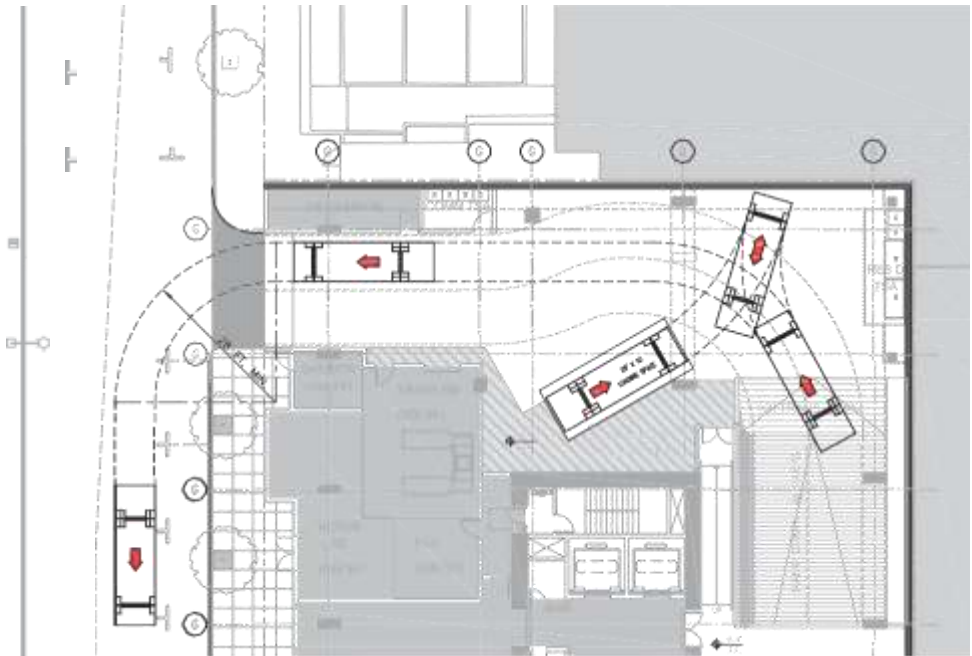
FIGURE 6

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
SAE V13=10

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	2	242 hp	Diesel	2
									Dozer	2	205 hp	Diesel	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	intermittent	5 ton	Diesel	1
									Manlift 1	9	3 ton	Elect from Grid	1
									Manlift 2	8	1.5 ton	Elect from Grid	1
									Forklifts	15	20 hp	Diesel	2
Exterior Finishing	July 22, 2019	March 23, 2020	8	17	5	55	35	Not provided	Manlift 1	In base building	3 ton	Elect from Grid	1
Manlift 2													
Interior Finishing	June 10, 2019	July 27, 2020	13.5	20	10	120	100	Not provided	Manlift 1	5	3 ton	Elect from Grid	1
									Manlift 2	4	3 ton	Elec from Grid	1
									Forklifts	8	1.5 ton	Diesel	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.

Construction Plan and Phasing

Attachment C provides the CalEEMod² 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 CalEEMod 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>

Mitigation and Improvement Measures

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

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.

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 CTMP 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.

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

to be defined in the Construction Management Plan and, if necessary, in the Coordinated Construction Management Plan, a regular email notice shall be distributed by the project sponsor that shall provide current construction information of interest to neighbors, as well as contact information for specific construction inquiries or concerns.

Rincon Hill Plan

No applicable mitigation or improvement measures were identified.

Market and Octavia Neighborhood Plan

No applicable mitigation or improvement measures were identified.

Eastern Neighborhoods Rezoning and Area Plan

No applicable mitigation or improvement measures were identified.

Visitacion Valley Redevelopment Plan

No applicable mitigation or improvement measures were identified.

Western SoMa Community Plan

No applicable mitigation or improvement measures were identified.

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 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.