



SAN FRANCISCO PLANNING DEPARTMENT

MEMO

Appendix N Construction Memorandum

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To: Record No. 2015-012094GEN
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RE: **Transportation Impact Analysis Guidelines Update, Construction**

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INTRODUCTION

This memorandum updates the prior guidance provided in the Transportation Impact Analysis Guidelines for the transportation-related construction¹ 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 access² 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 accommodate⁴ 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 barrier⁵ 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.