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 K
Loading Memorandum

Date:	February 14, 2019
Case No:	2015-012094GEN
Prepared by:	Colin Clarke, Lana Wong, & Dan Wu
Reviewed by:	Manoj Madhavan and Wade Wietgrefe
RE:	**Transportation Impact Analysis Guidelines Update, Loading**

INTRODUCTION

This memorandum updates the prior guidance provided in the Transportation Impact Analysis Guidelines for the loading topic. The department considers "loading" as a topic for purposes of environmental review to include loading and unloading of goods, services, and passengers. 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., public transit, people bicycling) 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 loading 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)

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. Attachment A of this memorandum includes examples of figures that illustrate how to graphically represent loading conditions.

SIGNIFICANCE CRITERION

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. As it relates to loading, 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 criterion to evaluate that question: A project would have a significant impact if:

1A) it would result in a loading deficit, and
1B) the secondary effects would:
create potentially hazardous conditions for people walking, bicycling, or driving; or
substantially delay public transit.

EXISTING AND EXISTING PLUS PROJECT

Methodology

This section describes the typical methodology required to address the significance criteria. The methodology section identifies the collection, generation, and approach to analyze data. The department will determine 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 loading demand and the typical methodology for evaluating existing and existing plus project 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 A of this memorandum for examples of loading-related figures).

Period

For loading demand, the period will differ depending upon the land use and type of loading activity. The following periods assume residential, office, and commercial land uses and commercial or passenger loading. For other land uses and other loading activities, the department will determine the appropriate period. For example, tourist and entertainment uses may require a period during different hours for passenger loading.

For commercial vehicle loading, such as freight and delivery service vehicles[1], the weekday mid-day is the average peak period (Tuesday, Wednesday, or Thursday from 11 a.m. to 2 p.m.).

For passenger vehicle loading[2], consisting of private and for-hire vehicles, the weekday average peak period is (Wednesday, Thursday, or Friday, p.m. peak period is from 5 p.m. to 8 p.m.[3]) However, for child care facilities and schools, the weekday average peak period is the (Tuesday, Wednesday, or Thursday) a.m. peak period and p.m. peak period of the use.[4]

For shuttle loading, the department will determine the period on a project-by-project basis based on the project's proposal (e.g., hours of operation and frequency of the route).

Existing Conditions

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

Counts

The methodology should include counts of vehicles associated with people loading (e.g., commercial (freight and delivery service), passenger, and shuttle loading instances[5]). 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 from the 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 these counts have not changed substantially under existing conditions (e.g., due to lack of new development, circulation changes, or travel patterns). [text, table]

Visual Analysis

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, and a description of the weather conditions. The site visit should also include commercial (freight and delivery service) loading, passenger loading, and shuttle bus loading instances within the study area, including observations of loading instances in the travel lane. This observation should associate to the extent feasible, existing instances of loading with the land uses or buildings in the study area. In addition, the site visit must record any existing potential or observed hazards at locations in the study area between loading vehicles and other modes of travel and delays to public transit as a result of loading activity.

In addition to a site visit, the methodology may also include a recorded (e.g., camera) observation of loading zones or spaces for particular locations in the study area. The methodology may record snapshot observations at various increments (e.g., every few minutes) for commercial vehicle loading or continuously during the study period for commercial and passenger vehicle loading. For large projects

---

[1] Delivery service typically refers to pick-up trucks, light trucks or vans such as box trucks, moving trucks, or vans, etc. (e.g., SU-30 i.e. a wheel base between 22 to 30 feet). The larger end of the light truck vehicle type may occupy approximately 30-40 linear feet, which includes the space for loading and maneuvering. Large freight trucks refers to heavy trucks with wheelbases length of 40 feet or more, whose total length may approach 65 feet, 14 feet in height and 8.5 feet in width (e.g., WB-40 and larger up to WB-65).

[2] Passenger vehicle may typically occupy 22 linear feet, which includes the space for loading and maneuvering. When observing passenger vehicles in the field it shall be noted in cases where deliveries are made via passenger vehicles.

[3] SFCTA, *TNCs Today*, June 2017, Figures 5 and 6 show Friday as the peak day of the entire week for for-hire vehicles.

[4] San Francisco Planning Department, *Transportation Review of Childcare and Schools Memorandum,* June 2018

[5] If an observed passenger loading instance is over 10 minutes, the methodology shall consider it as short term parking.

and atypical land uses, the methodology may also include 24-hour observations. These recorded observations could capture the following:

- Number of loading instances by loading activity type and vehicle type
- Loading activity and occupancy of loading zones, including by vehicle type
- Loading activity outside of loading zones, including vehicle type
- Average loading activity duration by activity type
- Potential or observed hazards at locations in the study area between loading vehicles and other modes of travel or delays to public transit as a result of loading activity

See Attachment A for a sample loading observation form.

Street Design Characteristics

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

- Number and directionality of travel lanes by type (e.g., mixed-flow, parking, bicycle, transit-only, one-way, two-way, etc.) [text, figure]
- Location of and type of traffic control devices at intersections (e.g., stop signs, signals, crosswalk, countdown signals, audible warning devices) [text, figure]

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

- Width of travel lanes [text, figure]
- Size of blocks [text, figure]
- Data regarding the location and causes of collisions within past five years [text, figure]
- Nearby public transit stations/stops, amenities (e.g., shelters), and service information (e.g., frequency) [text, figure, table]
- Day and time restrictions [text, figure]
- Parking or loading restrictions (e.g., tow away zones, parking and loading hour restrictions, signs restricting double-parking in commercial areas) [text]
- Parking pricing rates (e.g., hourly, daily, weekly, monthly, including ranges)

Existing plus Project Conditions

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

Loading Demand and Travel Demand Analysis

Estimate[6] the number of commercial (freight and delivery service), passenger, and shuttle loading demand from the project. [text, table] In addition, distribute and assign the project's vehicle trips to roadways, intersections, loading zones, and driveways to the extent applicable. [text, figure]

For most projects, calculate the peak hour throughout the average peak period. However, if the project site is located along a non-center running public transit rapid network route or unprotected bicycle facility (e.g., no safe-hit post, parking/loading in between, or raised sidewalk), then calculate demand for the peak 15 minutes of the average peak period.

Refer to the travel demand memorandum for additional guidance on calculating freight and delivery loading and passenger loading demand.

[6] Refer to Travel Demand memo for estimating commercial (freight and delivery service), and passenger loading demand.

Turning Movement and Off-Street Loading Facility Dimensions

Provide turning movement(s) of vehicles entering and exiting on- and off-street loading facilities, as applicable, to assess the ability of the loading facilities to accommodate the loading demand. The turning movements will use the vehicle type anticipated to access the loading facility (e.g., WB-40, SU-30) [text, figure]. In addition, assess whether the loading facility can physically accommodate the anticipated vehicle type (i.e., length, height, width) [text, figure].

Demand versus Supply

Assess to the extent applicable, including accounting for time-of-day restrictions, demand-responsive pricing, directionality of the project frontage roadways, distance and type of intersections in relation to the project site, parking and loading restrictions, and overlap of demand for mixed uses:

- The ability of off-street or on-street facilities to accommodate the average peak period of loading demand for commercial (freight and delivery service), passenger, and shuttle loading, including accounting for turning movement and dimension methodology [text, table]
- The location of the project in relation to on-street loading facilities, alleys, and ADA curb ramps [text, figure]
- For unmet on-site loading demand, the ability of on-street or off-street (if shared) loading facilities in the study area to conveniently accommodate the average peak period of loading demand for commercial (freight and delivery service), passenger, and shuttle loading [text, figure, table]

Potentially Hazardous Conditions

Use the existing conditions, including of geographic areas with characteristics as that would exist with implementation of the project, travel demand analysis, and demand versus supply analysis to determine if the project would cause secondary loading impacts related to potentially hazardous conditions. The methodology should assess to the extent applicable:

- The potential for unmet loading demand to occur within sidewalks or crosswalks, bicycle, transit facilities, or travel lanes [text]
- The number of people walking, bicycling, or driving in the respective facilities [text, figure]
- The sightlines and speed of vehicle trips in relation to the travel lanes [text]

Potential Public Transit Delays

Use the existing conditions, including of geographic areas with characteristics as that would exist with implementation of the project, travel demand analysis and demand versus supply analysis to determine if the project would cause potential delays to public transit. The methodology should assess to the extent applicable:

- The potential for unmet loading demand to occur within travel lanes used by public transit [text]
- The location of the project in relation to public transit facilities and amount of public transit service at those facilities [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 conditions. This section addresses the typical approach for

the impact analysis and provides more details related to loading impacts. The impact analysis section should present a format [[text, figure, or table]] consistent with earlier sections of this memorandum for easy comparison.

The impact analysis must address whether the project would result in loading impacts. Too many factors mentioned in the methodology affect loading conditions. Instead, the department will determine significance on a project-by-project basis. Refer to the guidelines for direction on what to typically consider when conducting the existing plus project impact analysis and how to present the findings.

Demand versus Supply

The first step in the analysis is to determine whether the project would accommodate the anticipated loading demand during the peak periods and, if not, whether study area loading facilities can accommodate the anticipated loading demand. Calculate average loading demand throughout the average peak period. In some cases, peak period of loading activity types may overlap. The supply shall consider simultaneous loading of different types. The following examples are some of the circumstances that may result in a project not accommodating the anticipated loading demand. This is not an exhaustive list of circumstances, under which, a project would not meet its loading demand:

- A project would include no loading facilities and no existing convenient loading facilities exist
- A project would include loading facilities, but the anticipated loading demand exceeds the supply
- A project would include loading facilities to meet the anticipated loading demand, but the loading facilities are inconveniently located for the intended user (e.g., person driving a commercial vehicle to a project land use) and thus those people would likely not use those loading facilities
- A project would include an off-street loading facility, but the design of the facility would not accommodate the intended user (e.g., person driving a truck cannot physically make the turn or fit the truck within the facility) and thus those people cannot use those loading facilities
- A project would include an off-street turntable[7] for vehicles using the off-street loading facility, but the project does not include a operation and maintenance plan, and thus the turntable could become inoperable
- A project would propose on-street loading facilities to meet the anticipated loading demand, but the permitting agency would be inclined not to grant the on-street loading facility

If the project accommodates the anticipated loading demand during the peak period, then the analysis is complete.

If the project does not meet the anticipated loading demand, then the impact analysis must address whether the project would create potentially hazardous loading conditions for people walking, bicycling, or driving (e.g., as a result of loading vehicles blocking facilities used by people) or would create potential delays to public transit. The subsections below provide specific examples of the types of circumstances that could potentially result in a hazardous condition impact or public transit delay impact under existing plus project conditions.

[7] A turntable typically allows vehicles to enter the off-street facility forward facing and exit the off-street facility forward facing because the turntables rotates the vehicle.

Potentially Hazardous Conditions

The department provides examples of some of the circumstances that may result in potentially hazardous conditions associated with 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 that could result in potentially hazardous conditions that the department did not list in the other memorandums:

- A project would result in a substantial amount of loading activity in sidewalks or crosswalks, or bicycle facilities used by a substantial number of people walking or bicycling (e.g., based on counts or projections), respectively
- A project would result in a substantial amount of loading activity in travel lanes on a slope that may obstruct sightlines used by a substantial number of people driving (e.g., based on counts or projections)

Public Transit Delay

The department provides examples of some of the circumstances that may result in potential delays to public transit in the public transit memorandum of these guidelines. Below is a non-exhaustive list of an example circumstance that could result in public transit delay that the department did not list in the public transit memorandum:

- A project would result in a substantial amount of loading activity in travel lanes used by a substantial number of people riding public transit (e.g., based on Muni service type designation)

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. The cumulative section in transportation studies must present (text, figure, or table) the applicable elements included in the methodology.

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 consider when conducting the cumulative impact analysis and how to present the findings. The same examples of the types of circumstances that could result in a potential hazardous condition impact or public transit delay that were provided for existing plus project conditions apply here, except for cumulative conditions.

Demand versus Supply

The first step in the cumulative analysis is to determine whether the project, in combination with reasonably foreseeable cumulative projects within the study area, would accommodate the anticipated loading demand during the peak periods and, if not, whether study area loading facilities can accommodate the anticipated loading demand. The same examples of projects not accommodating the anticipated loading demand as provided for existing plus project conditions apply here, except for cumulative conditions.

If the cumulative projects would not result in a substantial loading deficit, then the analysis is complete.

Potentially Hazardous Conditions and Public Transit Delay

If the project does result in a loading deficit, then the impact analysis must address whether the project would create secondary effects from loading. The department provides examples of some of the circumstances that may result in potentially hazardous conditions or public transit delay associated with different ways people travel (e.g., people walking, bicycling, driving, or riding public transit) in the applicable transportation topic memorandum of these guidelines and under the Existing Plus Project and Cumulative Impact Analysis subsections.

OTHER

The guidance provided in this memorandum assumes a land use development project located outside of an area plan that requires a transportation study. This section describes the type of additional or different information that may be necessary to address loading 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 for which an environmental impact report (EIR) was certified, pursuant to CEQA Guidelines section 15183, the assessment must limit its analysis to such conditions specified in that section. The 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 B of this memorandum identifies mitigation and improvement measures from area plan EIRs related to loading. The department will list loading-related mitigation and improvement measures from future area plan EIRs in Loading Memorandum Attachment B once the Planning Commission or Board of Supervisors certifies those EIRs.

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 loading impacts for project description, methodology, and impact analysis. For area plans that also include infrastructure changes (e.g., street redesigns), refer to the Infrastructure Project subsection below 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 of the project description details described herein. However, the project description may include policies that may relate to the methodology and impact analysis (e.g., curb cut restrictions). One example of a programmatic project feature of an area plan's project description may include an overall loading strategy description that identifies and prioritizes certain streets and locations where various types of loading should occur. Another example of a project description programmatic feature would be planning code revisions that address loading.

Methodology

The assessment will typically use the same methodology identified herein, except the methodology will use a larger geographical study area and require less site-specific information (e.g., driveway locations at each site) except to document circumstances where vehicles may not be allowed (e.g., curb cut restrictions). While an individual project may not require some elements listed in the Existing and

Existing plus Project Methodology subsection, area plans typically will include all of these elements. The department should select streets and intersections most impacted by the area plan to represent the impacts that may occur at other locations, for analysis. Furthermore, the methodology would extrapolate loading data collected at representative locations or land uses to the entire study area, and based on this data collection, qualitatively assess the ability of the proposed streetscapes changes to accommodate loading activities.

Impact Analysis

For analysis of area plans, assess the projected amount of growth and infrastructure changes associated with the rezoning within the area plan boundaries. The analysis of demand versus supply and the secondary impacts of potentially hazardous conditions and potential delays to public transit should be similar to that described under the Existing plus Project and Cumulative Impact Analysis subsections. Examples of circumstances that would result in significant impacts are described under the Existing plus Project 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 private development projects. The analysis typically does not require trip generation analysis as infrastructure projects usually do not generate trips.[8] However, some infrastructure projects may induce trips, such as the addition of through lanes on existing or new highways or streets.[9] In addition, infrastructure projects may generate short-term trips due to construction workers and vehicles accessing the project site.

Project Description

The project description must describe the typical physical, additional physical, and programmatic features for existing and project conditions, 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 closures and changes to color curb zones.

Impact Analysis

The analysis of potentially hazardous conditions and potential delays to public transit should be similar to that described under the Existing plus Project and Cumulative Impact Analysis subsections.

<u>Demand versus Supply</u>

Infrastructure projects are unlikely to generate a loading demand, as they typically are not associated with a land use change or growth inducement and would not generate trips. However, should the infrastructure project generate trips or remove loading, the first step in the analysis is to determine

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

[9] Generally, minor transportation projects would not result in additional trips. Examples include, but are not limited to, rehabilitation, maintenance, and repair of transportation infrastructure; installation, removal or reconfiguration of non-through traffic lanes and traffic control devices; removal of through lanes; installation of traffic calming measures and wayfinding; removal of on- or off-street parking. Governor's Office of Planning and Research, Technical Advisory on Evaluating Transportation Impacts in CEQA, November 2017.

whether the infrastructure project would accommodate the anticipated loading demand and, if not, whether the study area loading facilities can accommodate the anticipated loading demand. If the project does not meet the demand at the project site or study area loading facilities, then determine if the loading deficit is substantial. The following examples are some of the circumstances that may result in a project not accommodating the anticipated loading demand. This is not an exhaustive list of circumstances, under which, a project would not meet its loading demand:

- A project would permanently remove a substantial number of loading spaces in a location without remaining convenient loading facilities
- A project would include a geometric design feature that render the use of a substantial number of existing loading facilities infeasible to use by the intended user (e.g., turning movements) in a location without remaining convenient loading facilities

If the project would not result in a substantial parking deficit, then the analysis is complete.

Potentially Hazardous Conditions and Public Transit Delay

If the project does result in a loading deficit, then the impact analysis must address whether the project would create secondary effects from loading. The department provides examples of some of the circumstances that may result in potentially hazardous conditions or result in public transit delay associated with different ways people travel (e.g., people walking, bicycling, driving, or result in transit delay) in the applicable transportation topic memorandum of these guidelines and under the Existing Plus Project and Cumulative sections Impact Analysis subsections.