

TRANSPORTATION IMPACT ANALYSIS GUIDELINES

APPENDIX P SUPPLEMENTARY GUIDANCE



San Francisco
Planning



SAN FRANCISCO PLANNING DEPARTMENT

MEMO

Appendix P Supplementary Guidance Memorandum

Date: February 14, 2019
To: Record No. 2015-012094GEN
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RE: **Transportation Impact Analysis Guidelines Update, Supplementary Guidance**

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INTRODUCTION

This memorandum provides supplementary guidance for situations that may occur during the development of a project's transportation analysis. The memorandum is intended as supplementary guidance already provided in the California Environmental Quality Act (CEQA) and the San Francisco Planning Department's Transportation Impact Analysis Guidelines and Environmental Review Guidelines. Situations are provided below along with information for how to address.

The organization of the memorandum is as follows:

- 1) Existing Land Use/Trip Credits
- 2) Near-term Baseline
- 3) Cumulative
- 4) Identification of Mitigation Measures
- 5) Alternatives
- 6) Variants
- 7) Compliance/Informational Analysis
- 8) Changes to Guidelines
- 9) Uncertainties

1. EXISTING LAND USE/TRIP CREDITS

Pursuant to the guidance outlined below, it is sometimes appropriate to use trip credits in a transportation analysis. Trip credits should generally be based on actual observed data (e.g. counts and intercept surveys), not on guidelines rates and mode splits. The department should confirm all trip credits prior to collection of data. Net new trips would be derived as follows:

Calculate additional trips for the project (for daily and p.m. peak hour)
– existing observed trips (from actual counts)
= net new trips

Some cases may warrant taking trip credits for historic conditions. Pursuant to CEQA Guidelines section 15125, the lead agency may define existing conditions by referencing historic conditions or conditions expected when the project becomes operational, or both, that are supported with substantial evidence. The intent is to provide the most accurate picture possible of the project's impacts when it becomes operational.

Use of trip credits for historic conditions must be developed and documented in consultation with the department.

The following general categories are intended to provide guidance regarding trip credit application:

Commercial: For project sites that are not vacant or were occupied until recently, adjustments to calculated daily and p.m. peak hour project-generated additional person trips may be made to account for the existing activities on the project site. Whenever feasible, any such adjustment should be based on conducting counts of actual existing commercial trip-making at the project site per specific direction from department staff. Unless surveys of existing modal splits and distributions are available or conducted, appropriate modal splits and distributions should be applied for the geographic area in which the project site is located in order to estimate net changes for each mode (e.g. vehicles, transit, walking, or other). Whenever it would be impractical to conduct actual counts of existing commercial trip making activity at a project site, procedures for estimating and netting out existing trips shall be developed in consultation with department staff.

Note that that any net new expansion of the existing commercial use under a project shall not be given trip credit.

Residential: Applying trip credits for residential uses may be appropriate if a project proposes to remove existing residential uses. In cases of existing or recently discontinued residential uses proposed to be replaced by any type of new project, department residential trip rates and appropriate modal split/distribution census tract data based should be applied to estimate existing trips. Net new trips should, in turn be derived by subtracting existing trips from new trips estimated to be generated by the project.

Note that any net new expansion of the existing residential use (measured in terms of bedrooms per dwelling units) shall not be given trip credit.

Parking: If a project proposes to replace an existing or recently discontinued parking facility, netting out existing trips linked to the parking facility is generally not appropriate. Some exceptions to this rule may be in circumstances when a project would replace the underlying land use which accounts for users of the associated parking facility, or for the situations described in the vehicular parking and vehicle miles traveled memoranda related to accounting for variables such as site-specific transportation demand management measures.

The department acknowledges that circumstances may arise that do not fit into one of the aforementioned categories; in these cases, you should consult early with the department. Refer to Attachment A for examples of project analyses which have applied trip credits.

2. NEAR-TERM BASELINE

In some circumstances, it may be appropriate to analyze a near-term (also known as adjusted, future, or modified) baseline¹ as the existing plus proposed project impact analysis may not accurately reflect the conditions that will exist at the time the project's impacts actually occur. Therefore, an existing plus project analysis could be misleading or without informative value to the public and decision makers and analyzing a future baseline is warranted to clearly facilitate understanding of the project's impacts.

At the time analysis commences, near-term baseline conditions shall only include development or infrastructure projects that are under construction; or infrastructure projects that are approved (defined as obtaining all relevant approvals by governing entities/bodies) AND funded. For cases where projects are approved AND partially funded, the planning department will determine on case-by-case basis if analysis of a near-term baseline is appropriate. Examples of circumstances for applying a near-term baseline include projects that need to reflect designs of roadway restriping and curb modification projects or under construction development driveway locations. As a point of clarification, analysis of a near-term baseline is a different than cumulative scenario. A cumulative scenario analyzes a combination of the proposed project and the impacts of other projects. A near-term baseline analysis addresses the project's operational impacts alone, assuming the completion of another project.

If using a near-term baseline, the transportation analysis requires a description of existing conditions. The near-term baseline conditions section must list the development projects and infrastructure projects included in the near-term baseline conditions and explain the rationale for using the near-term baseline condition. The section then must describe the anticipated near-term baseline conditions by transportation topic (e.g., walking, bicycling, public transit²), using reliable projections to the extent applicable, if the conditions will change between existing and near-term baseline conditions. The impact analysis will then use the near-term baseline conditions for a comparison of project impacts, as opposed to existing conditions. Refer to Attachment B for examples of project analyses which used a near-term baseline condition.

3. CUMULATIVE

Refer to methodology – cumulative in the transportation impact analysis guidelines for a discussion regarding the typical cumulative methodology. As described there, for future year VMT estimates, traffic volumes, and transit service and ridership, the methodology typically relies on projections of travel demand model outputs, such as the San Francisco County Transportation Authority San Francisco chained activity modeling process. Attachment C of this memorandum includes the documentation (e.g., model inputs) for prior modeling versions. The department will update the attachment as new documentation becomes available for future modeling versions, typically every one to four years (i.e., frequency of major new area plans or projects). For those topics that rely on modeling outputs, the cumulative methodology should cite to the relevant prior modeling version instead of describing inputs in detail.

¹ Projects currently undergoing construction at the start of environmental analysis are considered part of the project's existing condition and full buildout of the project should be assumed as part of the near-term baseline condition.

² The near-term baseline condition should use the latest SFMTA fleet plan for assumptions regarding transit service by applicable near-term baseline year.

Also described in the methodology – cumulative in the transportation impact analysis guidelines, the cumulative methodology must still adjust future year projections, street conditions, or volumes based on reasonably foreseeable projects, typically using a list-based approach, to the extent applicable. The methodology must document rationale for adjustments and describe changed conditions, in consultation with the department.

4. IDENTIFICATION OF MITIGATION MEASURES

If a project results in a significant impact, the analysis must identify if feasible³ mitigation measures exist to reduce impacts. The identification of transportation mitigation measures may involve several steps. The steps must follow CEQA Guidelines section 15126.4(a) and explore, in order, the various types of mitigation defined in CEQA Guidelines section 15370 to the extent applicable. As avoidance and minimization mitigation measures are the most common types of mitigation measures, the following is limited to those types.

The analysis must determine if the project can avoid the impact altogether (e.g., by relocating a driveway). If the impact can be avoided and if the feature is inherent to the project for which the sponsor agrees to implement, the sponsor can update the project description to include this feature. The impact analysis will then reflect the revised project and the analysis will not require mitigation measures.

If the project cannot avoid the impact through implementation of a feature⁴ or the avoidance does not reduce the impact to less-than-significant levels, then the analysis must identify mitigation measures that minimize impacts. Sometimes implementation of mitigation measures falls under the jurisdiction or purview of governmental agencies other than the department (e.g., San Francisco Municipal Transportation Agency (SFMTA) or California Department of Transportation (Caltrans)), requires the approval of private stakeholders, or requires more detailed design/engineering that may come at a later phase. Examples of such measures include the design and construction of crosswalk signals to mitigate a potentially hazardous condition for people walking, or funding of transit enhancements to mitigate substantial delays to public transit.

Feasible mitigation measures only reduce significant impacts if all parties responsible for the mitigation measure can commit to the implementation of the measure. If the analysis shows that for some reason the implementation of the mitigation measure is uncertain or some of the parties cannot commit to their implementation (e.g., another government entity cannot commit funding), then the impact must remain significant.

As it relates to mitigation measures, the analysis must follow steps 2 through 4 described under impact analysis – existing plus project, construction in the transportation impact analysis guidelines.

If a measure(s) cannot reduce impacts to less-than-significant levels, describe the extent to which the measure does minimize the impacts. In addition, identify other mitigation measures, if available, summarize the process for evaluating those other measures and the reasons for adopting or rejecting them.⁵

³ Pursuant to CEQA Guidelines section 15364, “feasible” means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors.

⁴ To the extent applicable, the alternatives chapter in an environmental impact report should include this feature or document the reasons for its rejection in the alternatives considered but rejected section.

⁵ *Ibid.*

In some instances, the department may request a standalone transportation mitigation measures memorandum. That memorandum will include the same information as included in the analysis, but with more detail. The department may require another government agency to review or prepare the memorandum. Preparation and review of this memorandum may lengthen the transportation review process. Circumstances where the department may request a memorandum include, but are not limited to:

- A mitigation measure could reduce significant transportation impacts, but it is rejected by the city or sponsor as infeasible. The department may request a memorandum if the rejection requires extensive documentation that the analysis can summarize.
- A mitigation measures requires substantial quantitative analysis that the analysis can summarize (e.g., to show whether the measure reduces impacts or has impacts of its own).

Refer to Attachment D for an example of a sample transportation mitigation measures memorandum.

Upon adoption of mitigation measures, the department will forward final applicable measures to the SFMTA and maintain a database of adopted mitigation measures. Refer to changes to guidelines below regarding the process for removing adopted mitigation measures.

5. ALTERNATIVES

CEQA only requires alternatives in environmental impact reports (EIRs). Alternatives to the project must feasibly attain most of the basic objectives of the project, but would avoid or lessen the project's potentially significant physical environmental impacts (CEQA Guidelines section 15126.6). In some circumstances, an EIR may analyze alternatives at equal level of detail (e.g., joint CEQA/National Environmental Policy Act document). In most circumstances, EIRs include an alternatives chapter. The chapter shall describe the approach to developing and conducting an initial assessment of the potential feasibility of alternatives, including those considered but rejected, and enough information about each alternative to allow meaningful evaluation, analysis, and comparison with the project.

For projects with significant and unavoidable transportation impacts, the department may request a standalone transportation alternatives memorandum. That memorandum will include the same information as included in the alternatives chapter, but with more detail. The department may require another government agency to review the memorandum. Preparation and review of this memorandum may lengthen the transportation review process. Circumstances where the department may request a memorandum include, but are not limited to:

- An alternative could reduce significant transportation impacts, but it does not meet most of the basic project objectives or is rejected by the city or sponsor as infeasible. The department may request a memorandum if the rejection requires extensive documentation that the EIR chapter can summarize.
- An alternative requires substantial quantitative analysis that the EIR chapter can summarize.
- Several potentially feasible alternatives, including alternatives prepared to reduce other environmental topics, require analysis.

The format of the alternatives analysis can vary⁶, but should primarily focus on significant transportation impacts caused by the project. If the project did not result in a significant transportation impact for a topic, then the alternatives analysis should be limited for that topic. If an alternative has the potential to result in a significant transportation impact for a topic that the project did not have a significant impact, then the alternatives analysis will require a robust discussion.

Example 1

Follow this example when impact determinations are the same across a transportation topic:

VMT Impacts

Impact TR-5: Operation of both alternatives would not cause substantial additional VMT or substantially induce automobile travel. (*Less than Significant*)

Alternative 1: Describe the impacts of alternative 1 and how it is similar as the project.

Alternative 2: Describe how the impacts of alternative 2 would be similar as alternative 1 and the project.

Example 2

Follow this example when impact determinations are not the same for a transportation topic:

Loading

Impact TR-6 (Alternative 1): Operation of alternative 1 would result in a loading deficit and the secondary effects would create potentially hazardous conditions for people bicycling. (*Significant and Unavoidable with Mitigation*)

Alternative 1: Explain why alternative 1 would result in a significant loading impact, whereas the project would not.

Impact TR-6 (Alternative 2): Operation of alternative 2 would not result in a loading deficit. (*Less than Significant*)

Alternative 2: Describe the impacts of alternative 2 and how it is similar as the project.

6. VARIANTS

A variant modifies limited features or aspects of a project. Examples of variants include different driveway locations, different commercial loading locations (e.g., off-street vs on-street), or a change in the number of vehicular parking spaces. The intent of a variant is to vary a project design feature or aspect and typically not to reduce a significant impact under CEQA. Circumstances where studying a variant may occur include, but are not limited to:

- uncertainty regarding City approvals (e.g., on-street loading)
- requests from neighborhood groups/organizations
- a need to inform project circulation impacts (e.g., noise impacts related to vehicles)
- uncertainty regarding construction methods or phasing

⁶ Some alternatives chapters may group impact analysis by alternative or by impact topic. The examples shown below assume the latter format.

The project description must describe the differences between a variant and the project. If there is no difference in the impacts between the variant and the project, the transportation analysis should note this. If there are differences in impacts between the variant and the project, the transportation analysis must disclose these differences.

Example 1

Follow this example for each topic area when there are no differences in the analysis between the project and variant:

VTM Impacts

Impact TR-5: Operation of the project and variant would not cause substantial additional VMT or substantially induce automobile travel. (*Less than Significant*)

Both the proposed project and variant would not cause substantial VMT because....

Example 2

Follow this example for each topic area when there is a difference in the analysis between the project and variant:

Loading Impacts

Impact TR-6: Operation of the project and variant would not result in a loading deficit. (*Less than Significant*)

Both the project and variant would not result in a loading deficit. However, due to the difference in the loading locations between the two proposals, the following presents project and variant impacts separately.

Project

Variant

Instead of the above format, a separate section or chapter in the analysis could describe in more detail than that in the project description and analyze the impacts of the variant(s) in one location.

7. COMPLIANCE/INFORMATIONAL ANALYSIS

Transportation studies should not include topics unrelated to a project's CEQA analysis (refer to Attachment E for further guidance on compliance/informational topics). The following provides guidance for the appropriate location and if applicable, reviewing entities besides Planning Department staff, for non-CEQA related transportation topics:

SFMTA and other agencies coordination: In some cases, SFMTA or other agencies may request and review non-CEQA related transportation analyses (developed by transportation consultants and paid for by the project sponsor). Examples of non-CEQA related transportation analyses include capacity utilization, station capacity constraints, automobile delay analysis, and parking surveys. Prior to undertaking the study, the project sponsor must provide a scope of work defining the purpose and parameters of the informational analyses to SFMTA and/or other relevant agencies. The transportation impact study should not include such analyses/supplemental reports as appendices/attachments to the transportation impact study, but instead such analyses/supplemental reports should become part of a project's file. Upon completion, these studies can be posted publicly or provided to interested parties (e.g., neighborhood groups).

Compliance with the Planning Code: The transportation impact study or CEQA document may include compliance with the San Francisco Planning Code as an appendix.

Summary of policies (belongs in CEQA chapter of Plans and Policies): The transportation impact study may summarize relevant local, state, and federal transportation plans and policies as an appendix and/or within the Plans and Policies section of an environmental impact report to the extent applicable.

Street Design Consistency: The transportation impact study may describe the project's design for the public right-of-way would be inconsistent with a reasonably foreseeable street design project or plan (e.g., driveway across a proposed bus stop or bicycle facility) as an appendix.

8. CHANGES TO GUIDELINES

This section describes the approach for determining applicability of revisions between the prior guidelines and this update for projects tiering off previous environmental determinations. Refer to the summary of changes memorandum for more details regarding changes between the prior guidelines and this update. Refer to the update process and style guide memorandum for determining applicability of revisions for ongoing transportation reviews.

Overall

If the revised project result in changes to the original project that would obviously not meet CEQA Guidelines criteria for additional environmental review (for example, under sections 15162 and 15183), then the analysis does not need to address the guidelines update changes. For example, if the revised project would result in the same or less vehicle or public transit trips than the original project, then the analysis does not need to address revised public transit delay threshold of significance.

Topics Removed

For this guidelines update, the department removed overcrowding on public sidewalks, public transit capacity utilization, and automobile delay as considerations for determining environmental impacts. For those removed topics, the transportation analysis should note that the topic is no longer discussed under the CEQA framework and cite the relevant decision or guidance document (e.g., state level legislation, Planning Commission Resolution, guidelines update), including the summary of changes memorandum. The transportation analysis should not discuss impacts associated with these removed topics. Separately, if the previous environmental determination included mitigation measures related to the now removed topic and those mitigation measures were included as conditions of project approval, the project sponsor should work with implementing agencies to determine mitigation measure applicability.⁷

Revisions and Additions

For this guidelines update, the department slightly revised significance criteria for several topics and the threshold of significance for public transit delay. In addition, the department added significance criteria for potentially hazardous conditions for public transit operations and vehicle miles traveled. For those topics, the analysis should follow the following steps:

- 1) note the revisions and additions and cite the relevant decision or guidance document, including the summary of changes memorandum
- 2) explain the revisions and additions
- 3) conduct a revised project specific analysis using the revisions and additions in comparison to the original project

⁷ For example, the project sponsor may request a letter from the SFMTA to the Planning Department requesting releasing the sponsor from past, no longer applicable mitigation measure requirements.

- 4) explain whether the revised project (or proposed project change) would meet CEQA Guidelines criteria for additional environmental review

9. UNCERTAINTIES

The department acknowledges the dynamic nature of the transportation network and the variety of transportation modes that have emerged in recent years. The department consulted with other transportation agencies and expert transportation analysts to ensure the sufficiency, adequacy, and accuracy of the information, methodology, and data collection efforts used to develop this guidelines update. While future technological changes, socioeconomic forces, etc. may change travel demand estimates, the department relied on the best available information to inform the guidelines at the time of preparation.

Pursuant to CEQA Guidelines section 15144, preparation of environmental analysis involves some degree of forecasting. While foreseeing the unforeseeable is not possible, the department did for this update and will in its future make its best efforts to find out and disclose all that it reasonably can regarding uncertainties that may affect transportation analysis.

This may be qualitatively accomplished by describing the existing documentation and information available about a specific topic area (e.g. Transportation Network Companies, etc.) as it relates to a specific project. The department may request the transportation analysis to provide a summary of the key findings from recent literature or studies in the transportation analysis. Pursuant to CEQA Guidelines section 15145, if a lead agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact.

Existing Land Use Trip Credits

Relevant excerpts from the following project are included in this attachment.

Commercial Land Use Trip Credit Example:

San Francisco Planning Department. 30 Otis Transportation Impact Study. Case No. 2015-010013ENV.

3.1.2 Ballet School

City Ballet School travel demand was based on observations of existing peak hour travel pattern. Person count data was collected at the main entrance of the Ballet School at the rear of the building on Chase Court and the secondary entrance located at 32 Otis Street. There were a total of 63 person trips recorded at the main entrance and zero trips recorded at the 32 Otis Street doorway during the PM peak hour between 5:00 PM and 6:00 PM. Subsequent discussion with the Ballet School manager confirmed that the doorway on 32 Otis Street is seldom used. The observed person count data is summarized in **Table 3-3**.

Table 3-3: Ballet School Existing and Future Person Trip Generation – PM Peak Hour			
Doorway Location	In	Out	Total
Chase Court (Main Entrance)	26	37	63
32 Otis Street (Secondary Entrance)	0	0	0
Existing Total	26	37	63
Future Total¹	39	56	95
Net New Trips	13	19	32

Notes:

1. Assumes that a 50 percent increase in enrollment capacity would result in a 50 percent increase in PM peak hour trips.

Source: Fehr & Peers, 2017

The Proposed Project expands the existing Ballet School from four to six studios, theoretically increasing enrollment capacity by 50 percent. Through discussion with the Ballet School manager (documented in **Appendix Q**), current enrollment does not reach the existing capacity of the school, indicating there is not latent demand for ballet class that is currently unmet. Since it is unknown what future enrollment would be, it would be reasonable to assume that future enrollment would scale up proportionally with studio capacity. Therefore, travel demand for the Ballet School portion of the Proposed Project during the PM peak hour is approximated to be a 50 percent increase over the existing travel demand, resulting in 95 trips generated by the Ballet School during the PM peak hour. The net new person trips generated by the expanded Ballet School would be 32 person trips, as shown in **Table 3-3**. A peak hour-to-daily factor was developed from ITE Code 520 (Elementary School), a land use that has similar trip generating characteristics to the Ballet School. Using this factor (daily trips = 4.6 * PM peak hour trips), the Ballet School would generate an estimated 147 net new person trips on a daily basis.

3.1.3 Trip Credit for Existing Land Uses

The Proposed Project would replace a mix of retail and commercial existing land uses, as detailed in **Table 1-1**, and therefore a trip credit was applied for these existing land uses. The trip credit was derived using observed data collected at the land uses on a typical weekday, combining auto driveway counts and person doorway counts. All the driveways are used to access auto-repair related services; therefore, a conservative average vehicle occupancy of one was used to convert auto trips to person trips. Person trip generation for existing land uses for the PM peak hour is presented in **Table 3-4**. During the PM peak hour, 20 person trips were generated by the existing land uses. The peak hour-to-daily factor for retail person trips from Table C-1 of the *SF Guidelines* (daily trips = 11 * PM peak hour trips) was used to estimate daily person trips. Using this factor, the existing land uses currently generate an estimated 200 person trips on a daily basis.

Table 3-4: Existing Land Use Trip Credit - PM Peak Hour

Mode	In	Out	Total
Person Trips	2	10	12
Vehicle Trips ¹	3	5	8
Total Person Trips	5	15	20

Notes:

1. Average vehicle occupancy for predominant auto service uses was conservatively assumed to be one.

Source: Fehr & Peers, 2017

Near-Term Baseline

San Francisco Planning Department. 1500 Mission Street. Case No. 2014-000362ENV.

Cumulative (2040)

The following are example memorandums to document input assumptions for modeling 2040 conditions:

Better Market Street

The Hub and Civic Center



Memorandum

DATE: 07.17.2015
TO: Better Market Street Team
FROM: Dan Tischler, Senior Transportation Planner, Technology, Data & Analysis, SFCTA
SUBJECT: DRAFT Input Assumptions for Better Market Street 2040 Baseline SF-CHAMP Model Run

Summary and Context

The purpose of this memo is to document inputs used in the SF-CHAMP 5.1 regional travel demand model for the purpose of modeling a 2040 Baseline Scenario to be used to evaluate the feasibility of implementing the Better Market Street project.

STUDY OVERVIEW

Market Street is a primary multi-modal corridor in San Francisco. The current design accommodates the demands of various modes of travel such as walking, bicycling, transit, and driving, but it falls well short of the potential of the street.

The Better Market Street project offers a special opportunity to envision a new Market Street. The goal of the project is to revitalize Market Street from Octavia Boulevard to The Embarcadero and reestablish the street as the premier cultural, civic and economic center of San Francisco and the Bay Area. The transportation system analysis will include blocks south and north of Market and Mission streets. The new design should create a comfortable, universally accessible, sustainable, and enjoyable place that attracts more people on foot, bicycle and public transit to visit shops, adjacent neighborhoods and area attractions.

This memo describes the 2040 Baseline Scenario. For brevity, this memo summarizes differences between the 2040 Baseline Scenario and the 2020 Baseline Scenario. See the memo titled “Input Assumptions for Better Market Street 2020 Baseline SF-CHAMP Model Run” (2020 Baseline Input Memo) for additional detail on the 2020 Baseline Scenario.

SCENARIO DESCRIPTION

The 2040 Baseline Scenario is designed to reflect projected baseline conditions in the San Francisco Bay Area in the year 2040. More detail is provided within the City of San Francisco than elsewhere in the San Francisco Bay Area and the scenario will be used for focused analysis of travel in the Better Market Street corridor.

LAND USE

2040 land use assumptions are derived from the Jobs-Housing-Connections projections developed by ABAG and MTC. While ABAG/MTC Jobs-Housing Connections Strategy Land Use numbers for population, employment, employed residents and jobs are used at a TAZ (close to Census Tract size) level of geographic granularity outside San Francisco, the San Francisco Planning Department (SF Planning) uses the ABAG/MTC Jobs-Housing Connections Strategy control totals to allocate base year land use data within San Francisco. SF Planning makes use of numerous commercial datasets to refine initial ABAG distribution within San Francisco.

The land use inputs are saved on a server at SFCTA at:

Y:\champ\landuse\p2011\SCS.JobsHousingConnection.Spring2014update\2040\runinputs_champ5parkingUpdate

TRANSPORTATION NETWORKS

This section discusses 2040 Baseline assumptions for transit, and assumptions for other San Francisco and regional road, and toll policy projects. The 2040 Baseline Scenario includes all transportation projects assumed in the 2020 Baseline Scenario, plus additional transportation projects expected to be implemented between 2020 and 2040.

ROAD NETWORK

Table 1 presents San Francisco street and road projects anticipated for completion between 2020 and 2040. SF-CHAMP also assumes regional roadway project implementation in accordance with the most recent Regional Transportation Plan.

Table 1: Roadway Projects in San Francisco Completed Between 2020 and 2040

Project	Description
Safer Market Street	<ul style="list-style-type: none">• No turns allowed onto Market Street between 8th and 3rd Streets with the exception of southbound Jones Street onto westbound Market Street.• Streets, such as Mason or O'Farrell, will have required turns onto Turk and Grant respectively.• No left turn onto Market Street from southbound Hyde Street.• Commercial vehicles, transit, bicycles, and taxis would be exempt from these proposed turn restrictions.• The following turn restriction would apply to all vehicles: No right turn onto Grant Ave from Market Street.
Sixth Street	Between Market Street and Howard Street, convert four travel lanes to two travel lanes; add a new bicycle lane in each direction with sidewalks widened by 3 to 6 feet (3 to 4 feet at block corners and 6 feet along the block). Traffic signal cycle lengths would be increased from 60 to 90 seconds, and the offsets would be adjusted.

Polk Street	Between McAllister Street and Union Street, various changes will happen depending on location, including road diets, turn restrictions, and bicycle facilities.
Annie Street	<ul style="list-style-type: none"> • The existing mini-plaza at the intersection of Annie St and Market St will be expanded to Stevenson Street • Between Mission Street and Ambrose Bierce Alley, Annie Street would be closed to vehicular traffic and transformed into a new pedestrian plaza • The remainder of Annie St between the two plazas would retain vehicular traffic but be redesigned as a single-surface shared street
Treasure Island	Reconstruct Treasure Island street network per full build-out plan for Treasure Island
Transit Center District Plan	Road diets, transit facilities, and bike facilities consistent with the Transit Center District Plan
2nd Street Bike Lanes (Bike Plan) <i>BikePlan\2ndStreet</i>	Bike lanes on 2nd Street between Market and Townsend
5th Street Bike Lanes (Bike Plan) <i>BikePlan\5thStreet</i>	Bike lanes on 5th Street between Market and Townsend
16th Street	<ul style="list-style-type: none"> • Between Church and Bryant streets, create a side running transit-only lane in the westbound direction through lane conversion. • Between Bryant and Mississippi streets, create center-lane transit only lanes in both directions through lane conversion. • Between 7th/Mississippi and Third streets, create side running transit-only lane in both directions through lane conversion. • Along the length of the corridor, add traffic signals, add left turn restrictions, and add some left turn pockets.
Move Bike Lane from 16th to 17th (Bike Plan) <i>MoveBikeLaneFrom16thTo17th</i>	Move Bike Lane from 16th Street to 17th Street between Kansas and Mississippi
Brannan (Central SoMa) <i>CentralCorridor\Brannan</i>	Brannan St between 2nd and 6th, 1 auto lane and 1 protected cycletrack for each direction
Harrison/ Bryant (Central SoMa) <i>CentralCorridor\Harrison_Bryant</i>	Harrison between 3rd and 6th, Bryant between 2nd and 6th, 4 travel lanes and 1 transit lane during Peak hours, 3 travel lanes and 2 parking lanes off-peak
Howard/ Folsom One-Way (Central SoMa) <i>CentralCorridor\Howard_Folsom_OneWay</i>	Howard Lane reduction to 2 travel lanes(3 during peak), and protected bidirectional cycletrack; Folsom 2 travel lanes, 1 bus lane during peak and protected bidirectional cycletrack

3rd/4th (Central SoMa) <i>CentralCorridor\Third_4th_st</i>	3rd St from King St to Market St, 4th from Market St to Harrison St, 3 auto lanes, 1 bike lane, 1 bus lane
Treasure Island Ramps <i>TI_Ramps</i>	Reconstruction and realignment of Treasure Island freeway ramps according to TI-TIP.
Masonic Boulevard Option <i>Fix_Masonic</i>	The Boulevard Option on Masonic between Geary and Fell, reducing travel lanes to 2 in both directions and eliminating additional peak-period lanes.
19th Avenue Corridor	Tier 4C projects from the 19th Avenue Corridor Study: <ul style="list-style-type: none"> • 19th Ave / Holloway Ave - add a fourth southbound lane • 19th Ave / Crespi Dr - fourth southbound lane will be extended and converted into a through-right into Crespi • 19th Ave / Junipero Serra Blvd - add a fourth lane for southbound right-turn onto Junipero Serra
Harney Way Rebuild <i>HarneyRebuild</i>	Harney expansion to 3-lanes WB, 2-lanes EB for 4 links north of the 101 interchange, plus BRT lanes & TSP North/ East of Alana
Palou Transit Lane and Transit Signal Priority <i>TransitLaneTSP_Palou</i>	Transit Signal Priority and transit-only lane on Palou between Phelps and Fitch.
Geneva Transit Preferential Treatment	This section is the Geneva Four-Lane Option: two general-purpose lanes and one transit lane in each direction. (TEP transit treatment west of Santos: one general-purpose lane and one side-running transit lane.)
Geneva Extension	<ul style="list-style-type: none"> • Geneva will be extended over Tunnel Ave and the Recology site, with connections to US 101 ramps. • Two general-purpose lanes in each direction; three during the PM peak period. • Transit-only lanes • Class II bicycle facility • Two pedestrian bridges will connect Bayshore/Sunnydale and Bayshore/MacDonald with Tunnel Ave
Mission Transit Lane (TEP)	Side-running transit lanes on Mission between 11th to 16th St. Note: this project is included as a subset within the MUNI Travel Time Reduction Program (Project-level Expanded) project
Candlestick Point / Hunters Point Shipyard Street Grid Rebuild <i>Candlestick_HuntersPoint</i>	Rebuild of the street grid per the Candlestick Point / Hunters Point Shipyard Transportation Plan using the no-stadium variant. Includes separated transitways or center-running transit lane corridor for the 28L.
Candlestick Interchange Rebuild	<ul style="list-style-type: none"> • Geneva will extend under the US 101 to Harney Way • Between the Geneva Extension and Alana, two general-purpose lanes and one transit-only lane in each direction. • Between Alana and Harney, three general-purpose travel lanes in each direction • Alana becomes transit-only between Harney and Geneva • On/off ramps will be single-lane with no transit treatment
Yosemite Slough Bridge <i>Yosemite_Slough</i>	Transit, bike, and pedestrian bridge connecting Candlestick Point and Hunters Point Shipyard

REGIONAL TRANSIT NETWORK

Between 2020 and 2040, Caltrain, SMART, BART and WETA will each provide expanded services to new stations and terminals. Table 2 lists these projects.

Table 2: Regional Transit Agency Projects Completed Between 2020 and 2040

Project	Description
Caltrain DTX	Caltrain Electrification and Downtown Extension
Caltrain Electrification <i>Caltrain_Electrification</i>	Service increase resulting from Caltrain Electrification project.
SamTrans Caltrain Shuttle Frequency <i>Samtrans_ShuttleFreq</i>	Double the frequency of Samtrans' Caltrain shuttle.
WETA Expansion Phase 2 <i>WETA_Expansion_Phase2</i>	New ferry lines: Berkeley-SF, Hercules-SF, Redwood City-SF, Richmond-SF.
BART: Silicon Valley Phase 2	BART extended from Berryessa to Alum Rock, Downtown San Jose, Diridon, and Santa Clara
SMART: Larkspur to San Rafael	SMART - Extend SMART from San Rafael to Larkspur
SMART: Santa Rosa to Cloverdale	SMART - Extend SMART from Santa Rosa to Cloverdale

MUNI NETWORK

The MUNI transit network has several planned service expansions and improvements scheduled for the period between 2020 and 2040. Table 3 summarizes projects assumed in the SF-CHAMP 2040 Baseline Scenario.

Table 3: MUNI Transit Projects to be Completed Between 2020 and 2040

Project	Description
19th Avenue Corridor (M Ocean View split service)	Tier 4C Transit projects from the 19 th Avenue Corridor Study: <ul style="list-style-type: none"> • M Ocean View realignment <ul style="list-style-type: none"> ○ Diverts into Parkmerced at 19th Ave / Holloway Ave ○ Relocate SFSU station into Parkmerced ○ Two new Parkmerced stations ○ Split tracks in Parkmerced and split end-of-line service between Parkmerced and Balboa Park BART
Travel Time Reduction Program (Programmatic Expanded) <i>Muni_TTRP\ProgrammaticExpanded</i>	Muni TEP: Travel Time Reduction Program, Expanded level (programmatic)
Travel Time Reduction Program (Project-level Expanded)	Muni TEP: Travel Time Reduction Program, Expanded level (project-level)

<i>Muni_TTRP\ProjectLevelExpanded</i>	
Treasure Island	Increased line 25 service, new line 109, and ferry service to the Ferry Building
AC Transit Treasure Island Service <i>AC_TI</i>	AC Transit Service to Treasure Island
Geary Bus Rapid Transit <i>Muni_GearyBRT\LPA</i>	Geary Side-Running BRT west of 25th Avenue and east of Stanyan, and Center-Running BRT between 25th and Stanyan.
Candlestick Point Express <i>Muni_CPX</i>	Express bus service between Downtown/SoMa and Candlestick Point
Hunters Point Express <i>Muni_HPX</i>	Express bus service between Downtown/SoMa and Hunters Point.
Candlestick Point/ Hunters Point Shipyard Muni Extensions <i>Muni_CSP_HP_LineExtensions</i>	Extensions of 24-Divisadero, 23-Monterey, 44-O'Shaughnessy, 48-Quintara, and 29-Sunset into Candlestick Point and Hunters Point Shipyard neighborhoods
Parkmerced Shuttles <i>Parkmerced_Shuttle</i>	Free shuttle service between Parkmerced and Daly City BART, and between Parkmerced and nearby shopping centers.
Muni F to Fort Mason	Extend F Line to Fort Mason
T-Third Extension to Caltrain	The T-Third will be extended from Sunnydale to Bayshore Caltrain Station
16th St BRT	Realignment of the 22-Fillmore along 16 th St to 3rd St

TOLLS

SF-CHAMP assumes that Bay Area bridge tolls increase in line with inflation over the long term. For future year scenarios, SF-CHAMP tolls are assessed at values that are constant in real terms. 2040 toll assumptions are the same in real terms as 2020 toll assumptions.



Hub and Civic Center Scenarios Example

Memorandum

DATE: 12.26.2018

TO: San Francisco Planning Department, Hub Project and Civic Center Public Realm Plan Team

FROM: Yiming Cai, Intern, Technology, Data & Analysis, SFCTA

SUBJECT: Input Assumptions for Hub and Civic Center Scenarios (3) 2020 Baseline with Land Use, (4) 2020 Hub with Land Use, (5) 2020 Civic Center with Land Use SF-CHAMP Model Run, and Transit Service Headways

Summary and Context

The purpose of this memo is to document inputs used in the SF-CHAMP 5.2 regional travel demand model for modeling three year 2020 project scenarios. These scenarios are: Scenario 3 - 2020 Baseline with Land Use Scenario, Scenario 4 - 2020 Hub with Land Use, and Scenario 5 - 2020 Civic Center with Land Use. These scenarios are designed to explore the marginal impacts of land use changes (Scenario 3) relative to the 2020 Baseline Scenario (Scenario 2) and transportation network changes (scenarios 4 and 5) relative to Scenario 3.

SCENARIO 3 - 2020 BASELINE WITH LAND USE SCENARIO

Scenario 3, the 2020 Baseline with Land Use Scenario pivots from Scenario 2 the 2020 Baseline Scenario. This scenario maintains Scenario 3 transportation network inputs, but uses different land use assumptions in the Hub and Civic Center study areas. The purpose of this scenario is to explore the marginal impacts associated with the land use changes in the Hub and Civic Center areas.

Scenario 3 land use differs from Scenario 2 land use in six TAZs. In this scenario five of the study area TAZs have more households and one TAZ has more jobs. Total land use change amounts to an increase in households of 1,754 and an increase in jobs of 257 relative to Scenario 2.

Total households and jobs in Hub and Civic Center area TAZs:

Source	Scenario	HH	CIE	MED	MIPS	RETAIL	PDR	VISITOR
SF Planning	Scenario 2 - 2020 Baseline	14,276	4,407	1,485	23,161	4,393	1,533	271
SF Planning	Scenario 3 - 2020 Baseline with Land Use	16,030	4,407	1,485	23,161	4,650	1533	271
Difference		1,754	0	0	0	257	0	0

Also, we can locate the TAZs whose land use have changed by comparing to 2020 Baseline Scenario. The TAZs with changes are listed below.

Allocations for Hub and Civic Center area TAZs, Scenario 2 - 2020 Baseline:

Geography	HH	CIE	MED	MIPS	RETAIL	PDR	VISITOR
242	603	58	22	534	221	96	-
259	629	404	278	1,367	355	38	7
286	323	688	26	1,134	228	13	4
296	1,381	208	52	565	142	27	54
578	986	249	40	659	229	37	20
579	589	172	78	740	161	193	-
587	579	137	39	391	230	10	-
588	745	185	90	477	213	18	17
589	207	26	9	369	240	242	-
591	746	-	-	2,499	252	85	4
595	366	52	9	106	109	226	-
608	2,039	277	-	1,574	130	-	-
609	361	134	99	830	251	142	-
618	24	283	-	212	306	15	4
619	673	272	127	709	413	68	24
620	375	94	6	84	48	-	113
621	1,055	93	127	1,310	173	-	-
622	276	45	53	298	118	123	4
646	-	4	25	1,557	-	15	-
647	1,129	342	119	2,469	226	12	4
648	48	345	48	2,801	154	4	-
683	1,142	340	236	2,474	191	169	17

Allocations for Hub and Civic Center area TAZs 2020, Scenario 3 - Baseline with Land Use:

Geography	HH	CIE	MED	MIPS	RETAIL	PDR	VISITOR
242	603	58	22	534	221	96	-
259	629	404	278	1,367	355	38	7
286	323	688	26	1,134	228	13	4
296	1,381	208	52	565	142	27	54
578	1,570	249	40	659	229	37	20
579	1,044	172	78	740	161	193	-
587	579	137	39	391	230	10	-
588	1,040	185	90	477	213	18	17
589	207	26	9	369	240	242	-
591	746	-	-	2,499	252	85	4
595	366	52	9	106	109	226	-
608	2,039	277	-	1,574	130	-	-
609	361	134	99	830	251	142	-
618	24	283	-	212	306	15	4
619	673	272	127	709	413	68	24
620	375	94	6	84	48	-	113
621	1,055	93	127	1,310	173	-	-
622	276	45	53	298	118	123	4
646	-	4	25	1,557	257	15	-
647	1,365	342	119	2,469	226	12	4
648	48	345	48	2,801	154	4	-
683	1,142	340	236	2,474	191	169	17

Land use inputs are saved on a server at SFCTA at:

Y:\champ\landuse\p2011\SCS.JobsHousingConnection.Winter2017update\hub_land_use

SCENARIO 4 - 2020 HUB WITH LAND USE SCENARIO

Scenario 4 - 2020 Hub with Land Use Scenario pivots from Scenario 3. Scenario 4 uses the same land use assumptions as Scenario 3, but features a modified transportation network in the Hub area. The scenario reflects the impacts of roadway networks changes proposed by the Hub Public Realm Plan.

Local street network assumptions in the Hub and Civic Center areas are reflected in Figure 1 and Figure 2. Note that changes on Market Street were not included in network coding. Scenario 4 conditions on Market Street match those of scenarios 2 and 3.

THE HUB PUBLIC REALM PLAN
Proposed N-S Circulation + Access

LEGEND

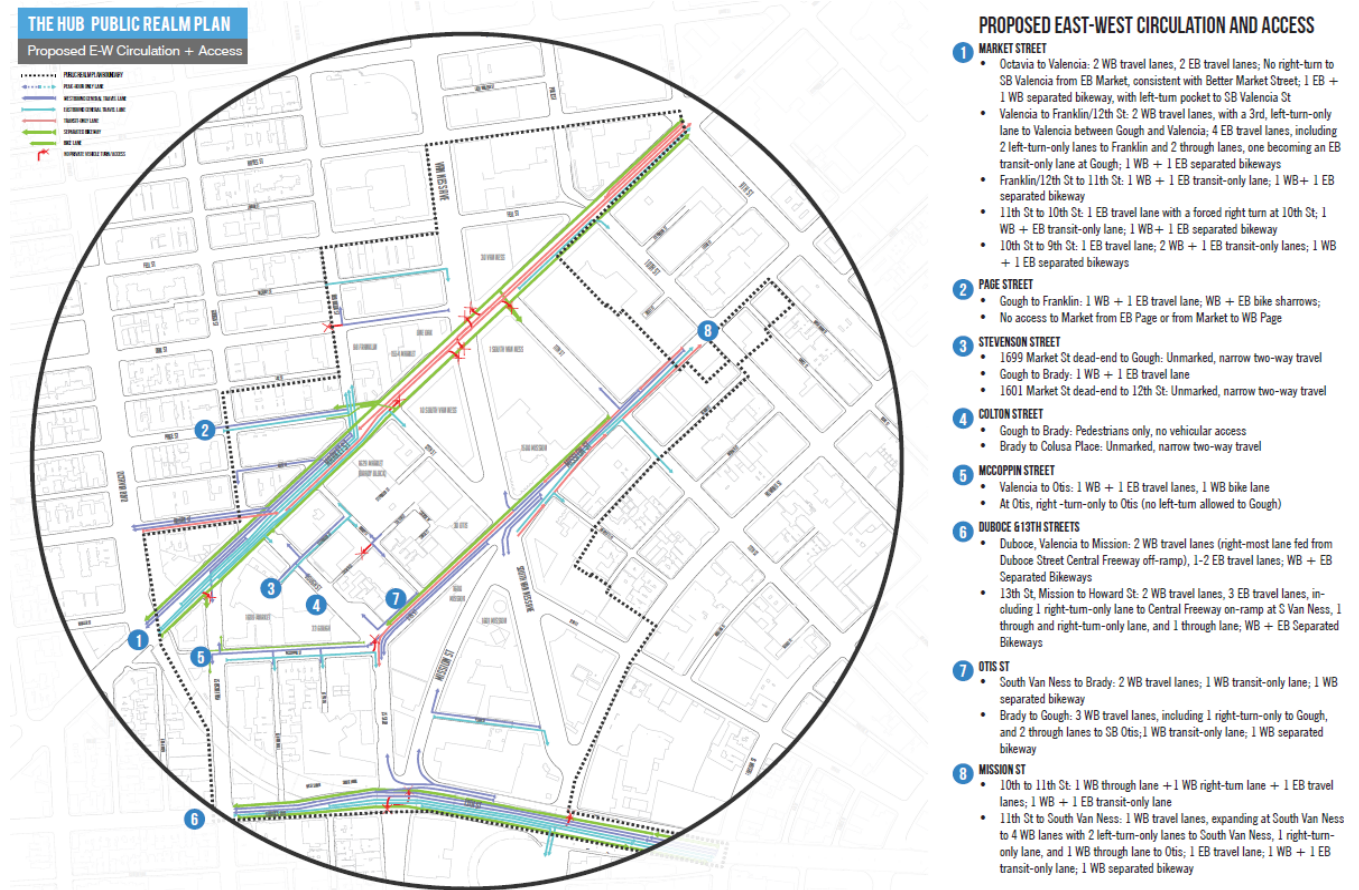
- PUBLIC REALM IMPROVEMENT
- PEDESTRIAN ROUTE
- BICYCLE ROUTE
- TRANSIT ROUTE
- VEHICLE ROUTE
- IMPROVED ACCESS POINTS

The map shows a grid of streets with various colored lines indicating proposed circulation routes. Key streets labeled include 1st St, 2nd St, 3rd St, 4th St, 5th St, 6th St, 7th St, 8th St, 9th St, 10th St, 11th St, 12th St, 13th St, 14th St, 15th St, 16th St, 17th St, 18th St, 19th St, 20th St, 21st St, 22nd St, 23rd St, 24th St, 25th St, 26th St, 27th St, 28th St, 29th St, 30th St, 31st St, 32nd St, 33rd St, 34th St, 35th St, 36th St, 37th St, 38th St, 39th St, 40th St, 41st St, 42nd St, 43rd St, 44th St, 45th St, 46th St, 47th St, 48th St, 49th St, 50th St, 51st St, 52nd St, 53rd St, 54th St, 55th St, 56th St, 57th St, 58th St, 59th St, 60th St, 61st St, 62nd St, 63rd St, 64th St, 65th St, 66th St, 67th St, 68th St, 69th St, 70th St, 71st St, 72nd St, 73rd St, 74th St, 75th St, 76th St, 77th St, 78th St, 79th St, 80th St, 81st St, 82nd St, 83rd St, 84th St, 85th St, 86th St, 87th St, 88th St, 89th St, 90th St, 91st St, 92nd St, 93rd St, 94th St, 95th St, 96th St, 97th St, 98th St, 99th St, 100th St. The map also shows various landmarks and buildings, including the University of California, Berkeley, and the City of Berkeley. The map is titled 'THE HUB PUBLIC REALM PLAN' and 'Proposed N-S Circulation + Access'.

- 1 **OTIS STREET - MISSION STREET (COUPLT)**
 - Otis, Gough to Duboce/13th: 3 lanes SB + 1 right-turn only lane at Duboce, 1 SB side-running transit-only lane, 1 NB travel lane
 - Mission, South Van Ness to Duboce/13th: 3 lanes NB, At South Van Ness, 1 RT lane to NB Mission St, 1 LT (to NB South Van Ness) and through lane (to NB Mission St), 1 LT lane to NB South Van Ness, 2 transit-only lanes approaching South Van Ness (1 to NB S Van Ness, 1 to NB Mission)
- 2 **12TH STREET**
 - Market to Stevenson: 1 SB travel lane (No northbound access to Market Street, or to Franklin, or Page Streets)
 - Stevenson to S Van Ness, S Van Ness to Howard: 1 NB + 1 SB travel lanes
 - At South Van Ness, SB lane right-turn to South Van Ness only
- 3 **SOUTH VAN NESS AVENUE**
 - Market to 13th St: Boulevard Design with 2 SB through-travel lanes + 1 SB local travel lane and left-turn pocket to SB 12th St, 2 NB through-travel lanes + 1 NB local lane, Side and center medians
 - No turns from SB SWN to Howard; No left turns to 13th Street

- 1 **OTIS STREET - MISSION STREET (COUPLER)**
 - Otis, Gough to Duboce/13th: 3 lanes SB + 1 right-turn only lane at Duboce, 1 SB side-running transit-only lane, 1 NB travel lane
 - Mission, South Van Ness to Duboce/13th: 3 lanes NB, At South Van Ness, 1 RT lane to NB Mission St, 1 LT (to NB South Van Ness) and through lane (to NB Mission St), 1 LT lane to NB South Van Ness, 2 transit-only lanes approaching South Van Ness (1 to NB S Van Ness, 1 to NB Mission)
- 2 **12TH STREET**
 - Market to Stevenson: 1 SB travel lane (No northbound access to Market Street, or to Franklin, or Page Streets)
 - Stevenson to S Van Ness, S Van Ness to Howard: 1 NB + 1 SB travel lanes
 - At South Van Ness, SB lane right-turn to South Van Ness only
- 3 **SOUTH VAN NESS AVENUE**
 - Market to 13th St: Boulevard Design with 2 SB through-travel lanes + 1 SB local travel lane and left-turn pocket to SB 12th St, 2 NB through-travel lanes + 1 NB local lane, Side and center medians
 - No turns from SB SWN to Howard; No left turns to 13th Street

Figure 2: Hub Area Streets, East-West, Scenario 4 - 2020 Hub with Land Use



This scenario does not include Scenario 4 network change in the Hub area. This scenario's purpose is to reflect the marginal impacts of roadway changes proposed by Civic Center Public Realm Plan.

Figure 3 and 4 show the roadway assumptions included in Scenario 5. All other transportation network assumptions match those of scenarios 2 and 3.

Figure 3: Civic Center Area Streets, East-West, Scenario 5 - 2020 Civic Center with Land Use

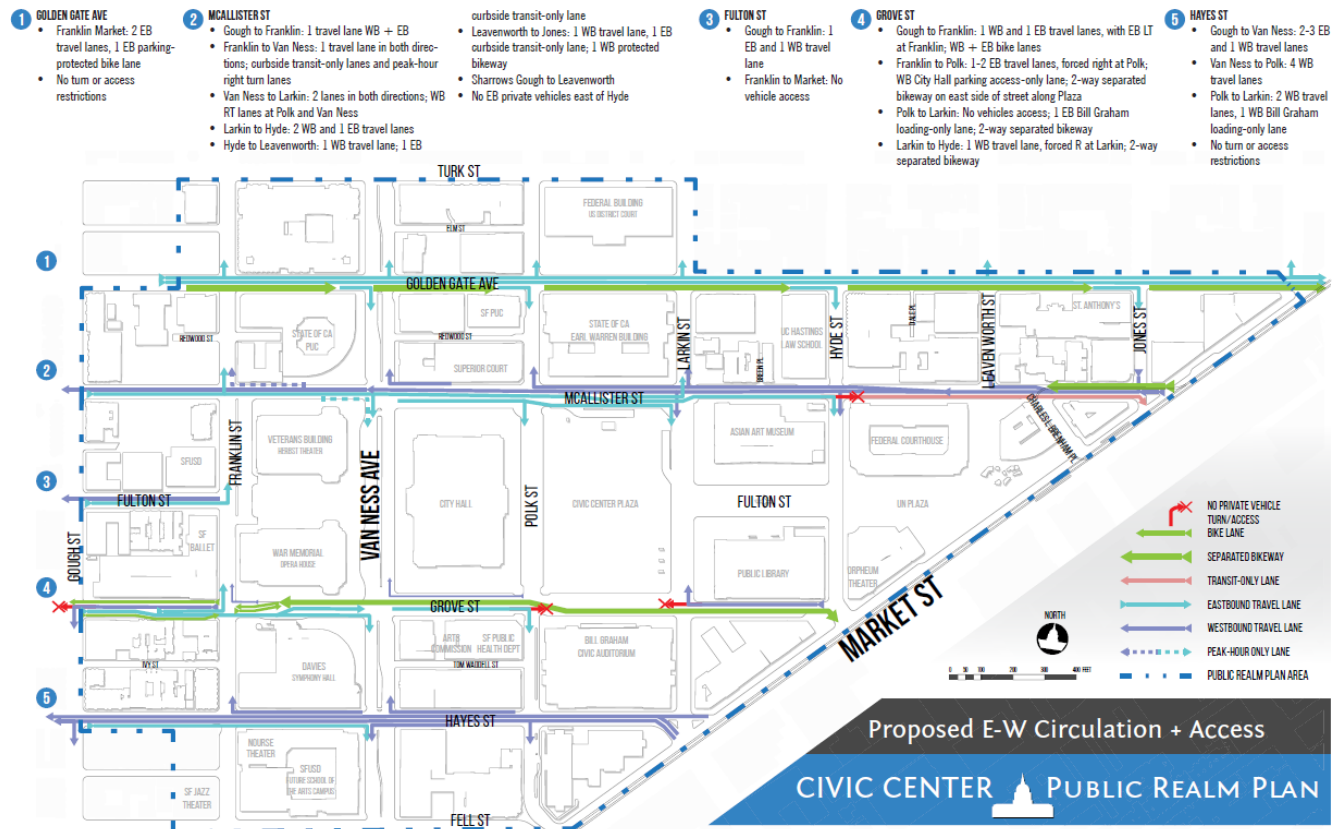
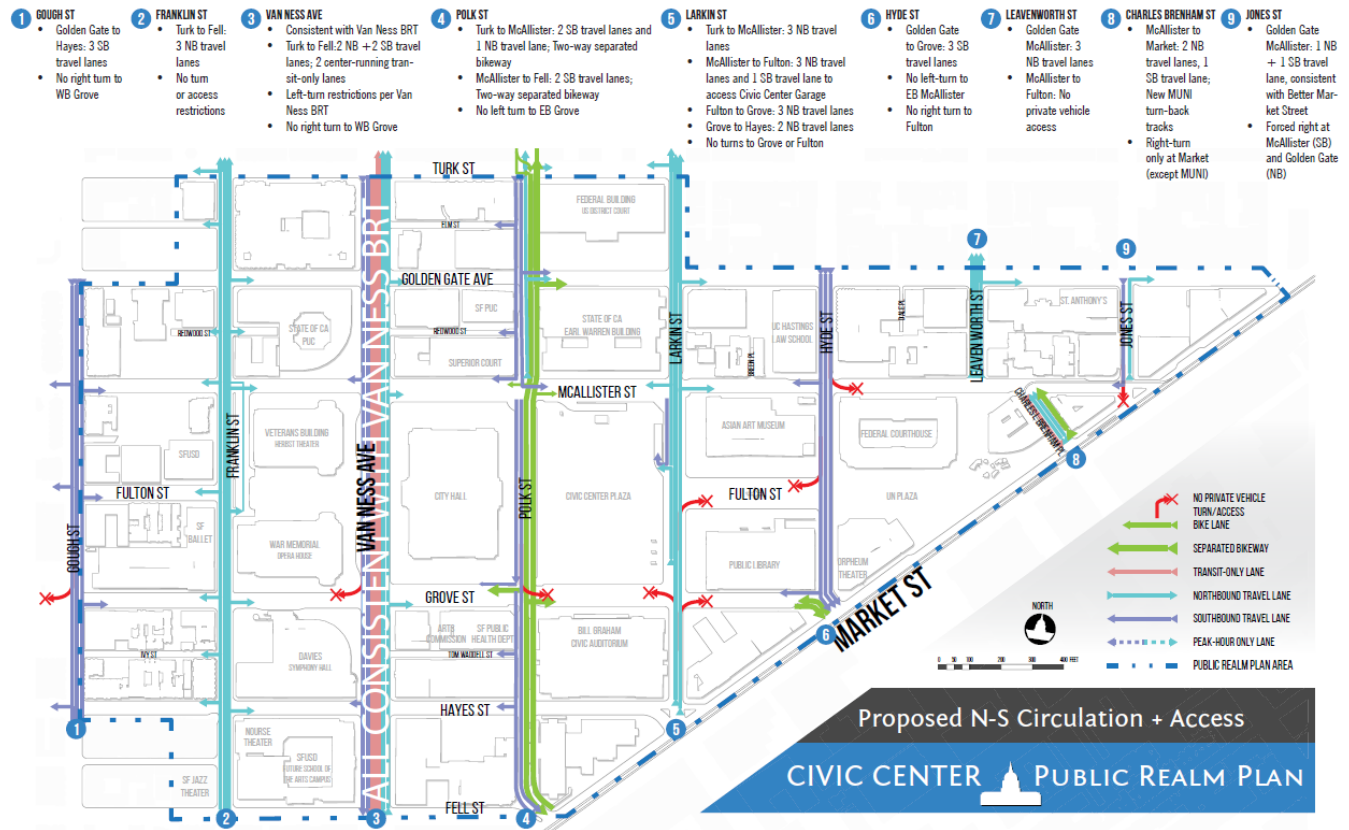


Figure 4: Civic Center Area Streets, East-West, Scenario 5 - 2020 Civic Center with Land Use



TRANSIT SERVICE HEADWAY ASSUMPTIONS

All 2020 scenarios assume transit headways consistent with MuniForward for 2020 (updated with the SF-CHAMP 5.2 regional travel demand model which the SFCTA used to model the three aforementioned 2020 scenarios in July 2018). Since then, the SFCTA has incorporated 2020 transit headways from Muni's Bus Fleet Management Plan¹ in its latest travel demand model. The table below compares headways between the Muni's Bus Fleet Plan and the SF-CHAMP 5.2 regional travel demand model for routes in the Plan areas.

Route	2020 PM Headway (min)	
	Bus Fleet Plan	SF-CHAMP 5.2
5 Fulton	9	8
5R Fulton Rapid	6	8
9 San Bruno	12	10
9R San Bruno Rapid	8	10
14 Mission	15	15
14R Mission Rapid	8	8
19 Polk	15	15
21 Hayes	9	9

Indentification of Mitigation Measures

The attached Findings of Feasibility of Traffic Mitigation Measures Proposed for 901 16th Street/1200 17th Street Memorandum (San Francisco Planning Department, Case No. 2011.1300E) is an example for how to document the feasibility of mitigation measures.



SAN FRANCISCO PLANNING DEPARTMENT

MEMO

DATE: June 4, 2015
TO: Project File 2011.1300E
FROM: Wade Wietgreffe, San Francisco Planning Department
RE: Findings of Feasibility of Traffic Mitigation Measures Proposed for 901 16th Street/1200 17th Street (Case No. 2011.1300E)

The following documents the feasibility of mitigation measures proposed to mitigate significant level of service (LOS) impacts from the Proposed 901 16th Street/1200 17th Street Project (Proposed Project) at four intersections. The memo is structured in the following manner: Intersection Title; Impact Analysis; Mitigation Measure; Mitigation Measure Feasibility, including input provided by San Francisco Municipal Transportation Agency (SFMTA) staff (see Attachment A); and After Mitigation Analysis.

17TH STREET AND MISSISSIPPI STREET

Existing plus Project Conditions

Impact Analysis

Under Existing Conditions, the unsignalized intersection of 17th Street and Mississippi Street operates at LOS C. The Proposed Project would add 146 vehicle trips to the worst (southbound) approach during the PM peak hour, representing 34.1 percent of the total PM peak hour southbound approach volume. The Proposed Project would also add 303 vehicle trips to all approaches, representing 21.8 percent of the total PM Peak hour volumes for this intersection. The LOS at this intersection under Existing Plus Project conditions would degrade to LOS F, and the Caltrans signal warrants would be met. The Proposed Project's contribution to this approach would represent a substantial contribution, and therefore, the Proposed Project would be considered to have a significant impact to the operating conditions at the intersection of 17th Street and Mississippi Street.

Potential Mitigation Measure TR-1

To mitigate poor operating conditions at the intersection of 17th Street and Mississippi Street, the project sponsor shall pay their fair share for the cost of design and implementation of signalization or other similar mitigation to improve automobile delay at this intersection, as determined by the San Francisco Municipal Transportation Agency (SFMTA). With signalization, the intersection would operate at LOS A during the Existing Plus Project weekday PM peak hour conditions.

As a different option to signalization, with the installation of a 75-foot-long¹ southbound right-turn pocket and 135-foot-long² northbound left-turn pocket at the intersection, the intersection would then operate at LOS D during the Existing Plus Project weekday PM peak hour conditions. If this option were to be selected, the installation of the turn-pockets shall not remove or reduce the width of the existing Class 2 bicycle lanes, and treatments, such as those described in the NACTO Urban Bikeway Design Guide, shall be included to these bicycle lanes to ensure the safety of bicyclists.

Mitigation Feasibility

SFMTA believes that signalization is feasible and preferable to mere restriping. Although this is an Existing plus Project impact, the SFMTA calculates that the project sponsor's fair share contribution as the development's share of future (2025) PM peak hour traffic (including existing traffic) entering the southbound approach, which is estimated as 146 trips or 36.7 percent. The SFMTA cannot commit that sufficient funding is available to ensure that this measure will be implemented, although we can potentially pursue additional funds from Prop K sales tax as needed to fill a funding gap, depending on other signalization needs.

After Mitigation Analysis

Given that SFMTA cannot commit that sufficient funding is available to ensure that this measure would be implemented; the Proposed Project's impact would be significant and unavoidable.

Cumulative Conditions

Analysis

Under 2025 Cumulative Conditions with the Proposed Project, the southbound approach of the unsignalized intersection of 17th Street and Mississippi Street would improve from Existing Plus Project conditions to LOS D during the PM peak hour based on diversion of traffic due to the Owens Street extension, and Caltrans signal warrants would continue to be met. Due to diversion, the impact at the southbound approach under Existing Plus Project Conditions would no longer be present. However, under 2025 Cumulative Conditions, the westbound approach would degrade to LOS E, resulting in a significant impact.

Potential Mitigation Measure TR-1

Refer to above for language.

¹ Length required to accommodate right-turning traffic plus required taper length per Highway Design Manual Sections 405.3

² Length required to accommodate left-turning traffic plus required taper length per Highway Design Manual Sections 405.2

Mitigation Feasibility

Refer to response above for Existing plus Project Conditions.

After Mitigation Analysis

Refer to response above for Existing plus Project Conditions.

MARIPOSA STREET AND PENNSYLVANIA STREET

Existing plus Project Conditions

Analysis

Under Existing Conditions, the southbound approach of the unsignalized intersection of Mariposa Street and Pennsylvania Street operates at LOS F during the PM peak hour and Caltrans signal warrants are not met, as shown in Appendix H. The Proposed Project would add 12 vehicle trips to worst approach (southbound) during the PM peak hour, representing 19.7 percent of the total PM peak hour southbound approach volume. The Proposed Project would also add 139 vehicle trips to all approaches, representing 8.4 percent of the total PM Peak hour volumes for this intersection. Under Existing Plus Project conditions, the LOS would remain at F, and Caltrans signal warrants would be met. Therefore, the Proposed Project would be considered to have a significant impact to the operating conditions at the intersection of Mariposa Street and Pennsylvania Street.

Potential Mitigation Measure TR-3

To mitigate poor operating conditions at the intersection of Mariposa Street and Pennsylvania Street, the project sponsor shall pay their fair share for the cost of design and implementation of signalization or other similar mitigation to improve automobile delay at this intersection, as determined by the San Francisco Municipal Transportation Agency (SFMTA). With signalization, the intersection would operate at LOS A during the Existing Plus Project weekday PM peak hour conditions.

Mitigation Feasibility

The SFMTA believes this mitigation measure is feasible and desirable. Although this is an Existing plus Project impact, the SFMTA calculates the fair share contribution as the development's share of future (2025) PM peak hour traffic (including existing traffic) entering the southbound approach, which is estimated at 12 trips or 17.4 percent. The SFMTA cannot commit that sufficient funding is available to ensure that this measure will be implemented, although we can potentially pursue additional funds from Prop K sales tax as needed to fill a funding gap, depending on other signalization needs.

After Mitigation Analysis

Given that SFMTA cannot commit that sufficient funding is available to ensure that this measure would be implemented; the Proposed Project's impact would be significant and unavoidable.

Cumulative Conditions

Analysis

Under 2025 Cumulative Conditions with the Proposed Project, the southbound approach of the unsignalized intersection of Mariposa Street and Pennsylvania Street would, similar to Existing Plus Project conditions, continue to operate at LOS F during the PM peak hour and Caltrans signal warrants would continue to be met. Since the Proposed Project would have a significant Existing Plus Project impact on the operation of this intersection, it would similarly have a significant impact under 2025 Cumulative Conditions.

Potential Mitigation Measure TR-3

Refer to above for language.

Mitigation Feasibility

Refer to response above for Existing plus Project Conditions.

After Mitigation Analysis

Refer to response above for Existing plus Project Conditions.

MARIPOSA STREET AND MISSISSIPPI STREET

Existing plus Project Conditions

Analysis

Under Existing Conditions, the unsignalized intersection of Mariposa Street and Mississippi Street operates at LOS F at the worst approach (westbound) for the PM peak hour and Caltrans signal warrants are met. The Proposed Project would add 58 vehicle trips to the worst (westbound) approach during the PM peak hour, representing 10.2 percent of the total PM peak hour westbound approach volume. The Proposed Project would also add 152 vehicle trips to all approaches, representing 10.4 percent of the total PM Peak hour volumes for this intersection. The LOS at this intersection under Existing Plus Project conditions would remain at LOS F, and the Caltrans signal warrants would continue to be met. The Proposed Project's contribution to this approach would represent a substantial contribution, and therefore, the Proposed Project would be considered to have a significant impact to the operating conditions at the intersection of Mariposa Street and the Mississippi Street.

Potential Mitigation Measure TR-4

To mitigate poor operating conditions at the intersection of Mariposa Street and Mississippi Street intersection, the project sponsor shall pay their fair share for the cost of design and implementation of signalization or other similar improvement for automobile delay at this intersection, as determined by the San Francisco Municipal Transportation Agency (SFMTA). With signalization, the intersection would operate at LOS C during the Existing Plus Project weekday PM peak hour conditions.

Mitigation Feasibility

The existing all-way STOP sign-controlled intersection of Mariposa and Mississippi streets is not a desirable candidate for traffic signalization because the traffic patterns at this particular intersection are more effectively served by an all-way STOP control than by a traffic signal. The existing STOP sign on westbound Mariposa Street slows traffic on westbound Mariposa Street as it approaches Mississippi Street, where the land uses change from generally commercial to mostly residential. SFMTA does not want to encourage a substantial amount of through westbound movements on Mariposa Street west of Mississippi Street, which a traffic signal could encourage.

After Mitigation Analysis

Given the no feasible mitigation is identified; the Proposed Project's impact would be significant and unavoidable.

Cumulative Conditions

Analysis

Under 2025 Cumulative Conditions, the westbound approach of the unsignalized intersection of Mariposa Street and Mississippi Street would operate at LOS E during the PM peak hour and Caltrans signal warrants would continue to be met. Since the Proposed Project would have a significant and unavoidable Existing Plus Project impact on the operation of this intersection, it would similarly have a significant impact under 2025 Cumulative Conditions.

Potential Mitigation Measure TR-4

Refer to above for language.

Mitigation Feasibility

Refer to response above for Existing plus Project Conditions.

After Mitigation Analysis

Refer to response above for Existing plus Project Conditions.

7TH STREET/16TH STREET/MISSISSIPPI STREET

Cumulative Conditions

Analysis

At the signalized intersection of 7th/16th/Mississippi Street, during the PM peak hour the intersection would operate at LOS F under 2025 Cumulative Conditions. The Proposed Project would add no vehicles to the critical westbound through-right movements, and 65 vehicles to the critical northbound approach, which would both operate at LOS F. This project-related contribution to the critical northbound shared through/right-turn movement would represent 19.7 percent of the total PM peak hour volumes under 2025 Cumulative Conditions. The Proposed Project's contributions to the critical northbound movement would be considerable (greater than 5 percent), and therefore, the Proposed

Project would result in a significant cumulative impact at the intersection of 7th/16th/Mississippi Street.

Potential Mitigation Measure

None identified.

Mitigation Feasibility

The intersection is already signalized, and providing additional new through or turn lanes would require substantial reduction in sidewalk widths, which would be inconsistent with the pedestrian environment encouraged by the City of San Francisco. Furthermore, providing additional new through or turn lanes would be in conflict with future modifications to lane geometry per those described in the Transit Effectiveness Project and associated EIR, which would seek to convert existing lanes to transit-only lanes along 16th Street. SFMTA may pursue traffic signal timing and coordination for this intersection, as well as any future traffic signal at the nearby southbound on-ramp; however, this would not improve the poor operating conditions at this intersection to an acceptable level (LOS D or better).

After Mitigation Analysis

Given the no feasible mitigation is identified; the Proposed Project's impact would remain significant and unavoidable.

**ATTACHMENT A: SFMTA, FAIR-SHARE MITIGATION MEASURE FOR 901 16TH STREET (CASE NO.
2011.1300E!)**



Edwin M. Lee, *Mayor*

Tom Nolar, *Chairman*

Cheryl Brinkman, *Vice-Chairman*

Gwyneth Borden, *Director*

Edward D. Reiskin, *Director of Transportation*

Malcolm Heinicke, *Director*

Joel Ramos, *Director*

Cristina Rubke, *Director*

MEMORANDUM

DATE: June 4, 2015

TO: Wade Wietgreffe, San Francisco Planning Department

FROM: Frank Markowitz, Senior Transportation Planner, Sustainable Streets Division *F. Markowitz*

SUBJECT: Fair-Share Mitigation Measure for 901 16th Street (Case No. 2011.1300E!)

This memo responds to your request for SFMTA review of the proposed fair-share traffic signal mitigation measures for the 901 16th Street development project. In your memo of April 2, 2015, you requested that we edit your memo to the project file, which we have also done (attached). As you noted, we may need a meeting with the developer.

Issue 1. Does the SFMTA Support the Fair Share Mitigation Measures and Can We Implement?

The SFMTA supports signalizing the Mariposa/Pennsylvania and 17th/Mississippi intersections and believes this would be feasible. Mariposa/Pennsylvania is higher priority than 17th/Mississippi because (1) the former is a two-way STOP, which raises more safety concerns than the all-way STOP at 17th/Mississippi and (2) requests from Board of Supervisors and others focus more on Mariposa/Pennsylvania. The 901 16th Street TIS proposes mitigation measures that would signalize these two intersections, with fair share payments by that developer, but also proposes fair share support for signal at Mariposa/Mississippi, which Jerry Robbins indicated in January 2015 is not desirable for signalization because the existing all-way STOP slows and discourages westbound Mariposa traffic from unnecessary travel through the residential neighborhood to the west.

The TIS also has a mitigation measure for a signal at Mariposa/I-280 southbound. There is a Mission Bay mitigation measure to signalize the Mariposa/I-280 southbound on-ramp and add a westbound exclusive left turn lane. Although this is listed as a mitigation measure in the 901 16th Street TIS, it has already been advertised for construction (bids due May 14, 2015), with funding provided by a federal TIGER grant.

The SFMTA cannot commit to filling any funding gap to ensure design and construction of the Mariposa/Pennsylvania and 17th/Mississippi signals. However, the SFMTA has capacity and the potential for limited supplemental funding to design and construct the Mariposa/Pennsylvania signalization in 2016-2018 if sufficient funding were to be provided by project sponsors. The SFMTA typically batches signal design and then continues the batches through to construction contract, as this is much more efficient than handling signals on a stand-alone basis.

Issue 2. How Should the Fair Share Be Calculated?

Based on discussions with the Planning Department, we concur that fair share should be calculated in proportion to each development project's share of the forecast future traffic volume for the worst approach for the worst (AM or PM) peak hour, including existing traffic.

For Mariposa/Pennsylvania, 12 trips or 17.4 percent of future cumulative traffic for the worst (southbound) approach for the PM peak (through 2025) is forecast to be generated by the 901 16th Street project. Thus, this proportion should be the fair share contribution.

For 17th/Mississippi, although forecast project trips are a very substantial percentage of all new traffic, the project sponsor should only be responsible for the project's share of all future cumulative traffic (including existing traffic). The Proposed Project would add 146 vehicle trips to the worst (southbound) approach during the PM peak hour, representing 36.7 percent of the total future (2025) PM peak hour southbound approach volume. Thus, this proportion should be the fair share contribution. Signalization is more desirable than restriping due in part to potential conflicts with the existing bike lanes. Also, the safety and effectiveness of the STOP controls will be compromised by adding additional lanes.

Issue 3. What Other Development Projects Will Contribute toward Signalization?

The 1000 16th Street (Daggett) project, now under construction, is on the hook to contribute fair shares to signalize Mariposa/Pennsylvania and Mariposa/Mississippi. We have not identified other projects responsible for contributing.

Issue 4. What Is the Availability of Other Non-Development Funding?

Manito Velasco, the SFMTA signal design manager, confirmed that some Prop K funding could be available in 2016 to start design at least of Mariposa/Pennsylvania. According to the 5 Year Prioritization Program for Traffic Signals and Signs, there will be \$375,000 for design of this package of signals, split between Fiscal Year 2016-17 and 2017-18.

Again, the available funding expected from development projects and Prop K does not appear to be sufficient to allow the SFMTA to commit to signalization at the 17th/Mississippi and Mariposa/Pennsylvania intersections.

Compliance/ Informational Analysis

Below is an example planning code compliance table. Using this as a template, the transportation impact study or CEQA document may include San Francisco Planning Code compliance as an appendix.

Project Description: [Briefly describe the proposed project]

Use District: [Include the use district(s)]

Topic	Planning Code Reference	Planning Code Requirement	Proposed Project	Existing Conditions
Pedestrian Improvements	§ 138.1 Streetscape and Pedestrian Improvements	[Add applicable information]	[Add applicable information]	[Add applicable information]
Off-Street Parking and Loading Requirements	§ 150 Required	[Add applicable information]	[Add applicable information]	[Add applicable information]
Vehicle Parking (Off-Street)	§ 151 Required	[Add applicable information]	[Add applicable information]	[Add applicable information]
Freight Loading (Off-Street)	§ 152 Required	[Add applicable information]	[Add applicable information]	[Add applicable information]
Rules for Calculation of Required Spaces	§ 153 Required	[Add applicable information]	[Add applicable information]	[Add applicable information]
Dimensions for Off-Street Parking, Freight Loading and Service Vehicle Spaces	§ 154 Required	[Add applicable information]	[Add applicable information]	[Add applicable information]
Parking Pricing Requirements	§ 155(g) Required	[Add applicable information]	[Add applicable information]	n/a
Bicycle Parking	§ 155.2 Required	[Add applicable information]	[Add applicable information]	[Add applicable information]
Shower Facilities and Lockers	§ 155.4 Required	[Add applicable information]	[Add applicable information]	[Add applicable information]
Exemptions and Exceptions from Off-Street Parking, Freight Loading, and Service Vehicle Requirements	§ 161 Required	[Add applicable information]	[Add applicable information]	[Add applicable information]
Tour Bus Loading Spaces in C-3 Districts	§ 162 Required	[Add applicable information]	[Add applicable information]	[Add applicable information]
Transportation Management Programs and Transportation Brokerage Services	§ 163 Required	[Add applicable information]	[Add applicable information]	[Add applicable information]

(continued on next page)

Topic	Planning Code Reference	Planning Code Requirement	Proposed Project	Existing Conditions
Child-Care Plans and Child Care Brokerage Services	§ 165 Required	[Add applicable information]	[Add applicable information]	n/a
Car Sharing	§ 166 Required	[Add applicable information]	[Add applicable information]	[Add applicable information]
Parking Costs Separated from Housing Costs in New Residential Buildings	§ 167 Required	[Add applicable information]	[Add applicable information]	[Add applicable information]
Transportation Demand Management Program (provide the TDM application as an appendix)	§ 169 Required	[Add applicable information]	[Add applicable information]	[Add applicable information]
Mid-block Alleys in Large Lot Developments Institutional Master Plans	§ 270.2 Required	[Add applicable information]	[Add applicable information]	[Add applicable information]
Institutional Master Plans (transportation strategies)	§ 304.5 Required	[Add applicable information]	[Add applicable information]	[Add applicable information]
Housing Requirements for Residential and Live/Work Development Projects (affordable housing)	§ 415 Required	[Add applicable information]	[Add applicable information]	[Add applicable information]