SOUTH SAN FRANCISCO
GENERAL PLAN UPDATE

Transportation Analysis Guidelines

OCTOBER 2022

Table of Contents

List of Tables

1. Introduction

The City of South San Francisco's Transportation Analysis Guidelines seek to provide a clear and consistent technical approach for analyzing projects that could have transportation effects (adverse or beneficial) on the City's transportation system and services. This document provides guidance on two key elements of the City's transportation planning process for development review: Transportation Impact Analyses (TIAs) and Transportation Demand Management (TDM) Plans and Checklists.

A Transportation Impact Analysis (TIA) provides essential information for decision-makers and the public when evaluating individual developments, small- and large-scale area plans, and transportation infrastructure projects. A transportation impact analysis for projects in South San Francisco serves three primary purposes:

- Evaluate a project's consistency with the City's General Plan, including consistency with relevant ordinances pertaining to transportation.
- Evaluate a project's consistency with the City/County Association of Governments of San Mateo County (C/CAG) Congestion Management Plan.
- Provide an evaluation of potentially significant impacts and corresponding mitigation measures per the California Environmental Quality Act (CEQA).

Outcomes of the TIA process include conditions of approval and/or mitigation measures under the California Environmental Quality Act (CEQA) that result in changes to the project site plan or program, or the implementation of off-site transportation system improvements. The resulting TIA document is intended to provide decision-makers with information about the transportation system impacts of a project and, when appropriate, recommend conditions of approval, or identify mitigation measures under CEQA. City staff will review transportation studies and reports based on the process presented in these guidelines..

TDM Plans and Checklists facilitate the planning and implementation of the City's TDM Ordinance (§20.400). The TDM Ordinance seeks to reduce vehicle miles traveled, manage traffic congestion, promote more efficient utilization of the City's transportation system, establish ongoing monitoring and enforcement practices, and achieve compliance with the county's Congestion Management Program. To accomplish this, TDM Plans and Checklists document trip reduction measures for implementation by individual development projects.

The Transportation Analysis Guidelines outlines when a TIA and TDM Checklist or Plan is required, the suggested scope of work and methods for analysis, and appropriate remedies and mitigations for impacts and deficiencies identified through the TIA process. By coordinating approaches for its TIA and TDM planning processes, the City intends to align its efforts to modernize its transportation system as envisioned in its 2040 General Plan Mobility Element, with a focus on safety, multimodal connectivity, sustainability, and equity.

Each project is unique, and these guidelines are not intended to be prescriptive beyond practical limits. Not all criteria and analyses described in these guidelines will apply to every project. Early and consistent communication with the Planning Division and Engineering Division staff is encouraged to confirm the recommended scope of work

2. Determining the Scope of Work

Each project shall have a unique scope of analysis. Guidance for general scope of analysis, size of study area, and need to coordinate with other agencies is presented through a tier system, in which projects are designated as Tiers 0 through 4, with Tier 0 least likely to create transportation deficiencies and Tier 4 most likely.

2.1 Recommended TIA Process and Documentation

The project applicant shall retain a professional transportation consultant to conduct the required transportation analysis; the City may seek to develop a list of qualified firms and it is the applicant's responsibility to ensure that the selected firm is acceptable to the City. The applicant's consultant should seek City acceptance of the scope of work before initiation. In some cases, review by other affected jurisdictions will be required. The process for each individual project will be unique and based on the judgment of Planning Division and Engineering Division staff.

Each transportation analysis will begin by preparing a scope of work that describes the project, site location, analysis methods, area-wide assumptions, study elements, study time periods, and transportation data collection methods. The transportation analysis scope of work, along with initial estimates of the project trip generation and VMT screening evaluation, should be submitted to City staff for review and approval. Detailed guidance on selecting elements for inclusion in the analysis is presented in the *Analysis Requirements by Project Tier* section, beginning on page 9 of this document.

Role of City Staff

The transportation analysis will be prepared at the direction of Planning Division staff. This will ensure that potential transportation improvements and environmental impacts are considered as early as possible in the planning process. Development of a transportation analysis should include:

- Pre-application coordination, which will include a discussion of the TIA requirements put forth in this document.
- Approval of the scope of work, which includes proposed finding of which Tier the project falls within, field reconnaissance, initial trip generation estimates, study area, analysis scenarios and parameters, data requirements.
- Review of the project trip generation, trip distribution, and VMT approach and results.
- Review of assumptions and the results of Existing Conditions analysis.
- Review of the administrative draft report, with adequate time for comments.
- Review of a draft report, with adequate time for comments.

If information from a transportation analysis will be incorporated into the transportation and circulation section of an environmental document (e.g., Initial Study, Mitigated Negative Declaration or Environmental Impact Report), the format of the transportation analysis report should be coordinated with the environmental consultant and City staff.

Coordination with Other Jurisdictions

The need for coordination with other jurisdictions is a determination to be made by City staff based on a project location, size, and potential for affecting transportation facilities managed by other agencies. In general, coordination efforts would be focused on Tier 3 or Tier 4 projects, and may take the form of either soliciting comments on a Notice of Preparation (NOP) or sharing analysis results and potential improvements prior to publication of the TIA.

Section 15086 of the *CEQA Guidelines*[1] shall be followed as the basis for satisfying coordination requirements for environmental studies. In most cases, overlap will occur for roadway system analysis (i.e., not VMT) but may also include impact analysis of active transportation modes (bicycling and walking), as well as transit system facilities and services. If the study area overlaps with other jurisdictions, staff from those jurisdictions must be consulted to verify study locations, analysis methodologies, and the substantial effect thresholds. As appropriate, adjacent jurisdictions should be contacted to provide current development applications. Caltrans should be consulted during the NOP phase for Tier 3 and Tier 4 projects that have the potential to affect the state highway system, including US-101, I-280, I-380, El Camino Real, and Skyline Boulevard.

Roadway crossings of rail lines are another overlap area that may require coordination with the California Public Utilities Commission (CPUC), particularly for large projects with parking facility driveways located in close proximity to at-grade rail crossings. The focus of any analysis related to rail crossings should be on whether the current crossing complies with current design standards and if the project has the potential to result in vehicle queue spillback across an active crossing.

A project should also coordinate with relevant transit agencies (such as SamTrans, Commute.org, BART, and Caltrain) if it would affect any nearby transit facilities, such as changing or disrupting access to a bus stop near the project frontage. Coordination may also be necessary for projects expected to generate substantial growth in ridership on relevant services near the project.

2.2 Types of Studies

Based on the characteristics of a given project, one or more transportation studies may be required. The Planning Division has identified four common study types. Determination of the studies and submittals required for a project will be performed in accordance with these guidelines and in consultation with Planning Division staff.

The study types are as follows:

- Site Access and Circulation Review: This study type focuses on the site's operations, and its interactions with the immediate transportation system surrounding the site (i.e., project frontages and driveways). Emphasis is on whether the site's driveways, loading, and parking facilities meet design standards and provide adequate access for all modes of transportation.
- Local Transportation Analysis: The Local Transportation Analysis includes all topics discussed in a Site Access and Circulation Plan, but tends to reflect a larger study area, acknowledging that the projects

[1] *The California Environmental Quality Act Guidelines*, California, 2019.

studied are more likely to have effects on the transportation network beyond the site's immediate frontage. Depending on the scale of the site, a Local Transportation Analysis may include assessment of vehicle level of service, vehicle queuing, signal warrants, and other traffic operations topics. It also requires a more detailed assessment of surrounding transit, bicycle, and pedestrian infrastructure.

- Parking Management Study: A Parking Management Study (§20.330.004.E) provides analysis regarding the expected parking demand of a project, its proposed parking supply, and any analysis to support shared parking or reduced parking. This may overlap with a TDM plan, if a request for reduced parking is made as part of the project application.
- TDM Plan and/or Checklist: Each project shall prepare documentation to comply with the City's TDM Ordinance (§20.400) in order to demonstrate consistency with the General Plan and General Plan EIR. Documentation requirements vary by project tier as noted in the ordinance and described below and Section 6.
    - Tier 1 and Tier 2 projects are required to submit a TDM Checklist. The TDM checklist (shown in Table 3 and Table 5) identifies TDM measures the project will implement. A brief narrative (typically one to two pages) and site plan markup is suggested to describe any measures that may warrant further explanation. Submittal of a TDM checklist shall designate a lead site contact.
    - Tier 3 and 4 projects shall prepare TDM Plans. TDM plans shall include the TDM Checklist accompanied by a more detailed description of the site context and how the measures will be implemented. A TDM Plan shall include a site plan designating trip reduction measures, a map identifying site access to nearby transit, bicycle, and pedestrian facilities, and identification of any proposed improvement measures. A summary of performance targets and proposed monitoring practices shall also be included. A TDM Plan should strive to provide a specific, actionable path forward to achieve required performance target.
- Required CEQA Documentation: Compliance with CEQA will often require different deliverables depending on the size and potential impacts of a project. Project sponsors should coordinate with an environmental consultant and with Planning Division staff to identify the appropriate level of CEQA analysis. Complete guidance on preparing environmental studies under CEQA can be found in the most recent version of the *CEQA Statute and Guidelines*. Typical CEQA processes include the following:
    a. Initial Study: The initial study is intended to identify potential impacts. If there is potential for an impact in a given CEQA study area (including Transportation), additional study is generally required. If no potential environmental impacts are identified in the Initial Study, a ***Negative Declaration of Environmental Impact*** is prepared.
    b. Mitigated Negative Declaration: If potential impacts are identified, but can be mitigated through either adoption of mitigation measures or changes to the project description, a mitigated negative declaration may be filed.
    c. Environmental Impact Report (EIR): If potential impacts are identified and further study is required to identify mitigation measures; or if it is unlikely for potential impacts to be mitigated to a less than significant level, an Environmental Impact Report must be prepared.
    d. Mitigation Monitoring and Reporting Plan (MMRP): A required element of a completed EIR, an MMRP includes details on how proposed mitigation measures will be implemented and monitored over time, including how the City can monitor progress and determine if a project is compliant with its final EIR.

2.3 Overview of Project Tiers

To assist project applicants in determining the appropriate level of transportation analysis for their projects, City Planning has designated five project "tiers." Generally, projects with a higher tier have a higher likelihood of having a noticeable effect on the existing or future transportation system, or require additional study to determine overall general plan compliance. The analysis tiers are summarized in Table 1, and further discussed below. Analysis requirements by project tier are summarized in Section 3.

Tier 0

A project can be considered Tier 0 if any of the following are true:

- The project is a residential project with fewer than 20 dwelling units.
- The project generates fewer than 100 net new daily vehicle trips.
- The project is a senior housing development.
- At least 50 percent of the proposed number of dwelling units are provided at below market rate.

Tier 1

Tier 1 projects consist of all residential projects that are not eligible for inclusion in Tier 0.

Tier 2

Tier 2 projects include projects with the following characteristics that are not eligible for inclusion in Tier 1

- The project is a hotel, retail, manufacturing, industrial, warehousing, educational, or entertainment use (or a mix of uses) that generates 100 or more net new daily vehicle trips; or the project is an office/research & development (R&D) project less than 50,000 square feet in size; and
- The project is not determined to have a significant impact on VMT under CEQA

Tier 3

Tier 3 includes projects with the following characteristics:

- The project has a significant impact on VMT under CEQA, but would otherwise be eligible for Tier 2; or the project consists of office or R&D between 50,000 and 400,000 square feet in size.

Tier 4

Tier 4 consists of office and R&D projects greater than 400,000 square feet in size.

Table 1: Summary of Project Tiers and Typical Analysis Scope

Project Tier	Typical Transportation Analysis Required	Typical Study Area
Tier 0: Residential land uses with fewer than 20 units; all land uses generating fewer than 100 net new daily vehicle trips; senior housing developments and affordable housing developments with >50 percent of units below market rate. Any projects not requiring discretionary approvals.	Site Access and Circulation Review *(No formal document submittal)*	Site and Immediate Frontage
Tier 1: Residential land uses with 20 or more units (excluding senior housing developments and affordable housing developments with >50 percent of units below market rate), and residential mixed-use projects with up to 40,000 square feet of local-serving retail or childcare use.	Site Access and Circulation Plan Parking Management Plan (*if required)* TDM Checklist	Site and Immediate Frontage
Tier 2: All hotels, retail, warehouse/distribution, and industrial uses anticipated to generate greater than 100 daily trips; and small office/R&D uses greater than 10,000 square feet but less than 50,000 square feet, unless a proposed land use is determined to have a significant impact to vehicle miles traveled during the environmental review	Local Transportation Analysis Parking Management Plan (*if required)* CEQA Analysis TDM Checklist	Site and Immediate Frontage Intersections and Roadway Segments Within One Block of Site
Tier 3: Office/R&D uses between 50,000 and 400,000 square feet of gross building square footage, and any Tier 2 land uses found to have a significant impact on vehicle miles traveled during the environmental review	Local Transportation Analysis Parking Management Plan (*if required)* CEQA Analysis TDM Plan	Site and Immediate Frontage Intersections and Roadway Segments Within ¼ mile of Site Bicycle/Pedestrian Corridors Connecting Site to Caltrain/BART/ECR CMP Intersections and Relevant Caltrans Facilities
Tier 4: Office/R&D uses with at least 400,000 square feet of gross building square footage	Local Transportation Analysis Parking Management Plan (*if required)* CEQA Analysis TDM Plan	Site and Immediate Frontage Intersections and Roadway Segments Within ¼ mile of Site Roadway Corridors Connecting Site to US-101, I-380, or I-280 CMP Intersections and Relevant Caltrans Facilities Bicycle/Pedestrian Corridors Connecting Site to Caltrain/BART/ECR

Note: Mixed-use projects should be evaluated under the highest applicable tier for any of the component land uses

2.4 CEQA Considerations

The tiers listed above are intended for use in determining the level of analysis necessary for city requirements. Projects at any tier may be subject to additional analysis under CEQA if a potentially significant impact is identified in any of the CEQA subject areas. Applicants with projects that are not exempt from CEQA may contact the Planning Division to discuss requirements. In determining potential impacts due to VMT, the City has established screening thresholds that may be used to determine potential for impacts during the Initial Study phase of environmental analysis.

CEQA VMT Screening Thresholds

This section describes screening thresholds that are applied to quickly identify when a project should be expected to cause a less-than-significant VMT impact without conducting a detailed VMT assessment for CEQA transportation assessment purposes (VMT calculations may still be needed for air quality, noise and climate change evaluations). However, even if a project is exempt from VMT analysis, it still is required to evaluate the following where applicable:

- Conflicts with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadways, bicycle, and pedestrian facilities
- Substantially increases hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses; or
- Results in inadequate emergency access.

CEQA screening thresholds for land use and transportation projects are listed below. Projects that do not meet the screening thresholds must conduct a VMT analysis under CEQA.

Land Use Project VMT Screening Thresholds

Based on guidance from the State of California's Office of Planning and Research (OPR) *Technical Advisory* (December 2018, pages 13-15), land use projects that meet at least one of the following screening thresholds are presumed to not require CEQA VMT analysis:

- Transit Priority Areas (TPA): Projects located within ½ mile walkshed around major transit stops[2] (i.e., the South San Francisco Caltrain Station, South San Francisco BART Station, and many bus stops along El Camino Real). However, TPA screening will not apply if the project meets *any* of the following thresholds:
    - The project has a Floor Area Ratio (FAR) of 0.75 or less;
    - The proposed parking exceeds City requirements;
    - The Project is inconsistent with the *City's General Plan*, applicable Specific Plan, or applicable Sustainable Communities Strategy;
    - The Project removes or reduces the number of existing on-site affordable residential units; or,
    - Significant levels of VMT are projected through project-specific or location-specific information.
- Affordable Housing: 50% restricted affordable residential projects in infill locations (i.e., development within unused and underutilized lands within existing development patterns).
- Small Projects: Projects defined as generating 100 or fewer average daily vehicle trips, absent substantial evidence indicating that a project would generate a potentially significant level of VMT.

[2] "Major transit stop" is defined in Public Resources Code 21064.3 as a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.

Each project is required to document the estimated number of trips it will generate. Examples of projects that may generate less than 100 average daily trips include: ~20 units of multifamily mid-rise/high-rise residential, ~10,000 square-feet office, and ~15,000 square-feet industrial.

- Locally Serving Public Facility: Locally serving public facilities that encompasses government, civic, cultural, health, and infrastructure uses and activity which contribute to and support community needs. Locally serving public facilities include police stations, fire stations, passive parks (parks designed for use in an informal way and typically less developed), branch libraries, community centers, public utilities, and neighborhood public schools.
- Neighborhood-Serving Retail Project: Neighborhood-serving retail projects that are less than 50,000 square feet, which serve the immediate neighborhoods. Examples include grocery stores, dry cleaners, coffee shops, convenience markets, fitness centers, tutoring centers and daycare centers.
- Airport / Business Hotels: South San Francisco is very close to the San Francisco International Airport, and also attracts business travelers due to its concentrated life science office space. Generally, business and airport hotels serve to provide accommodations to visitors who would otherwise stay in farther flung locations and generate more VMT. As such, hotels designed to serve business travelers or individuals flying in or out of SFO, may be presumed to have a less-than-significant impact on VMT.
- Residential and Office Projects in Low VMT Areas: The project is located within a low VMT area for its land use. Based on information from the South San Francisco model, certain areas of the city have lower rates of VMT generation than others. In existing locations where VMT per capita is below the thresholds, projects may be screened from further VMT analysis. To determine whether a project is in a low VMT area, the analysis should identify the Traffic Analysis Zone (TAZ) in which a given project is located, and then determine whether the average VMT per resident (for a residential use) or average VMT per employee (for an office use) for that TAZ is 15 percent below the regional average for the project land use type in the base year version (currently 2015) of the travel model.

Each component of a mixed-use project is considered separately; therefore, each of the project's individual land uses should be compared to the screening thresholds. It is possible for some of the mixed-use project's land uses to be screened out and some to require further analysis. In addition, projects that do not require CEQA VMT analysis may still require a transportation study to assess other CEQA considerations such as emergency access, design hazards, and consistency with plans and policies.

Tiering from Previous EIR

In addition to VMT screening options presented above, some projects may be able to streamline CEQA transportation analysis through tiering from a previous EIR that included a VMT assessment. For many projects, the applicable EIR to tier from will be the *2040 General Plan Environmental Impact Report.* CEQA Statute §15152 provides guidance on preparing environmental analysis when tiering from a previously approved EIR or negative declaration. Specifically, the General Plan EIR identifies a significant and unavoidable impact due to VMT, and establishes the South San Francisco Transportation Demand Management ordinance as the primary mitigation measure. Thus, projects that adequately meet the requirements of the TDM Ordinance may state that VMT impacts have been adequately addressed per CEQA Statue §15152(f).3(B). The project sponsor is responsible for verifying that the project meets the necessary requirements with their environmental consultant.

3. Analysis Requirements by Project Tier

3.1 Tier 0

Tier 0 projects are thought to have minimal effect on the transportation network and are generally included in analysis performed under the General Plan. While off-site transportation effects may be minimal, the City still requires submittal of appropriate site plans depicting the project's circulation patterns and connections to off-site transportation facilities. Planning and Engineering staff will perform typical site plan review to assess potential hazards or access issues arising from project driveways, loading zones, parking facilities, and pedestrian pathways. The site plan will also be assessed for potential barriers to pedestrians or cyclists accessing the site.

Tier 0 projects require submittal of site plans for review by the Planning and Engineering Divisions, along with all other necessary forms and permits.

Site Plan Review

The site plan review would cover the following topics:

- Review and evaluate site access locations for all modes, assess vehicle turning radii, identify truck loading and refuse collection areas, identify routes for emergency access, and discuss other site characteristics with respect to operations and safety for all modes of transportation.
- Identify location of bicycle parking facilities and distance from roadway and primary building access.
- Identify routes from roadway to primary building access for pedestrians.
- Assess potential hazards to bicycles, pedestrians, and vehicles at driveways.

No narrative report is required for Tier 0 projects.

3.2 Tier 1

Residential projects falling within Tier 1 are expected to have a minimal effect on the City's transportation network, and generally result in a reduction in citywide VMT per capita due to the current jobs-housing imbalance in San Mateo County. Generally, analysis for this tier of project focuses on the project site and its access points and immediate frontage only.

Tier 1 projects must submit:

- A Site Access and Circulation Plan
- A completed TDM Checklist..

Transportation Impact Assessment

A Tier 1 Transportation Impact Assessment is a targeted memorandum with accompanying figures designed to show the site's existing conditions, project travel demand, and a brief discussion of how the project area would be changed with implementation of the project. It must also include documentation of how pedestrians, bicyclists, transit riders, and vehicles will access the site. A parking management plan may also be included if required by code.

Existing Conditions

The existing conditions review must include the following elements:

- A map of the project site showing its location, and the street network within ½ mile of the site
- Discussion of roadway attributes for all streets adjacent to the site, including number of lanes, designation in the General Plan, and inclusion in the High Injury Network.
- Discussion of pedestrian and bicycle network within one block of the project, including presence or absence of bicycle paths, lanes, or routes; presence and quality of sidewalks; and deficiencies such as facilities not meeting ADA requirements, or bicycle facilities not meeting design standards.
- Identification of nearest transit stop(s) to project, and what route(s) service those stops.
- Documentation that the project meets screening criteria for a less than significant impact to VMT
- Any other unique conditions or deficiencies related to transportation within one block of the project site.

Travel Demand Analysis

The travel demand analysis shall estimate the number of vehicle trips generated by the project during the course of an average weekday, the AM peak hour (between 7-9am), and the PM peak hour (between 4-6pm). Travel demand estimates should be based on the most recent edition of *ITE Trip Generation* (with adjustments as appropriate) or local data. This may be presented in a Trip Generation table. Trip distribution and assignment may be developed upon request for air quality and noise analysis under CEQA.

Cumulative Conditions

The cumulative conditions section should identify reasonably foreseeable projects within ½ mile of the project site, identify their locations on a map, and qualitatively discuss how said projects may interact with the proposed project. If changes to the transportation network within one block of project are proposed, identify if there will be an effect on project driveways, loading zones, or pedestrian access. Identified projects should be considered in identifying potential deficiencies within the *Site Circulation and Access Plan*.

Project Analysis and Identification of Deficiencies

The site circulation and access analysis should provide a detailed site plan of the project, including all parking facilities, driveways, entrances, and pedestrian pathways. The study area for Tier 1 projects generally consists of a one block area and adjacent roadway segments, with particular emphasis on the transportation network immediately adjacent to the project.

Table 2 may be used as a checklist for discussing study elements and identifying deficiencies and improvements.

Table 2: Tier 1 Analysis Requirements

Study Element	Evaluation Criteria	Deficiency Determination
Consistency with Plans and Policies	Evaluate the project against goals, policies, and actions set forth in the *General Plan,* any relevant area plans or specific plans, and the *Mobility Element*	Project creates conditions that are inconsistent with mobility, safety, and other related goals, policies, and actions set forth in the *General Plan* or relevant specific plan.
VMT (CEQA)	Discuss whether project qualifies for a presumption of a less-than-significant impact. The vast majority of residential areas in South San Francisco fall within zones that meet the CEQA screening criteria for home-based VMT per capita.	Project produces VMT per resident from either that is greater than 15 percent below the regional average. For non-residential and non-employment land uses, the Project would cause an increase in overall countywide VMT.
Safety (CEQA)	Evaluate existing hazards, and review project description and site plan for potential hazards including restricted lines of sight, and other design-related issues. If project is located on or near a Caltrans facility, work with Caltrans staff to determine appropriate safety analysis for that facility.	The project would create or substantially contribute to a roadway or design hazard.
On-Site Circulation	Review and evaluate site access locations, loading zones, and refuse collection areas with respect to operations and safety for all modes of transportation. Identify location of bicycle parking facilities and distance from roadway and primary building access. Identify routes from roadway to primary building access for pedestrians. Assess sight lines, turning radii, and potential hazards to bicycles, pedestrians, and vehicles at driveways. Identify routes for emergency access to site.	Project designs for on-site circulation, access, and parking fail to meet City design guidelines. Where City standards are not defined, industry standards (*Highway Design Manual*, MUTCD, etc.) should be referenced, as appropriate. Project fails to incorporate adequate bicycle and pedestrian access to primary entrance, such as meandering pedestrian paths or landscaping between sidewalk and primary entrance. Failure to provide adequate accessibility for service and delivery trucks on-site, including access to loading areas. Project will result in a hazard or potentially unsafe conditions without improvements (such as inadequate site lines, blind corners, or loading zones adjacent to bicycle lanes).
Pedestrian Facilities	Identify any existing or planned pedestrian facilities that may be affected by the project. Document how the project will affect local pedestrian circulation (e.g., disclose how widening a road or adding a driveway will affect pedestrian safety and walking times). Note missing sidewalk links, unmarked crosswalks, and other potentially deficient facilities adjacent to Project frontage.	Project fails to provide safe and accessible pedestrian connections between project buildings and adjacent streets, trails, and transit facilities. Project adds trips to an existing facility along the project frontage that does not meet current pedestrian design standards.

Study Element	Evaluation Criteria	Deficiency Determination
Bicycle Facilities	Identify any existing or planned facilities that may be affected by the project. Identify location and quantity of bicycle parking facilities Compare facilities at site frontage to planned facilities in Bicycle/Pedestrian plan. Identify how changes to roadway frontage or right of way will affect bicycle travel.	Project fails to provide safe and accessible bicycle connections between project buildings and adjacent streets, trails, and transit facilities. Project fails to provide adequate, high-quality bicycle parking. Project disrupts existing or planned bicycle facilities, or is inconsistent with the City's Bike Plan.
Transit	Identify any existing or planned transit facilities that may be affected by the project. If appropriate, document how the project improves access to or utilization of transit. Identify pedestrian routes from project to nearest transit stop or station.	Project disrupts existing or planned transit facilities and services, or the comfort of riders on existing or planned transit facilities and services Project conflicts with City adopted plans, guidelines, policies, or standards regarding transit and transit access. Project does not provide a clear and direct path to a sidewalk or bicycle route providing access to a transit station or stop
TDM Program Consistency	Demonstrate compliance with TDM Ordinance, document TDM programs selected for implementation via TDM Checklist	A project does not comply with the City's TDM ordinance.
Safety Assessment (non-CEQA)	Identify nearby facilities on the High Injury Network. Identify any planned safety countermeasures identified by City staff for facilities adjacent to the project.	The project adds more than 100 peak hour vehicles to an existing high injury facility, or to a facility where bicycle and pedestrian infrastructure does not meet current design standards.
Other Issues	Consider other issues on a case-by-case basis following discussion with City staff (e.g., construction deficiencies, queuing between closely spaced intersections, emergency access, special event traffic)	TBD
Other Jurisdictional Requirements	In situations where several agencies must approve a development or are responsible for affected roadways, the applicant must contact lead and responsible agencies to determine issues to be addressed, scope of study, etc. In general, the applicant will be responsible for analyzing project impacts against appropriate jurisdictional thresholds; however, the analysis method will be determined by the City in compliance with CEQA and the impacts will be mitigated consistent with City standards.	The project exceeds established deficiency thresholds for transportation facilities and services under the jurisdiction of other agencies.

TDM Checklist

Tier 1 projects are subject to implementing a list of TDM measures selected from those identified by the City in its TDM Ordinance (see Table 3). Each individual measure is worth a set number of 'points'; residential projects must achieve 20 points if consistent with the General Plan or located within a low-VMT area or ½ mile of a high quality transit corridor; otherwise, projects must achieve 30 points. An annual self-certification form is required for the first five years after occupancy.

Table 3: Tier 1 TDM Checklist

TDM Measure (*Description Required as Attachment)	Eligible Points	Proposed Project Points
Unbundled parking	10	
Free transit passes to residents for first year of tenant's residency	10	
Affordable Housing (Beyond Minimum Requirements)	6	
Active Transportation Gap Closure/Improvement*	6	
Transit facility improvement*	6	
TDM coordinator/point of contact for commute assistance	5	
Reduced Parking	Up to 5	
Increased Bicycle Parking	Up to 4	
Onsite Carshare	4	
Sidewalk-oriented pedestrian entrance	2	
Mixed-use development with ground-floor retail	2	
Bicycle repair station	1	
Pedestrian-oriented street lighting	1	
Promotional programs & materials	1	
Tier 1 Requirement if Located within ½ Mile of a High-Quality Transit Corridor, Low-VMT Residential Area, or consistent with General Plan	20	
Tier 1 Requirement for Other Locations with Potential VMT Impact	30	

The following guidance is suggested for the calculation of variable point totals:

- Reduced Parking: 1 point for every 6 percent reduction in parking supply, up to 30 percent reduction. Parking reduction may require parking management plan depending on land use type.
- Increased bicycle parking: 1 point for every 25 percent increase above city requirements, up to 100 percent increase.

Details on the definitions and requirements for each strategy can be found in the City's TDM Ordinance (§20.400).

3.3 Tier 2

Tier 2 projects have some potential to affect the City's transportation network due to increased amounts of vehicular trips. Generally, analysis for this tier of project focuses on the project site and immediately adjacent roadways.

Tier 2 projects must submit:

- A site access and circulation plan
- A TDM checklist

By definition, Tier 2 projects should only include projects for which the VMT impact is presumed to be less-than-significant under CEQA. Local-serving retail, projects located within ½ mile of transit, and mixed-use projects in low-VMT areas are all examples of projects that may fall under Tier 2. However, manufacturing, industrial, and other employment-focused projects located outside of low VMT areas or transit-accessible areas will likely need to be evaluated under Tier 3, as may many regionally significant retail projects.

Transportation Impact Assessment

A Tier 2 Transportation Impact Assessment is a report with accompanying figures designed to show the site's existing conditions, project travel demand, and a brief discussion of how the project area would be changed with implementation of the project. It must also include documentation of how pedestrians, bicyclists, transit riders, and vehicles will access the site. A parking management plan may also be included if required by code.

Existing Conditions

The existing conditions review must include the following elements:

- A map of the project site showing its location, and the street network within ½ mile of the site
- Discussion of roadway attributes for all streets adjacent to the site, including number of lanes, designation in the General Plan, and inclusion in the High Injury Network.
- Discussion of pedestrian and bicycle network on roadways adjacent to the site, including presence or absence of bicycle paths, lanes, or routes; presence and quality of sidewalks; and deficiencies such as facilities not meeting ADA requirements, or bicycle facilities not meeting design standards.
- Identification of the transit stop(s) nearest the project site and what route(s) service that stop.
- Documentation that the project meets screening criteria for a less than significant impact to VMT
- Any other unique conditions or deficiencies related to transportation along the project frontage.

Travel Demand Analysis

The travel demand analysis shall estimate the number of vehicle trips generated by the project during the course of an average weekday, the AM peak hour (between 7-9am), and the PM peak hour (between 4-6pm). Travel demand estimates should be based on the most recent edition of *ITE Trip Generation* (with adjustments as appropriate) or local data. Trip distribution and assignment may be developed upon request for air quality and noise analysis under CEQA.

Cumulative Conditions

The cumulative conditions section should identify reasonably foreseeable projects within ½ mile of the project site; identify their locations on a map; and qualitatively discuss how said projects may interact with the proposed project.

Analysis and Deficiency Identification

Guidance on required discussion within each topic area, including criteria for identifying deficiencies, is included in Table 4 below. All analysis presented in the *Analysis and Deficiency Identification* topics should present analysis for existing plus project conditions. The City may also request analysis under a cumulative condition at its discretion.

Table 4: Tier 2 Analysis Requirements

Study Element	Evaluation Criteria	Deficiency Determination
Consistency with Plans and Policies	Evaluate the project against goals, policies, and actions set forth in the *General Plan,* any relevant area plans or specific plans, and the *Mobility Element*	Project creates conditions that are inconsistent with mobility, safety, and other related goals, policies, and actions set forth in the *General Plan* or relevant specific plan.
VMT (CEQA)	Document whether project qualifies for presumption of less than significant impact under CEQA or is consistent with VMT impact and mitigations included in City's General Plan. Documentation would describe consistency with proposed zoning, growth forecasts, General Plan policies, and compliance with TDM ordinance. If project is not consistent, assess project's VMT as Household VMT per Resident and Home-Based Work VMT per Employee. Determine if VMT levels exceed thresholds. For land uses other than residential, office, R&D, and industrial, discuss appropriate approaches with City staff, and present Total Project VMT. Discuss project's effect on VMT.	Projects with a VMT impact should be analyzed as a Tier 3 project and document mitigation measures consistent with the City's TDM Ordinance.
Safety (CEQA)	Evaluate existing hazards, and review project description and site plan for potential hazards including restricted lines of sight, and other design-related issues. If project is located on a Caltrans facility, work with Caltrans staff to determine appropriate safety analysis for that facility.	The project would create or substantially contribute to a roadway or design hazard
Emergency Access and Evacuation (CEQA)	Assess routes to and from key emergency services, such as fire stations and emergency rooms. Assess whether project would impede access to those services to or from the site.	The project would increase response times to the project from emergency services to be greater than the target response time.

Study Element	Evaluation Criteria	Deficiency Determination
Evacuation (CEQA) *Only for sites in a High Risk or Very High Risk wildfire zone.*	Assess project's effect on evacuation times in event of natural disaster.	The project would increase the time needed to evacuate an area in the event of an emergency to an extent that the area cannot feasibly be fully evacuated.
On-Site Circulation	Review and evaluate site access locations, loading zones, and refuse collection areas with respect to operations and safety for all modes of transportation. Identify location of bicycle parking facilities and distance from roadway and primary building access. Identify routes from roadway to primary building access for pedestrians. Assess sight lines, turning radii, and potential hazards to bicycles, pedestrians, and vehicles at driveways. Identify routes for emergency access to site.	Project designs for on-site circulation, access, and parking fail to meet City design guidelines. Where City standards are not defined, industry standards (*Highway Design Manual*, MUTCD, etc.) should be referenced, as appropriate. Project fails to incorporate adequate bicycle and pedestrian access to primary entrance. Failure to provide adequate accessibility for service and delivery trucks on-site, including access to loading areas. Project will result in a hazard or potentially unsafe conditions without improvements.
Pedestrian Facilities	Identify any existing or planned pedestrian facilities adjacent to the project site. Identify pedestrian routes (including gaps in those routes) to nearest transit stop and to any key destinations within ½ mile of site. Document how the project will affect local pedestrian circulation (e.g., disclose how widening a road or adding a driveway will affect pedestrian safety and walking times). Note missing sidewalk links, unmarked crosswalks, and other potentially deficient facilities on project frontages. Identify how changes to roadway frontage or right of way will affect pedestrian travel.	Project fails to provide adequate pedestrian connections between project buildings and adjacent streets, trails, and transit facilities. Project adds trips to an existing facility along the project frontage that does not meet current pedestrian design standards and best practices.
Bicycle Facilities	Identify any existing or planned facilities that may be affected by the project. Compare facilities along site frontage to planned facilities in Bicycle/Pedestrian plan. Note level of traffic stress along immediate access routes to project. Identify how changes to roadway frontage or project adjacent right of way will affect bicycle travel.	Project fails to provide safe and accessible bicycle connections between project buildings and adjacent streets, trails, and transit facilities. Project fails to provide adequate, high-quality bicycle parking. Project adds trips to an existing facility along the project frontage that does not meet current bicycle design standards. Project disrupts existing or planned bicycle facilities, or is inconsistent with the City's Bike Plan.

Study Element	Evaluation Criteria	Deficiency Determination
Transit	Identify any existing or planned transit facilities that may be affected by the project, including existing and planned shuttle routes. If appropriate, document how the project improves access to or utilization of transit. Identify pedestrian routes from project to nearest transit stop or station.	Project disrupts existing or planned transit facilities and services. Project conflicts with City adopted plans, guidelines, policies, or standards regarding transit and transit access. Project does not provide a clear and direct path to a sidewalk or bicycle route providing access to a transit station or stop.
TDM Program Consistency	Evaluate project against program requirements, mode split targets and other elements outlined in the latest TDM Program ordinance. Demonstrate compliance with TDM Ordinance and document TDM programs selected for implementation.	A project does not comply with the City's TDM ordinance, including specified mode split goals.
Safety Assessment (non-CEQA)	Evaluate project trips added to intersections or street segments that have safety enhancement projects identified within the study area that are proposed as part of the General Plan or other future safety studies. Identify nearby facilities on the High Injury Network. Evaluate pedestrian and bicycle travel and facilities in the study area, determine whether increased walking/biking activity will result in multi-modal conflicts, and identify any required safety countermeasures. Identify any planned safety countermeasures identified by City staff for facilities adjacent to the project.	The project adds more than 100 peak hour vehicles to an existing high injury facility, or to a facility where bicycle and pedestrian infrastructure does not meet current design standards.
Trucks (or Other Large Vehicles) *At City's discretion*	For relevant industrial projects, identify the number of truck trips that will be generated, and design facilities necessary to accommodate these trucks.	A project fails to provide adequate accommodation of forecasted heavy traffic or temporary construction-related truck traffic consistent with City or industry standards (*Highway Design Manual*, MUTCD, etc.).
Passenger Loading and Pick-Up/Drop-Off *At City's discretion*	For projects that may have a large concentration of pick-up/drop-off activity, the project site circulation and pick-up/drop-off areas must be reviewed to identify opportunities and constraints of the project site. Modifications to the site circulation and/or pick-up/drop-off may be recommended. This analysis should include a discussion of TNC activity as appropriate.	A project cannot accommodate anticipated loading activity such that queuing obstructs either public access to the project, a bicycle lane, or a traffic lane for more than fifteen minutes in the relevant peak hour of loading demand.

Study Element	Evaluation Criteria	Deficiency Determination
Off-Site Traffic Operations *At City's discretion*	At discretion of the City, LOS analysis may be required for intersections immediately located at or within a block of a project driveway, if those intersections currently operate at LOS E or worse during the peak hour. All roadway facility analysis should be conducted during the AM and PM peak hours using the latest version of the *Highway Capacity Manual* (HCM) unless other methods or tools that are more applicable to the study area or project context are approved by City staff.	Addition of project traffic causes an intersection to 1) operate at LOS F overall or the worst-case movement, or 2) increases traffic volumes by 10% at intersections already operating at LOS F under the comparable "no project" scenario.
Intersection Traffic Control *At City's discretion*	At discretion of the City, evaluate intersections created due to a project driveway for signal warrants.	Addition of project traffic causes an all-way stop-controlled or side street stop-controlled intersection to 1) operate at LOS F overall or for the worst-case movement, and 2) meets the Caltrans signal warrant criteria.
Other Issues *At City's discretion*	Consider other issues on a case-by-case basis (e.g., construction deficiencies, queuing between closely spaced intersections, emergency access, special event traffic)	
Other Jurisdictional Requirements	In situations where several agencies must approve a development or are responsible for affected roadways, the applicant must contact lead and responsible agencies to determine issues to be addressed, scope of study, etc. In general, the applicant will be responsible for analyzing project impacts against appropriate jurisdictional thresholds; however, the analysis method will be determined by the City in compliance with CEQA and the impacts will be mitigated consistent with City standards.	The project exceeds established deficiency thresholds for transportation facilities and services under the jurisdiction of other agencies.

TDM Checklist

Tier 2 projects are subject to implementing a list of TDM measures selected from those identified by the City in its TDM Ordinance. Each individual measure is worth a set number of 'points'; Tier 2 projects must achieve 30 points, including several required measures. An annual self-certification form is required for the first five years after occupancy.

Table 5: Tier 2 TDM Requirements

Type	TDM Measure (*Description Required as Attachment)	Eligible Points	Proposed Project Points
Required Measures (20 Points)	50% Transit Pass Subsidies and Pre-Tax Transit Benefits	7	
	Participation in Commute.org Programs	5	
	Carpool/ Vanpool Programs and Parking	3	
	Bicycle Storage, Showers, and Lockers	2	
	Designated TDM Coordinator	1	
	Bicycle and Pedestrian-Oriented Site Access	1	
	Encourage Telecommuting & Flexible Work Schedules	1	
Optional Measures (Description Required as Attachment)	Paid Parking or Parking Cash-Out	10	
	Enhanced Shuttle Commitment*	10	
	Fully Subsidized Transit Passes	8	
	Affordable Housing	6	
	Active Transportation Gap Closure*	Up to 6	
	Transit Capital Improvements*	Up to 6	
	Reduced Parking	Up to 5	
	On-Site Pedestrian-Oriented Amenities	3	
	Bikeshare Program Participation	3	
	Shared Parking Approach	2	
	Cash Incentives[1]	2	
	On-Site Carshare	2	
	Active Transportation Subsidies	1	
	Increased Bicycle Parking (>50% Greater than City Code)	1	
	Bicycle Repair Station	1	
Requirements	Tier 2 Projects	30	

The following guidance is suggested for the calculation of variable point totals:

- Active Transportation Gap Closure: 2 point for addressing missing sidewalks or signage/striping changes for crosswalk or bike lane gaps; 4 points for dedicating additional space for pedestrian or bicycle facilities; 6 points for major gap closure near transit station
- Transit Capital Improvements: 2 point for bus shelter at existing stop; 4 points for new bus bulb with shelter (or equivalent bus improvements); 6 points for bus-only lane

- Reduced Parking: 1 point for every 6 percent reduction in parking supply, up to 30 percent reduction. Parking reduction may require parking management plan depending on land use type.

Details on the definitions and requirements for each strategy can be found in the City's TDM Ordinance (§20.400).

3.4 Tier 3

Tier 3 projects are likely to affect the City's transportation network due to increased amounts of vehicular trips. Tier 3 projects must submit a detailed Transportation Impact Assessment, a detailed TDM Plan including monitoring details, and will likely require some level of analysis under CEQA. Generally, analysis for this tier of project focuses on the project site and the transportation network within a ½ mile radius.

Transportation Impact Assessment

A Tier 3 Transportation Impact Assessment is a report with accompanying figures designed to show the site's existing conditions, project travel demand, and a brief discussion of how the project area would be changed with implementation of the project. It must also include documentation of how pedestrians, bicyclists, transit riders, and vehicles will access the site. A parking management plan may also be included if required by code.

Existing Conditions

The existing conditions review must include the following elements:

- A map of the project site showing its location, and the street network within 1 mile of the site, including identifying primary access paths to the nearest freeway.
- Discussion of roadway attributes for all streets adjacent to the site, including number of lanes, designation in the General Plan, and inclusion in the High Injury Network.
- Discussion of pedestrian and bicycle network on roadways adjacent to the site, including presence or absence of bicycle paths, lanes, or routes; presence and quality of sidewalks; and deficiencies such as facilities not meeting ADA requirements, or bicycle facilities not meeting design standards.
- Identification of bus stops within ½ mile of the project, and rail or ferry facilities within one mile of the project site, and what route(s) service those stops, including hours of operation and typical headways.
- Estimated home-based work VMT per capita in the project TAZ.
- Any other unique conditions or deficiencies related to transportation within one block of the project site.

Travel Demand Analysis

The travel demand analysis shall estimate the number of vehicle trips generated by the project during the course of an average weekday, the AM peak hour (between 7-9am), and the PM peak hour (between 4-6pm). Travel demand estimates should be based on the most recent edition of ITE Trip Generation or local data.

Travel demand should also be estimated under conditions consistent with the goals of the City's TDM Ordinance, including the project's target mode share. The trip generation table should include trips by all modes: total vehicle trips, drive alone person trips, carpool person trips, bicycle person trips, walking person trips, and transit

trips. Transit trips should be assigned to relevant transit services, for use in the project's assessment of transit deficiencies. For additional detail, please see the Analysis Methods chapter, beginning on page 38.

Cumulative Conditions

The cumulative conditions section should identify reasonably foreseeable projects within ½ mile of the project site; identify their locations on a map; and qualitatively discuss how said projects may interact with the proposed project.

Analysis and Deficiency Identification

Guidance on required discussion within each topic area, including criteria for identifying deficiencies, is included in Table 6 below. All analysis presented in the *Analysis and Deficiency Identification* topics should present analysis for existing plus project conditions. Cumulative conditions, if relevant, may be discussed qualitatively.

Table 6: Tier 3 Analysis Requirements

Study Element	Evaluation Criteria	Deficiency Determination
Consistency with Plans and Policies	Evaluate the project against goals, policies, and actions set forth in the *General Plan,* any relevant area plans or specific plans, and the *Mobility Element*	Project creates conditions that are inconsistent with mobility, safety, and other related goals, policies, and actions set forth in the *General Plan* or relevant specific plan.
VMT (CEQA)	Document whether project qualifies for presumption of less than significant impact under CEQA or is consistent with VMT impact and mitigations included in City's General Plan. Documentation would describe consistency with proposed zoning, growth forecasts, General Plan policies, and compliance with TDM ordinance. If project is not consistent, assess project's VMT as Household VMT per Resident and Home-Based Work VMT per Employee. Determine if VMT levels exceed thresholds. Document mitigation measures consistent with the City's TDM Ordinance. For land uses other than residential, office, R&D, and industrial, discuss appropriate approaches with City staff, and present Total Project VMT. Discuss project's effect on VMT.	Project is inconsistent with City's General Plan and produces VMT per capita from either residents or employees that is greater than 15 percent below the regional average. For non-residential and non-employment land uses, the Project would cause an increase in overall countywide VMT.
Safety (CEQA)	Evaluate existing hazards, and review project description and site plan for potential hazards including restricted lines of sight, and other design-related issues. If project is located on or near a Caltrans facility, work with Caltrans staff to determine appropriate safety analysis for that facility.	The project would create or substantially contribute to a roadway or design hazard

Study Element	Evaluation Criteria	Deficiency Determination
Emergency Access and Evacuation (CEQA) *Only for sites in a High Risk or Very High Risk wildfire zone.*	Assess routes to and from key emergency services, such as fire stations and emergency rooms. Assess whether project would impede access to those services to or from the site.	The project would increase response times to the project from emergency services to be greater than the target response time.
On-Site Circulation	Review and evaluate site access locations, loading zones, and refuse collection areas with respect to operations and safety for all modes of transportation. Identify location of bicycle parking facilities and distance from roadway and primary building access. Identify routes from roadway to primary building access for pedestrians. Assess sight lines, turning radii, and potential hazards to bicycles, pedestrians, and vehicles at driveways. Identify routes for emergency access to site.	Project designs for on-site circulation, access, and parking fail to meet City design guidelines. Where City standards are not defined, industry standards (*Highway Design Manual*, MUTCD, etc.) should be referenced, as appropriate. Project fails to incorporate adequate bicycle and pedestrian access to primary entrance. Failure to provide adequate accessibility for service and delivery trucks on-site, including access to loading areas. Project will result in a hazard or potentially unsafe conditions without improvements.
Pedestrian Facilities	Identify any existing or planned pedestrian facilities that may be affected by the project. Identify pedestrian routes (including gaps in those routes) to transit facilities or major destinations within ½ mile of site. Document how the project will affect local pedestrian circulation (e.g., disclose how widening a road or adding a driveway will affect pedestrian safety and walking times). Note missing sidewalk links, unmarked crosswalks, and other potentially deficient facilities. Identify how changes to roadway frontage or right of way will affect pedestrian travel.	Project fails to provide adequate pedestrian connections between project buildings and adjacent streets, trails, and transit facilities. Project adds trips to an existing facility along the project frontage that does not meet current pedestrian design standards and best practices.

Study Element	Evaluation Criteria	Deficiency Determination
Bicycle Facilities	Identify any existing or planned facilities that may be affected by the project. Identify bicycle routes (including gaps in those routes) to transit facilities or major destinations within one mile of site. Compare facilities at site frontage and along key access routes to planned facilities in Bicycle/Pedestrian plan. Note gaps between bicycle network facilities, level of traffic stress along access routes, and classification of existing and planned facilities. Identify how changes to roadway frontage or right of way will affect bicycle travel.	Project fails to provide safe and accessible bicycle connections between project buildings and adjacent streets, trails, and transit facilities. Project fails to provide adequate, high-quality bicycle parking. Project adds trips to an existing facility along the project frontage or en route to transit/a major destination that does not meet current bicycle design standards. Project disrupts existing or planned bicycle facilities, or is inconsistent with the City's Bike Plan.
Transit	Identify any existing or planned transit facilities that may be affected by the project, including existing and planned shuttle routes. If appropriate, document how the project improves access to or utilization of transit. Determine transit demand generated by project and likely routes / systems used by those travelling to/from project. Identify pedestrian and bicycle routes from project to nearest transit stop or station.	Project disrupts existing or planned transit facilities and services, or the comfort of riders on existing or planned transit facilities and services Project conflicts with City adopted plans, guidelines, policies, or standards regarding transit and transit access. Project does not provide a clear and direct path to a sidewalk or bicycle route providing access to a transit station or stop
TDM Program Consistency	Evaluate project against program requirements, mode split targets and other elements outlined in the latest TDM Program ordinance. Identify expected mode share of project trips, particularly during peak hours. Demonstrate compliance with TDM Ordinance, document TDM programs selected for implementation, and provide monitoring plan.	A project does not comply with the City's TDM ordinance, including specified mode split goals.

Study Element	Evaluation Criteria	Deficiency Determination
Safety Assessment (non-CEQA)	Evaluate project trips added to intersections or street segments that have safety enhancement projects identified within the study area that are proposed as part of the General Plan or other future safety studies. Identify nearby facilities on the High Injury Network. Evaluate pedestrian and bicycle travel and facilities in the study area, determine whether increased walking/biking activity will result in multi-modal conflicts, and identify any required safety countermeasures. Identify any planned safety countermeasures identified by City staff for facilities adjacent to the project.	The project adds more than 100 peak hour vehicles to an existing high injury facility, or to a facility where bicycle and pedestrian infrastructure does not meet current design standards.
Trucks (or Other Large Vehicles)	For relevant industrial projects, identify the number of truck trips that will be generated, and design facilities necessary to accommodate these trucks.	A project fails to provide adequate accommodation of forecasted heavy traffic or temporary construction-related truck traffic consistent with City or industry standards (*Highway Design Manual*, MUTCD, etc.).
Passenger Loading and Pick-up/Drop-Off	For projects that may have a large concentration of pick-up/drop-off activity, the project site circulation and pick-up/drop-off areas must be reviewed to identify opportunities and constraints of the project site. Modifications to the site circulation and/or pick-up/drop-off may be recommended. This analysis should include a discussion of TNC activity as appropriate.	A project cannot accommodate anticipated loading activity such that queuing obstructs either public access to the project, a bicycle lane, or a traffic lane for more than fifteen minutes in the relevant peak hour of loading demand.
Off-Site Traffic Operations	At discretion of the City, LOS analysis may be required for intersections immediately located at or within a block of a project driveway, if those intersections currently operate at LOS E or worse during the peak hour. All roadway facility analysis should be conducted during the AM and PM peak hours using the latest version of the *Highway Capacity Manual* (HCM) unless other methods or tools that are more applicable to the study area or project context are approved by City staff.	Addition of project traffic causes a signalized intersection to 1) operate at LOS F overall, or 2) adds five seconds of delay to intersections already operating at LOS F under the comparable "no project" scenario.* Addition of project traffic causes a signalized intersection to 1) operate at LOS F overall or the worst-case movement, or 2) increases traffic volumes by 10% at intersections already operating at LOS F under the comparable "no project" scenario.
Intersection Traffic Control	Evaluate unsignalized intersections directly adjacent to the project, or created due to a project driveway, for signal warrants. Analysis should consider the appropriateness of roundabouts as an alternative to traffic signals.	Addition of project traffic causes an all-way stop-controlled or side street stop-controlled intersection to 1) operate at LOS F overall or for the worst-case movement, and 2) meets the Caltrans signal warrant criteria.
Other Issues	Consider other issues on a case-by-case basis (e.g., construction deficiencies, queuing between closely spaced intersections, emergency access, special event traffic)	

Study Element	Evaluation Criteria	Deficiency Determination
Other Jurisdictional Requirements	In situations where several agencies must approve a development or are responsible for affected roadways, the applicant must contact lead and responsible agencies to determine issues to be addressed, scope of study, etc. In general, the applicant will be responsible for analyzing project impacts against appropriate jurisdictional thresholds; however, the analysis method will be determined by the City in compliance with CEQA and the impacts will be mitigated consistent with City standards.	The project exceeds established deficiency thresholds for transportation facilities and services under the jurisdiction of other agencies.

TDM Plan

Tier 3 projects must provide a detailed TDM plan and achieve the City's 60 percent maximum drive alone mode share target. TDM plans must, at a minimum describe a commitment toward implementing all required measures, specify selection of optional measures, and detail how the measures will be implemented. Selected measures must total at least 40 points. While applicants may adjust their plans between the preliminary and final versions, the TDM Plan should strive to provide a specific, actionable path forward to achieve required performance target. Applicants should be encouraged to match the scale of their TDM Plan to the scale of the project, with Tier 4 projects expected to provide a more thorough analysis of expected travel behavior and improvement measures. In addition, Tier 3 projects are subject to ongoing monitoring in the form of a mode share survey, and may be assessed a penalty for noncompliance. Recommended contents of a TDM Plan include:

- Completed TDM checklist
- Summary of existing transit, bicycle, and pedestrian conditions near the project site
- A site plan identifying paths of pedestrian and bicycle access in relation to potential conflict points (driveways, loading docks, etc.)
- Identification of the nearest shuttle stop or other transit facilities, and documentation of the proposed shuttle operator (if applicable)
- Identification of proposed offsite improvements and description of how these improvements would support mode shift (if applicable)
- Identification of the proposed TDM coordinator, or description of how the TDM coordinator role will be fulfilled
- Acknowledgement of City's required monitoring practices and tenant concurrence letter

Table 7: Tier 3 TDM Measures

Type	TDM Measure (*Description Required as Attachment)	Eligible Points	Proposed Project Points
Required Measures (20 Points)	50% Transit Pass Subsidies and Pre-Tax Transit Benefits	7	
	Participation in Commute.org Programs	5	
	Carpool/ Vanpool Programs and Parking	3	
	Bicycle Storage, Showers, and Lockers	2	
	Designated TDM Coordinator	1	
	Bicycle and Pedestrian-Oriented Site Access	1	

	Encourage Telecommuting & Flexible Work Schedules	1	
Optional Measures (*Description Required as Attachment)	Paid Parking or Parking Cash-Out	10	
	Enhanced Shuttle Commitment*	10	
	Fully Subsidized Transit Passes	10	
	Affordable Housing	6	
	Active Transportation Gap Closure*	Up to 6	
	Transit Capital Improvements*	Up to 6	
	Reduced Parking	Up to 5	
	On-Site Pedestrian-Oriented Amenities	3	
	Bikeshare Program Participation	3	
	Shared Parking Approach	2	
	Cash Incentives	2	
	On-Site Carshare	2	
	Active Transportation Subsidies	1	
	Increased Bicycle Parking (>50% Greater than City Code)	1	
	Bicycle Repair Station	1	
Requirements	Tier 3 Projects	40	

The following guidance is suggested for variable point totals for active transportation gap closures and transit capital improvements:

- Active Transportation Gap Closure: 2 point for addressing missing sidewalks or signage/striping changes for crosswalk or bike lane gaps; 4 points for dedicating additional space for pedestrian or bicycle facilities; 6 points for major gap closure near transit station
- Transit Capital Improvements: 2 point for bus shelter at existing stop; 4 points for new bus bulb with shelter (or equivalent bus improvements); 6 points for bus-only lane
- Reduced Parking: 1 point for every 0.1 spaces per 1,000 square feet below maximum requirements, up to 0.5 spaces per 1,000 square feet.

Details on the definitions and requirements for each strategy can be found in the City's TDM Ordinance (§20.400).

3.5 Tier 4

Tier 4 projects are expected to result in substantial additional vehicle traffic, particularly during the peak periods.

Tier 4 projects must submit a detailed Local Transportation Analysis, a detailed TDM Plan including proposed site-level trip cap, and demonstrate consistency with the General Plan's VMT analysis. Generally, analysis for this tier of project focuses on the project site and the transportation network within a 2 mile radius, with a primary focus on multi-modal connections between the site and high quality transit, as well as vehicular connections to the nearest freeway corridor.

Transportation Impact Assessment

Existing Conditions

The existing conditions review must include the following elements:

- A map of the project site showing its location, and the street network within 1 mile of the site, including identifying primary access paths to the nearest freeway.
- Discussion of roadway attributes for all streets adjacent to the site and along access path to nearest freeway corridor, including number of lanes, designation in the General Plan, and inclusion in the High Injury Network.
- Discussion of pedestrian and bicycle network within one half-mile of the project, focusing on access routes to the nearest high quality transit facility, including presence or absence of bicycle paths, lanes, or routes; presence and quality of sidewalks; and deficiencies such as facilities not meeting ADA requirements, or bicycle facilities not meeting design standards.
- Identification of bus stops within ½ mile of the project, and rail or ferry facilities within one mile of the project site, and what route(s) service those stops, including hours of operation and typical headways.
- Estimated home-based work VMT per capita in the project TAZ.
- Any other unique conditions or deficiencies related to transportation within one block of the project site.

Travel Demand Analysis

The travel demand analysis shall estimate the number of person trips and vehicle trips generated by the project during the course of an average weekday, the AM peak hour (between 7-9am), and the PM peak hour (between 4-6pm). Travel demand estimates should be based on the most recent edition of ITE Trip Generation or local data, and Projects may consider using the City's travel demand model for trip distribution and assignment.

Travel demand should also be estimated under conditions consistent with the goals of the City's TDM Ordinance, including the project's target mode share. The trip generation table should include trips by all modes: total vehicle trips, drive alone person trips, carpool person trips, bicycle person trips, walking person trips, and transit trips. Transit trips should be assigned to relevant transit services, for use in the project's assessment of transit deficiencies.

Cumulative Conditions

The cumulative conditions section should identify reasonably foreseeable projects within ½ mile of the project site, as well as those along the primary access route to the freeway; identify their locations on a map; and qualitatively discuss how said projects may interact with the proposed project.

Analysis and Deficiency Identification

Guidance on required discussion within each topic area, including criteria for identifying deficiencies, is included in Table 8 below. All analysis presented in the *Analysis and Deficiency Identification* topics should present both existing plus project as well as cumulative conditions.

Table 8: Tier 4 Analysis Requirements

Study Element	Evaluation Criteria	Deficiency Determination
Consistency with Plans and Policies	Evaluate the project against goals, policies, and actions set forth in the *General Plan,* any relevant area plans or specific plans, and the *Mobility Element*	Project creates conditions that are inconsistent with mobility, safety, and other related goals, policies, and actions set forth in the *General Plan* or relevant specific plan.
VMT (CEQA)	Document whether project qualifies for presumption of less than significant impact under CEQA or is consistent with VMT impact and mitigations included in City's General Plan. Documentation would describe consistency with proposed zoning, growth forecasts, General Plan policies, and compliance with TDM ordinance. If project is not consistent, assess project's VMT as Household VMT per Resident and Home-Based Work VMT per Employee. Determine if VMT levels exceed thresholds. Document mitigation measures consistent with the City's TDM Ordinance. For land uses other than residential, office, R&D, and industrial, discuss appropriate approaches with City staff, and present Total Project VMT. Discuss project's effect on VMT.	Project is inconsistent with City's General Plan and produces VMT per capita from either residents or employees that is greater than 15 percent below the regional average. For non-residential and non-employment land uses, the Project would cause an increase in overall countywide VMT.
Safety (CEQA)	Evaluate existing hazards, and review project description and site plan for potential hazards including restricted lines of sight, and other design-related issues. If project is located on or near a Caltrans facility, work with Caltrans staff to determine appropriate safety analysis for that facility.	The project would create or substantially contribute to a roadway or design hazard
Emergency Access and Evacuation (CEQA) *Only for sites in a High Risk or Very High Risk wildfire zone.*	Assess routes to and from key emergency services, such as fire stations and emergency rooms. Assess whether project would impede access to those services to or from the site.	The project would increase response times to the project from emergency services to be greater than the target response time.

Study Element	Evaluation Criteria	Deficiency Determination
On-Site Circulation	Review and evaluate site access locations, loading zones, and refuse collection areas with respect to operations and safety for all modes of transportation. Identify location of bicycle parking facilities and distance from roadway and primary building access. Identify routes from roadway to primary building access for pedestrians. Assess sight lines, turning radii, and potential hazards to bicycles, pedestrians, and vehicles at driveways. Identify routes for emergency access to site.	Project designs for on-site circulation, access, and parking fail to meet City design guidelines. Where City standards are not defined, industry standards (*Highway Design Manual*, MUTCD, etc.) should be referenced, as appropriate. Project fails to incorporate adequate bicycle and pedestrian access to primary entrance. Failure to provide adequate accessibility for service and delivery trucks on-site, including access to loading areas. Project will result in a hazard or potentially unsafe conditions without improvements.
Pedestrian Facilities	Identify any existing or planned pedestrian facilities that may be affected by the project. Identify pedestrian routes (including gaps in those routes) to transit facilities or major destinations within ½ mile of site. Document how the project will affect local pedestrian circulation (e.g., disclose how widening a road or adding a driveway will affect pedestrian safety and walking times). Note missing sidewalk links, unmarked crosswalks, and other potentially deficient facilities. Identify how changes to roadway frontage or right of way will affect pedestrian travel.	Project fails to provide adequate pedestrian connections between project buildings and adjacent streets, trails, and transit facilities. Project adds trips to an existing facility along the project frontage that does not meet current pedestrian design standards and best practices.
Bicycle Facilities	Identify any existing or planned facilities that may be affected by the project. Identify bicycle routes (including gaps in those routes) to transit facilities or major destinations within 2 miles of site. Compare facilities at site frontage and along key access routes to planned facilities in Bicycle/Pedestrian plan. Note gaps between bicycle network facilities, level of traffic stress along access routes, and classification of existing and planned facilities. Identify how changes to roadway frontage or right of way will affect bicycle travel.	Project fails to provide safe and accessible bicycle connections between project buildings and adjacent streets, trails, and transit facilities. Project fails to provide adequate, high-quality bicycle parking. Project adds trips to an existing facility along the project frontage or en route to transit/a major destination that does not meet current bicycle design standards. Project disrupts existing or planned bicycle facilities, or is inconsistent with the City's Bike Plan.

Study Element	Evaluation Criteria	Deficiency Determination
Transit	Identify any existing or planned transit facilities that may be affected by the project, including existing and planned shuttle routes. Review should include both capacity and, if appropriate, travel times. If appropriate, document how the project improves access to or utilization of transit. Determine transit demand generated by project and likely routes / systems used by those travelling to/from project. Identify instances when substantial new riders are expected on routes experiencing crowding. For system planning, use crush load as capacity, not seated capacity. Identify pedestrian routes from project to nearest transit stop or station.	Project disrupts existing or planned transit facilities and services, or the comfort of riders on existing or planned transit facilities and services Project conflicts with City adopted plans, guidelines, policies, or standards regarding transit and transit access. Project does not provide a clear and direct path to a sidewalk or bicycle route providing access to a transit station or stop
TDM Program Consistency	Evaluate project against program requirements, mode split targets and other elements outlined in the latest TDM Program ordinance. Identify expected mode share of project trips, particularly during peak hours. Demonstrate compliance with TDM Ordinance, document TDM programs selected for implementation, and provide monitoring plan.	A project does not comply with the City's TDM ordinance, including specified mode split goals.
Safety Assessment (non-CEQA)	Evaluate project trips added to intersections or street segments that have safety enhancement projects identified within the study area that are proposed as part of the General Plan or other future safety studies. Identify nearby facilities on the High Injury Network. Determine whether increased walking/biking activity will result in multi-modal conflicts, and identify any required safety countermeasures. Identify any planned safety countermeasures identified by City staff for facilities adjacent to the project.	The project adds more than 100 peak hour vehicles to an existing high injury facility, or to a facility where bicycle and pedestrian infrastructure does not meet current design standards.
Trucks (or Other Large Vehicles)	For relevant industrial projects, identify the number of truck trips that will be generated, and design facilities necessary to accommodate these trucks.	A project fails to provide adequate accommodation of forecasted heavy traffic or temporary construction-related truck traffic consistent with City or industry standards (*Highway Design Manual*, MUTCD, etc.).

Study Element	Evaluation Criteria	Deficiency Determination
Passenger Loading and Pick-up/Drop-Off	For projects that may have a large concentration of pick-up/drop-off activity, the project site circulation and pick-up/drop-off areas must be reviewed to identify opportunities and constraints of the project site. Modifications to the site circulation and/or pick-up/drop-off may be recommended. This analysis should include a discussion of TNC activity as appropriate.	A project cannot accommodate anticipated loading activity such that queuing obstructs either public access to the project, a bicycle lane, or a traffic lane for more than fifteen minutes in the relevant peak hour of loading demand.
Off-Site Traffic Operations	Project should assess vehicular operations at intersections adjacent to the site, and at key intersections experiencing peak hour congestion along the primary access corridor(s) to regional freeways. Generally, LOS analysis is required for intersections currently operating at LOS E or worse that meet these criteria; however, the City may request additional analysis at its discretion. All roadway facility analysis should be conducted during the AM and PM peak hours using the latest version of the *Highway Capacity Manual* (HCM) unless other methods or tools that are more applicable to the study area or project context are approved by City staff. Operations at individual intersections should be presented, as well as the project's effect on total peak hour travel times between the project site and regional freeway facilities.	Addition of project traffic causes a signalized intersection to 1) operate at LOS F overall, or 2) adds five seconds of delay to intersections already operating at LOS F under the comparable "no project" scenario.* Addition of project traffic causes a signalized intersection to 1) operate at LOS F overall or the worst-case movement, or 2) increases traffic volumes by 10% at LOS F under the comparable "no project" scenario.
Intersection Traffic Control	Evaluate unsignalized intersections directly adjacent to the project, or created due to a project driveway, for signal warrants. Analysis should consider the appropriateness of roundabouts as an alternative to traffic signals.	Addition of project traffic causes an all-way stop-controlled or side street stop-controlled intersection to 1) operate at LOS F overall or for the worst-case movement, and 2) meets the Caltrans signal warrant criteria.
Other Issues	Consider other issues on a case-by-case basis (e.g., construction deficiencies, queuing between closely spaced intersections, emergency access, special event traffic)	
Other Jurisdictional Requirements	In situations where several agencies must approve a development or are responsible for affected roadways, the applicant must contact lead and responsible agencies to determine issues to be addressed, scope of study, etc. In general, the applicant will be responsible for analyzing project impacts against appropriate jurisdictional thresholds; however, the analysis method will be determined by the City in compliance with CEQA and the impacts will be mitigated consistent with City standards.	The project exceeds established deficiency thresholds for transportation facilities and services under the jurisdiction of other agencies.

TDM Plan

Tier 4 projects must provide a detailed TDM plan and achieve the City's 50 percent maximum drive alone mode share target, as well as indicate the total number of peak hour trips represented by that target. TDM plans must,

at a minimum describe a commitment toward implementing all required measures, specify selection of optional measures, and detail how the measures will be implemented. Selected measures must total at least 50 points. While applicants may adjust their plans between the preliminary and final versions, the TDM Plan should strive to provide a specific, actionable path forward to achieve required performance target. Applicants should be encouraged to match the scale of their TDM Plan to the scale of the project, with Tier 4 projects expected to provide a more thorough analysis of expected travel behavior and improvement measures. In addition, Tier 3 projects are subject to ongoing monitoring in the form of a mode share survey and annual driveway counts to determine compliance with the total allowable number of peak hour trips. Projects may be assessed a penalty for noncompliance.

Recommended contents of a TDM Plan include:

- Completed TDM checklist
- Summary of existing transit, bicycle, and pedestrian conditions near the project site
- A site plan identifying paths of pedestrian and bicycle access in relation to potential conflict points (driveways, loading docks, etc.)
- Identification of the nearest shuttle stop or other transit facilities, and documentation of the proposed shuttle operator (if applicable)
- Identification of proposed offsite improvements and description of how these improvements would support mode shift (if applicable)
- Identification of the proposed TDM coordinator, or description of how the TDM coordinator role will be fulfilled
- Acknowledgement of City's required monitoring practices and tenant concurrence letter

Table 9: Tier 4 TDM Requirements

Type	TDM Measure (*Description Required as Attachment)	Eligible Points	Proposed Project Points
Required Measures (20 Points)	50% Transit Pass Subsidies and Pre-Tax Transit Benefits	7	
	Participation in Commute.org Programs	5	
	Carpool/ Vanpool Programs and Parking	3	
	Bicycle Storage, Showers, and Lockers	2	
	Designated TDM Coordinator	1	
	Bicycle and Pedestrian-Oriented Site Access	1	
	Encourage Telecommuting & Flexible Work Schedules	1	
Optional Measures (*Description Required as Attachment)	Paid Parking or Parking Cash-Out	10	
	Enhanced Shuttle Commitment*	10	
	Fully Subsidized Transit Passes	10	
	Affordable Housing	6	
	Active Transportation Gap Closure*	Up to 6	
	Transit Capital Improvements*	Up to 6	
	Reduced Parking	Up to 5	

Type	TDM Measure (*Description Required as Attachment)	Eligible Points	Proposed Project Points
	On-Site Pedestrian-Oriented Amenities	3	
	Bikeshare Program Participation	3	
	Shared Parking Approach	2	
	Cash Incentives	2	
	On-Site Carshare	2	
	Active Transportation Subsidies	1	
	Increased Bicycle Parking (>50% Greater than City Code)	1	
	Bicycle Repair Station	1	
Requirements	Tier 4 Projects	50	

The following guidance is suggested for variable point totals for active transportation gap closures and transit capital improvements:

- Active Transportation Gap Closure: 2 point for addressing missing sidewalks or signage/striping changes for crosswalk or bike lane gaps; 4 points for dedicating additional space for pedestrian or bicycle facilities; 6 points for major gap closure near transit station
- Transit Capital Improvements: 2 point for bus shelter at existing stop; 4 points for new bus bulb with shelter (or equivalent bus improvements); 6 points for bus-only lane
- Reduced Parking: 1 point for every 0.1 spaces per 1,000 square feet below maximum requirements, up to 0.5 spaces per 1,000 square feet.

Details on the definitions and requirements for each strategy can be found in the City's TDM Ordinance (§20.400).

Establishing Site-Specific Trip Caps (Tier 4 Projects)

Tier 4 projects would be subject to site-specific trip caps that manage the number of peak-direction vehicle trips that a site generates during peak periods (trips in during the AM peak period, 6:00-10:00 AM, and trips out during the PM peak period, 3:00-7:00 PM). Trip caps should reinforce mode share and parking requirements for a given site while providing some flexibility to accommodate fluctuations in employee density, daily variations in travel patterns, and anticipated levels of guest/visitor travel activity.

The following is an example methodology for developing a trip cap for a one million square foot life science project with 2,500 employees:

Target 50% drive-alone rate for employees:	50% x 2,500 = 1,250 vehicle trips
Target 12% carpool/vanpool mode share, with 3 people per vehicle:	10% x 2,500 / 3 = 100 vehicle trips
10% allowance for non-employee trips (visitors, freight, etc):	1,350 x 10% = 140 vehicle trips
Peak Period Trip Cap:	1,250 + 100 + 140 = 1,490 vehicle trips

Tier 4 projects subject to a trip cap will reach a final trip cap for full occupancy based on conversations with the Planning Department during the development review and permitting process; however, the methods listed above will guide the development of the relevant trip caps.

3.6 Parking Management Plans

Regardless of project tier, the City may require a project to perform a parking management plan if any of the below are true:

- The project is proposing a parking supply inconsistent with city code ((§20.330.004)
- The project is a mixed use development proposing shared parking between at least two primary uses.
- City code requires a parking management plan for a proposed land use

Parking studies are designed to ensure that projects do not have an adverse or "spillover" effect on adjacent neighborhoods, as well as ensuring that the project aligns with General Plan Policies MOB-3.3 and MOB-3.4.

Parking studies should provide, at a minimum, the following information:

- Estimated peak hour parking demand for the project as calculated using either the ITE Parking Generation manual or the ULI Shared Parking Methodology
- Adjusted project parking demand based on reasonable reductions in vehicle use due to the project's TDM plan, location near transit, or land use context. These reductions should be calculated using a standardized source such as CAPCOA's Handbook on Mitigating Greenhouse Gas Emissions, the US EPA's MXD methodology, or local data on vehicle ownership or mode share. For projects with a required auto mode share under the TDM Ordinance, mode share reductions are also applicable.
- Project's proposed parking supply
- Estimated on-site parking surplus or deficit during peak hour of demand

Generally, the purpose of a parking management plan is to "right size" parking and ensure that any surplus or deficit of on-site parking does not adversely affect the City's mobility goals or the availability of parking for neighboring communities. If the site projects a parking deficit for at least two hours of the day, the parking management plan should also propose potential parking management measures, such as demand-responsive parking pricing, residential parking permit policies in surrounding neighborhoods, or additional off-site improvements to enhance access to the site via walking, biking, or transit.

4. Impacts, Deficiencies, Mitigations, and Improvements

Projects shall incorporate improvement measures to resolve deficiencies in the transportation network either as conditions of approval or as CEQA mitigation presuming that they are deemed feasible and consistent with the General Plan. A project applicant is responsible for the following:

- Implementing improvement measures along the project's frontage
- Implementing improvement measures for deficiencies caused by the project or which the project's contribution would be greater than 50 percent of expected user volumes at an existing deficiency
- Implementing improvement measures identified in a projects TDM Plan
- A fair-share contribution (based on the share of user volumes associated with the project) toward improvement measures for deficiencies in which the project's contribution would be less than 50 percent of expected user volumes
- Paying transportation impact fees (in addition to the above measures)

All project deficiencies should be addressed consistent with the policies of the *General Plan*. Under these circumstances, the applicant should meet with City staff to identify transportation improvements that address the deficiencies. Examples of types of improvements to address transportation deficiencies are shown in Table 10. Potential improvements may require a more detailed review, often including traffic operations, to demonstrate how they address a specific deficiency. This list is not intended to be an all-inclusive list but provide some options to consider. All improvements are subject to review and approval by City staff.

Table 10: Example Improvements for Deficiencies by Topic Area

Study Element	Deficiency Determination	Sample Mitigation / Improvement Measures
Consistency with Plans and Policies	Project creates conditions that are inconsistent with mobility element policies set forth in the *General Plan, Active South City Plan*, or relevant specific plan.	Change project description or site design to comply with General Plan goals and policies.
VMT (CEQA)	Project produces VMT per capita from either residents or employees that is greater than 15 percent below the regional average. For non-residential and non-employment land uses, the Project would cause an increase in overall countywide VMT.	Prepare a TDM Plan based on requirements of a Tier 3 or Tier 4 project.
Safety (CEQA)	The project would create or substantially contribute to a roadway or design hazard	Change design of on-site facility, or fund roadway improvements to address roadway hazard to which the project contributes.

Study Element	Deficiency Determination	Sample Mitigation / Improvement Measures
Emergency Access and Evacuation (CEQA) *Only for sites in a High Risk or Very High Risk wildfire zone.*	The project would increase response times to the project from emergency services to be greater than the target response time.	Develop relevant emergency access and evacuation plan.
Parking	Project provides parking at a level substantially above the rate of demand; or, project provides parking at a level that would cause substantial overflow into a nearby residential neighborhood.	Right-size parking supply and/or prepare a parking management plan.
On-Site Circulation	Project designs for on-site circulation, access, and parking fail to meet applicable design standards. Failure to provide adequate vehicle queueing space at driveways. Failure to provide adequate access for service and delivery trucks on-site, including access to loading areas.	Adjust designs to meet relevant standards. Adjust site plan to provide adequate queueing space. Adjust site plan to accommodate service and delivery truck movements.
Pedestrian & Bicycle Facilities	Project does not incorporate direct bicycle and pedestrian access to primary entrance or includes major barriers at entry points (major driveways, loading docks, curvy sidewalks, etc) Project substantially adds trips to an existing facility along the project frontage, or en-route to transit or a major destination, that does not meet current pedestrian design standards or lacks adequate capacity to accommodate demand. Project bicycle parking is not located in a convenient area for users. Project disrupts or is incompatible with existing or planned pedestrian or bicycle facilities.	Adjust site plan to facilitate direct pedestrian and bicycle access. Address deficient facilities to close gaps in pedestrian or bicycle network, such as missing sidewalks, unmarked or unsignalized crosswalks, gaps in bikeways, wide curb radii, or auto slip lanes. Relocate bicycle parking in a more convenient location. Modify project designs to address compatibility with pedestrian or bicycle facilities.
Transit	Project disrupts existing or planned transit facilities and services, or the comfort of riders on existing or planned transit facilities and services Project conflicts with City adopted plans, guidelines, policies, or standards regarding transit and transit access. Project does not provide a clear and direct path to a sidewalk or bicycle route providing access to a transit station or stop	Change project design to meet relevant standards and policies. Fund improvements to transit, such as queue-jump lanes Provide direct connection from site to nearest transit facility. Fund improvements to deficient facilities or to close gaps for cyclists and pedestrians between site and high quality transit.
TDM Program Consistency	A project does not comply with the City's TDM ordinance.	Revise TDM plan to meet standards.

Study Element	Deficiency Determination	Sample Mitigation / Improvement Measures
Safety Assessment (non-CEQA)	The project adds more than XX daily vehicles to an existing high injury facility, or to a facility where bicycle and pedestrian infrastructure does not meet current design standards.	Fund project on relevant roadway to meet design standards, implement traffic calming, address key safety barrier, or create separated facilities on relevant facility.
Trucks (or Other Large Vehicles)	A project fails to provide adequate accommodation of forecasted heavy traffic or temporary construction-related truck traffic consistent with City or industry standards (*Highway Design Manual*, MUTCD, etc.).	Develop Loading & Delivery plan. Develop Noise and Emissions Management plan. Develop Construction Management Plan.
Passenger Loading and Pick-up/Drop-Off	A project cannot accommodate anticipated loading activity such that queuing obstructs either public access to the project, a bicycle lane, or a traffic lane for more than fifteen minutes in the relevant peak hour of loading demand.	Develop Loading & Delivery plan. Change project design to accommodate loading off-street.
Off-Site Traffic Operations	Addition of project traffic causes a signalized intersection to 1) operate at LOS F overall, or 2) adds five seconds of delay to intersections already operating at LOS F under the comparable "no project" scenario.* Addition of project traffic causes a signalized intersection to 1) operate at LOS F overall or the worst-case movement, or 2) adds five seconds of delay to intersections already operating at LOS F under the comparable "no project" scenario.	Fund signal or intersection improvements. Revise TDM plan to include lower target drive alone mode share. Contribute to relevant bicycle and pedestrian improvements to promote active transportation and access to transit.
Intersection Traffic Control	Addition of project traffic causes an all-way stop-controlled or side street stop-controlled intersection to 1) operate at LOS F overall or for the worst-case movement, and 2) meets the Caltrans signal warrant criteria.	Fund installation of traffic signal.
Other Jurisdictional Requirements	The project exceeds established deficiency thresholds for transportation facilities and services under the jurisdiction of other agencies.	Consult with jurisdiction.

Selected improvements should be identified whether they will be implemented under Existing Conditions, Background Conditions or Cumulative Conditions. Background Conditions generally reflect conditions at the time of full occupancy of a project.

If a transportation improvement is selected to address a deficiency, it should include a description of how the improvement contributes to the multimodal transportation system in South San Francisco. In addition, all transportation improvements need to consider whether they have secondary effects to VMT [i.e., whether the improvement is VMT inducing per statewide guidance.

5. Analysis Methods

The local transportation analysis for General Plan and CMP consistency is based on an assessment of person trip generation, bicycle and pedestrian access, transit operations and capacity, and vehicle operations. CEQA analysis is based on VMT generation. This section describes how trip generation and VMT are estimated, and how multimodal and vehicle operations should be assessed.

5.1 Project Trip Generation

Person and vehicle trip generation rates are a way to estimate the number of expected pedestrian, bicycle, transit, and vehicle trips a proposed development will generate. These rates establish the basis of analysis for a proposed project and its effect on the transportation network. For Tiers 0 through 2, vehicle trip generation should be presented rather than person trip generation; rough estimates of pedestrian, bicyclist, and transit ridership may be assessed qualitatively. For Tier 3 and Tier 4 projects, person trip generation should be reported for estimated walking, bicycle, and transit trips in addition to vehicle trips.

Vehicle Trips

The state-of-the-practice is deriving vehicle trip generation rates from local empirical data, as this will provide the most accurate forecast for future land use vehicle trip-making. This typically requires surveying a similar existing land use at three unique locations to quantify the number of daily and morning, mid-day, and evening peak period person and vehicle trips generated. Due to the unique nature of life science uses within South San Francisco, trip generation counts at comparable sites is recommended.

The City understands that conducting new trip generation counts may not be practical in all cases (especially given disruptions in travel behavior due to the COVID-19 Pandemic) and that the latest Institute of Transportation Engineers' (ITE) *Trip Generation Manual* is a reasonable alternative when local data is not available. In the absence of empirical studies, the most recent vehicle rates published by ITE in the *Trip Generation Manual*[3] or other relevant sources may be used for trip rate estimation. When using ITE rates, the time period selected should reflect peak travel periods on adjacent streets and care shall be exercised in utilizing rates developed from a small study size (fewer than 20 studies) or containing a low R^2 value (less than 0.75).[4]

In some cases, the peak hour of the generator may occur outside the typical peak commute hours and may require additional analysis (e.g., a regional shopping center on a Saturday or a school during the afternoon pick-up period).

The City reserves the right to require the project applicant to conduct local trip generation surveys for select projects depending on project characteristics as well as land use and travel conditions in the field.

---

3 Trip Generation Manual (11th Edition), Institute of Transportation Engineers, 2020.
4 R2 is the coefficient of determination defined as the percent of variance in the dependent variable (number of vehicle trips) associated from the independent variable (size of the project). In regression analysis, the R2 coefficient of determination is a statistical measure of how well the regression predictions approximate the real data points. An R2 value of 1 indicates that the regression predictions perfectly fit the data.

Person Trips

Person trip generation should be presented for drive alone, carpool, rideshare/TNC, transit, bicycle, and pedestrian trips for Tier 4 projects. Person trip generation rates should be developed from empirical studies, person travel survey data, or conversion of vehicle trip rates to person trip rates using a vehicle occupancy factor and adjustments based on travel behavior at the study location. In addition, person trip generation by mode may be derived using an approved analysis tool that incorporates data from the above sources, such as the EPA's MXD methodology. Either method may be used to apply a vehicle trip credit to the previously calculated vehicle trip generation totals using the processes discussed below.

Estimates of person trips for each mode should then be assessed in light of access to nearby destinations, particularly connections to transit and regional bicycle facilities. For transit trips, the trip generation section should discuss likely routes, lines, and services that transit riders would use to access the location. If a project anticipates generating more than 100 peak hour transit riders, an assessment of capacity on relevant services during that peak period should be provided.

Trip Rate Credits for Existing Uses

For trip generation estimates and subsequent level of service analysis, the estimate of new trips generated by the proposed development project may include credit for trips associated with existing uses on the site. Uses are considered as existing if they are actively present on the project site at the time data is gathered for the transportation impact analysis.

For the evaluation of vehicle miles of travel, VMT credit for the prior use may be considered if that use was active within the past three years, and if a similar type use could reoccupy the building without needing to obtain a conditional use permit. However, this credit should only be applied to total project-generated VMT, and should not be included when calculating VMT per capita.

Multimodal and Other Trip Rate Reductions for Standard ITE Rates

Standard rates published by ITE are generally developed for suburban sites where access is primarily made via personal automobile. The City of South San Francisco recognizes that the rates may overstate the traffic impact for developments that contain a mix of uses (and "capture" some vehicle trips internally) or are in denser areas such as downtown South San Francisco. Additionally, certain commercial land uses attract vehicles on the roadway, rather than generating new trips. This section discusses reductions that may be taken under these circumstances.

Parking & TDM Mode Share Requirements

For projects implementing a TDM plan that involves monitoring of mode share and/or trips, a reduction may be applied to the ITE-derived vehicle trip generation. ITE rates are presumed to reflect national averages for drive alone mode share (about 76 percent between 2000 and 2019 based on US Census and American Community Survey dta). Vehicle trips should be reduced only to an amount corresponding with the project's target mode share (i.e., 60 percent vehicle mode share requirement for Tier 3 projects would result in a 21 percent reduction from ITE rates, and a 50 percent vehicle mode share for Tier 4 projects would result in a 34 percent reduction from ITE rates). Reductions should be documented and presented in a tabular format as part of the Trip Generation portion of an LTA or EIR chapter. Tier 1 and Tier 2 projects that are not required to monitor mode share on an ongoing basis should not apply a reduction in vehicle trips for purpose of the LTA. This reduction

should align with the person trip generation tables for purposes of assessing bicycle, pedestrian, and transit riders accessing the site.

Internalization & Private Amenities

In mixed use developments, some trips between different land uses are internalized onsite by walking rather than driving elsewhere. When using ITE rates for individual land uses, such trips may be subtracted via established methodologies such as the U.S. Environmental Protection Agency's MXD approach or the National Cooperative Highway Research Program's 684 methodology.

Many office/R&D projects include private onsite amenities such as a fitness center, cafeteria, or childcare center. These land uses are expected to generate some employee trips but should not be analyzed based on the typical trip generation for visitor activity. Use of a reduced rate or trip generation data for land uses with comparable employee densities are both appropriate methods to analyze private amenities.

Pass-by / Diverted Link

Restaurants, convenience stores, gas stations, banks, and similar commercial land uses often locate on high traffic volume roads to attract motorists already on the street. These attracted trips are not new traffic to the adjacent street system, but simply access a new use as part of their current travel path. These trips are known as pass-by trips. For commercial land uses on arterial or collector streets, a reduction for pass-by trips supported by analysis may be used. Analysis resources may include the *ITE Trip Generation Handbook* Chapter 10 or a documented and relevant study. To ensure adequacy of project driveways, the access analysis at these locations should reflect total site-generated trips, and not include any pass-by or similar reductions.

Diverted link trips are similar to pass-by trips in that they are vehicle trips already on the roadway network. However, the key difference is that diverted link (link meaning roadway) trips pull traffic from other roadways (not adjacent to the project site) onto the roadway(s) serving the development. Thus, these trips *do* add traffic to adjacent streets serving the site and should *not* be included as a reduction for the assessment of site access and circulation, but could be included as a reduction in the preparation of new vehicle trip estimates as inputs to air and noise analyses, and could also be considered in the VMT assessment.

As an example, a new gas station is proposed on a minor street one block away from a major arterial street. The trips that are attracted to the station site from existing traffic on the major arterial are diverted link trips. Those trips attracted to the site from existing traffic on the minor street in front of the new gas station are defined as pass-by trips. In both cases, these are not new trips to the overall network but come from existing volumes on adjacent or nearby roadways.

5.2 VMT Estimation and Cumulative Forecasts

Projects not screened out through the thresholds listed in the *CEQA VMT Screening Thresholds* section are required to complete a VMT analysis using the South San Francisco Model to confirm if there would be a significant VMT impact. The impact analysis includes two types of VMT:

- Project generated VMT per resident and/or per employee. The project generated VMT method relies on tracking trips to/from an individual project. In simple terms, it looks at the total number and distance each trip travels divided by the persons making those trips. As an example:
- Residential projects should present home-based VMT per resident

- Office, R&D, and Industrial projects should present work based VMT per employee
- Retail projects need only present the project's effect on VMT
- Mixed Use projects and Land Use Plans should present VMT metrics for each land use type evaluated individually against residential, office, and/or retail thresholds
- Other Land Use projects may apply an ad hoc threshold as developed by City staff
- Project effect on VMT compares how the project changes VMT on the network looking at total citywide VMT per service population. This VMT applies what is known as the boundary method[5], which captures all VMT on a network within a defined boundary (i.e., San Mateo County or the Bay Area region). This VMT captures the project's overall influence on the VMT generation of surrounding land uses. This metric should be evaluated at the County level, and is appropriate for any land use or transportation project.

The model output should also include total VMT, which includes all vehicle trips and trip purposes.

5.3 Multimodal Operations Analysis

Approach

The purpose of conducting a multimodal operations analysis is to optimize the use of limited street space within South San Francisco. Projects in Tier 3 and Tier 4 require some level of operations analysis; in addition, projects in Tier 2 may require some operations analysis at project driveways. The scope of individual analyses may vary by project type, and may inform changes to lane configurations, signal timing, and streetscape design. In particular, operations analysis can help make informed decisions in advancing complete streets and safety improvements, such as removing channelized right turn lanes, adding protected left turns, eliminating split signal phasing, adding new traffic signals, coordinating signal phasing, and implementing road diets, bikeways, or bus-only lanes.

Methodology and Software

Operational deficiencies shall be analyzed using standard or state-of-the-practice professional procedures based on the *Highway Capacity Manual* (HCM). Intersection operations shall be analyzed using Synchro unless an alternative analysis methodology is identified through consultation with City staff. Table 11 provides a matrix of software options for analysis. Special conditions related to congested conditions, state highway facilities, and roundabouts are discussed in more detail below.

[5] The boundary method captures VMT that occurs within a selected geographic boundary (e.g., City, County, or region) by any type of vehicle. This captures all on-road vehicle travel on a roadway network for any purpose and includes local trips as well as trips that pass through the area without stopping.

Table 11: Software Analysis Options

Software/ Method[1]	Traffic Studies		Roundabouts		Arterial/ Interchange Operations	Microsimulation Analysis[4]		
	Operations[2]	Signal Coor-dination[3]	Planning	Design		Unique Geometrics	Heavily Congested Conditions	Multi-modal
Synchro / VISTRO	X	X	X		X	X		
HCS	X				X			
SIDRA for Roundabouts			X	X				
Microsimulation[5]		X		X	X	X	X	X

Notes:
The most current version of analysis software (with updated software patches) should be used.
Appropriate for isolated intersection operations or for signal systems that are not coordinated.
Should be applied to analyzing operations of congested conditions or non-standard conditions where traditional analytical approaches may not be appropriate.
Specific software program selection should be conducted in consultation with the City and consider the types of technical questions being asked in the study and the modes to be included. Generally, SimTraffic is suitable for most conditions, but VISSIM should be used for extremely congested corridors (such as Oyster Point Boulevard in the East of 101 area).

Congested Conditions

Analysts should note that the HCM recommends the use of simulation models to analyze congested conditions or closely spaced intersections. Because simulation tools (e.g., VISSIM, SimTraffic, etc.) can simultaneously evaluate vehicle interactions across a complete network (including the interaction of multiple modes), they can provide a more complete understanding of traffic operating conditions during peak congested periods and what may happen when a specific bottleneck is modified or eliminated. Specifically, care should be taken in analyzing intersection LOS at closely spaced intersections. In such cases, standard intersection analysis does not adequately show the compound effects of intersection delay. SimTraffic should generally be used to analyze most congested corridors, while VISSIM is most appropriate in very congested condition and in locations with high volumes of pedestrians and bicyclists.

State Highway Analysis

The analysis of state highways, including freeways and on- and off-ramps, should be conducted consistent with CMP Guidelines and Caltrans guidance.

Roundabout Analysis

Typically, roundabout operations are analyzed in conjunction with a conceptual roundabout design. Different roundabout analysis methods (FHWA, Australian Gap Acceptance, UK Empirical, HCM 2010, and microsimulation) provide different delay results and corresponding capacities. The deterministic roundabout analysis methods described in the HCM can be used for roundabouts operating under low volume and isolated conditions (without influence from nearby intersections). HCM methods allow the use of calibration factors to reflect regional differences in roundabout capacity. Calibration factors specific to California are available in the report *Roundabout Geometric Design Guidance*, 2007, California Department of Transportation Division of Research and Innovation. Roundabout queue lengths should also be reviewed to ensure they do not spill beyond available storage or interfere with overall operations of the roundabout and/or transportation system.

As described in the HCM, the use of alternative analysis methods is needed for complex multi-lane roundabout designs, roundabouts operating near or at capacity, high pedestrian and/or bicycle volume, and at roundabout locations where upstream or downstream operation may interact with adjacent roundabouts or signals. Microsimulation of the roundabout and surrounding intersections may also be useful. Care must be taken in coding and calibrating the microsimulation models to accurately reflect the proposed roundabout design and operational characteristics.

Signal Warrant Analysis

In cases where a signal warrant analysis is needed, analysis should be prepared in accordance with the methods documented in the Caltrans *Manual on Uniform Traffic Control Devices* (CA-MUTCD). The CA-MUTCD includes nine signal warrant criteria; the project sponsor should coordinate with the City Engineering Division to determine which warrants are applicable to a given location. Generally, peak hour signal warrant analysis (Warrant 3) will be required, but additional warrant analysis may be requested based on the project context.

Evaluation of Side Street Stop-Controlled Intersections

In addition to reporting the worst individual approach delay, the delay for the overall intersection shall be calculated and reported. This information will allow reviewers to gauge potential impacts to individual approaches against those for the entire intersection.

High Injury Network Considerations

When a project is located adjacent to a facility identified in the City's High Injury Network, or when it adds more than ten peak hour vehicle trips to a facility on the High Injury Network, the LTA should assess current conditions on the segment in question. Specifically, it should identify any design deficiencies or any issues that could be addressed by remedies and countermeasures identified through the City's Vision Zero Action Plan (to be developed per General Plan Policy MOB-1.1). If the project adds more than ten peak hour vehicle trips to the facility, it should assess its fair-share contribution to providing improvements.

Bicycle and Pedestrian Analysis

Assess the project frontage and adjacent streets through comparison with the Active South City Pedestrian and Bicycle Plan. If improvements are identified for those locations, the Project should document them and provide a fair-share contribution toward their construction (a fair share may constitute the entire contribution if the project will be responsible for a majority of bicycle and pedestrian travel or otherwise substantially affect a bicycle and pedestrian facility). For Tier 3 and Tier 4 projects, similar assessments should be made along the corridors providing connections from the site to Caltrain, BART, the Ferry terminal, or other high quality transit infrastructure, and similar assessments and documentation should be provided.

Additional Mobility Deficiency Criteria

Transportation analyses evaluate intersection operations focused on specific traffic issues such as queuing and safety. An emphasis is placed on pedestrian, bicycle, and transit facilities and services, in part to reduce traffic congestion and air quality impacts associated with automobile use. Criteria for identifying deficiencies is presented in the Analysis Requirements for each tier, as well as in the Impacts, Deficiencies, Mitigations, and Improvements chapter starting on page 35.

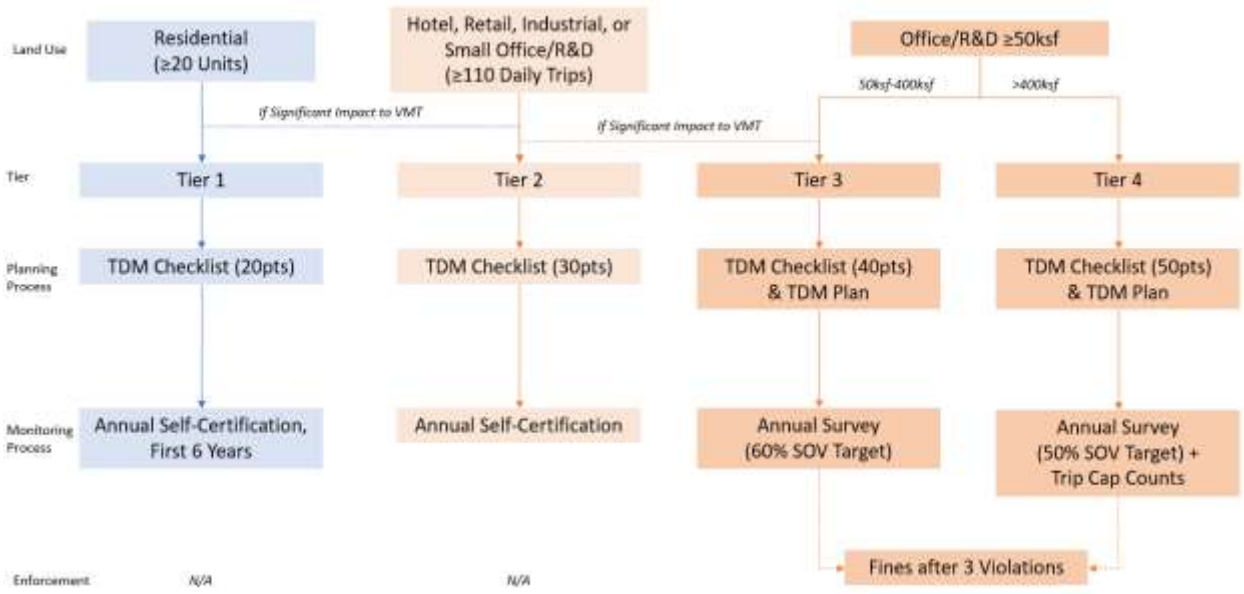
6. TDM Planning & Monitoring

This section provides additional context for the City's approach to TDM planning and monitoring to supplement the requirements detailed in the ordinance and tier requirements described in Section 3.

6.1 TDM Plans and Checklists

TDM plans and checklists would use a points-based planning approach (similar to C/CAG) to help ensure that each development project contributes its fair share toward reducing vehicle trips and VMT, while also providing flexibility to be sensitive to the local development context, project type, and scale of project. For ease of planning, the number of points required for each land use roughly matches the mode share and trip reduction targets. However, minimum point totals are intended to be used a planning tool only and do not correspond to exact mode share and trip reduction levels. The City's point scale takes into account the anticipated need and effectiveness based on the local context and recent TDM surveys. The City's TDM checklist would supplant the need to complete a similar checklist for C/CAG.

Figure 2: TDM Ordinance Implementation Flowchart



While there is a growing body of literature[6] related to the quantification of effectiveness of TDM measures, the unique and fast-changing nature of South San Francisco increases uncertainty around its evolving transit services, pedestrian/bicycle network, and travel behavior emerging from the COVID-19 pandemic. For these reasons, quantifying the effectiveness of specific TDM measures is not required.

[6] More information is available in The Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health in Equity prepared by the Sacramento Air Quality Management District in partnership with the California Air Pollution Control Officers Association (2021)

Selection of optional measures may vary depending on location and project characteristics; for example, a project near BART or Caltrain may choose to select measures such as fully subsidized transit passes, reduced parking supply, and active transportation gap closure, whereas projects farther from BART of Caltrain may choose to select measures such as an enhanced shuttle commitment and transit capital improvements to enhance shuttle stops. Additional measures may be considered on a case-by-case basis and the City may also reserve the right to award additional points for major improvements beyond the scope of typical measures.

6.2 Shuttle Planning Best Practices

A key component of TDM Plans at many sites will be identifying the proposed stop location(s) and operator of first/last mile shuttle service. The following guidance is suggested for identifying shuttle operators and stop facilities; this guidance is also applicable to interfacing with SamTrans bus service.

Shuttle Service Vision

- The City should encourage participation in existing first/last mile services for all projects within ¼ mile of an existing shuttle corridor. Shuttle routes should be linear and minimize route diversions to efficiently serve a range of destinations.
- Projects outside of established shuttle corridors may be considered for new services, such as areas along Forbes Boulevard, south of East Grand Avenue, or in Lindenville. New services are preferable over substantial diversions to an existing route.
- Provision of new services should be specified in applicant's TDM plans for review and approved by the City. Participation in existing services provides the benefit of pooling resources to increasing service levels and maximizing mode shift, while managing limited curb space availability at the City's transit stations. New services that overlap existing shuttle routes should be avoided.

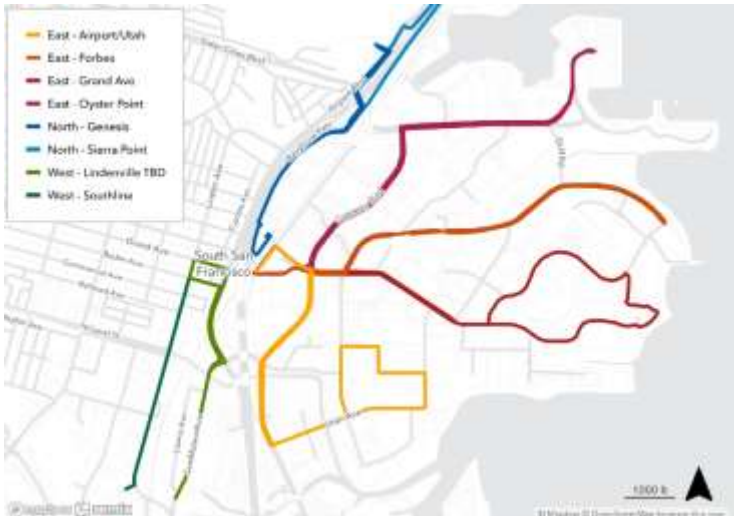


FIGURE 1: CALTRAIN SHUTTLE SERVICE CONCEPT

- All first/last mile services should be free and open to the public.
- Existing SamTrans service may be considered in lieu of a new shuttle service if it can provide sufficient first/last mile access to match the need of a project.

Stop Facilities

- Stops should be located "on the way" to enable more linear routes with minimal route diversions.
- On-street stops are preferred over off-street stops to ensure convenient public access and efficient operations. Off-street stops in parking lots or along driveways should be avoided to avoid adversely

impacting travel times and the competitiveness of shuttle routes. Off-street stops should generally be considered only if the stops are located at the end of the line.

- In-lane stops are preferred over pull-out stops to reduce shuttle dwell times unless located on a high-speed arterial (35 mph or greater) or a very high ridership stop using high-floor vehicles.
- Far-side stops are preferred over near-side stops to reduce conflicts with right-turning vehicles and pedestrian crossings.
- New stops should generally be sized to accommodate up to a standard 45-foot bus to provide flexibility in future vehicle operations, and may need to accommodate multiple buses depending on the proposed location
- Stops should be spaced at least 800 feet apart. Fewer stops consolidated around major ridership generators are generally preferable to ensure efficient operations.
- Stops should include signage, accessible landing pads, and shelters for "westbound" stops serving high levels of PM peak period boarding activity.
- Stops should connect to sidewalks and crosswalks with convenient paths of travel to nearby land uses

6.3 TDM Monitoring Best Practices

For all Tier 1 and Tier 2 projects, compliance shall be achieved through self-certification of implementation of the proposed measures identified in the TDM checklist. For Tier 3 and Tier 4 projects, the following monitoring and enforcement methods are recommended by the City.

Monitoring Methods

Survey monitoring for Tier 3 and Tier 4 projects would apply to commute trips only. Participants are expected to provide a good faith effort in reducing non-commute trips, but these trips would only be monitored for Tier 4 projects via vehicle trip counts.

Participants have two options in administering a survey:

1. Administer a statistically valid survey sufficient to achieve a margin of error of +/- 3 percent at a 90 percent confidence interval, with documentation of the survey methods and calculations by an independent consultant to support the validity of the survey.
2. Administer an online survey with a minimum response rate of 75 percent of the employee population.

For Tier 4 projects, vehicle trip counts would be conducted for AM and PM peak periods (6-10 AM and 3-7 PM) on a Monday through Friday period to capture a typical week of site activity. Video counts are recommended for accuracy.

In all instances, participants in the program must provide raw data to the City as part of their compliance package, including:

1. Respondent-level survey response data (deletion of columns containing emails or non-required fields is acceptable)
2. Count data as delivered by the contractor providing the counts for each location, with data separated into 15-minute increments or smaller.

3. Current employee population

Standardized Survey Language

The following standardized survey language is recommended for conducting all mode share surveys. The City may consider additional modifications to align its surveys with C/CAG & Commute.org's countywide approach. Previously approved projects would also use this standardized survey language.

1. Which of the following best represents your employment at [location]? (check one)
   - Full-time Employee
   - Part-time Employee
   - Contract Employee

2. In what ZIP code is your home located? (enter 5-digit ZIP code; for example, 94901)
   ___[Fill in the blank]_____
   - Prefer Not to Answer
     - *If prefer not to answer:* Approximately how many miles is it from your home to your office in South San Francisco?

3. In the past week, what time did you usually arrive to work (check one)?
   ____[Drop down in increments of 30 minutes, from 6 AM – 10AM, before 6AM, or after 10AM]_____

4. In the past week, what time did you usually leave work (check one)?
   ____[Drop down in increments of 30 minutes, from 3 PM – 7PM, before 3PM, or after 7PM]_____

5. In the past week, on which days did you use each of the following transportation modes to travel to work? If you used more than one mode, (e.g. you take Caltrain and then bicycle), identify the mode that was the longest part of your trip.

Transportation Mode	Monday	Tuesday	Wednesday	Thursday	Friday
Drove a car or motorcycle alone					
Rode as a carpool passenger					
Drove a carpool with one or more other adults					
Vanpooled or Carpooled with 6 or more people					
Rode a bus, train, ferry, or other public transit					
Rode a Bicycle or Scooter					
Walked all the way					

Dropped off by a friend/family member					
Dropped off by Uber, Lyft, taxi, etc.					
Worked from home / telecommuted / worked offsite					
Did not work this day					
Other (please specify)					

6. [Only ask if respondent answered transit] Which of the following services did you use last week? (Check all that apply)
   - ☐ Caltrain
   - ☐ BART
   - ☐ SamTrans
   - ☐ Ferry
   - ☐ Shuttle (shorter distance service to/from regional transit such as BART, Caltrain, or ferry)
   - ☐ Express bus (longer distance service to/from my home or a park & ride)

7. [Only ask if respondent answered carpool] If you travel by carpool, how many total people traveled with you to work (not including yourself)?
   - o 1 other person
   - o 2 other people
   - o 3 other people
   - o 4+ other people

8. [Only ask if respondent answered drive alone] What is the primary reason you choose to drive alone?

___[Fill in the blank]_____

Note: In addition to required survey questions, individual site surveys may add their own questions tailored to their respective TDM programs regarding awareness of services and reason for mode choice, but these questions are not required.

Analysis of Results

Survey results would be provided to the City in a standardized format as specified by staff. Formatted reports would be optional but not required.

In order to calculate drive alone mode share, City staff would sum the total number of trips completed via the following modes:

- Drove a car or motorcycle alone
- Dropped off by a friend/family member
- Dropped off by Uber, Lyft, taxi, etc.
- Non-responses if greater than 25 percent of the site's employee population

For Tier 4 projects, trip caps would be analyzed by comparing the peak-period, peak-direction counts to the cap (trips in during the AM peak, trips out during the PM peak).

6.4 Relationship to Existing TDM Programs

Existing programs under the previous iteration of the TDM ordinance would continue to be held to the same performance standards under their individual conditions of approval. However, in updating the TDM ordinance and the City's monitoring and enforcement practices, all participants under the current ordinance would be held to the same monitoring and enforcement standards, including methods, analysis, and enforcement fines.

7. East of 101 Area Trip Cap

This section documents a recommended approach to establishing an East of 101 Area Trip Cap. No area-wide trip cap documentation is required for individual projects; however, each project is expected to contribute a good faith effort toward trip reduction consistent with the Area Trip Cap objectives.

7.1 Approach

The East of 101 Area Trip Cap would support the city's transportation and land use planning efforts by serving as an informational tool to understand how continued growth in office/R&D land uses is affecting its streets.

The trip cap would cover a cordon zone covering key bottlenecks around major employment uses in the East of 101 Area. As illustrated in Figure 3, the cordon zone would include six streets: Oyster Point Boulevard (including the US-101 offramp), Poletti Way, East Grand Avenue, Gateway Boulevard, Mitchell Avenue, and Utah Avenue. The cordon zone would omit most retail, hotel, and residential uses, as well as potential office/R&D uses around the Caltrain station. While not perfect, this cordon zone was determined to capture most of the key bottlenecks and development opportunities while minimizing potential instances of double-counting. Tier 4 projects within and outside the cordon zone would still be subject to their own site-specific trip caps.

The trip cap would be set at the aggregate peak hour roadway capacity of the six streets comprising the cordon zone. The estimated capacity of each roadway is multiplied by a target volume-to-capacity (V/C) ratio of 0.9 across all gateways to represent the network's effective capacity.

FIGURE 3: PROPOSED EAST OF 101 TRIP CAP CORDON ZONE

Based on the calculations shown in Table 12, the peak hour trip cap should be set at approximately 11,500 vehicles inbound during the AM peak hour, and 8,100 vehicles outbound during the PM peak hour. The directional imbalance results from the area's higher inbound vehicle capacity (via the Oyster Point Boulevard flyover and Poletti Way, for which there are no outbound equivalents). For these reasons, although AM peak hour volumes tend to be higher, the PM peak hour is the area's primary vehicle constraint.

Given the rate of growth in the East of 101 Area, it is anticipated that the City will reach the trip cap at some point in the next two decades. Based on 2019 traffic counts, the City had reached approximately 63 percent of the AM peak hour trip cap and 70 percent of the PM peak hour trip cap. Oyster Point Boulevard already experiences poor operations during the PM peak hour, while other corridors may steadily degrade as growth continues. The trip cap cordon zone has capacity for roughly 60 percent growth during the AM peak hour and 44 percent growth during the PM peak hour, whereas the General Plan projects a 181 percent increase in employment. Even after increased mode shift, peak spreading, and remote work, avoiding the trip cap will be challenging.

Table 12: Peak Hour Roadway Capacities and East of 101 Area Trip Cap

Roadway	AM Inbound			PM Outbound		
	2040 Capacity	Target Capacity at V/C 0.9	2019 Peak Hour Traffic Volume	2040 Capacity	Target Capacity at V/C 0.9	2019 Peak Hour Traffic Volume
Existing Gateways						
A. Oyster Point Boulevard + US-101 Ramps	4,700	4,200	2,800	2,700	2,400	2,500
B/C. East Grand Avenue and Poletti Way	3,600	3,200	1,900	2,700	2,400	1,400
D. Gateway Boulevard	1,800	1,600	600	1,800	1,600	700
E. Mitchell Avenue	900	800	600	900	800	400
F. Utah Avenue	1,800	1,600	1,300	1,800	1,600	1,200
Total	12,800	11,500 (AM Trip Cap)	7,200	9,900	8,900 (PM Trip Cap)	6,200
Potential Future Gateways						
1. Oyster Point – Sierra Point Bridge	900	800	-	900	800	-
2. Haskins Bridge	1,800	1,600	-	1,800	1,600	-
3 Railroad Avenue	900	800	-	900	800	-
Total with New Projects	16,400	14,800 (AM Trip Cap)	7,200	12,600	11,300 (PM Trip Cap)	6,200

Notes: Existing traffic volumes represent pre-pandemic travel patterns. Trip cap targets are assessed to achieve an average vehicle-to-capacity (V/C) ratio of 0.9. Setting the target V/C ratio below 1.0 allows for better vehicle circulation, and may help correct for situations where counts are reduced due to gridlock, which is more likely to occur at V/C > 1.0.

7.2 Monitoring and Enforcement

The City should monitor the trip cap with traffic counts taken annually or biannually during a consistent time period (either the spring or fall) across a weeklong period. Ideally, these counts would correspond to the time of the year that site-specific surveys are occurring. Video screenline counts are recommended for accuracy in congested conditions, and should include both AM and PM peak periods (6-10 AM and 3-7 PM). As of 2022, the approximate cost of 40 hours of video counts across six screenline locations would be $12,000 from a typical traffic data collection vendor.

Upon reaching (or nearing) the trip cap, the City should evaluate corrective actions, which may include: revising TDM ordinance mode share targets, adopting new funding measures for enhanced transit and TDM services (e.g. increasing impact fees or adding a business headcount tax), creating an area-wide transportation management agency (TMA), adopting new vehicle user charges (e.g. congestion pricing or parking pricing), or slowing the pace of development approvals within the cordon zone. Such measures are inherently more disruptive, but may be necessary to manage constraints in the transportation network. However, a benefit of the trip cap is it provides a common metric for all East of 101 stakeholders to track, including private sector stakeholders who may not be covered under the TDM ordinance but still have an interest in transportation conditions. By transparently tracking growth toward the trip cap, the City and its partners can more proactively plan around these infrastructure constraints.

The trip cap may be increased by adding vehicle capacity via new street connections. Building out the three major street projects identified in the General Plan (Railroad Avenue, the Haskins Bridge and the Oyster Point-Sierra Point bridge) could increase the trip cap by approximately 40 percent. However, these projects inherently have a longer implementation timeline and greater uncertainty around their feasibility. Expanding vehicle capacity on existing streets is generally not recommended as a means of increasing the trip cap. Such projects would not provide the access and operational benefits associated with new connections while adversely affecting mode share, trip reduction, and VMT goals with wider, more auto-centric streets.