

1 Introduction

The Transportation Impact Review Guidelines (TIRG or Guidelines)¹ provide direction on the scope of study that the City of Oakland requires in evaluating the potential transportation impact of proposed land use development projects.² This evaluation addresses a range of issues necessary for the City to analyze, evaluate, advise upon, and disclose in the review of proposed projects. Additionally, the Guidelines ensure that potentially significant impacts are studied according to the City's thresholds of significance under the California Environmental Quality Act (CEQA). The Guidelines also provide direction on appropriate mitigations for significant impacts in the context of the overall policies and objectives of the City.

Note that these are only guidelines, and the information provided herein does not constitute a complete scope of work for any particular transportation analysis. The Guidelines provide a broad overview of analysis procedures, while a tailored scope of work is required to match the size and complexity of transportation issues associated with a particular project. Individual project scopes of work supersede the Guidelines, and must be prepared and approved under the direction of City staff.

1.1 Consistency with City Plans, Policies, and Programs

Oakland's adopted plans and policies shape the transportation analysis framework. The overall goals of these policies are to achieve an effective, sustainable, multi-modal transportation system for the City, including the City's "Complete Streets Policy" (Resolution No. 84204 C.M.S.) which affirms that the City will provide streets that are safe and convenient for all users of the roadway, including pedestrians, bicyclists, motorists, persons with disabilities, users and operators of public transit, seniors, children, and movers of commercial goods. Therefore, the mitigations and conditions of approval applied to a project should further this vision of the system. Specifically, this means analyzing a project with an eye to recommending improvements that will increase and prioritize access for pedestrians, bicyclists, and transit in order to reduce vehicle miles traveled and provide streets that are safe and convenient for all users. The names of major plans and policies, and their web links, are listed in Section 5.3 and should be consulted in order to evaluate projects against City principles that have been adopted.

¹ These TIRG supersede and replace the October 16, 2016 *Interim Guidelines* and the City of Oakland Transportation Impact Study Guidelines (2013).

² Specific guidance on preparing CEQA document/transportation study/analysis for land use plans, transportation plans, and transportation projects is provided separately.

1.2 Roles of the Participants

The project sponsor shall be responsible for choosing and contracting with a qualified, primary transportation consultant to perform the transportation review.³ The project sponsor will also be responsible for paying the cost of a peer review transportation consultant, if one is deemed necessary by the City. If there are any communications between the transportation consultants and the project sponsor relating to the transportation scope of work and/or analysis, it will be managed through the Planning and Building Department case planner.

The peer review transportation consultant will review the primary transportation consultant's work. The peer reviewer will be selected and managed by City staff. They will be responsible for ensuring that the project meets all City standards, as well as consistency with the approaches and mitigations/conditions of approval of those previously approved projects or those already in the pipeline.

City staff will be responsible for reviewing and approving (in writing) the proposed scope for both transportation consultants. City staff will also review the CEQA document/transportation study, specifically including review of the proposed mitigations and conditions of approval to, in part, ensure conformity with citywide goals and objectives.

1.3 Developing the Scope of Work

Project sponsors should consult the following table to determine the top-level elements to include in a scope of work.⁴

Table 1: Typical Study Components

Topic	Subtopics	Passes CEQA Screen <50 Vehicle Trips During Peak Hour	Passes CEQA Screen >50 Vehicle Trips During Peak Hour	Does Not Pass CEQA Screen	TRG Section
I. Project Summary	Project Description	X	X	X	2.1
	Study Area Description	X	X	X	2.2
II. Travel Analysis	Trip Generation Letter	X	X	X	3.1
	Transportation Counts		X	X	3.2
	Collision History & Analysis		X	X	3.3
III. Transportation	TDM Plan		X	X	4.1
	TDM Compliance		X	X	4.2

³ Throughout these TIRG, "transportation review" is broadly defined as any CEQA-type analysis, including without limitation EIR, (mitigated) negative declaration, exemption and addendum, and any non-CEQA analysis.

⁴ Subject to staff discretion, transportation studies are not required of projects with fewer than 50 vehicle trips during peak periods.

Demand Management					
VI. CEQA Analysis	Consistency With Plans		X	X	5.3
	Detailed VMT Analysis			X	5.5
	Mitigations (if applicable)			X	5.6
V. Conditions of Approval	Conditions of Approval	X	X	X	6

The CEQA screen will help determine what type of CEQA document/transportation study, if any, is required. If required, a pre-application/transportation scoping meeting may be scheduled with the case planner, City staff, the transportation consultant who will complete the study, and the peer review consultant (if one is required). The scoping meeting, if necessary, will address how these Guidelines are applied to the specific circumstances of the proposed project. Following the scoping meeting the transportation consultant will prepare a draft CEQA scoping memorandum.

Based on the study components required, the scoping memorandum will document key project assumptions to the City’s satisfaction, including:

- If performing detailed VMT analysis, identify the travel demand model proposed to be used.
- Intersections chosen for study and rational for selection.
- Traffic generation assumptions, including the basis for any motor vehicle trip reductions.
- Traffic assignment/distribution assumptions (where are destination/origin points? briefly justify).
- Proposed time periods for the transportation counts . Typical counts will include both a.m. (7a.m. - 9a.m.) and p.m. (4p.m. - 6p.m.) week-day peak periods. However, study periods will vary depending on the proposed land uses and may include mid-day peak periods and/or week-ends. Confirm the need (or lack thereof) to prepare a memorandum summarizing proposed mitigation measures prior to submitting draft CEQA document/transportation study.
- Assumptions for transit, bike and pedestrian trips, including brief justification of origin/destination assumptions.
- Scope of work for development of the project’s Transportation Demand Management Plan.
- Estimated cost and itemized budget associated with consultant scope of work.

Project vicinity maps will be included in the scoping memorandum to show trip assignment, location of other projects that are in the pipeline or have been recently approved, and all proposed study intersections.

City staff will make reasonable good faith efforts to review the draft scope and fee within 10 business days of receipt and request revisions as needed. The scope shall include a clearly identified modest contingency (recommended at 5 percent of consultant cost, but

may be more in some complex cases) to account for unforeseen issues that arise over the course of analyses. Any modifications to the original scope of work that are necessary in order to prepare a legally defensible CEQA document/transportation study will be discussed between the Planning and Building Department case planner, City transportation staff, City Attorney's Office, peer reviewer, and the transportation consultants. Final approval of the scope(s) of work, or amendments, shall be agreed to in writing (an email record is sufficient) between the case planner and assigned transportation planner/engineer. The scoping memorandum will then be used to guide preparation of the CEQA document/transportation study/transportation study. Modifications may also affect the extent of the peer review scope. Further revisions to the scope of work may be necessary during the course of Project review and will follow the same process as outline above.

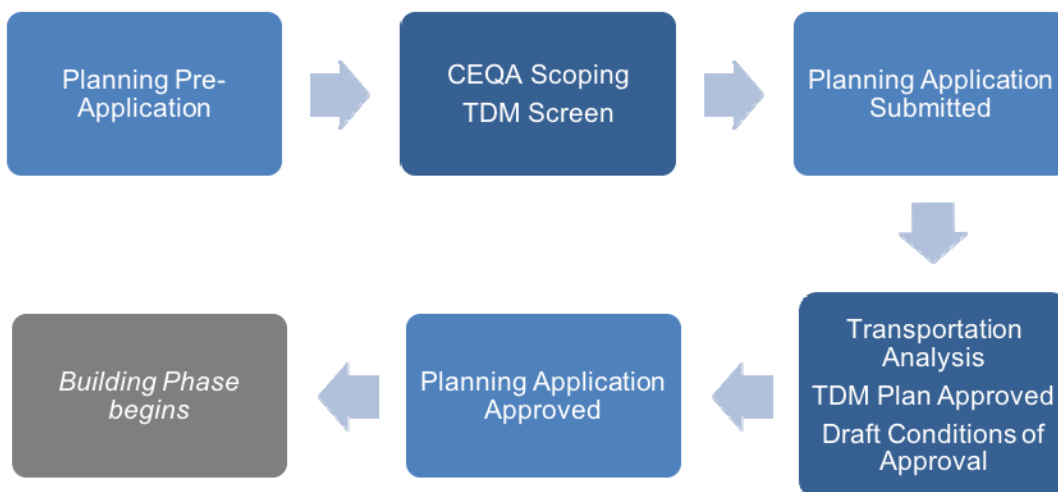
1.4 Reviewing and Finalizing the Transportation Review

Based on the approved scope of work, the primary transportation consultant will conduct the required analysis. The primary transportation consultant will submit a draft CEQA document/transportation study/transportation study to the peer review transportation consultant for review and comment (or City staff if no peer reviewer is used). The peer review comments, if any, will then be distributed to City staff for a review and written approval before release back to the primary transportation consultant for correction. If necessary, depending upon the depth of comments and project complexity, a meeting will be held. City staff will submit written comments to the primary transportation consultant.

The primary consultant will then submit written responses to City/peer reviewer comments in memorandum format with redlined versions of the revised CEQA document/transportation study. This step will be repeated as necessary until outstanding issues are adequately addressed to the satisfaction of City staff. Only after these reviews are completed can the CEQA document/transportation study be released to the public. For budgeting and scheduling purposes, assume three rounds of revisions to administrative drafts, plus a screencheck.

If a Final CEQA document/transportation study is required (such as a Final EIR/Response to Comments document), then after public review of the draft CEQA document/transportation study and receipt of staff direction, the primary consultant will submit an administrative draft Final CEQA document/transportation study to the peer review consultant (or City staff if no peer reviewer is used) for review and follow the review/comment process outlined above.

1.5 How Transportation Review Fits Into the Planning Workflow



2 Project Summary

The first section of a project's transportation review documentation will include a description of the proposed project and project study area.

2.1 Project Description

All transportation review must include a project description with the following information:

- Site plan including address, cross streets, lot area, existing and proposed zoning, Assessor's Number(s), and a figure showing the lot on the Assessor's map;
- Existing and proposed total gross square footage for each land use type and the number of units for residential, hotel/motel, and live/work projects including the net changes for each type of use;
- Existing and proposed number of off-street motor vehicle and bicycle parking spaces including net changes to on-street or off-street parking spaces as a result of the project;
- Existing and proposed number of off-street and on-street freight loading spaces as well as any proposed changes affecting on-street loading spaces;
- Description and plans for use of public rights-of-way by present and proposed uses, either above or below grade (e.g., air rights, surface or subsurface revocable permits, etc.) including changes to sidewalk width, and the number, width, direction and channelization of travel lanes;
- Scale plans showing site access for all transportation modes, the location of curb cuts for existing and proposed uses, and internal site circulation (including pedestrian, motor vehicles, and deliveries);
- Figure identifying the quantity, dimensions, and location of parking spaces for motor vehicles and bicycles, proposed egress and ingress to the parking garage

or lot, circulation within the parking facility, and the quantity and location of parking spaces for persons with disabilities including specification of supply relative to Planning Code requirements;

- Figure showing the location, dimensions, access to off-street freight loading spaces, and the on-site location for storage refuse and recycling.

2.2 Study Area Description

The transportation review should provide a brief but complete description of existing transportation infrastructure and conditions in the vicinity of the project. The setting will include the area surrounding the project within 500 feet to one-half mile or more, depending upon the size and nature of the project. The extent of the study area may differ by study topic (e.g., traffic vs. parking vs. transit). The study area will include both sides of the streets designated as the project boundaries (e.g., for on-street parking surveys) unless otherwise specified. The selection of the study area must be justified in the transportation review such that the reasoning can be easily understood.

The Study Area Description section of the transportation review will include the following information in both narrative and graphic form:

- Priority networks for pedestrian, bicycle, and transit as identified in the City's Complete Streets Design Guidelines; street classifications as identified in the City's Land Use and Transportation Element, Pedestrian Master Plan and Bicycle Master Plan; the Alameda County Transportation Commission's Congestion Management Program Network and Metropolitan Transportation System; and the Federal Highway Administration's functional classification system
- Street access including routes to highways and freeways (including location of on-ramps and off-ramps); and existing bikeways by facility type
- Public transit within the study area including routes, stop/station locations, service areas, hours of operation, peak period headways, boardings/alightings by stop; and vehicle type
- Street characteristics including number and width of lanes, direction of flow, average daily traffic volumes (where known from studies performed within the past three years), intersection and mid-block traffic control devices (e.g., signals, stop signs, flashing beacons, marked crosswalks), traffic calming devices (e.g., traffic circles, bulb-outs and speed bumps)
- Sidewalk characteristics including actual and effective widths adjacent to the project site and connections to transit stops serving the site
- Parking characteristics within the study area, including
 - Number of on-street parking spaces, control types for on-street parking (e.g., meters, signed for time limit, neighborhood residential permit parking, disabled parking, etc.)
 - Number of off-street parking facilities and spaces (public and private)
 - Whether off-street parking is provided as independently-accessible stalls or tandem/stacked valet operation

- Identification of the effects of any special circumstances affecting the availability of parking in the vicinity of the proposed project (e.g., periods of peaking in parking demand, and large generators of localized parking demand, such as a major institution or parking garage)
- Number and location of existing short-term bicycle parking spaces within 50 feet of the main entrance of the new development

3 Transportation Analysis

Transportation analysis, including trip generation estimates; transportation counts; site analysis focused on bicycle, pedestrian, and transit; and if requested, operations analysis, should be performed and documented based on the following guidance.

3.1 Trip Generation

The transportation review will analyze the multi-modal trips generated by the project and how any motor vehicle traffic generated by the project is distributed through the transportation network. The trip generation analysis will consider all modes of travel, and should include reductions in motor vehicle trip generation based on specific factors and supporting evidence. All reductions in motor vehicle trips will be reassigned as pedestrian, bicyclist, and/or transit trips for inclusion in multi-modal analysis as described in subsequent sections.

For typical analysis, the latest edition of the Institute of Transportation Engineers (ITE) *Trip Generation Handbook* should be used to determine the base trip generation for the proposed land uses. Appropriate ITE land use codes and rates should be applied and justified. The guidelines in the *ITE Trip Generation Handbook* for selection of regression equations versus weighted average rates should be used.

The data will be presented in a summary table showing peak hour trip generation by land use for each study period (e.g., AM, PM, mid-day), trip generation rates, and the variable used to calculate trip generation for each land use. If ITE regression equations are used to calculate trips, the equations used should also be presented.

Local trip generation surveys may be substituted for ITE trip generation rates in special circumstances where *ITE Trip Generation* does not adequately reflect the proposed development. Use of other trip generation data must be approved by City staff prior to use. In particular, local trip generation surveys may be required if the project site meets any of the following criteria:

- not compatible with any ITE land use codes;
- the land use code has fewer than five data points;
- the project size does not fall within the range of ITE study sites; or
- the standard deviation is greater than 110% of the weighted average rate.

3.1.1 Mode Split and Internal Capture Adjustments

Research has shown that *ITE Trip Generation* often over-estimates motor vehicle trips when applied to dense, urban environments such as many Oakland neighborhoods. In fact, *ITE Trip Generation* acknowledges that most of the underlying data for the Handbook were collected in suburban settings with few, if any, alternatives to driving. Moreover, mixed-use developments that combine origins and destinations in close proximity may encourage “internal” trips made entirely within a given development and placing no burden on the external transportation network. For these reasons, trip generation analysis in Oakland should explicitly account for mode split and internal capture as part of the trip generation process.

Table 2 shows the City of Oakland’s mode split adjustment factors for ITE trip generation rates. The factors are based on Census commute data for Alameda County⁵ and differentiate between proximity to rail/ferry stations and surrounding residential density.⁶

⁵ American Community Survey, 2014 5-year estimates,

⁶ http://www.mtc.ca.gov/planning/smart_growth/stars/

Table 2: Default City of Oakland Multimodal Trip Generation Adjustment Factors

Distance from BART/Amtrak	<0.5 miles	>0.5 miles, <1.0 mile	> 1.0 mile		
			Urban (>10,000)	Dense Suburban (6,000 - 10,000)	Suburban (<6,000)
Land Use Type (Density) ⁷					
Motor Vehicle Trips⁸	53.1%	63.3%	76.9%	79.5%	84.4%
Transit	29.7%	23.6%	17.9%	16.2%	11.3%
Bike	5.1%	4.9%	1.9%	1.6%	0.9%
Walk	10.5%	6.2%	2.0%	1.0%	2.6%

For instance, consider a proposed development with a base trip generation estimate from ITE of 150 peak hour trips.

Table 3 illustrates the estimated multimodal trip generation after applying Table 2. Note that total trip generation is not constant, as the mode split of “Other” modes varies slightly by land use category.

Table 3: Example Application of Mode Split Adjustment Factors

Distance from BART/Amtrak	<0.5 miles	>0.5 miles, <1.0 mile	> 1.0 mile		
			Urban (>10,000)	Dense Suburban (6,000 - 10,000)	Suburban (<6,000)
Land Use Type (Density) ¹					
Motor Vehicle Trips	80	95	115	119	127
Transit	45	35	27	24	17
Bike	8	8	3	2	2
Walk	16	9	3	2	4
Total	149	147	148	147	150

The standard mode split adjustment factors implicitly account for internal trips, as there was no differentiation of internal versus external trips in the underlying travel survey. As a result, analysis using the standard mode split adjustments shall not apply an additional factor for internal trips. The standard mode split adjustment factors shown in Table 2 may generally be applied to projects throughout Oakland; however, there may be instances where these factors do not adequately reflect the likely travel characteristics of a particular project. In these cases, the transportation consultant may

⁷ People per square mile.

⁸ Motor vehicle trips include all motorized trips (car, taxi, and motorcycle).

choose to use a separate analysis tool to estimate mode split and internal capture, subject to the approval of the methodology by City transportation staff.

3.1.2 Other Trip Generation Adjustments

The applicability of the following reductions in project trip generation will be determined by the approved scope of work:

- Existing trips generated by the project site are already included in existing transportation counts and thus may be subtracted from the total project trip generation. A trip generation survey of the existing site is generally required for claiming this trip reduction and the results of the survey shall determine the reduction; however, *ITE Trip Generation* analysis may be substituted for a survey subject to the approval of City transportation staff. If the existing and proposed site differs by land uses and/or access points, existing trips shall be distributed and reassigned separately to the network as both positive and negative trips.
- Pass-by, diverted, and linked trips are created by intermediate stops on a through trip. Pass-by trips are existing trips that enter the project site and then exit in the same direction of travel. They are attracted to the land use – typically service stations, fast food restaurants, and convenience stores – from an adjacent roadway with direct access to the project site. Diverted and linked trips are existing trips on nearby roadways that will divert from their existing routes to access the project site, typically larger retail development. These trips change existing through movements to turning movements or vice versa at nearby intersections. The latest edition of the *ITE Trip Generation Handbook* shall be used as the starting point to determine these reductions. Pass-by trip reductions shall only be applied to shopping centers greater than 10,000 square feet, service stations, fast food restaurants, and convenience stores. Use of this reduction requires justification of the percent reduction based on existing volumes and an analysis of turning movements to and from the project driveways.

3.1.3 Trip Distribution and Assignment

Trip distribution may be estimated based on existing traffic flows on major streets, including consideration of how localized congestion may reasonably cause diversion. A table will summarize trip distribution to gateways. Graphics will show percent distribution on roadway segments, project-only trips on roadway segments, project-only turning movement volumes at intersections, and Existing + Project turning movement volumes at intersections. For the Central Business District, graphics illustrating the difference between inbound and outbound trip assignments will be provided.

Transit trips shall be assigned to transit routes based on the project's the travel demand and mode split analyses. The frequency and load factors for affected transit routes should be documented per guidance in Section 5.5. Transit trips shall also be assigned as pedestrian trips for roadway segments between the project site and the affected transit stops and stations.

3.1.4 Study Intersections for Transportation Counts

Transportation counts, including bicycle, pedestrian, and vehicle volumes, shall be conducted on study intersections. Study intersections are defined as:

- all intersection(s) of streets adjacent to the project site;
- all signalized intersection(s), all-way stop-controlled intersection(s) or roundabouts where 100 or more peak hour trips are added by the project;
- all signalized intersection(s) with 50 or more project-related peak hour trips and existing LOS D-E-F; and
- side-street stop-controlled intersection(s) where 50 or more peak hour trips are added by the project to any individual movement other than the major-street through movement.

3.1.5 Intersection Operational Analysis

At the City's discretion, some intersection operations analysis may be recommended, including but limited to, development projects that generate more than 800 peak hour vehicle trips or 400 peak hour transit trips (for planning purposes only; no cumulative year analysis required). Operational analysis may also be required for projects which previously had CEQA review performed that included such intersection operation analysis (in which cases cumulative year analysis may also be required). For more information regarding operational analyses, see **Appendix 7.2**.

3.1.6 Congestion Management Program

This analysis is only required if a land use development project generates 100 p.m. peak hour vehicle trips on a roadway segment of the Congestion Management Program (CMP) Network. In Oakland, the CMP includes all state highways plus a small number of Oakland streets: portions of Martin Luther King Jr Way, Webster/Posey Tubes, 23rd/29th Avenues, and Hegenberger Rd. State law requires Congestion Management Agencies (CMA's; in Alameda County it is the ACTC that performs this service) to monitor the CMP for congestion.

CMP analysis will follow all ACTC analysis procedures as defined in the most recent Congestion Management Program. Note that Alameda CTC has not adopted thresholds of significance for CMP land use analysis purposes. Project sponsors should use professional judgment to 1) define a threshold that is appropriate for the project context; and 2) use this threshold to determine if segments are impacted. Additionally, Alameda CTC has indicated that its required and preferred methodologies for its Land Use Analysis Program will be revisited when revised CEQA guidelines are adopted statewide.

3.2 Transportation Counts

Two-hour peak period transportation counts of vehicles, pedestrians, and bicyclists are required for all study intersections during all study periods agreed upon during the scoping process. Typical analysis will include both weekday morning (7a.m. - 9a.m.) and evening (4p.m. - 6p.m.) peak periods.

Counts shall be collected on Tuesdays, Wednesdays, or Thursdays, avoiding school breaks, holidays, abnormal weather conditions, and construction. Additional time periods may be required to reflect the peak period trip generation for the land use or nearby land uses, such as schools or shopping centers. Counts shall be recorded at 5-minute or 15-minute intervals, tallied by turning movement for vehicles and bicyclists and by crossing leg for pedestrians.

At saturated intersections, traffic demand shall be based on the arrival counts, queue lengths, and departure volumes. Typical intersection vehicle counts yield only the departure volumes through an intersection. For saturated intersections, departure volumes do not reflect actual demand because of growing queues on the intersection approaches, and thus the need for arrival counts.

City staff can provide the consultant with available data but the extent of current counts varies greatly by location. Counts that are no more than five years old from the date of the project's finalized scope of work are acceptable for analysis. Older counts may be used with justification (through comparison of sample transportation counts at study intersections), subject to approval by City transportation staff. A figure illustrating existing transportation counts shall be included and the date for each count shall be included in the text and on the calculation sheets. Explanation for significant differences in the findings must be provided, as well as recommendations for addressing the discrepancy.

3.3 Site Analysis

Through site analysis, Consultant will establish the transportation needs of the project in the immediate vicinity of the project site, including

- Site access and interface with road network for bikes, pedestrians, trucks, and vehicles
- Emergency vehicle access
- Bicycle, pedestrian, truck and vehicular circulation within one to two blocks of the Project site including multi-modal segment and intersection operations.
- Off-street parking demand and proposed supply
- Need for and location of loading zones, including passenger and commercial loading
- Bicycle parking
- Pedestrian routes between Project and major bus routes
- Potential site plan design features that increase hazards to vehicles, pedestrians or bicycles or result in inadequate emergency access would be identified and analyzed according to the the City of Oakland's Complete Streets Design Guidelines (forthcoming), and AASHTO and Caltrans design policies, providing recommendations for intersection geometrics and control for the site access.
- Bus stops serving the site and access to bus service from the project site, identifying necessary pedestrian improvements
- Potential transit impacts due to construction

3.4 Collision History

Evaluate the most recent five years of vehicle, pedestrian, and bicycle collision data for all study intersections plus roadway segments in proximity to the project site as determined by the scope of work. The analysis shall:

- Calculate street segment and intersection collision frequencies based on existing geometric configurations and five years of collision data.
- Identify if there are crash patterns in the data by analyzing vehicle, pedestrian, and bicycle collisions by collision type, severity, primary collision factor, and movement. Summarize findings and observations, and collision rate through the use of tables and narrative. For additional guidance, see chapters 5 and 6 of the AASHTO Highway Safety Manual (HSM).
- Determine if the project would contribute to an existing problem or if any improvements are recommended to alleviate potential effects of the project. Consult the Federal Highway Administration's Crash Modification Factor (CMF) Clearinghouse⁹ and/or Part D of the HSM to identify potential needed safety treatments at study intersections. Review available CMFs related to assess potential treatments for the purposes of addressing project effects on safety. Identify the CMFs that are applicable based on the study intersection characteristics and the source of the CMFs. Include a listing of CMF values, CMF standard errors (if given), and CMF quality based on FHWA 5-star rating system, with a focus on CMFs with 4-star or 5-star ratings
- Identify potential improvements to geometric design, lane configuration and/or signal equipment to improve transportation safety at study intersections.

3.5 Construction

Every reasonable effort should be made to avoid and minimize construction impacts on pedestrian, bicycle, and bus facilities in Oakland. As such, projects that anticipate needing traffic control plans during construction may propose and receive feedback on preliminary plans for temporary traffic control within the transportation analysis. Within such preliminary plans, proposed truck routes and operating hours should be indicated. For large projects, the staging plans of construction trucks for materials delivery should be cited, and methods for addressing the parking needs of construction workers and displaced employees (if they will remain nearby on on-site) should be identified.

The plans shall identify proposed closures of sidewalks, parking lanes, bikeways, travel lanes, street segments, and all other rights-of-way, including the extent and duration of closure. Potential impacts shall be evaluated on pedestrian circulation, traffic operations (including vehicles, transit, and bicycles), and loading, in accordance with the City of Oakland's Supplemental Design Guidance: Accommodating pedestrians, bicyclists, and bus facilities in construction zones . The need to remove or relocate transit stops shall be noted. Long-term sidewalk detours are generally not acceptable in downtown

⁹ <http://www.cmfclearinghouse.org/>

Oakland, nor in areas where significant pedestrian activity occurs, such as near BART stations and in neighborhood commercial areas. Generally, only in areas where there is little existing pedestrian volume should a long-term sidewalk detour be proposed. If the number of construction truck trips anticipated for the project will deteriorate the pavement, repair or replacement of the paving may be necessary and can be prescribed as a condition of approval.

4 Transportation and Parking Demand Management

Per City of Oakland Standard Conditions of Approval, all land use projects that generate more than 50 net new a.m. or p.m. peak hour vehicle trips must prepare a Transportation and Parking Demand Management (TDM) Plan as early as feasible in the planning process. The TDM Plan records the project sponsor's commitment to implement strategies to achieve the goals described below.

The following goals should be reflected in the TDM Plan:

- Reduce vehicle traffic and parking demand generated by the project to the maximum extent practicable, consistent with the potential traffic and parking impacts of the project.
- Achieve the following project vehicle trip reductions (VTR):
 - Projects generating 50-99 net new a.m. or p.m. peak hour vehicle trips: 10 percent VTR
 - Projects generating 100 or more net new a.m. or p.m. peak hour vehicle trips: 20 percent VTR
- Incorporate location-dependent TDM features, per Table 4, which may be applied toward the project's VTR
- Increase pedestrian, bicycle, transit, and carpool/vanpool modes of travel associated with the development project. All four modes of travel shall be considered, as appropriate.
- Enhance the City's transportation system, consistent with City policies and programs.

4.1 TDM Plan

As feasible, the project applicant shall submit a TDM Plan as a chapter or section within the transportation review document, concurrently with any CEQA document/transportation study that may be required, or as early as feasible in the planning process if no CEQA document/transportation study is required, subject to review and approval by the City.

The TDM Plan records the project sponsor's commitment to implement physical site improvements and operational strategies. To meet the requirement, the TDM Plan shall indicate the estimated vehicle trip reduction (VTR) for each strategy, based on published research or guidelines where feasible. For TDM Plans containing ongoing

operational VTR strategies, the Plan shall include an ongoing monitoring and enforcement program to ensure the Plan is implemented on an ongoing basis during project operation (see Section 4.2). If an annual compliance report is required the TDM Plan shall also specify the topics to be addressed in the annual report.

The following TDM strategies **must** be incorporated into a TDM plan based on a project location or other characteristics. When required, these mandatory strategies should be identified as a credit toward a project’s VTR.

Table 4: Required/Mandatory TDM Strategies¹⁰

Improvement	Required by code or when...
Bus boarding bulbs or islands	<ul style="list-style-type: none"> • A bus boarding bulb or island does not already exist and a bus stop is located along the project frontage; and/or • A bus stop along the project frontage serves a route with 15 minutes or better peak hour service and has a shared bus-bike lane curb
Bus shelter	<ul style="list-style-type: none"> • A stop with no shelter is located within the project frontage, or • The project is located within 0.10 miles of a flag stop with 25 or more boardings per day
Concrete bus pad	<ul style="list-style-type: none"> • A bus stop is located along the project frontage and a concrete bus pad does not already exist
Curb extensions or bulb-outs	<ul style="list-style-type: none"> • Identified as an improvement within site analysis
Implementation of a corridor-level bikeway improvement	<ul style="list-style-type: none"> • A buffered Class II or Class IV bikeway facility is in a local or county adopted plan within 0.10 miles of the project location; and • The project would generate 500 or more daily bicycle trips
Implementation of a corridor-level transit capital improvement	<ul style="list-style-type: none"> • A high quality transit facility is in a local or county adopted plan within 0.25 miles of the project location; and • The project would generate 400 or more peak period transit trips
Installation of amenities such as lighting; pedestrian-oriented green infrastructure, trees, or other greening landscape; and	<ul style="list-style-type: none"> • Always required

¹⁰ AC Transit must be consulted for any transit related elements.

Improvement	Required by code or when...
trash receptacles per the Pedestrian Master Plan and any applicable streetscape plan.	
Installation of safety improvements identified in the Pedestrian Master Plan (such as crosswalk striping, curb ramps, count down signals, bulb outs, etc.)	<ul style="list-style-type: none"> • When improvements are identified in the Pedestrian Master Plan along project frontage or at an adjacent intersection
In-street bicycle corral	<ul style="list-style-type: none"> • A project includes more than 10,000 square feet of ground floor retail, is located along a Tier 1 bikeway, and on-street vehicle parking is provided along the project frontages.
Intersection improvements¹¹	<ul style="list-style-type: none"> • Identified as an improvement within site analysis
New sidewalk, curb ramps, curb and gutter meeting current City and ADA standards	<ul style="list-style-type: none"> • Always required
No monthly permits and establish minimum price floor for public parking¹²	<ul style="list-style-type: none"> • If proposed parking ratio exceeds 1:1000 sf (commercial)
Parking garage is designed with retrofit capability	<ul style="list-style-type: none"> • Optional if proposed parking ratio exceeds 1:1.25 (residential) or 1:1000 sf (commercial)
Parking space reserved for car share	<ul style="list-style-type: none"> • A project is located within downtown. One car share space preserved for buildings between 50 – 200 units, then one car share space per 200 units.

¹¹ Including but not limited to visibility improvements, shortening corner radii, pedestrian safety islands, accounting for pedestrian desire lines.

¹² May also provide a cash incentive or transit pass alternative to a free parking space in commercial properties.

Improvement	Required by code or when...
Paving, lane striping or restriping (vehicle and bicycle), and signs to midpoint of street section	<ul style="list-style-type: none"> Typically required
Pedestrian crossing improvements, pedestrian-supportive signal changes¹³	<ul style="list-style-type: none"> Identified as an improvement within site analysis Identified as an improvement within operations analysis
Real-time transit information system	<ul style="list-style-type: none"> A project frontage block includes a bus stop or BART station and is along a Tier 1 transit route with 2 or more routes or peak period frequency of 15 minutes or better
Relocating bus stops to far side	<ul style="list-style-type: none"> A project is located within 0.10 mile of any active bus stop that is currently near-side
Signal upgrades¹⁴	<ul style="list-style-type: none"> Project size exceeds 100 residential units, 80,000 sf of retail, or 100,000 sf of commercial; and Project frontage abuts an intersection with signal infrastructure older than 15 years
Transit queue jumps	<ul style="list-style-type: none"> Identified as a needed improvement within operations analysis of a project with frontage along a Tier 1 transit route with 2 or more routes or peak period frequency of 15 minutes or better
Trenching and placement of conduit for providing traffic signal interconnect	<ul style="list-style-type: none"> Project size exceeds 100 units, 80,000 sf of retail, or 100,000 sf of commercial; and Project frontage block is identified for signal interconnect improvements as part of a planned ITS improvement; and A major transit improvement is identified within operations analysis requiring traffic signal interconnect
Unbundled parking	<ul style="list-style-type: none"> If proposed parking ratio exceeds 1:1.25 (residential)

Other TDM strategies to consider include, but are not limited to, the following:

- Inclusion of additional long-term and short-term bicycle parking that meets the design standards set forth in chapter five of the Bicycle Master Plan and the Bicycle Parking Ordinance (chapter 17.117 of the Oakland Planning Code), and

¹³ Including but not limited to reducing signal cycle lengths to less than 90 seconds to avoid pedestrian crossings against the signal, providing a leading pedestrian interval, provide a "scramble" signal phase where appropriate.

¹⁴ Including typical traffic lights, pedestrian signals, bike actuated signals, transit only signals

shower and locker facilities in commercial developments that exceed the requirement.

- Direct on-site sales of transit passes purchased and sold at a bulk group rate (through programs such as AC Transit Easy Pass or a similar program through another transit agency).
- Provision of a transit subsidy to employees or residents, determined by the project applicant and subject to review by the City.
- Provision of an ongoing contribution to transit service to the area between the project and nearest mass transit station prioritized as follows: 1) Contribution to AC Transit bus service; 2) Contribution to an existing area shuttle service; and 3) Establishment of new shuttle service. The amount of contribution (for any of the above scenarios) would be based upon the cost of establishing new shuttle service (Scenario 3).
- Guaranteed ride home program for employees, either through 511.org or through separate program.
- Pre-tax commuter benefits (commuter checks) for employees.
- Free designated parking spaces for on-site car-sharing program (such as City Car Share, Zip Car, etc.) and/or car-share membership for employees or tenants. On-site carpooling and/or vanpool program that includes preferential (discounted or free) parking for carpools and vanpools.
- Distribution of information concerning alternative transportation options.
- Requiring tenants to provide opportunities and the ability to work off-site.
- Allow employees or residents to adjust their work schedule in order to complete the basic work requirement of five eight-hour workdays by adjusting their schedule to reduce vehicle trips to the worksite (e.g., working four, ten-hour days; allowing employees to work from home two days per week).
- Provide or require tenants to provide employees with staggered work hours involving a shift in the set work hours of all employees at the workplace or flexible work hours involving individually determined work hours.

4.2 TDM Compliance

For projects that generate 100 or more net new a.m. or p.m. peak hour vehicle trips and contain ongoing operational VTR strategies, the project applicant shall submit an annual compliance report for the first five years following completion of the project (or completion of each phase for phased projects) for review and approval by the City. The annual report shall document the status and effectiveness of the TDM program, including the actual vehicle trip reduction achieved by the project during operation. If deemed necessary, the City may elect to have a peer review consultant, paid for by the project applicant, review the annual report. If timely reports are not submitted and/or the annual reports indicate that the project applicant has failed to implement the TDM Plan, the project will be considered in violation of the Conditions of Approval and the City may initiate enforcement action as provided for in these Conditions of Approval. The project shall not be considered in violation of this Condition if the TDM Plan is implemented but the vehicle trip reduction goal is not achieved.

5 CEQA Analysis

The City's CEQA Thresholds of Significance require an evaluation of potential impacts related to vehicle miles traveled (VMT) criteria. This section provides the City's significance criteria, thresholds of significance, and screening criteria related to VMT for analysis in CEQA document/transportation studies.

5.1 Significance Criteria

The project would have a significant effect on the environment if it would:

- Conflict with a plan, ordinance, or policy addressing the safety or performance of the circulation system, including transit, roadways, bicycle lanes, and pedestrian paths (except for automobile level of service or other measures of vehicle delay); or
- Cause substantial additional VMT per capita, per service population, or other appropriate efficiency measure; or
- Substantially induce additional automobile travel by increasing physical roadway capacity in congested areas (i.e., by adding new mixed-flow lanes) or by adding new roadways to the network.

5.2 Thresholds of Significance

The following are thresholds of significance related to substantial additional VMT:

- For residential projects, a project would cause substantial additional VMT if it exceeds existing regional household VMT per capita minus 15 percent.
- For office projects, a project would cause substantial additional VMT if it exceeds the existing regional VMT per employee minus 15 percent.
- For retail projects, a project would cause substantial additional VMT if it exceeds the existing regional VMT per employee minus 15 percent.

Additional guidance is provided in Section 5.4, below, regarding review of other types of land uses.

5.3 Consistency with Plans

Oakland's adopted Plans and Policies shape the framework for the transportation analysis. The names of major plans and policies, and their web links, are listed below and should be consulted in order to evaluate projects against City principles that have been adopted. (Note: The plans, policies, and programs of other Agencies with relevant standards are also listed below)

Plans or Policies		Links
General Plan	Land Use and Transportation Element (1998)	http://www2.oaklandnet.com/Government/o/CEDA/o/PlanningZoning/s/GeneralPlan/DO_WD008821:
	Bicycle Master	http://www2.oaklandnet.com/Government/o/

Plans or Policies	Links
Plan (2007)	PWA/o/EC/s/BicycleandPedestrianProgram/OAK024597#/download
Pedestrian Master Plan (2002)	http://www2.oaklandnet.com/government/o/PWA/o/EC/s/BicycleandPedestrianProgram/OAK024599
Transit First Ordinance	http://www2.oaklandnet.com/oakca/groups/pwa/documents/report/oak028550.pdf
Noise Element (2005)	http://www2.oaklandnet.com/government/o/PBN/OurServices/GeneralPlan/DOWD009019
Scenic Highways (1974)	http://www2.oaklandnet.com/oakca1/groups/ceda/documents/webcontent/dowd009021.pdf
Neighborhood, Area, and Transportation Plans	
Broadway-Valdez District Specific Plan (2014)	http://www2.oaklandnet.com/government/o/PBN/OurOrganization/PlanningZoning/DOWD00819
Central Estuary Area Plan (2012)	http://www2.oaklandnet.com/government/o/PBN/OurOrganization/PlanningZoning/DOWD008415
Coliseum Area Specific Plan (2015)	http://www2.oaklandnet.com/Government/o/PBN/OurOrganization/PlanningZoning/OAK040453
Lake Merritt Station Area Plan (2014)	http://www2.oaklandnet.com/government/o/PBN/OurOrganization/PlanningZoning/DOWD008198
West Oakland Specific Plan (2014)	http://www2.oaklandnet.com/Government/o/PBN/OurOrganization/PlanningZoning/OAK028334
Department of Transportation Standards, Guidelines, and Resources	
	http://www2.oaklandnet.com/Government/o/PWA/o/EC/s/DGP/index.htm
ADA Programs	http://www2.oaklandnet.com/Government/o/CityAdministration/d/ADA/index.htm

Plans or Policies	Links
Bicycle Facility Design Guidelines	http://www2.oaklandnet.com/Government/o/PWA/o/EC/s/BicycleanandPedestrianProgram/OAK024653
Complete Streets Design Guidelines (forthcoming)	
City of Oakland Policies Complete Streets Policy ¹⁵	http://www2.oaklandnet.com/oakca1/groups/pwa/documents/marketingmaterial/oak039959.pdf
Public Transit and Alternative Modes Policy ¹⁶	http://www2.oaklandnet.com/oakca1/groups/pwa/documents/report/oak028550.pdf

5.4 VMT Screening Criteria

The following screening criteria may be used to identify types, characteristics, and/or locations of land use projects that would not exceed these VMT thresholds of significance. If a project or components of the project meet any of the below screening criteria, then it is presumed VMT impacts would be less than significant for the project or component of the project and a detailed VMT analysis is not required.

There are three key screening criteria for land use development projects: small size, project location in a low-VMT area, and project location near transit stations. A project only needs to meet one of the three screening criteria to “screen out”:

5.4.1 Presumption of Less Than Significant Impact for Small Projects

Absent substantial evidence indicating that a project would generate a potentially significant level of vehicle miles traveled (VMT), projects that generate fewer than 100 vehicle trips per day generally may be assumed to cause a less-than-significant transportation impact.

¹⁵ Requires the City consider the safety and comfort of all modes in the planning, design, and operation of the transportation system in order to provide viable non-auto transportation options.

¹⁶ Requires the City to encourage and promote use of public transit in Oakland and to expedite the movement of and access to transit vehicles on designated transit streets.

5.4.2 Presumption of Less Than Significant Impact for Residential, Retail, and/or Office Projects in Low-VMT Areas

Residential, locally-serving retail¹⁷, and office projects that locate in areas with low VMT¹⁸, and that incorporate similar features (i.e., density, mix of uses, low parking ratios¹⁹, transit accessibility) will tend to exhibit similarly low VMT. Therefore, use maps or tables illustrating areas that exhibit below-threshold VMT to screen out residential, office, and retail projects which may not require a detailed VMT analysis.²⁰ For projects that include residential, office, and retail components, each map should be used to screen the respective portion of the project. Information regarding the VMT per supply metric for the project transportation analysis zone (TAZ) and citywide average may be presented in a table or in a series of maps. Either method should include the source data, including name of travel model, version, and year of analysis.

Regional-serving retail. A 2007 market analysis²¹ showed that Oakland was severely under-served in comparison goods type retail, a category that includes products sold in stores offering apparel (clothing, accessories, shoes), home furnishings and appliances, specialty goods (gifts, jewelry, books, stationery and cards, sporting goods, etc.), and department and other general merchandise stores. As a result, nearly two-thirds of Oakland's potential sales in this category is lost to other Bay Area communities. This means that even typical regional-scale "big box" retail may reduce trip length for Oakland residents who choose to shop there, and would have otherwise traveled farther. At the same time, a highway-oriented, regional-scale outlet mall could be a generator of new trips from outside of Oakland. For these reasons, regional-scale retail should be evaluated on a case-by-case basis, focusing on the details of the form and type of retail.

5.4.3 Presumption of Less Than Significant Impact Near Transit Stations

Presume that residential, retail, and office projects, as well as mixed use projects which are a mix of these uses, proposed within ½ mile of an existing major transit stop or an existing stop along a high-quality transit corridor²² will have a less than significant impact on VMT. This presumption would not apply, however, if project-specific or location-specific information indicates that the project will still generate significant levels of VMT. For example, the presumption might not be appropriate if the project:

- Has an overall Floor Area Ratio (FAR) of less than 0.75,

¹⁷ Not exceeding 80,000 square feet of contiguous retail space.

¹⁸ As indicated by Section 2, Thresholds of Significance.

¹⁹ Parking ratio should not exceed 1:1.25 (residential) or 1:1000 sf (commercial)

²⁰ Data can be obtained via the Bureau of Planning – Strategic Planning Division's Dropbox using this link: https://www.dropbox.com/s/tev0hbvezo5dukl/VMT_Layers.gdb.zip?dl=0

²¹ Upper Broadway Strategy, Conley Consulting Group and Claritas, Inc., September 2007

²² Major transit stop is defined in CEQA Section 21064.3 as a 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.

- Includes more parking for use by residents, customers, or employees of the project than required (if parking minimums pertain to the site) or allowed without a conditional use permit (if minimums and/or maximums pertain to the site)
- Is inconsistent with Plan Bay Area, the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Transportation Commission),²³ or
- Has a retail component that is greater than 80,000 sf.

5.4.4 Screening and Thresholds for Other Land Uses

The Oakland Planning and Building Department has provided screening criteria and thresholds of significance to determine if land uses similar in function to residential, office, and retail would result in significant impacts as it relates to VMT.²⁴

The Oakland Planning & Building Department expands the Revised Proposal Map-Based Screening and Proximity to Transit Station screening criteria to the following types of land uses:

- Tourist hotels, student housing, single room occupancy hotels, and group housing land uses should be treated as residential for screening and analysis.
- Childcare, K-12 schools, post-secondary institutional (non-student housing), Medical, and production, distribution, and repair (PDR) land uses should be treated as office for screening and analysis.
- Grocery stores, local-serving entertainment venues, religious institutions, parks, and athletic clubs land uses should be treated as retail for screening and analysis.

The following identifies screening criteria and thresholds of significance used to determine if other types of land uses occasionally reviewed by the Oakland Planning and Building Department would result in significant impacts as it relates to VMT.

- **Public services** (e.g., police, fire stations, public utilities) do not generally generate VMT. Instead, these land uses are often built in response to development from other land uses (e.g., office and residential). Therefore, these land uses can be presumed to have less-than-significant impacts on VMT. However, this presumption would not apply if the project is sited in a location that would require employees or visitors to travel substantial distances and the project is not located within ½ mile of a major transit stop or does not meet the small project screening criterion.

²³ A project is considered to be inconsistent with the Sustainable Communities Strategy if development is located outside of areas contemplated for development in the Sustainable Communities Strategy.

²⁴ These screening criteria and thresholds of significance are consistent with purposes described in Section 21099 of the Public Resources Code and the screening criteria provided in the Office of Planning & Research's *Revised Proposal* (January 2016).

- **Event Centers and Regional-Serving Entertainment Venues.** Trips associated with these land uses are typically discretionary trips made by individuals, which may be substitute or new trips. For these land uses, a detailed VMT analysis would most likely be required as outlined below. Therefore, no screening criterion is provided. For these land uses, a VMT efficiency metric would also be used. A project would cause substantial additional VMT if it exceeds the existing regional VMT per retail employee minus 15 percent.

The land uses in this and the preceding sub-section are not intended to be inclusive of every land use reviewed by the Oakland Planning & Building Department for projects subject to CEQA. For these other land uses, the analysis should be consistent with one of the screening criteria and thresholds of significance described above

5.5 Detailed VMT Analysis

If these exceptions to the presumption may apply, the environmental analysis should include a detailed VMT analysis to determine whether the project would exceed VMT thresholds. An additional scoping meeting between City staff and the Consultant may need to be conducted.

Transportation demand management measures are typically not accounted for in estimates of VMT for transportation analysis zones in activity-based travel demand models. Therefore, the analysis should acknowledge the percentage reduction in VMT that is estimated to result from transportation demand management measures applied to the project. The percentage reduction in VMT shall be estimated only if literature review and/or data collection demonstrates that the efficacy of those transportation demand management measures applies in an urban setting similar to Oakland. For most transportation demand management measures, the percentage reduction would apply to the modal split calculation of the VMT analysis, while the vehicle occupancy and trip length would remain constant.

If a project is in a high-VMT area, transportation consultants performing CEQA analysis should take into account the VMT reductions of TDM measures required through the Standard Conditions of Approval and incorporated as project design features or program commitments memorialized in the project's TDM Plan.

If a project does not meet one of the screening criteria and application of required TDM measures would not reduce VMT impacts to less-than-significant levels, then project alternatives or project refinements need to be considered. Alternatives or project refinements that may reduce VMT impacts include increased density, increased mix of uses, improved access and service for sustainable modes of transportation (e.g., protected bicycle facilities, increased transit service), and other factors that affect travel behavior. See Section 5.6 below.

For projects that require alternatives or project refinements to reduce VMT impacts and/or for projects of a large enough scale and/or with unique land uses (e.g., event

centers) to substantially influence the VMT estimated in Alameda County's activity-based travel demand model, a more detailed VMT analysis may be required. The detailed VMT analysis may include a project-specific travel demand model run, surveys of populations who may make trips to and from the project, and/or other methodologies and tools, subject to approval in the scoping process.

5.6 Identifying Mitigations

Prior to completion of the CEQA document/transportation study itself, City staff may require a memorandum summarizing proposed mitigations measures. This memorandum will be used by City staff to determine the appropriateness of mitigations prior to submission of the draft CEQA document/transportation study. The need for a mitigations memo should be confirmed as part of the scoping memorandum.

The City reserves the right to assess and determine the appropriateness of continuing to impose previously adopted mitigation measures from previously certified/adopted CEQA document/transportation studies related to vehicle level of service.

5.7 Implementation of Standard Conditions of Approval/Mitigations

The transportation consultant must also provide information sufficient for the Standard Conditions of Approval/Mitigation Monitoring and Reporting Program (SCA/MMRP) by identifying when mitigation is required for the project. The Project Sponsor shall fund the cost of preparing and implementing the SCA/MMRP.

6 Project Specific Conditions of Approval

Where environmental impacts are "significant," mitigation measures are used to diminish the project's impact. In some cases the project will not have a "significant impact," but the City may impose project-specific recommendations to meet City policy objectives. These conditions of approval should be described in a separate section from Mitigation Measures, and accompanied by identification of the appropriate entity responsible for implementation. Such measures are not to be identified as "mitigation" measures, nor standard conditions of approval.

7 Appendices

7.1 Definitions

Active transportation, rightsizing (aka road diet) and transit project means any of the following:

- Reduction in number of through lanes
- Infrastructure projects, including safety and accessibility improvements, for people walking or bicycling
- Installation or reconfiguration of traffic calming devices
- Creation of new or expansion of existing transit service
- Creation of new or conversion of existing general purpose lanes (including vehicle ramps) to transit lanes
- Creation of new or addition of roadway capacity on local or collector streets, provided the project also substantially improves conditions for people walking, bicycling, and, if applicable, riding transit (e.g., by improving neighborhood connectivity or improving safety)

Employment center project means a project located on property zoned for commercial uses with a floor area ratio of no less than 0.75 and that is located within a transit priority area.

Floor area ratio means the ratio of gross building area of the development, excluding structured parking areas, proposed for the project divided by the net lot area.

Gross building area means the sum of all finished areas of all floors of a building included within the outside faces of its exterior walls.

Infill opportunity zone means a specific area designated by a city or county, pursuant to subdivision (c) of Section 65088.4, that is within one-half mile of a major transit stop or high-quality transit corridor included in a regional transportation plan. A major transit stop is as defined in Section 21064.3 of the Public Resources Code, except that, for purposes of this section, it also includes major transit stops that are included in the applicable regional transportation plan. For purposes of this section, a high-quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.

Infill site means a lot located within an urban area that has been previously developed, or on a vacant site where at least 75 percent of the perimeter of the site adjoins, or is separated only by an improved public right-of-way from, parcels that are developed with qualified urban uses.

Lot means all parcels utilized by the project.

Major transit stop is defined in CEQA Section 21064.3 as a 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.

Map-based screening means the proposed project site is located within a transportation analysis zone that exhibits low levels of VMT.

Net lot area means the area of a lot, excluding publicly dedicated land and private streets that meet local standards, and other public use areas as determined by the local land use authority.

Other land use projects mean a land use other than residential, retail, and office. OPR has not provided proposed screening criteria or thresholds of significance for other types of land uses, other than those that meet the definition of a small project.

- Tourist hotels, student housing, single room occupancy hotels, and group housing land uses should be treated as residential for screening and analysis.
- Childcare, K-12 schools, post-secondary institutional (non-student housing), Medical, and production, distribution, and repair (PDR) land uses should be treated as office for screening and analysis.
- Grocery stores, local-serving entertainment venues, religious institutions, parks, and athletic clubs land uses should be treated as retail for screening and analysis.
- Public services (e.g., police, fire stations, public utilities) and do not generally generate VMT. Instead, these land uses are often built in response to development from other land uses (e.g., office and residential). Therefore, these land uses can be presumed to have less-than-significant impacts on VMT. However, this presumption would not apply if the project is sited in a location that would require employees or visitors to travel substantial distances and the project is not located within ½ mile of a major transit stop or does not meet the small project screening criterion.
- Event centers and regional-serving entertainment venues would most likely require a detailed VMT analysis. Therefore, no screening criterion is applicable.

Other minor transportation project means any of the following:

- Rehabilitation, maintenance, replacement and repair projects designed to improve the condition of existing transportation assets (e.g., highways, roadways, bridges, culverts, tunnels, transit systems, and bicycle and pedestrian facilities) and that do not add additional motor vehicle capacity

- Installation, removal, or reconfiguration of traffic lanes that are not for through traffic, such as left, right, and U-turn pockets, or emergency breakdown lanes that are not used as through lanes
- Conversion of existing general purpose lanes (including vehicle ramps) to managed lanes (e.g., HOV, HOT, or trucks) or transit lanes
- Grade separation to separate vehicles from rail, transit, pedestrians or bicycles, or to replace a lane in order to separate preferential vehicles (e.g. HOV, HOT, or trucks) from general vehicles
- Installation, removal, or reconfiguration of traffic control devices, including Transit Signal Priority (TSP) features
- Traffic metering systems
- Timing of signals to optimize vehicle, bicycle or pedestrian flow on local or collector streets
- Installation of roundabouts
- Adoption of or increase in tolls
- Conversion of streets from one-way to two-way operation with no net increase in number of traffic lanes
- Addition of transportation wayfinding signage
- Removal of off- or on-street parking spaces
- Adoption, removal, or modification of on-street parking or loading restrictions (including meters, time limits, accessible spaces, and preferential/reserved parking permit programs)

Small project means the project would not result in over 100 vehicle trips per day.

Transit priority area means an area within one-half mile of a major transit stop that is existing or planned, if the planned stop is scheduled to be completed within the planning horizon included in a Transportation Improvement Program adopted pursuant to Section 450.216 or 450.322 of Title 23 of the Code of Federal Regulations.

Vehicle miles traveled measures the amount and distance that a project might cause people to drive and accounts for the number of passengers per vehicle.

7.2 Intersection Operations

At the City's discretion, some intersection operations analysis may be recommended, including but limited to, development projects that generate more than 800 peak hour vehicle trips or 400 peak hour transit trips (for planning purposes only; no cumulative year analysis required). Operational analysis may also be required for projects which previously had CEQA review performed that included such intersection operation analysis (in which cases cumulative year analysis may also be required).

If recommended, intersection operations analysis should be conducted on:

- all intersection(s) of streets adjacent to the project site;
- all signalized intersection(s), all-way stop-controlled intersection(s) or roundabouts where 100 or more peak hour trips are added by the project;
- all signalized intersection(s) with 50 or more project-related peak hour trips and existing LOS D-E-F; and
- side-street stop-controlled intersection(s) where 50 or more peak hour trips are added by the project to any individual movement other than the major-street through movement.

If requested, Intersection Level of Service (LOS) analysis shall be completed for all study intersections using the operations method of the 2010 Highway Capacity Manual (or latest edition). The analysis shall include all analysis periods specified by the scope of work. The transportation consultant shall obtain current timing sheets from the Department of Transportation and use these data in the analysis for signalized intersections.

Level of service analyses shall contain current information for all friction factors, including pedestrian movements, bus blockages, adjacent parking lanes, and parking maneuvers. The City requires the use of Synchro/SimTraffic for completing LOS calculations and the source files shall be submitted to City staff (or the peer review transportation consultant if required) in electronic format for review. At the conclusion of the effort, these electronic files shall be submitted to the City.

LOS for the specified intersections must be discussed in the text and presented in a table showing Existing and Existing plus Project, as well as projects nearby under construction. Existing and proposed lane configurations should also be shown graphical as part of the report.

7.2.1 Assumptions

To provide consistent and comparable results, the following analysis assumptions shall be used:

- Existing lane configuration, timing, phasing and other level of service parameters shall be retained for scenarios with and without the project. Traffic volume is thus the primary variable, ensuring a valid comparison of project impacts.
- Pedestrian volumes: Use actual counts as collected for the study intersections.

- Bicycle volumes: Use actual turning movement counts as collected for the study intersections. Note that the HCM methodology only accounts for bicycle traveling through the intersection in a bike lane or on a shoulder (turning bicycles and bicycles using an automobile travel lane are not considered in the methodology).
- Lost time: Use three seconds per phase, up to a maximum of 12 seconds.
- Cycle length: Use actual cycle length, if a fixed-time signal. For actuated signals, the cycle length assumption should not exceed 120 seconds. For planned and funded improvements that will change the timing to an undetermined cycle length, the Synchro optimized timing for without project conditions should be used as a base. The optimized cycle should be 90 seconds or less wherever possible, and in no cases shall exceed 120 seconds.
- Minimum green time: The walk interval should be at least 7 seconds in length so that pedestrians will have adequate opportunity to leave the curb or shoulder before the pedestrian clearance time begins. The pedestrian clearance time should be sufficient to allow a pedestrian crossing in the crosswalk who left the curb or shoulder at the end of the walk signal indication to travel at a walking speed of 3.5 feet per second to at least the far side of the traveled way or to a median of sufficient width for pedestrians to wait.
- A walking speed of up to 4 feet per second may be used to evaluate the sufficiency of the pedestrian clearance time at locations where an extended pushbutton press function has been installed to provide slower pedestrians an opportunity to request and receive a longer pedestrian clearance time. Passive pedestrian detection may also be used to automatically adjust the pedestrian clearance time based on the pedestrian's actual walking speed or actual clearance of the crosswalk. For crosswalks regularly used by pedestrians with slower walking speeds or by people in wheelchairs, a walking speed of less than 3.5 feet per second should be considered in determining the pedestrian clearance time.
- Peak Hour Factor (PHF): City of Oakland thresholds are based on average peak hour conditions rather than the peak 15-minute flow rate. As such, a PHF of 1.00 should be used in all analysis.
- Area type: Select 'CBD' from the software if study area is in the Central Business District. The Central Business District is essentially Oakland's downtown. The City's General Plan defines the area as being generally bounded by 27th Street on the north, I-980 on the west, I-880 on the south, and the Lake Merritt shoreline and Tidal Channel on the east.

7.2.2 Unsignalized Intersections

The California MUTCD peak hour traffic signal warrant (Section 4C.04) shall be evaluated for all unsignalized intersections at which the project adds ten or more trips *to the critical movement*. For these intersections, the signal warrant is used instead of level of service calculations because such intersections will typically be functioning at LOS D or worse and the warrant is an easier analysis to complete. The analysis shall

state the absolute number and percentage of total vehicles that the project contributes the intersection's critical movement.

7.2.3 Consistency with Previous Studies

Using the matrix of overlapping projects developed in the scoping memorandum, compare analysis results for signalized and unsignalized study intersections to past studies for consistency. If the analysis differs significantly from previous studies, the matrix should include a brief justification for the different results. Otherwise, the consultant should work with City staff to reconcile the differences.

7.2.4 Transit Corridor Operational Analysis

Projects that generate more than 800 peak hour vehicle trips or 400 peak hour transit trips, may generate significant transit passenger and vehicle trips that create operational localized issues for transit service. Upon direction from City Staff, consultants will refer to the Transit Capacity and Quality of Service Manual (TCQSM) and incorporate Automatic Passenger Count (APC) and Automatic Vehicle Locator (AVL) data from AC Transit as well as traffic signal timing and coordination, stop locations and measured distances to adjacent intersections, stop characteristics, intersection and stop spacing, as well as corridor geometrics and parking characteristics.

These inputs will be used to calculate bus travel speeds by route for each corridor. Project vehicle, pedestrian, and bicycle traffic is then added to the models and bus travel speeds recalculated. Measures to minimize the impact to degrading bus transit travel will be identified.

Consultant will also estimate the transit trips generated by the project and add the projected transit trips to existing load-factor data to identify potential project impacts on buses and BART. Consultant will obtain the latest available existing load-factor data from AC Transit and BART. Transit ridership forecasts for the project will be based on mode share already developed for the project as part of previous tasks.