TRANSPORTATION IMPACT ANALYSIS GUIDELINES

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City of Pasadena, California

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Prepared for:

PASADENA
DEPARTMENT OF TRANSPORTATION

City of Pasadena

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1. INTRODUCTION

1.1. PURPOSE

The Department of Transportation is committed to achieving the safe, efficient and convenient movement of people and goods within Pasadena, while concurrently ensuring a balance between land use and transportation to maintain a livable community in which cars are not necessary to travel within the city.

The ability of a community to balance and facilitate the different components of its transportation system is important to the creation and preservation of a quality living and business environment. The function of a community's transportation system is to provide for the movement of people and goods, including pedestrians, bicyclists, transit and other vehicle traffic flows within and through the community. The Mobility Element[1] of the City's General Plan sets forth goals and policies to improve overall transportation in Pasadena. The Mobility Element is based on approaches that address the needs of multimodal corridors and streets as well as community neighborhoods that are affected by traffic.

The purpose of these guidelines is to ensure that a comprehensive transportation review which furthers the City's goals and policies as well as current State statutes is conducted for all land use development projects proposed within the City of Pasadena. The goal of these guidelines is to identify transportation system improvements necessary to support new development while maintaining quality of life within the community prior to project approval and construction.

The guidelines identify the appropriate procedures, methodologies, and criteria for conducting the transportation review of a land use development project. Adherence to the guidelines will facilitate the preparation, review, and approval of a transportation assessment by Pasadena Department of Transportation (DOT) staff. The analysis requirements for other types of projects should be determined in consultation with DOT staff.

DOT reserves the right to modify the analysis requirements for individual development projects on a case-by-case basis at the time the transportation analysis is initiated. The requirements as presented herein may be revised at the discretion of the Director of Transportation in order to remain consistent with State law, City ordinances and resolutions, and current best practices as well as to continue to implement the City's General Plan transportation goals.

[1] The Mobility Element may be accessed here:
https://www.cityofpasadena.net/wp-content/uploads/sites/30/Adopted-Mobility-Element-2015-08-18.pdf

1.2. REGULATORY FRAMEWORK/BACKGROUND

On September 27, 2013, Governor Brown signed Senate Bill (SB) 743 (Steinberg, 2013). Among other things, SB 743 created a process to change the methodology to analyze transportation impacts under the California Environmental Quality Act (CEQA), which is codified in Public Resources Code (PRC) Section 21000 and following. The bill introduced PRC Section 21099, which directed the State of California Governor's Office of Planning and Research (OPR) to develop criteria for determining the significance of transportation impacts which would promote 1) the reduction of greenhouse gas emissions, 2) the development of multimodal transportation networks, and 3) a diversity of land uses. Upon certification of the subsequent revisions to the CEQA Guidelines, Section 21099 states that "automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment."

On December 30, 2013, OPR released a preliminary evaluation of alternative methods of transportation analysis, which included analysis based on project vehicle miles traveled (VMT) rather than impacts to intersection Level of Service (LOS). OPR issued other draft discussion documents in March 2015 and January 2016, suggesting these revisions to the CEQA Guidelines. Concurrently, OPR developed the *Technical Advisory on Evaluating Transportation Impacts in CEQA* ("Technical Advisory"), which provides non-binding recommendations on the implementation of VMT methodology and which has significantly informed the way VMT analyses are conducted in the State. In November 2017, OPR submitted the proposed amendments to the CEQA Guidelines to the State's Natural Resources Agency, including the proposed new Guidelines Section 15064.3 which governs how analyses of potential transportation impacts should be conducted. Consistent with PRC Section 21099, CEQA Guidelines Section 15064.3 also states that "a project's effects on automobile delay shall not constitute a significant environmental impact." On January 26, 2018, the Natural Resources Agency published a Notice of Rulemaking, commencing the formal rulemaking process for the amendments to the CEQA Guidelines, and on December 28, 2018, the California Office of Administrative Law adopted the proposed amendments, formally implementing the use of VMT as the metric for transportation analysis under CEQA. State-wide compliance with the provisions of Section 15064.3 was required by July 1, 2020.

Consistent with the legislative intent of SB 743, the City of Pasadena first adopted VMT as the primary metric for determining CEQA transportation impacts for development projects within the City in 2015. The Pasadena City Council approved updates to the City's CEQA impact thresholds in November 2020.

The passage of SB 743 and the resulting amendment to the CEQA Guidelines, however, does not prevent agencies from continuing to analyze delay or LOS outside of CEQA review for other transportation planning or analysis purposes (i.e., consistency with general plan objectives and policies, impact fee programs, corridor studies, congestion reduction, or ongoing network monitoring). While such additional analyses may not be used to identify transportation impacts for the purposes of CEQA, agencies may require proposed projects to address any LOS, circulation, or other transportation network deficiencies identified through this analysis as a condition of the project's discretionary approval.

The City of Pasadena endeavors to improve the transportation network for all roadway users, including pedestrians, bicyclists, transit riders, and motorists. Therefore, the City of Pasadena exercises its authority to require transportation analyses for purposes other than CEQA review as part of the City's established discretionary approval process. The additional analysis requirements are outlined in Section 3.0 – Local Mobility Analysis, herein, and includes assessments of active transportation, LOS and exclusive turn-lane queuing, and street segments.

2. TRANSPORTATION REVIEW PROCEDURE

2.1. ANALYSIS REQUIREMENTS

DOT will review applications for Predevelopment Plan Review (PPR) or other discretionary approvals to determine what transportation analyses must be prepared. The transportation analysis may require CEQA analyses and/or Local Mobility Analyses, in accordance with the City's established thresholds, as defined below:

Table 2–1: Thresholds for Determining Transportation Review of Development Projects

	Project Category		
Type Of Project	**EXEMPT**	**Category 1: BELOW COMMUNITYWIDE SIGNIFICANCE**	**Category 2: COMMUNITYWIDE SIGNIFICANCE**
Residential Land Uses (Net New Units)	≤ 10 units	11 – 49 units	≥ 50 units
Non-Residential Land Uses (Net New Sq Ft or Net New Daily Trips)	≤ 10,000 Sq Ft; **or** < 110 Daily Trips	10,001 – 49,999 Sq Ft; **or** ≥ 110 Daily Trips	≥ 50,000 Sq Ft
Analysis Requirements	None	Local Mobility Analysis	Local Mobility Analysis **and** CEQA Analysis

Development projects are exempt from technical transportation analyses (i.e., screened out) if they do not:

- Exceed more than 10 net new residential dwelling units
- Exceed more than 10,000 net new non-residential square feet
- Result in a net increase of 110 or more net new daily vehicle trips

Development projects which fall into Category 1: Below Communitywide Significance, are required to complete a Local Mobility Analysis. The Local Mobility Analysis consists of the following analyses:

- Active Transportation Assessment
- Intersection Operational Analyses
- Residential Neighborhood Cut-Through/Intrusion Analysis, if applicable

- Other analyses, as determined by DOT

Development projects which fall into Category 2: Communitywide Significance, are required to complete a **Local Mobility Analysis and a CEQA Analysis**. The CEQA Analysis consists of the following five (5) analyses:

- VMT per Capita*
- VT per Capita*
- Proximity and Quality of the Bicycle Network
- Proximity and Quality of the Transit Network
- Pedestrian Accessibility

* The City of Pasadena DOT equates capita with service population (population + jobs).

2.2. STUDY PROCESS

The following steps outline the typical transportation study preparation process.

1) Project Initiation

   The project applicant/representative shall submit a Master Application to the Department of Planning and Community Development. The project applicant/representative may also contact DOT staff to initiate the transportation review process. During this initial coordination, the following information shall be provided: project location, description and size, site plan including proposed access scheme, and existing land use(s) to be replaced, if applicable.

2) Memorandum of Understanding

   The transportation consultant preparing the transportation analysis shall prepare a Memorandum of Understanding (MOU) for the proposed project for City review. The MOU form is provided in Attachment A, and may also be requested from DOT staff.

   The MOU will summarize key project details (e.g., project description/location, trip generation forecasts, etc.) as well as the parameters and assumptions to be utilized in the required transportation analyses (i.e., study locations, future year, annual ambient growth rate, etc.).

   Any coordination with other agencies that may be required according to the procedures outlined in these Guidelines should be conducted as part of this scoping step in order to minimize changes to the study scope later in the process.

The MOU shall be submitted to the Department of Transportation and the Department of Planning and Community Development for review and approval prior to the commencement of the transportation analysis.

3) Data Collection

The transportation consultant preparing the transportation analysis shall collect the required quantitative and qualitative data required to prepare the transportation impact analysis. Data collection shall be conducted according to the procedures outlined in these Guidelines.

4) Transportation Impact Analysis

The transportation consultant preparing the transportation analysis shall conduct the required transportation analyses, including CEQA analyses and/or local mobility analyses as directed by DOT. The analyses shall be conducted according to the procedures outlined in these Guidelines.

The transportation analyses shall be presented in a Transportation Impact Analysis report, summarizing the key project details, the parameters and assumptions utilized in the analysis, the findings of the analyses, and any identified CEQA mitigation and/or local mobility improvements or corrective measures. The Transportation Impact Analysis shall be prepared under the supervision of, and signed by, a Professional Engineer registered with the State of California to practice either Traffic or Civil Engineering.

5) Conditions of Approval

Upon review and approval of the transportation impact analysis, DOT staff shall issue a letter to the Department of Planning and Community Development, outlining the required CEQA mitigation and/or local mobility improvements or corrective measures, if applicable. Any requirements will become Conditions of Approval as part of the development review process.

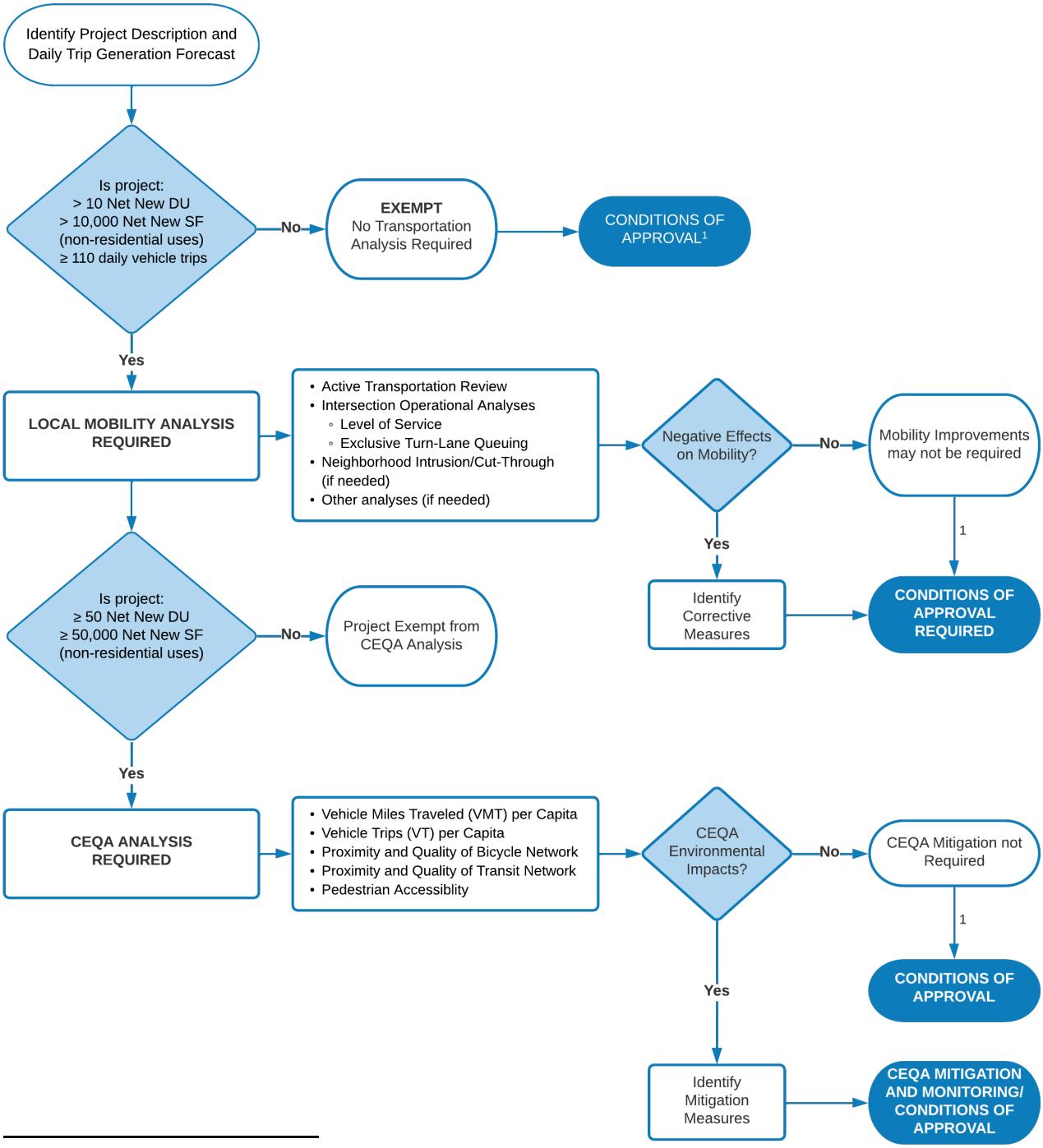
6) Mitigation Monitoring

The project applicant may be responsible for ongoing reporting, depending on the nature of any mitigation measures and/or corrective actions which are identified for the project. Monitoring and reporting shall be provided in compliance with the City's Trip Reduction Ordinance (Municipal Code Section 10.64.005-020, "Transportation Management Program"). Any additional monitoring and reporting beyond the requirements of CEQA and applicable City ordinances will be set forth in the Conditions of Approval.

2.3. SUMMARY FLOW CHART

The following flow chart provides a summary of the transportation study review process.

Figure 2–1: Flow Chart of Study Process



[2] DOT will require certain typical conditions of approval for all development projects, including but not limited to items such as payment of the Traffic Reduction and Transportation Improvement Fee (TR-TIF), overnight parking restrictions, etc.

3. LOCAL MOBILITY ANALYSIS

As stated in PRC Section 21099, upon certification of the revisions to CEQA required by SB 743, "automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment." Further, CEQA Guidelines Section 15064.3 also states that "a project's effects on automobile delay shall not constitute a significant environmental impact." Pursuant to these statues, the City of Pasadena does not evaluate a development project's environmental impacts under CEQA on the basis of vehicular LOS or other measures of congestion and delay.

Neither SB 743 nor the resulting revisions to the CEQA Guidelines, however, prohibits agencies from evaluating a development project's effect on delay, capacity, and other metrics for transportation planning or analysis purposes outside of CEQA review (i.e., consistency with General Plan objectives and policies, impact fee programs, corridor studies, congestion reduction, or ongoing network monitoring). The City of Pasadena endeavors to improve the transportation network for all roadway users, including pedestrians, bicyclists, transit riders, and motorists, and therefore requires additional transportation analyses as part of the discretionary approval process.

The analyses are intended to evaluate a development project's effects on local mobility in the City's transportation network, including effects on active transportation, traffic operations, and circulation in the vicinity of the project site. Where a project is found to result in or contribute towards a deficiency or negative effect on local mobility, corrective measures may be required to address or lessen the identified deficiencies. The metrics and criteria for determining deficiencies discussed in the following section are not intended to be considered as part of a development project's CEQA review.

3.1. SCREENING CRITERIA

The local mobility analyses outlined in this section shall be conducted for development projects which satisfy any of the following conditions:

- Project proposes more than 10 net new residential dwelling units
- Project proposes more than 10,000 net new non-residential square feet
- Project results in a net increase of 110 or more net new daily vehicle trips

Local mobility analyses may be required for projects which do not satisfy any of the above criteria at the discretion of the Director of Transportation.

3.2. ACTIVE TRANSPORTATION REVIEW

The active transportation review evaluates a proposed development project's effect on the pedestrian, bicycle, and transit network in the vicinity of the project site. The existing active transportation network is reviewed in order to determine if the project would result in a negative effect through removal or degradation of existing facilities, or by adding demand to substandard or inadequate facilities.

3.2.1. Inventory of Infrastructure and Demand Generators

The active transportation review shall include an inventory of all pedestrian, bicycle, and transit facilities within a 0.25-mile radius of the project boundary. The inventory shall include existing and planned facilities, including but not limited to:

- sidewalks and sidewalk widths
- pedestrian curb ramps and Americans With Disabilities Act (ADA) features
- curb extensions and bulb-outs
- crosswalks and type (e.g., parallel bars, continental, decorative, etc.)
- pedestrian push buttons and signals
- bicycle lanes
- bicycle parking
- bike-share locations
- transit stops
- benches and shelters
- public trash receptacles
- other active transportation infrastructure

The inventory shall also note facilities which are missing, damaged, or not to current standards (e.g., cracked pavement or sidewalks, obstructions in pedestrian paths, etc.). The inventory map should be presented in PDF format, with additional written discussion provided in the report text. A GIS shapefile of the inventory map shall be submitted to DOT with the final analysis submittal. The consultant preparing the active transportation analysis should consult with DOT to confirm the appropriate features and/or attributes to be included in the shapefile (refer to Section 5.2).

In addition, the inventory should document destinations within a 0.25-mile (i.e., 1,320-foot) radius of the project boundary which could potentially attract pedestrian, bicycle, and transit trips to/from the project site. Such destinations include but are not limited to:

- Shopping Centers
- Dedicated/major transit stations

- Schools/daycares
- Parks/playgrounds
- Recreation areas
- Public services (e.g., post offices, libraries, hospitals)
- Community/senior centers
- Other facilities

The potential for increased pedestrian, bicycle, and transit trips to/from the identified destinations should be identified in the report text. Existing pedestrian and bicycle trips in the vicinity shall be documented (refer to Section 3.3.2 for data collection requirements), and forecasts or estimates of future demand should be provided.

3.2.2. Assessment Criteria

A development project would result in a negative effect on the active transportation network if it resulted in the removal or degradation of existing infrastructure which supports pedestrian, bicycle, and transit travel modes. Examples include but are not limited to:

- Removal of transit stops, public benches/shelters, or other transit amenities
- Removal of bicycle lanes or public bicycle parking
- Removal or obstruction of sidewalks, pedestrian paths, or crossings
- Degradation of street buffering elements such as street trees, parkway strips, and bike lane buffers
- Degradation of visibility and lines of sight
- Degradation of appropriate-scale lighting

A development project would also have a negative effect on the transportation network if it resulted in increased pedestrian or bicycle demand on facilities which are missing, damaged, or not to current standards. Examples include but are not limited to:

- Increasing pedestrian demand where there are missing curb ramps/crosswalks, narrow or broken sidewalks, or where a controlled crossing is not available without significant rerouting.
- Increasing bicycle demand where there are no bicycle lanes, poor quality pavement, or lack of secure and well-lit parking.
- Increasing transit demand where there are missing crossings or where stops are located in isolated, unshaded, or unlit areas.

If a development project is found to result in negative effects on the active transportation network, improvement measures shall be identified.

3.2.3. Improvement Measures

Improvement measures should expand and enhance the active transportation network. Sample measures may be found in the City of Pasadena's *Street Design Guide,* prepared by Nelson/Nygaard Consulting Associates, Inc, March 2017, which is the implementation mechanism of the City's complete streets policy as outlined in the Mobility Element of the City's General Plan. Additional measures may be found in the City of Pasadena's *Pedestrian Crossing Treatment Guidance*, prepared by Fehr & Peers, October 2016. Additional information on the City's current pedestrian, bicycle, and transit infrastructure plans may be obtained from the Department of Transportation's Community Mobility and Pasadena Transit webpages at the following links:

https://www.cityofpasadena.net/transportation/community-mobility/#pasadena-walks

https://www.cityofpasadena.net/transportation/community-mobility/#bicycling

https://www.cityofpasadena.net/pasadena-transit/news/pasadena-short-range-transit-plan/

https://ww5.cityofpasadena.net/transportation/wp-content/uploads/sites/6/2017/05/Pasadena-Design-Guidelines-3-22-17.pdf

https://www.cityofpasadena.net/transportation/wp-content/uploads/sites/20/Pasadena-Pedestrian-Crossings-Volume-1-FINAL-1.pdf

3.3. INTERSECTION OPERATIONAL ANALYSIS

The intersection operational analysis evaluates a proposed development project's effect on LOS and exclusive turn-lane vehicle queuing in the vicinity of the project site. The LOS without and with project-generated traffic is compared to the City's minimum acceptable LOS standards to identify any negative effects on the operations at local intersections due to increases in traffic volumes. The exclusive turn-lane vehicle queuing without and with the project-generated traffic is compared to the existing available turn-lane storage space to identify any excessive turn-lane queuing which might have negative effects on circulation at local intersections.

3.3.1. Study Area

The study area for the intersection LOS analysis should include all project driveways and the nearest signalized intersections at or adjacent to the project site. Additional study locations may be required depending on the specific characteristics of the proposed development project and the immediate vicinity of the project site. The extent of the study area shall be determined in consultation with DOT staff during the scoping/MOU process.

Existing exclusive left-turn lanes at the study intersections and any proposed exclusive left-turn lanes at project driveways should be included in the exclusive turn-lane queuing analysis. Exclusive right-turn lanes may also be included, as determined in consultation with DOT during the scoping/MOU process.

Generally, operational analyses will not be required for unsignalized (two-way or all-way stop controlled) intersections. Traffic signal warrant analyses may be required for unsignalized intersections within the study area. Refer to Section 3.6 for further discussion of traffic signal warrant analyses.

The scope of the Local Mobility Analysis should not be truncated along city boundaries. If development projects may affect facilities under the jurisdiction of other local agencies (e.g., Caltrans, adjacent cities, Metro, etc.), the transportation consultant should coordinate with that agency to identify any additional analysis requirements.

3.3.2. Data Collection and Study Periods

Intersection LOS and exclusive turn-lane queuing analyses should generally be conducted for the weekday morning and evening peak hours. Pedestrian, bicycle, and vehicle turning movement volumes should be collected in 15-minute intervals for the two hours corresponding to the 2-hour peak weekday morning (7:00 AM to 9:00 AM) and evening (4:00 PM to 6:00 PM) commute periods.

Unless otherwise directed, all traffic counts shall be conducted on mid-week days (i.e., Tuesday, Wednesday, or Thursday), when local schools and/or colleges are in session, under good weather conditions, and shall not be taken during weeks with major holidays or any other time when traffic conditions may be atypical. Counts obtained when the above conditions are not met require approval by the Director of Transportation. If appropriate, alternative study periods and data collection requirements (e.g., mid-day, afternoon school peak, weekend, etc.) will be determined in consultation with DOT staff during the scoping/MOU process.

Recent traffic count data which is less than two (2) years old at the time the traffic analysis is prepared may be used so long as there are no major changes in traffic conditions in the vicinity due to more recent development. Use of older counts may be permitted or recommended should there be a significant, prolonged change in local conditions (e.g., major earthquake or other natural disaster, pandemic, etc.). Use of available counts, or the requirement for new counts, should be determined in consultation with DOT staff during the scoping/MOU process.

If an existing use trip credit is applied to the development project's trip generation forecast (refer to Section 3.3.3), the traffic counts should include the traffic generated by the existing use.

3.3.3. Project Trip Generation and Adjustments

The development project's vehicle trip generation forecast should be prepared using data published in the current edition of the Institute of Transportation Engineers' (ITE) Trip Generation Manual. Trip generation forecasts should be prepared using the recommended practices set forth in the current edition of the ITE Trip Generation Handbook (e.g., appropriate data sample sizes, use of average rates versus fitted curve equations, etc.). Trip generation data for select land uses are provided based on the location setting. Generally, trip generation data for the General Urban/Suburban setting is acceptable for use in the City of Pasadena. Use of trip generation data for Dense Multi-Use Urban or City Core location settings requires approval by the Department of Transportation.

The trip generation forecast may also be prepared using empirical data. Use of empirically derived trip generation data may be appropriate for land uses with small sample sizes or which are not contained in the ITE Trip Generation Manual. Where possible, empirical data should be obtained from same or similar existing land uses in the City of Pasadena or other nearby communities. Supporting documentation for any empirically-derived trip generation data should be submitted to DOT staff as part of the scoping/MOU process. Empirical data may be used to develop a project's baseline trip generation forecast and/or applicable trip generation credits and adjustments. For the purpose of forecasting trip generation and applicable credits or adjustments (as described below), travel data from Annual Transportation Demand Management Status Reports may be considered an appropriate source of empirical data at the discretion of DOT staff. Trip generation data from other local agencies or other appropriate sources may also be considered on a case-by-case basis.

The following trip generation credits and adjustments may be considered:

- Existing Use Credits: Many proposed development projects within the City are planned to be located on sites that contain an existing active/operational land use or land uses. In cases where the existing uses are planned to be removed/demolished as part of the proposed project, an existing use trip generation credit may be applied to the proposed project's forecast trip generation. Existing use trip generation credits may be granted for existing or recently terminated land uses which were active for at least 12 months during the most recent two (2) years, barring a significant, prolonged change in conditions as described in Section 3.3.2. Supporting documentation may be required to verify the status of active or recently terminated uses at the project site.

- Internal Capture Adjustments: Internal capture trips are trips that occur between project land use components (e.g., within a mixed-use development). A trip generation credit may be applied to mixed-use projects to account for these trips which are made internal

to the project site. Internal capture may be estimated using information provided in the latest edition of the Institute of Transportation Engineers' (ITE) Trip Generation Handbook, the Transportation Research Board (TRB) National Cooperative Highway Research Program (NCHRP) Report 684: Enhancing Internal Capture Estimation for Mixed-Use Developments, or other appropriate sources.

- Transit Adjustments: Transit adjustments may be applied to projects which are located in proximity to public transit services, including bus and light rail transit lines. Such trip generation adjustments are consistent with the City's goals of promoting the use of transit and encouraging development within Transit-Oriented Development (TOD) areas. The maximum transit adjustments based on location and quality of transit service are summarized below. The actual adjustment shall be determined in consultation with DOT staff during the scoping/MOU process.

    - Adjacent to dedicated transit stations or transit hubs – up to 20%. For purposes of this section, "Adjacent" refers to projects located adjacent to or across the street from a dedicated transit station. Transit stations or hubs include light-rail and bus rapid transit (BRT) stations, or the intersection of two or more bus transit lines which each provide less than 15-minute headways during peak periods.

    - Within an established TOD area as defined in Section 17.50.340 of the Zoning Code, or within one block or 600 feet (whichever is greater) to high-quality transit with less than 15-minute headways during peak periods – up to 15%. A map of established TOD areas is provided in Attachment C.

    - Outside an established TOD area and within one block or 600 feet (whichever is greater) to transit with less than 30-minute headways during peak periods – up to 10%.

- Pass-by Adjustments: Pass-by adjustments account for trips which are attracted from traffic passing the site on an adjacent street or roadway that offers direct access to the site. Pass-by trips are made as intermediate stops on the way from an origin to a primary destination without a route diversion. Pass-by adjustments should be based on the latest edition of the ITE Trip Generation Handbook or supported by empirical data or other appropriate sources. Pass-by trip adjustments should be applied after internal capture, transit, and other project-specific external trip adjustments have been applied. Refer to Attachment B for the maximum pass-by trip adjustments for a variety of common land uses. The actual adjustment should be determined in consultation with DOT staff during the scoping/MOU process.

The development project's trip generation forecast for weekday daily, AM peak hour, and PM peak hour, and other analysis time periods as necessary (e.g., weekend daily, mid-day peak hour, etc.), shall be summarized in table format. The trip generation data source, rates, and any applicable trip generation credits or adjustments shall be identified. The project trip generation forecast shall be submitted to DOT staff as part of the scoping/MOU process.

Should the project be required to implement transportation demand management (TDM) measures which are expected to reduce vehicle trip generation (e.g., in order to mitigate CEQA environmental impacts), the application of TDM trip credits to the project's trip generation forecast shall be determined in consultation with DOT staff. A supplemental operational analysis of the project with TDM credits may be required.

3.3.4. Project Trip Distribution and Assignment

A project trip distribution pattern indicating the percentage of inbound and outbound trips at each study intersection should be developed based on existing travel patterns, nearby land uses and existing development, and location relative to major travel corridors and the regional highway system. This distribution pattern shall be submitted to DOT staff as part of the scoping/MOU process.

A project trip assignment figure shall be prepared which illustrates the peak hour net new project trips at each study intersection.

3.3.5. Analysis Scenarios

Intersection LOS and exclusive turn-lane queuing at all study intersections should be evaluated for the following scenarios:

1. Existing Conditions

   Existing conditions are to be based on pedestrian, bicycle, and vehicular volume data and parameters collected in compliance with Sections 3.3.2 and 3.3.7.

2. Existing with Project Conditions

   Existing conditions plus the addition of net new project traffic assigned to the study intersections.

3. Future (Project Build-Out) Baseline Conditions

   The future baseline condition should be consistent with the year the project is expected to be fully built and occupied. If a project is expected to be constructed in phases over

multiple years, analysis of more than one future condition (without and with project) may be required in order to evaluate key projected occupancy milestones between existing and project build-out conditions.

4. Future (Project Build-Out) With Project Conditions

   Future baseline conditions plus the addition of net new project traffic assigned to the study intersections.

Select development projects, such as those which require long-term multi-year phasing and/or a development agreement with the City of Pasadena, a General Plan Zoning amendment, or a Planned Development may be required to analyze the following scenario for informational purposes:

5. Future Cumulative (General Plan Build-Out) With Project Conditions

   Future General Plan build-out conditions plus the addition of net new project traffic assigned to the study intersections. The future cumulative baseline conditions shall be consistent with the projected build-out year of the current City of Pasadena General Plan.

3.3.6. Future Traffic Condition Forecasting

Future baseline traffic condition forecasts for the project build-out year shall include both increases in existing volumes (i.e., annual ambient growth rate) and added volumes generated by other known and reasonably foreseeable development projects (i.e., related or cumulative projects).

The annual ambient growth rate should be determined based on the most recent Southern California Association of Governments (SCAG) regional transportation program, the City of Pasadena's travel demand model, or other appropriate sources, and shall be determined in consultation with DOT staff during the scoping/MOU process.

A list of related projects should be compiled which identifies other development projects which are proposed/under review, approved, or under construction within a 0.5-mile radius from the project site. Related projects research should consider all other known projects on file at the time the development project's application is filed with the Planning Department. Trip generation forecasts for the related projects should be developed using the current edition of the ITE Trip Generation Manual or project-specific information provided by DOT staff (e.g., Transportation Impact Studies or approved MOUs prepared for other development projects). The related project trips shall be distributed and assigned to the study intersections.

If needed, the methodology for developing the forecast General Plan horizon year traffic volumes within the study area shall be determined in consultation with DOT staff during the scoping/MOU process.

3.3.7. Methodology and Analysis Parameters

Intersection LOS and exclusive turn-lane queuing calculations shall be prepared using the current edition of the Transportation Research Board's (TRB) Highway Capacity Manual (HCM) methodology. The latest version of the Synchro software suite (or other appropriate analysis software approved for use by the City) shall be used to prepare the HCM calculations.

The following analysis parameters should be utilized to ensure that assumptions appropriate to the City of Pasadena are being utilized.

- Saturation Flow Rate (SFR) standards by lane group type as provided below should be employed, absent empirical surveys of SFR obtained per the methodology outlined in the latest edition of the HCM (i.e., HCM 6th Edition, Chapter 31 – Signalized Intersections: Supplemental).
    - 1,800 vehicles per hour per lane (vphpl) for through lanes, exclusive right-turn lanes, and shared through/right or left-turn lanes
    - 1,700 vphpl for exclusive left-turn lanes
    - 1,600 vphpl for exclusive dual left-turn lanes
- Peak Hour Factor (PHF) represents the fluctuation in traffic demand during the peak hour, and is used to adjust hourly traffic volumes (i.e., over a 60-minute period) to reflect the most constrained traffic conditions occurring during the peak 15-minute increment within the hour. The PHF for analysis of existing conditions without and with project should be determined for each intersection as a whole based on traffic volumes collected in the field. The existing PHF may also be applied to future analysis conditions (e.g., for the project build-out conditions).

  Alternately, a PHF of 0.92 (or the current PHF recommended for urban areas by the latest edition of the HCM) could be utilized for the future conditions. If the field measured PHF is not utilized, then the assumed PHF shall be determined in consultation with DOT during the scoping/MOU process.
- Pedestrian and bicycle volume data should be collected in the field for each crossing concurrently with the conduct of any required peak hour vehicle traffic counts.

- Signal timing parameters should be obtained according to the signal timing charts in use at the time any volume data was collected.

In order to assess the effects that at-grade light rail crossings have on the roadway network and nearby intersection operations, nearby rail crossings shall be included in the roadway network modeling via use of the latest version of Synchro. This inclusion would account for situations where intersection operations are regularly disrupted due to at-grade light rail (i.e., Metro L Line) transit crossings. Each rail crossing is unique and these characteristics shall be reviewed in consultation with DOT during the scoping process and prior to commencement of the study.

In instances where the network is oversaturated, contains closely spaced intersections, or includes other unique features which may not be accurately reflected in the HCM calculations, a micro-simulation analysis may be appropriate. Micro-simulation may also be considered when it is determined that the HCM methodology queuing calculations are not producing queue lengths comparable with existing observed vehicle queues. Micro-simulation may be prepared using the Synchro SimTraffic module (or other micro-simulation software approved for use by the City). Use of micro-simulation for intersection operational analyses shall be determined in consultation with DOT staff.

3.3.8. Assessment Criteria

The minimum acceptable LOS for intersections in the City of Pasadena is LOS D. In defined Transit Oriented Districts (TOD), the minimum acceptable LOS is E. Refer to Attachment C for a map of the adopted TOD areas.

Any decrease beyond the minimum acceptable LOS due to the addition of project traffic requires corrective measures to return the intersection to an acceptable LOS. For intersections operating below the minimum acceptable LOS prior to the addition of project traffic, and the LOS would be worsened with the addition of project traffic, corrective measures should be identified, if feasible. Corrective measures may include the reduction of project traffic volumes through application of TDM strategies and/or project design improvements which are expected to change vehicular travel demand on the transportation network (e.g., changes to a project's site access or internal circulation scheme), as well as any physical improvements as discussed in Section 3.3.9.

Excessive exclusive turn-lane queuing is defined as 95th percentile queuing which exceeds the turn-lane storage capacity and which may spill back into adjacent travel lanes and impede through vehicles, or as queuing which extends into or blocks upstream intersections and contribute to "gridlock".

Projects which are expected to cause or contribute towards exclusive turn-lane queuing which spills back into adjacent travel lanes or blocks adjacent intersections should identify corrective measures to improve queue management and/or storage, if feasible. For intersections which experience excessive exclusive turn-lane queuing prior to the addition of project traffic, and the queuing would be worsened with the addition of project traffic, corrective measures shall be identified, if feasible, including measures to reduce vehicle trips.

3.3.9. Improvements

Roadway widening, the addition of through travel lanes, or other physical improvements aimed solely at vehicular travel which may cause detrimental effects on other travel modes are not in alignment with the City's established transportation policies and objectives. Improvement measures should focus on improving the efficiency and capacity of the existing street system, such as through signal system upgrades, phasing changes, synchronization, lane reassignment, etc. Sample measures may be found in the City of Pasadena's *Street Design Guide,* prepared by Nelson/Nygaard Consulting Associates, Inc, March 2017, which is the implementation mechanism of the City's complete streets policy as outlined in the Mobility Element of the City's General Plan. Additional information on mobility enhancements may be found in the current General Plan and/or Specific Plan, if applicable.

3.4. RESIDENTIAL NEIGHBORHOOD CUT-THROUGH/INTRUSION ANALYSIS

The residential neighborhood cut-through/intrusion analysis evaluates the potential for a development project to generate cut-through trips which might have a detrimental effect on nearby residential neighborhood streets. Intrusion and cut-through trips may result in higher vehicle speeds and volumes than local residential streets are intended to accommodate, resulting in negative effects on the adjacent neighborhood served by the roadway.

Residential neighborhood street segments include roadways which are classified as "Access" and "Neighborhood Connector" in the City's Streets Plan (refer to Attachment D), and which serve residential uses along one or both sides of the roadway.

Cut-through trips include trips along a residential neighborhood street segment either to or from a destination that does not take access from the subject roadway, or which is located outside of the neighborhood served by the subject roadway. Cut-through trips may also include trips which have been diverted from nearby major corridors due to congestion. Trips to or from destinations which may only be accessed by the subject roadway (i.e., project driveway(s) located on the study roadway segment only) do not represent intrusion or neighborhood cut-through trips.

3.4.1. Study Segments

Street segments which do not provide sole access to the project site shall be assessed for potential neighborhood intrusion and cut-through traffic when both of the following conditions are met:

- The proposed project is required to provide a Local Mobility Analysis study; and
- The street segment meets the definition of a neighborhood residential street (i.e., "Access" or "Neighborhood Connector" which serves residential uses along at least one side of the roadway).

In addition, either of the following two conditions shall be met:

1) The project is expected to add trips to a neighborhood residential street(s); or,

2) a. The project is located in the vicinity of an intersection along a "City Connector" known to operate at an unacceptable LOS during peak traffic conditions; and

   b. The street segment provides a viable alternative route which is parallel to and/or in proximity to the congested "City Connector", as determined by DOT staff.

Study roadway segments shall be determined in consultation with DOT staff during the scoping/MOU process.

3.4.2. Data Collection and Research

If required, average daily traffic (ADT) counts along study roadway segments shall be collected consistent with the methodology stated in Section 3.3.2. ADT counts shall include a minimum of 24 hours of bi-directional traffic count data.

The collision history along the study roadway segment and at adjacent intersections shall be evaluated for crash trends. Collision data may be obtained through the Statewide Integrated Traffic Records System (SWITRS) or from DOT staff.

In-person field observations shall be conducted at all study locations selected for analysis, and should include the following, as applicable:

- Qualitative descriptions of traffic flows during peak and off-peak time periods
- Document violations of existing restrictions at adjacent intersections (e.g., violations of posted signage, violations of turning-restrictions/diverters, or other restrictive measures)
- Identify any apparent intrusion issues (e.g., parking, vehicle trips, etc.)

3.4.3. Methodology

Consistent with the intersection operational analyses, residential neighborhood cut-through/intrusion analyses shall be prepared for existing and future (project build-out) conditions.

The methodology described in Section 3.3 for preparing future traffic forecasts should be used to prepare the existing and future ADT baseline traffic volumes. Future traffic forecasts should include both an annual ambient growth factor and traffic generated by related or cumulative projects.

The methodology described in Section 3.3 should be used to assign net new project-generated traffic to the study segments.

If the project is located near intersections known to operate at an unacceptable LOS during peak traffic conditions, then an estimate of daily trips which may be diverted from the congested corridor to the study segment should be prepared. The estimate of diverted daily trips should take into consideration the fact that the major corridor may be less congested during non-peak periods than during peak traffic conditions. The estimate should account only for newly diverted cut-through trips resulting from deterioration of traffic operations caused by project-generated traffic. Any cut-through trips caused by the existing intersection operations are assumed to be included in the existing ADT count data.

3.4.4. Assessment Criteria

A development project would result in negative effects on residential neighborhood street segments if the increase in ADT meets the criteria below.

Table 3–1: Residential Neighborhood Cut-Through/Intrusion Criteria

Baseline ADT	Project-Related Vehicular Increase In ADT
0 to 1,500	150 or more of final ADT
1,501 to 3,499	10 percent or more of final ADT
3,500 or more	8 percent or more of final ADT

The project-related increase in ADT consists of the net new project-generated trips assigned to the study segment as well as any new cut-through trips expected to result from deterioration of traffic operations caused by project-generated traffic.

Any increase in ADT which exceeds the criteria above may require corrective measures.

3.4.5. Improvement Measures

If a project's net new trip assignment on a study segment exceeds the criteria presented above, measures to discourage use of the residential street segment to and from the project site shall be developed. Typical measures which could be considered include, but are not limited to, the following subject to the review and approval by DOT:

- Establishment of a more aggressive average vehicle ridership (AVR) target that exceeds the City's AVR average by enhancing the required TDM Plan as required by the City's Trip Reduction Ordinance (TRO)
- Potential turn restrictions and/or revised project access and circulation scheme
- Installation of speed humps, subject to the City's speed hump policy
- Curb extensions, diverters, raised median neighborhood gateways, etc.
- Other measures as identified by DOT staff

Selection of appropriate improvement measures should include consideration of the collision history and other observations of traffic conditions along the study roadway described in Section 3.4.2.

3.5. OTHER LOCAL MOBILITY ANALYSES

It is assumed that proposed development projects will comply with all applicable Zoning Code requirements pertaining to parking and loading (Sections 17.46.010-320), specifically regarding the provision of adequate parking supply (Section 17.46.040-100), access points and driveway design (Sections 17.46.140-180), loading and delivery (Section 17.46.260), etc.

However, depending on the characteristics of the proposed development project and the surrounding vicinity of the project site, additional technical analyses may be required. Such additional analyses may include, but is not limited to:

- Geometric Design: DOT staff may request additional technical analysis of sight distances, vehicle maneuvering, etc. on a case-by-case basis.

- Site Access and Circulation: For proposed projects which include on-site passenger vehicle loading or queuing facilities such as valet services, porte cocheres, or drive-through service lanes, DOT staff may request additional analysis of vehicle maneuvering, loading, and on-site queuing analyses, etc. on a case-by-case basis, including additional analysis of project driveways.

- Parking Studies: Additional parking studies (e.g., shared parking studies or off-site parking studies) may be required by the Planning Department when variances to the Zoning Code

parking requirements are requested. Any detailed parking analysis which may be required by the Planning Department shall be presented in a separate document from the transportation study, in order to facilitate submittal and review of each document by the appropriate City departments.

- Traffic Signal Warrant Analyses: Traffic signal warrants shall be prepared using the current version of the California Manual on Uniform Traffic Control Devices (CA MUTCD). To the extent possible, Warrant 7: Crash Experience should be evaluated in addition to volume-based warrants. Collision data may be obtained through SWITRS or from DOT staff.

Any additional analysis requirements will be determined in consultation with DOT staff during the scoping/MOU process.

3.6. CROSS-JURISDICTIONAL ANALYSIS

The scope of the Local Mobility Analysis should not be truncated along city boundaries. If development projects may affect facilities under the jurisdiction of other local agencies (e.g., freeway ramp intersections/Caltrans, adjacent cities, Metro, etc.), the project applicant should coordinate with that agency to identify any additional analysis requirements.

3.7. CONSTRUCTION

A Construction Staging and Management Plan (CSTMP) is not required as part of the Local Mobility Analysis. However, development projects will be required to provide a CSTMP to the Department of Public Works for review and approval prior to the issuance of any building/grading permits. The CSTMP shall include the identification, to the extent feasible, of any expected construction activities which would take place in the public right-of-way, as well as the potential for closure of one or more travel lanes (including bike lanes) or sidewalks, temporary loss of on-street parking, and temporary relocation of bus transit stops or rerouting of bus transit lines. Factors such as the duration of closures, duration of transit service interruptions, etc. shall be identified in the CSTMP. The current CSTMP template (in Word format) and Truck Route map may be found at the following links, respectively, or may be requested from DOT staff:

https://www.cityofpasadena.net/public-works/engineering-and-construction/engineering/

https://www.cityofpasadena.net/public-works/wp-content/uploads/sites/29/Construction-Staging-and-Traffic-Management-Plan-Template.doc

https://www.cityofpasadena.net/public-works/wp-content/uploads/sites/29/Truck-Route.pdf?v=1632344548693

4. CEQA ANALYSIS

Pursuant to the signing and implementation of SB 743 (Steinberg, 2013), OPR identified VMT as the most appropriate metric for determining transportation impacts for the purpose of environmental review in CEQA. OPR submitted proposed amendments to the CEQA Guidelines to the State's Natural Resources Agency, including the proposed new Guidelines Section 15064.3 which governs how analyses of potential transportation impacts should be conducted. On December 28, 2018, the California Office of Administrative Law adopted the proposed amendments, formally implementing the use of VMT as the metric for transportation analysis under CEQA. State-wide compliance with the provisions of Section 15064.3 was required by July 1, 2020.

The City of Pasadena adopted VMT as the primary metric for determining transportation impacts for CEQA environmental review in 2015; therefore, the City is compliant with State law and the current CEQA statutes. The Pasadena City Council approved updates to the City's CEQA impact thresholds in November 2020.

4.1. SCREENING CRITERIA

The CEQA transportation analyses outlined in this section shall be conducted for development projects which satisfy any of the following conditions:

- Project proposes 50 or more net new residential dwelling units
- Project proposes 50,000 or more net new non-residential square feet

4.2. METHODOLOGY

A description of each of the five (5) CEQA transportation analysis metrics is provided below.

4.2.1. Vehicle Miles Traveled (VMT) per Capita

The City of Pasadena DOT equates capita with service population (population + jobs). The Vehicle Miles Traveled (VMT) per Capita measure sums the vehicle miles traveled using the current City of Pasadena Citywide Travel Demand Model. The total VMT considers trips that begin inside Pasadena, end inside Pasadena, or both, and includes 100% of the distance traveled on these trips. The City's VMT is then divided by the City's total service population, defined as the population plus the number of jobs.

The project's contribution to the citywide VMT per capita is determined by comparing the citywide VMT per service population without the project to the citywide VMT per service population with the project. The project's incremental influence/contribution on Citywide VMT

per capita is compared to the adopted CEQA threshold to determine the significance of environmental impacts.

Although VMT itself will likely increase with the addition of new residents, the City can reduce VMT on a per-capita basis with land use policies that help Pasadena residents meet their daily needs within a short distance from home, reducing trip lengths, and by encouraging development in areas with access to various modes of transportation other than auto.

4.2.2. Vehicle Trips (VT) per Capita

The City of Pasadena DOT equates capita with service population (population + jobs). Vehicle Trips (VT) per Capita is a measure of motor vehicle trips associated with the City. The measure sums the trips with origins and destinations within the City of Pasadena, as generated by the current City of Pasadena Citywide Travel Demand Model. The total VT is calculated by adding the VT associated with trips generated and attracted within the City of Pasadena boundaries, and 100% of the VT associated with trips that either begin or end in the City, but have one trip end outside of the City. The City's VT is then divided by the City's total service population, defined as the population plus the number of jobs.

The project's contribution to the citywide VT per capita is determined by comparing the citywide VT per service population without the project to the citywide VT per service population with the project. The project's incremental influence/contribution on Citywide VT per capita is compared to the adopted CEQA threshold to determine the significance of environmental impacts.

As with VMT, VT itself will likely increase with the addition of new residents, but the City can reduce VT on a per-capita basis with land use policies that help Pasadena residents meet their daily needs within a short distance from home, reducing trip lengths, and by encouraging development in areas with access to various modes of transportation other than auto.

4.2.3. Proximity and Quality of Bicycle Network

The Proximity and Quality of Bicycle Network provides a measure of the percent of the City's service population (population + jobs) within 0.25-miles of each of three bicycle facility types. The facility types are aggregated into three hierarchy levels, obtained from the City's Bicycle Transportation Action Plan categories shown below.

Table 4–1: Bicycle Facilities Hierarchy

Level	Description	Facilities Included
1 (A)	Advanced Facilities	• Bike Paths (P1) • Multipurpose Paths (PP) • Cycle Tracks/Protected Bike Lanes
2 (B)	Dedicated Facilities	• Buffered Bike Lanes • Bike Lanes (2, P2) • Bike Boulevards (BB)
3 (C)	Basic Facilities	• Bike Routes (3, P3) • Enhanced Bike Routes (E3, PE3) • Emphasized Bikeways (PEB)
Source: City of Pasadena Bicycle Transportation Action Plan.		

For each bike facility level, a 0.25-mile network distance buffer is determined and the total service population (population + jobs) within the buffer are added.

The proximity and quality of the bicycle network is assessed by estimating the percent of service population access within 0.25-miles of Levels 1 and 2 bicycle facilities with the construction and occupancy of the proposed project. The resulting percent of service population is compared to the adopted CEQA threshold to determine the significance of environmental impacts.

The City can improve the measure of Bike Facility Access by improving and expanding existing bike facilities and by encouraging residential and commercial development in areas with high-quality bike facilities.

4.2.4. Proximity and Quality of Transit Network

The Proximity and Quality of Transit Network provides a measure of the percent of the City's service population (population + jobs) within 0.25-miles of each of three transit facility types, as defined in the *Streets Types Plan* and shown below.

Table 4–2: Transit Facilities Hierarchy

Level	Facilities Included
1 (A)	Includes all L ("Gold") Line stops as well as corridors with transit service, whether it be a single route or multiple routes combined, with headways of five minutes or less during the peak periods.
2 (B)	Includes corridors with transit headways of between six and 15 minutes in peak periods.
3 (C)	Includes corridors with transit headways of 16 minutes or more at peak periods.
Source: *Streets Types Plan,* Pasadena Department of Transportation.	

For each facility level, a 0.25-mile network distance buffer is determined and the total service population (population + jobs) within the buffer are added.

The proximity and quality of the transit network is assessed by estimating the percent of service population access within 0.25-miles of Levels 1 and 2 transit facilities with the construction and occupancy of proposed project. The resulting percent of service population is compared to the adopted CEQA threshold to determine the significance of environmental impacts.

The City can improve the measure of Transit Proximity and Quality by reducing headways on existing transit routes, by expanding transit routes to cover new areas, and by encouraging residential and commercial development to occur in areas with an already high-quality transit service.

4.2.5. Pedestrian Accessibility

The Pedestrian Accessibility metric provides a measure of the average walkability in the transportation analysis zone (TAZ) surrounding Pasadena residents. The metric is a simple count of the number of land use types accessible to a Pasadena resident or employee in a given TAZ within a 5-minute walk. The ten categories of land uses are:

- Retail
- Personal Services
- Restaurant
- Entertainment
- Office (including private sector and government offices)
- Medical (including medical office and hospital uses)
- Culture (including churches, religious and other cultural uses)

- Park and Open Space
- School (including elementary and high schools)
- College

The City can improve the Pedestrian Accessibility Score by:

- Encouraging residential and commercial development in areas with high existing Pedestrian Accessibility Scores; and
- Attracting mixed-use development and new land use types to increase the Pedestrian Accessibility metric values of other areas.

4.3. THRESHOLDS OF SIGNIFICANCE

The City of Pasadena's CEQA transportation thresholds of significance are presented in the following table.

Table 4–3: CEQA Thresholds of Significance

Metric	Description	CEQA Impact Threshold
VMT Per Capita[1]	Vehicle Miles Traveled (VMT) in the City of Pasadena per service population (population + jobs).	Net change in VMT per SP is 16.8% below Citywide average baseline 2017 Baseline: 35.6[2] **16.8% Below Baseline Threshold: 29.6**
VT Per Capita[1]	Vehicle Trips (VT) in the City of Pasadena per service population (population + jobs).	Net change in VT per SP is 16.8% below Citywide average baseline 2017 Baseline: 4.2[2] **16.8% Below Baseline Threshold: 3.5**
Proximity and Quality of Bicycle Network	Percent of service population (population + jobs) within a ¼ mile of bicycle facility types.	Any decrease in baseline Citywide SP within a ¼ mile of Levels 1 & 2 bike facilities. 2017 Baseline: 32.3%[2] **Threshold: 32.3%**
Proximity and Quality of Transit Network	Percent of service population (population + jobs) located within a ¼ mile of transit facility types.	Any decrease in baseline Citywide SP within a ¼ mile of Levels 1 & 2 transit facilities. 2017 Baseline: 66.8%[2] **Threshold: 66.8%**
Pedestrian Accessibility	The Pedestrian Accessibility Score uses the mix of destinations and a network-based walk shed to evaluate walkability	Any decrease in the Citywide Pedestrian Accessibility Score 2017 Baseline: 3.9[2] **Threshold: 3.9**

[1] The City of Pasadena equates capita with service population (SP, population + jobs).

[2] The Baseline should be updated approximately every five (5) years in order to reflect changes to the street network and parcel level land uses.

4.4. MITIGATION MEASURES

Projects that exceed the City's adopted CEQA thresholds are subject to conditions of approval. CEQA mitigation strategies shall promote the reduction of greenhouse gas emissions, develop multimodal transportation networks, and a diversity of land uses. The VMT per capita and VT per capita mitigation strategies to reduce the CEQA impact shall be quantifiable, and the calculation methodology shall be supported by professional organizations (ITE, ITS, APA, CAPCOA, OPR, CARB, etc.). VMT per capita and VT per capita mitigation measures will be verified using the current release of the City's VMT and VT Mitigation Calculator. Refer to the calculator user guide and documentation for further discussion of VMT and VT calculation and mitigation measures.

Mitigation measures to reduce the significance of impacts, if any, for the remaining CEQA metrics shall be determined in consultation with DOT staff.

4.5. CONSTRUCTION

If required through a CEQA environmental analysis, the CEQA Environmental Consultant shall provide a general description of construction activities and review and assess potential construction-related impacts to air quality, noise, and traffic, when applicable, which shall be separate from the transportation analysis. In addition, development projects will be required to provide a Construction Staging and Traffic Management Plan (CSTMP) to the Department of Public Works for review and approval prior to the issuance of any building/grading permits. The CSTMP shall include the identification, to the extent feasible, of any expected construction activities which would take place in the public right-of-way, as well as the potential for closure of one or more travel lanes (including bike lanes) or sidewalks, temporary loss of on-street parking, and temporary relocation of bus transit stops or rerouting of bus transit lines. Factors such as the duration of closures, duration of transit service interruptions, etc. shall be identified in the CSTMP. The current CSTMP template (in Word format) and Truck Route map may be found at the following links, respectively, or may be requested from DOT staff:

https://www.cityofpasadena.net/public-works/engineering-and-construction/engineering/

https://www.cityofpasadena.net/public-works/wp-content/uploads/sites/29/Construction-Staging-and-Traffic-Management-Plan-Template.doc

https://www.cityofpasadena.net/public-works/wp-content/uploads/sites/29/Truck-Route.pdf?v=1632344548693

5. REPORT PREPARATION

The Transportation Impact Analysis (TIA) report shall clearly present key project details, the parameters and assumptions utilized in the analysis, the findings of the analyses, and any identified CEQA mitigation and/or local mobility improvements or corrective measures. The Transportation Impact Analysis shall be prepared under the supervision of, and signed by, a Professional Engineer registered with the State of California to practice either Traffic or Civil Engineering.

5.1. CONTENTS

The Transportation Impact Analysis report shall provide a cover page identifying the project name and location, the name and contact information of the consultant preparing the report, the date of the report, and the stamp and signature of a registered Traffic or Civil Engineer.

A table of contents, including all relevant tables, figures, or exhibits shall be provided. The content of the report shall follow the format and organization presented below.

5.1.1. Introduction

The introduction shall briefly describe the proposed project and location, and summarize the contents of the TIA (e.g., CEQA and/or Local Mobility, analysis metrics, etc.).

This section shall provide the following exhibit:

- Vicinity Map illustrating the project area, project site location, and any study locations required for the Local Mobility Analysis

5.1.2. Project Description

The project description shall include detailed descriptions of project information, including but not limited to:

- Location and address of project site
- Existing and proposed land use(s) at project site, including total size for each land use and net changes, if applicable
- Existing and proposed site access and circulation plan, including location of project driveways as well as on-site loading or queuing operations, if applicable
- Trip generation forecast
- Trip distribution and assignment

This section shall provide the following exhibits:

- Project site plan illustrating the location of project access points, parking areas, building footprints, and loading areas
- Trip generation forecast in table format
- Trip distribution pattern in figure format, illustrating the percentage of inbound and outbound trips assigned to the study locations by turning movement
- Trip assignment in figure format, illustrating the net new project trips assigned to the study locations by turning movement, for each analyzed time period (e.g., weekday AM and PM peak hours)

5.1.3. Project Context

The project site's transportation network context shall be described. Where applicable, existing conditions should be documented through photos. The existing context should be presented, including but not limited to:

- Existing land use/development in the study area, including identification of commercial zones, residential neighborhoods, etc.
- Description of the pedestrian and bicycle network, including existing levels of utilization
    - Obtain photo documentation of any missing or substandard facilities
- Description of the transit network, including routes operating in the study area, service providers, type of transit (e.g., bus, light-rail, etc.), peak period headways, transit stop/station locations, and transit amenities (e.g., benches, shelters, information displays, etc.)
- Description of the study area roadway network, including traffic control, lane configurations, median type, speeds, on-street parking conditions, and any other special roadway conditions (e.g., grade, curvature, etc.)
- Traffic volumes at study locations

The expected future conditions shall also be noted, including but not limited to:

- Cumulative or related projects, including location and trip generation, distribution, and assignment
- Annual ambient growth factor
- Any transportation improvement projects expected to be complete and operational prior to construction and occupancy of the proposed development project

This section shall provide the following exhibits:

- Active transportation infrastructure inventory in map/figure format
- Pedestrian, bicycle, and transit destination inventory in map/figure format
- Existing bicycle and transit routes

- Existing street system, including lane configurations, traffic controls, etc.
- Existing traffic volumes at study locations
- Location of related projects in relation to the project site in figure format
- Related projects trip generation forecast
- Related projects trip assignment at study locations
- Future baseline traffic volumes at study locations

5.1.4. Local Mobility Analysis

Following the descriptions of the project and context, the report shall detail the local mobility analyses which have been conducted. The methodology, assessment criteria, and assumptions and analysis parameters utilized in the analysis shall be stated. The results of the analysis shall be summarized for each analysis scenario, if appropriate. Any negative effects on local mobility shall be identified. If needed, corrective measures and/or local improvements shall be identified, and their effectiveness at reducing a project's negative effects shall be assessed. Calculations, data worksheets, and other supporting documentation shall be provided as an attachment to the report.

This section shall provide the following exhibits:

- Location and type of missing or sub-standard facilities related to active transportation
- Summaries of the operational and exclusive turn-lane queuing analyses in table(s) format, including the calculated LOS, existing or proposed storage capacity, and calculated queue lengths for all analyzed time periods under each analysis scenario
- Traffic volume figures displaying the "Existing with Project" and "Future with Project" traffic volume forecasts
- Summaries of the residential neighborhood cut-through analyses in table format, if applicable
- Other required Local Mobility Analysis exhibits in accordance with Section 3.6, as necessary

5.1.5. CEQA Analysis

If a CEQA Analysis is required, the report shall detail the analysis conducted for each CEQA transportation metric. The methodology, thresholds of significance, land use assumptions and analysis parameters utilized in the analysis shall be stated. The results of the impact analysis shall be stated for each metric, and any significant impacts shall be identified. If needed, mitigation measures shall be identified, and their effectiveness at reducing a project's impact shall be evaluated, to the extent feasible. Calculations, worksheets, and other supporting documentation shall be provided as an attachment to the report.

This section shall provide the following exhibits:

- Summaries of the CEQA analyses in table format, as appropriate

5.1.6. CEQA Mitigation and Local Mobility Improvement Measures

Summarize the local mobility findings and any identified corrective measures or improvements. If necessary, summarize the CEQA transportation impact findings and any required mitigation measures that have been identified.

5.1.7. Summary and Conclusions

Briefly summarize all pertinent data presented in the prior sections. Restate local mobility and CEQA conclusions, and summarize all improvement/mitigation measures, if applicable.

5.1.8. Attachments and Appendices

The following items shall be provided as attachments or appendices to the Transportation Impact Analysis report when applicable:

- Executed MOU
- Traffic count data (including pedestrian, bicycle, and vehicle counts)
- HCM calculation worksheets (including other analysis worksheets as needed, such as micro-simulation worksheets)
- VMT and VT Mitigation Calculator output worksheets
- Proximity and Quality of Bicycle Network calculation summary
- Proximity and Quality of Transit Network calculation summary
- Pedestrian Accessibility Score summary

Other attachments shall be provided as needed, such as supporting documentation for empirical data, collision data, traffic signal warrant worksheets, sight distance analysis figures, etc.

5.2. GIS SHAPEFILES

If required, submit a shapefile or geodatabase that includes accurately geolocated features (e.g., active transportation inventory map). The shapefile should be properly projected and accompanied by a layer file that applies appropriate and easy to follow symbology and labeling for all features. Essential metadata should be included as well (e.g., name of consultant preparing the shapefile, date of preparation, etc.). Features in the shapefile shall have the following minimum attributes: item or type of facility, location, date/time the feature was field verified, the person's name responsible for verifying (or creating) the feature, and any notes that will assist City staff in reviewing the feature (e.g., adequacy of the facility, etc.).

ATTACHMENT A:

MEMORANDUM OF UNDERSTANDING FORM

PASADENA
DEPARTMENT OF TRANSPORTATION

Transportation Analysis
Memorandum of Understanding

SECTION 1 – PROJECT INFORMATION (TO BE COMPLETED/CONFIRMED BY PROJECT APPLICANT)

Project Name: _____

Address/Location: _____

Project Description: _____

_____

Existing land use(s) and size (e.g., SF, units, etc.): _____

Site Plan Attached? **(Required)** ☐ Yes ☐ No

Project Completion Year: _____

Applicant Signature _____ Date _____

Name (Print) _____ Phone _____

Company _____ Email _____

Title _____

Section 1 Approval by Planning Department:

Signature _____ Date _____

Name (Print) _____ Title _____

SECTION 2 – TRANSPORTATION ANALYSIS METRICS

Project Category:
☐ Exempt
☐ Below Community-Wide Significance
☐ Community-Wide Significance

Local Mobility Analysis	Required?
Active Transportation Assessment	
Intersection Operational Analysis	
Level of Service	
Exclusive Turn-Lane Queuing	
Residential Neighborhood Intrusion/ Cut-Through Analysis	

CEQA Analysis	Required?
VMT Per Capita	
VT Per Capita	
Proximity/Quality of Bicycle Network	
Proximity/Quality of Transit Network	
Pedestrian Accessibility	

Other Required Analyses: _____

_____

_____

Section 2 Approval by Transportation Department:

Signature _____ Date _____

Name (Print) _____ Title _____

SECTION 3 – TRIP GENERATION FORECAST

Trip Generation Rate Source(s): ☐ ITE Trip Generation Manual, Ed./Year: _____

☐ Other (Specify) _____

Credits and Adjustments	Yes	No
Existing Use Credits		
Internal Capture Adjustments		
Transit Adjustments		
Pass-By Adjustments		

Net New Daily Vehicle Trips: _____

Net New AM Peak Hour Trips: _____ Inbound _____ Outbound 0 Total

Net New PM Peak Hour Trips: _____ Inbound _____ Outbound 0 Total

Project trip generation forecast table must be attached, including existing and proposed land uses and sizes, trip rates by ITE land use code (if applicable), credits and adjustments, and net new AM and PM peak hour trips (inbound/outbound and total).

Trip generation table attached? ☐ Yes ☐ No

SECTION 4 – STUDY AREA

Study Intersections:

(Attach additional pages if needed) Location	Exclusive Turn Lanes (e.g., NBL, SBL, EBL, WBL, etc.)	Type of Count (New/Recent-Year)
1		
2		
3		
4		
5		

Study Roadway Segments (for Residential Neighborhood Intrusion/Cut-Through Analysis), If Applicable:

(Attach additional pages if needed) Location	Type of Count (New/Recent-Year)
1	
2	
3	
4	
5	

Other Study Area Requirements (e.g., At-Grade Light Rail Crossings to be included in analysis network, Outside Agency coordination, etc.):

_____

_____

Note: Study locations are subject to revision after the initial intersection operational analysis.

SECTION 5 – ANALYSIS ASSUMPTIONS/PARAMETERS

Study Periods: ☐ Weekday AM
☐ Weekday PM
☐ Other (Specify) _____

Analysis Scenarios: ☐ Existing Conditions ☐ Existing With Project Conditions
☐ Future Baseline Conditions ☐ Future With Project Conditions
☐ Future Cumulative with Project Conditions, Year: _____

Annual Ambient Growth Rate: _____ Source: _____

Peak Hour Factor: ☐ Field Observed
☐ Other (Specify) _____

Saturation Flow Rate: ☐ Defaults specified in TIA Guidelines
☐ Empirical Surveys

Project trip distribution figure(s) must be attached, illustrating percentage of inbound and outbound project trips assigned at each project study location.

Distribution figure attached? ☐ Yes ☐ No

Other Analysis Assumptions/Parameters (e.g., use of microsimulation, Outside Agency requirements, etc.):

_____

_____

_____

Section 3 – 5 Approval by	**Transportation Department:**	**Consultant:**
Signature		
Name (Print)		
Title		
Date		
Phone/Email		

ATTACHMENT B:

PASS-BY TRIP ADJUSTMENTS

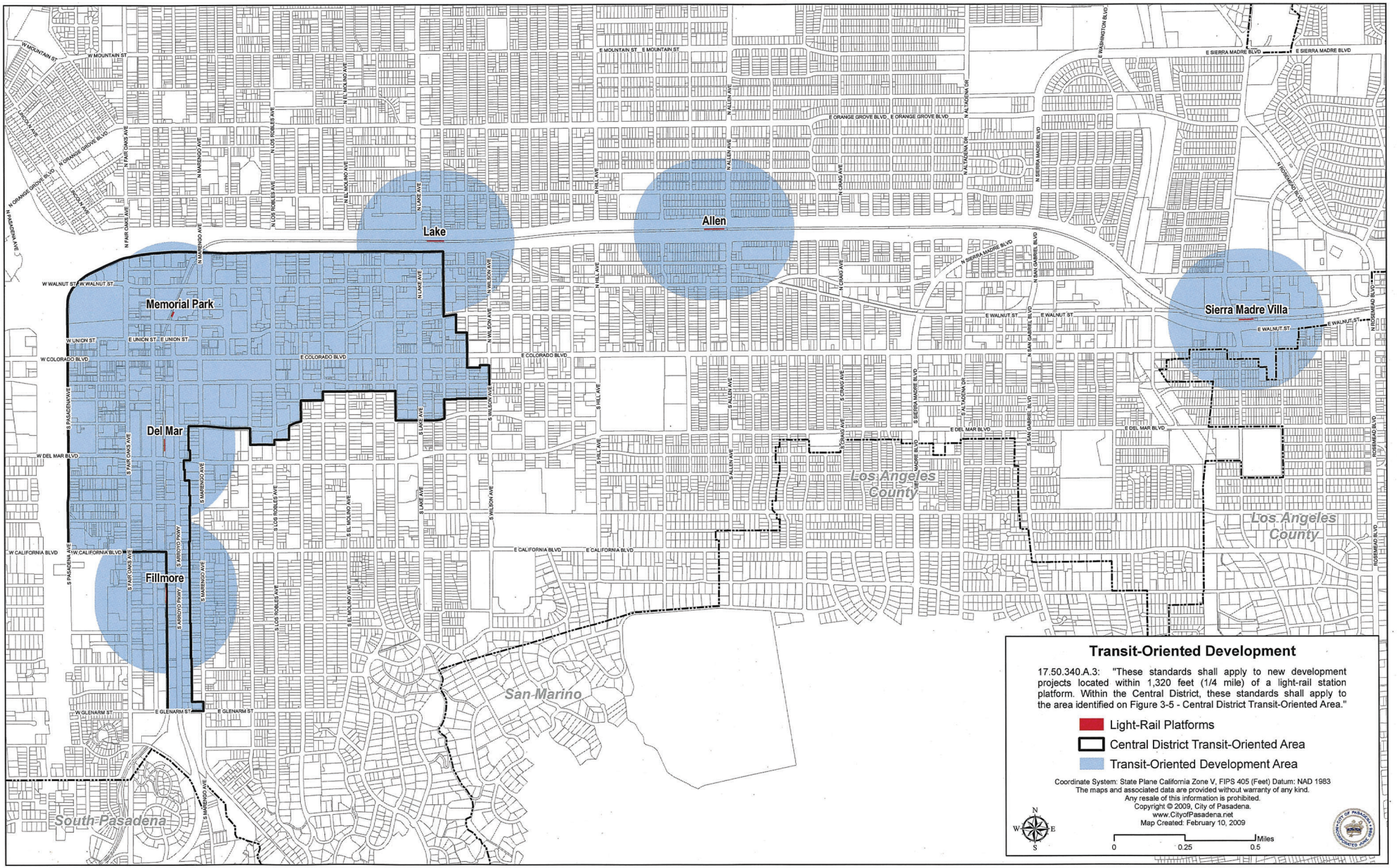
PASS-BY TRIP RATES

Pass-By Trip Discount Rate	Land Use Category
10%	Shopping Center 600,000 SF or more, Quality Restaurant, Specialty Retail, Furniture Store, Medical Office, Day Care, Theater/Cinema, Auto Sales/ Repair
15%	Discount Club, Discount Store
20%	Shopping Center 300,000 SF to less than 600,000 SF, Bank/Savings & Loan, High Turnover Restaurant, Car Wash, Hardware/Lumber Store, Garden Center, Recreation/Health Club
30%	Shopping Center 100,000 SF to less than 300,000 SF, Auto Parts, Music/ Video Store
40%	Shopping Center 50,000 SF to less than 100,000 SF, Supermarket, Drugstore, Bookstore
50%	Shopping Center less than 50,000 SF, Fast-Food Restaurant, Gasoline/ Service Statioin, Convenience Market, Flower/Bakery/Yogurt Shop, Dry Cleaner, Liquor Store

Note: These rates are derived from surveys published in the "Trip Generation Handbook: An ITE Recommended Practice," 2017; and also as published in the City of Los Angeles Department of Transportation Assessement Guidelines (July 2020).

ATTACHMENT C:

MAP OF TRANSIT ORIENTED DISTRICTS (TOD)


Lake
Allen
Memorial Park
Del Mar
Fillmore
Sierra Madre Villa
Los Angeles County
Los Angeles County
San Marino
South Pasadena
Transit-Oriented Development
17.50.340.A.3: "These standards shall apply to new development projects located within 1,320 feet (1/4 mile) of a light-rail station platform. Within the Central District, these standards shall apply to the area identified on Figure 3-5 - Central District Transit-Oriented Area."
Light-Rail Platforms
Central District Transit-Oriented Area
Transit-Oriented Development Area
Coordinate System: State Plane California Zone V, FIPS 405 (Feet) Datum: NAD 1983
The maps and associated data are provided without warranty of any kind.
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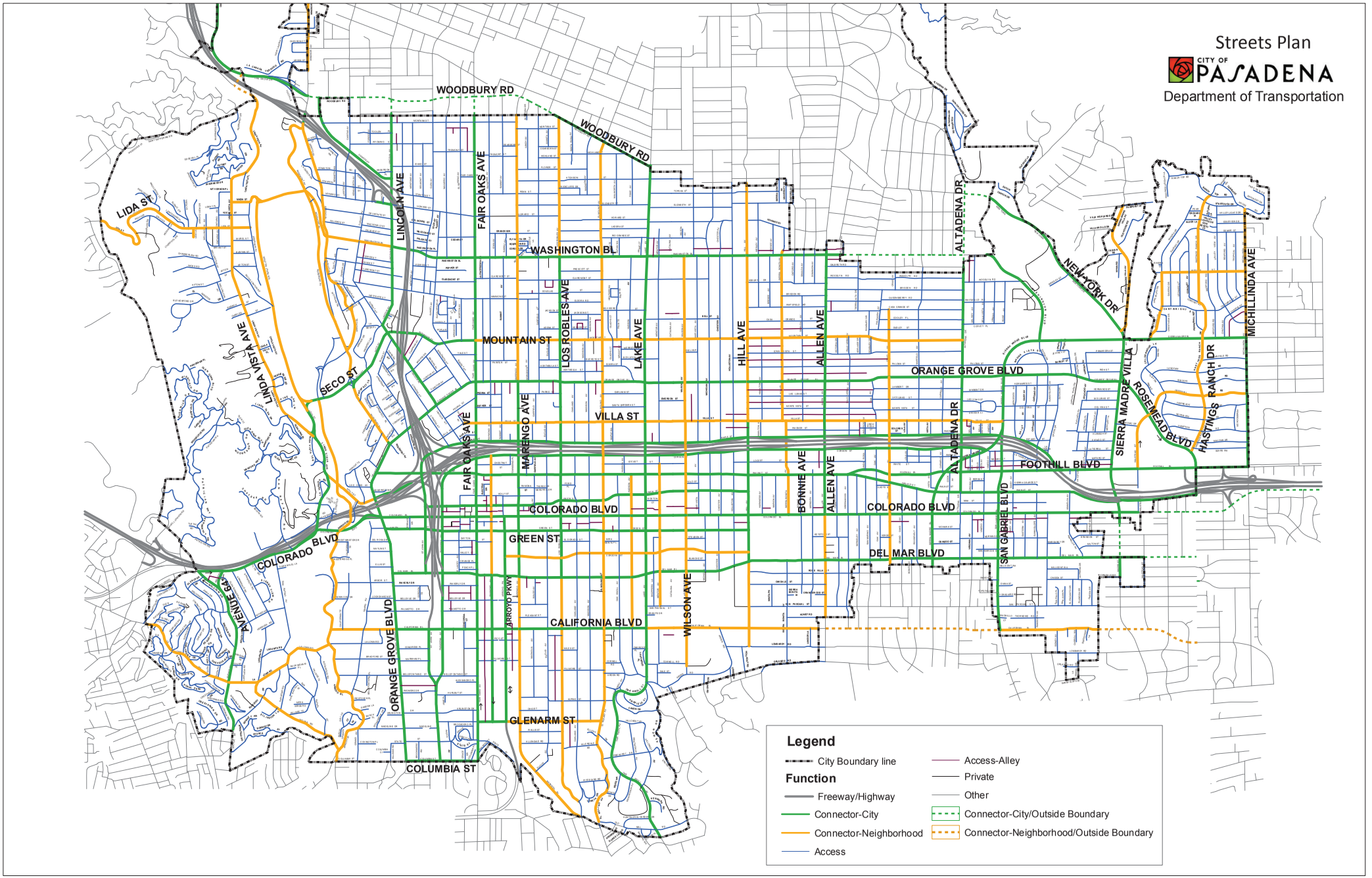
www.CityofPasadena.net
Map Created: February 10, 2009
N
W
E
S
0
0.25
0.5
Miles

ATTACHMENT D:

MAP OF CITY STREETS PLAN


Streets Plan
CITY OF PASADENA
Department of Transportation
WOODBURY RD
WOODBURY RD
LIDA ST
LINCOLN AVE
FAIR OAKS AVE
WASHINGTON BL
ALTADENA DR
NEW YORK DR
MICHILLINDA AVE
LINDA VISTA AVE
SECO ST
MOUNTAIN ST
LOS ROBLES AVE
LAKE AVE
HILL AVE
ALLEN AVE
ORANGE GROVE BLVD
SIERRA MADRE VILLA
ROSEMEAD BLVD
RANCH DR
HASTINGS
VILLA ST
MARENGO AVE
FAIR OAKS AVE
ALTADENA DR
FOOTHILL BLVD
BONNIE AVE
ALLEN AVE
COLORADO BLVD
COLORADO BLVD
SAN GABRIEL BLVD
GREEN ST
DEL MAR BLVD
COLORADO BLVD
AVENUE 64
ARROYO PKWY
WILSON AVE
ORANGE GROVE BLVD
CALIFORNIA BLVD
GLENARM ST
COLUMBIA ST
Legend
City Boundary line
Function
Freeway/Highway
Connector-City
Connector-Neighborhood
Access
Access-Alley
Private
Other
Connector-City/Outside Boundary
Connector-Neighborhood/Outside Boundary