CITY OF SAN LUIS OBISPO

MULTIMODAL TRANSPORTATION IMPACT STUDY GUIDELINES

March 2015

1st Edition

City of San Luis Obispo 2035 Circulation Element

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Introduction

The City of San Luis Obispo's General Plan 2035 Circulation Element establishes key transportation policies to accommodate growth and balance travel modes. Compared to older versions of the Circulation Element, the 2035 Circulation Element places greater emphasizes bicycles, pedestrians and transit in order achieve a system of complete streets and a multimodal community. Transportation Impact Analyses (TIA) are a critical component of the development review process, including but not limited to studies required under the California Environmental Quality Act (CEQA). In addition to the City's general plan policies Senate Bill 743 established new criteria for identifying impacts of land use projects within a "Transit Zone"(area within a half mile of major transit stops or high quality transit corridor) on vehicle-miles travelled (VMT), impacts of transportation projects on induced vehicle trips, and impacts of a project on local safety. Areas within a ½ mile of a major transit stop are defined as transit zones. These guidelines prescribe the methodologies for conducting Transportation Impact Analyses under the Circulation goals, objectives, policies, and programs adopted in the City's General Plan and under the CEQA criteria established by the California Office of Planning and Research in compliance with Senate Bill 743 (Recognizing that additional changes may occur once Senate Bill 743 criteria are established by the California Office of Planning & Research).

These guidelines are periodically updated to reflect changes in City policies, the regulatory environment, and the state of the transportation impact analysis practice.

Process

When a development application is submitted, the City of San Luis Obispo's Transportation Department will determine whether or not a transportation study is required based on CEQA guidelines and City policy. If a transportation impact study is required, the study should be initiated with the following steps.

1. City notifies applicant of transportation study requirement as part of comments on application.
2. Applicant submits a request to the City to initiate the study and City staff drafts a scope of work.
3. City staff advertises the scope of work among the City's certified on-call traffic consultants which are selected bi-annually thru a competitive RFQ/RFP process.
4. City staff selects a traffic consultant based on their proposal, schedule, and cost estimate.
5. City staff submits the scope, consultant proposal, and draft reimbursement agreement to the applicant for review and approval.
6. The applicant signs the reimbursement agreement, deposits the funds with the City, and work on the study begins.

A 30% City administrative fee is applied to the consultant's total cost estimate, with any remaining funds at the end of the contract refunded to applicant. If out of scope work is needed during the course of the study, an amendment to the consultant's proposal and applicant's reimbursement agreement is required. The Transportation Manager may apply a time &

materials administrative fee in lieu of the 30% for minor studies such as individual sight distance evaluations.

When Transportation Impact Studies Are Required

The decision to require a Transportation impact study will be made by the City's Transportation Manager. Traffic impact studies must be prepared by a registered Traffic Engineer (TE), Certified Professional Traffic Operations Engineer (PTOE), or Certified Transportation Planner (PTP or AICP CTP). Traffic impact studies may be prepared by a registered Civil Engineer (PE) that has demonstrated appropriate expertise to the satisfaction of the Transportation Manager. Transportation impact studies are required whenever there is the potential for a significant impact under local policy or CEQA. Generally a transportation impact study would be required under any of the following conditions.

- Any project that would generate more than 100 or more automobile peak hour trips.
- Any project that increases density where the prior used generated less than 100 peak hour automobile trips and the existing + proposed change increase generates more than 100 trips total.
- All applications for rezoning or annexation that would increase by 100 or more peak hour automobile trips assuming the highest possible use allowed under the proposed zoning.
- If the project affects existing problematic locations such as high crash locations, heavily congested areas, high access density, or areas of critical local concern as identified by the City.
- If the project creates new public roadways, intersections, or access points to the public right of way.
- If the project increases existing and/or planned crosswalk length or the total number of travel lanes crossed.
- If the project decreases existing and/or planned sidewalk width or intersection corner area.
- If the project increases existing and/or planned vehicle lanes, lane widths, or the number of driveways crossed by bike lanes.
- If the project decreases existing and/or planned bicycle lane widths or paved shoulder widths.
- If the projects transit trip generation is estimated to cause the passenger load factor of adjacent routes to exceed 0.83, the HCM 2010 load factor threshold.
- When the original impact study is more than two years old.

Trip generation shall be calculated based on the most current edition of the Institute of Transportation Engineers Trip Generation Manual. Trip estimates developed to identify the need for a TIS should not include trip reductions below ITE rates.

Transportation Impact Study Scoping

Depending on the scale and extent of the proposed project the scope of a transportation impact study could range from a focused study, such as a simple intersection control type selection analysis for a proposed intersection, to a large –scale study, such as a complete analysis of all transportation facilities within a defined study area. The impact study scope will be drafted by the City and collaboratively reviewed and refined by traffic consultant and applicant teams. Advanced analysis such as travel demand model updates and micro simulation may be required for certain studies.

Extents of Study

The TIS study area should include all transportation facilities that could be impacted by traffic generated by the project. This is generally determined by conducting an initial trip generation estimate and select zone analysis using the City's travel demand model to preliminarily assess the volume and distribution of project traffic. The City of San Luis Obispo will establish the study area on a case by case basis depending on the unique characteristics of each individual project. The study area and TIS scope shall be amended if during the study, trip generation indicates that less or fewer intersections could be potentially impacted by the project.

Analysis Scenarios

Analysis scenarios shall be determined on a case by case basis depending on the unique characteristics of each project. Each scenario will include an evaluation of multimodal intersection and roadway segment LOS, Vehicle Miles Traveled, Induced Traffic, & Safety analysis. If the project as the potential to impact neighborhood traffic thresholds or modal priorities as established in the City's general plan an analysis of those will also be requried :

1. Existing Conditions – The most recent available traffic conditions and physical geometry.
2. Project Trip Distribution with Select Zone Analysis – Multimodal Trip Generation, Distribution, and Assignment. Project VMT (if within a transit zone).
3. Existing+ Project Conditions – Existing Conditions & geometry plus project generated traffic and proposed geometric changes.
4. Cumulative Conditions – Future year traffic conditions reflecting build out of the City's General Plan.
5. Cumulative + Project Conditions – Cumulative Conditions plus project generated traffic and proposed geometric changes.

Near term analysis maybe scoped for individual projects with significant near term development or infrastructure improvements in the vicinity.

Form and Content of Impact Study Document

I. Executive Summary

II. Table of Contents
   a. List of Figures
   b. List of Tables

III. Introduction
   a. Description of the proposed project
   b. Site plan include all access points and intersections on both sides of the roadway fronting the project side at a minimum of 150' beyond the project site.
   c. Circulation Network Depicting Existing/Proposed Roadways, Intersections, transit facilities, and pedestrian & bicycle facilities in study area.
   d. Landuse and Zoning summary or references to other appropriate documents
   e. Phasing plan including approximate dates of completion for each phase.
   f. References to other traffic impacts studies or applicable research materials.
   g. All applicable Circulation Element and ancillary policies and plans.

IV. Multimodal Transportation Analysis
   a. Clearly stated assumptions
   b. Baseline traffic conditions including turning movements, geometry pertinent to LOS analysis, transit service, traffic controls, etc.
   c. Project specific traffic conditions such as trip generation, distribution, and assignment.
   d. Multimodal Level of Service & Queuing Analysis.
   e. Vehicle Miles Traveled (VMT) Analysis (SB 743)
   f. Induced Traffic Analysis (SB 743)
   g. Traffic Safety & Access Mgmt. Analysis (SB 743)
   h. Neighborhood Traffic Analysis
   i. Modal Priority Analysis

V. Conclusions and Recommendations
   a. Summary of potentially significant impacts and proposed mitigations.
   b. Summary of MOE's before and after proposed mitigation.
   c. Cost estimates for mitigations measures & if scoped a preliminary financing plan
   d. Fair share calculations for mitigation, define responsibilities for mitigation implementation.

VI. Appendices
   a. Traffic Data Summary and Source
   b. Referenced methodologies and assumptions used in analyses
   c. Worksheets used in analyses

Analysis Software and Deliverables

The City uses a toolbox of programs for conducting and reviewing traffic impacts studies, unless otherwise approved the most current version of following programs are to be used. It is the responsibility of the consultant to ensure all of the models are properly calibrated and validated for the study area prior use.

- TransCAD: Travel demand model for all forecasting and trip distribution estimation.
- Synchro / SimTraffic: Primary operational and micro simulation model for intersection analysis.
- McTrans: Multimodal Analysis tool for segments.
- VISSIM: Secondary micro simulation model for complex analysis or multi-modal simulation.
- IHSDM: Primary safety design model for predicting crash rates.

Baseline Conditions

The City of San Luis Obispo's Transportation Division maintains a master Synchro Network of existing AM, MID, and NOON peak hour conditions for most existing intersections within the City. This network is generally updated for geometric, signal timing and multimodal volumes every two years. This master network is the primary source of peak hour transportation data to be used for impact studies. The City also collects 48 hour segment counts on most roadways within the City. Data at specific locations not already collected by the City will need to be collected as part of individual impact studies, consultants should inventory what data is already available and scope any necessary data collection.

Existing Volumes

Average Daily Traffic (ADT) segment counts are collected in 15 or 5 minute intervals for a period of no less than 48 hours. Volumes used for segment analysis should be based on the average of the entire count period. Peak hour intersection movement counts are collected in 15 minute intervals during the required peak hours identified from the segment counts. All traffic volumes are collected during clear environmental conditions, during regular school session, with no adjacent construction activities or special events. It is the responsibility of the consultant to validate traffic counts prior to their use in the analysis.

Vehicle Volumes

Peak hour intersection vehicle movements are collected in UTDF (Universal Traffic Data Format). In order to calculate pedestrian intersection levels of service, intersections with protected/permissive phasing shall have the volume of permissive left turns by each left turn movement counted in addition to the total left turn volumes. At intersections where right turns on red (RTOR) are permitted, the volume of right turns on red by each right turn movement counted in addition to the total of right turn volumes. If any form of testing or research indicates pedestrian LOS is not sensitive to the expected volume of permissive left or right turn on red movements, these volumes may be estimated based on professional judgment in lieu of counting.

Bicycle Volumes

Peak hour intersection bicycle volumes are collected by the approach direction to the intersection (ie.. EB, WB, NB, SB). If any form of testing or research indicates that bicycle LOS is not sensitive to the expected volume of bicycles, these volumes may be estimated based on field observations and professional judgment in lieu of counting.

Pedestrian Volumes

Segment pedestrian flow rates can either be counted or estimated based upon adjacent peak hour intersection movements. Pedestrian movements shown in the figure below need to be counted or estimated in order to calculate pedestrian level of service. If any form of testing or research shows that pedestrian LOS is not sensitive to the expected pedestrian volumes, these volumes may be estimated based on field observations and professional judgment in lieu of counting.

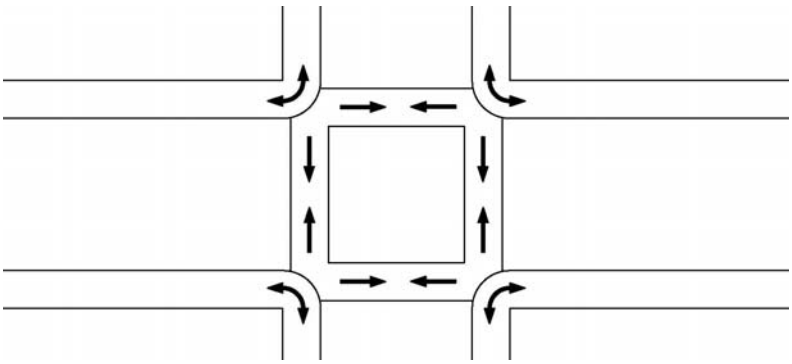

Figure 1: Peak Hr. Pedestrian Movements

Transit Volumes

Currently line level transit frequency and load factor data may be available from the Short Range Transit Plan or the Transit Manager. In cases where this information is not available transit frequency can be estimated based on the established route schedule and the passenger load factor can be manually counted by the transit drivers upon request. At least two weeks prior to the study period the consultant should request that the City have its drivers do passenger counts at scoped analysis locations.

Regional Vehicle Miles Traveled (VMT)

VMT data is only needed if proposed projects are scoped for SB743 analysis, which is typically only required when a project is within a "transit zone". This data point shall be forecasted cumulative VMT per trip by comparable landuse type(s). Both the City of San Luis Obispo & SLOCOG maintains travel demand models from which this data can be derived.

Cumulative Volumes

The City of San Luis Obispo's Transportation Division maintains a 2035 travel demand model in the most current version of TransCAD. ADT and Peak Hour volumes are to be derived from this model consistent with forecasting methods established in NCHRP 255. This model is only a tool for estimating future volumes, professional judgment shall be used in determining the

appropriate estimates to be used in the technical analysis. Any assumptions or modification to model inputs or outputs should be explicitly documented in final reports.

Vehicle Volumes

Peak hour intersection vehicle movements are to be estimated based on the results of the "Process Turns" tool embedded within the model. In addition right turn on red, permissive left turns, and permissive right turns shall be estimated based on the proportionality of those movements in the existing counts with projected traffic counts. Manual adjustments to the volumes produced by the travel demand model shall be reviewed and documented as appropriate.

Bicycle and Pedestrian Volumes

Peak hour intersection bicycle & pedestrian volumes are to be estimated by applying the forecasted citywide % increase in bicycle & pedestrian trips forecasted in the TransCAD travel demand model to the existing bicycle & pedestrian intersection movement counts. Segment pedestrian flow rates should be estimated in the same manner.

Transit Volumes

Transit frequency and passenger load factor are to be derived from the transit network and forecasts of the City's travel demand model.

Regional Vehicle Miles Traveled (VMT)

Forecasted cumulative VMT is the baseline measure under both existing and cumulative analysis.

Project Volumes

Currently there is limited data on project specific multimodal trip generation, therefore the consultant and City staff will be required to use a great deal of professional judgment based on methodologies and data presented in the Transportation Engineers' (ITE) Trip Generation Handbook, locally collected multimodal trip generation, research on mixed-use trip generation, mode splits predicted from the City's travel demand model, and other resources.

Vehicle Volumes

Vehicle volume trip generation is to be estimated using the most recent edition of ITE Trip Generation Manual. Upon approval from the Transportation Manager local trip generation rates are also acceptable and preferred if those rates are developed following the method established in the current version of the ITE Trip Generation Handbook and appropriate validation is provided to support them.

Because ITE Trip Generation rates are based on vehicle trips as opposed to person trips, modal split factors should not be used to reduce vehicle trip generation calculations. Modal conversion factors can be used as prescribed in the ITE Trip Generation Handbook.

Pedestrian, Bicycle, and Transit Volumes

At this time there is little information on multimodal trip generation, therefore professional judgment should be used in estimating project pedestrian, bicycle, and transit trip rates. Multimodal trip generation rates should be derived from the City's travel demand model and the current edition of the ITE Trip Generation Handbook. In some cases it may be necessary to collect local data to estimate multimodal trip generation; in these cases the methodology prescribed in the current version of the ITE Trip Generation Handbook should be used.

If any form of testing or research indicates pedestrian, bike, or transit LOS is not sensitive to the expected volumes, these volumes may be estimated by applying the Citywide buildout mode split values as reported in the City's travel demand model.

Project Trip Distribution

Project trip distribution should be derived from the City's travel demand model by conducting a select zone analysis of the TAZ in which the project is contained. In some cases trip distribution may need to be estimated manually such as when estimating trip distribution for pedestrian and bicycles, in these cases the assumptions and methodology must be documented in the report.

Project Vehicle Miles Traveled (VMT)

The recommended methods for calculating project VMT are provided in the table below. Quick-response VMT estimation tools are not sensitive to regional production / attraction imbalances and therefore should not be used on larger projects, however this methodology maybe appropriate for smaller projects. The consultant should consider which method will be most appropriate for the proposed project and document the reasoning behind selecting that method in the TIA. These recommendations may be updated in the future as SB 743 implementation guidelines are updated.

Project Trip Generation	VMT Estimation Method
100-200 peak hour trips	Quick-response VMT estimation tool, such as VMT+ (http://www.fehrandpeers.com/vmt/)
200+ peak hour trips	City of San Luis Obispo travel demand model

Transportation Analysis Methods & Significance Thresholds

Multimodal Level of Service and Capacity

All intersection and segment analysis shall be based upon the current version of the Highway Capacity Manual. Unless otherwise scoped, intersection level of service and capacity analysis should be done using the current version of Synchro/Simtraffic. Segment level of service and capacity can be done manually or using an approved spread sheet application. Intersection Analysis periods should include AM and PM peak hours and segment analysis periods should be include 24 hours unless otherwise specified. Existing and Existing + Project scenarios should assume actual traffic signal timing unless otherwise directed. The network should be geometrically correct and include peak hour factors recorded with the traffic counts by approach.

Automobiles

Signalized Intersections Level of service and delay at signalized intersections should be reported for the overall intersection as well as any deficient turn pocket capacities. The maximum Volume to Capacity ratio (V/C) for the overall intersection should be reported as well as any deficient approaches or movements. Vehicle queues should be reported for each lane group. Project impacts are considered significant if:

A. Project traffic causes minimum LOS standards to be exceeded or further degrades already exceeded LOS standards and the V/C ratio is increased by .01 or more.

B. Project causes or exacerbates 95th percentile turning movement queues exceeding available turn pocket capacity.

C. Project proposes roadway geometry changes that cause minimum LOS standards to be exceeded or further degrades already exceeded LOS standards for the overall intersection or individual lane groups.

Unsignalized Intersections Level of service for unsignalized intersections should be reported for side street approaches as well as any deficient turn pocket capacities. The maximum Volume to Capacity ratio (V/C) for the overall intersection should be reported as well as any deficient approaches or movements. If an unsignalized intersection exceeds minimum level of service thresholds a signal warrant analysis shall also be conducted. Project impacts are considered significant if:

A. Project traffic causes minimum LOS standards to be exceeded or further degrades already exceeded LOS standards and the V/C ratio is increased by .01 or more and the intersection satisfies a traffic signal warrant analysis. It's emphasized that satisfaction of signal warrants does not dictate that a traffic signal would be the required mitigation.

B. Project causes or exacerbates 95th percentile turning movement queues exceeding available turn pocket capacity.

C. Project proposes roadway geometry changes that cause minimum LOS standards to be exceeded or further degrades already exceeded LOS standards for the overall intersection or individual lane groups.

Segments Level of service based should be reported for street segments should be reported for scoped street segments. Average arterial speeds and level of service grades shall be reported by direction for each approach. Project impacts are considered significant if:

A. Project traffic causes minimum LOS standards for either direction to be exceeded or further degrades already exceeded LOS standards and the average segment speed decreases by 1 mph or more.

B. Project proposes roadway geometry changes that minimum LOS standards to be exceeded or further degrades already exceeded LOS standards.

Bicycles & Pedestrians

Bicycle & pedestrian level of service analysis should follow the methodologies established in the current Highway Capacity Manual (HCM). For the purposes of forecasted LOS calculation pavement condition rating should be assumed at 3.0 unless there are other overriding circumstances. It's acknowledged that under certain high vehicle volumes conditions the HCM methodology for bicycle and pedestrian level of service estimation can be insensitive to mitigation measures, therefore it's not appropriate to make a significance finding on a project under these circumstances. In cases where MMLOS results are non-intuitive or inappropriate alternative analysis techniques maybe more appropriate such as:

1. Using HCM 2010 Off-Street Pedestrian and Bicycle analysis methodologies when a physical barrier is provided separating bicycles (ie. Protected Lanes) or pedestrians (Landscaped Parkways) from vehicle traffic.
2. Using an MMLOS equivalent to the Bicycle / Pedestrian Environmental Quality Index (BEQI/PEQI).
    - 100-86 (A)
    - 85-71 (B)
    - 70-66 (C)
    - 65-51 (D)
    - 50> (E & F)

When alternative analysis methods are used results from both methodologies and justification for alternative analysis shall be documented.

No standard significance thresholds have been established for Bike, Pedestrian, and Transit LOS using HCM 2010 methodologies. In some cases small changes in the MMLOS score maybe perceived by the public whereas in other cases a small change in MMLOS would be indistinguishable. A qualitative assessment of potential impacts should be conducted to estimate if changes in MMLOS might be perceivable by the public, if a potential impact is likely perceivable this would be considered "contextually significant".

Intersections Bicycle & Pedestrian level of service analysis should be conducted at intersections scoped in the traffic study. Pedestrian & Bicycle level of service score and grade should be reported for each intersection approach or crosswalk. Off-Street parallel paths significantly improve bike & pedestrian service, however they are not considered in the level of service calculations. If a separate adjacent & parallel bike or pedestrian facility is present LOS shall be estimated based on that off-street facility.

Project impacts are considered significant if:

A. Project traffic causes minimum LOS standards to be exceeded or further degrades already exceeded LOS standards and there is contextual significance to the impact.

B. Project proposes modifications to roadway geometry that causes minimum LOS standards to be exceeded or further degrades already exceeded LOS standards.

Segments Pedestrian level of service analysis should be conducted on public Collectors and Arterials that front or are internal to the project, Bicycle level of service should be conducted on existing or planned Class II or greater bike routes, as adopted in the City's bike plan, that front or are internal to the project. In some cases facilities that are not fronting or internal to a project may also be scoped for analysis. As with intersections if a separate adjacent & parallel bike or pedestrian facility is present LOS shall be estimated based on that off-street facility.

Project impacts are considered significant if:

A. Project traffic causes minimum LOS standards to be exceeded or further degrades already exceeded LOS standards and there is contextual significance to the impact.

B. Project proposes modifications to roadway geometry that causes minimum LOS standards to be exceeded or further degrades already exceeded LOS standards.

Transit

Segments Transit level of service analysis should be conducted at segments scoped in the traffic study that have current or planned transit service. Transit frequency, load factor, and LOS score should be reported for transit routes servicing the project.

Project impacts are considered significant if:

A. Project traffic causes minimum LOS standards to be exceeded or further degrades already exceeded LOS standards and there is contextual significance to the impact.

Vehicle Miles Traveled (VMT) Analysis (SB 743)

Areas within one-half mile of a Major Transit Stop or High Quality Transit Route are defined as "Transit Zones". Projects that are within transit zones shall include an analysis of project VMT versus forecasted regional VMT. Currently there are two Major Transit Stops within the City, CalPoly & the City Downtown Center. There is also a planned Major Transit stop as the Regional Transit Center. The Consultant shall confirm the most up to date presence of transit zones.

Project impacts are considered significant if the project's VMT per trip by specific landuse type is higher than the equivalent forecasted regional VMT.

Induced Traffic Analysis (SB 743)

Projects that include or maybe conditioned to construct infrastructure improvements that result in significant auto travel time reductions should be scoped for analysis of shifts in auto travel and growth inducing potential as a result of those reductions. No standard significance thresholds have been established for induced traffic analysis therefore a qualitative assessment should be conducted to determine the resulting shift in auto travel and/or potential growth inducing characteristics are consistent with the City's landuse and transportation policies.

Traffic Safety (SB 743)

All traffic impact studies shall include a safety assessment of scoped intersections and segments based on the project's potential operational and geometric affects; examples of this include turn

pocket queues spilling into thru travel lanes, vehicle queues occluding or extending past minimum sight distance requirements, rear-end collision potential as a result of heavy congestion, etc…

In addition to a safety evaluation of scoped intersections and segments the safety analysis shall also include a functional area analysis of project driveways in close proximity to other intersection or major driveways on collector and arterial roadways.

In some cases a complete geometric assessment of new or modified facilities based on the AASHTO Highway Safety Manual maybe required. This would typically only be required when significant modification or new infrastructure is being proposed.

Project impacts are considered significant if:

A. Project traffic affects the operational characteristics of an existing intersection or segment such that the collision rate, per million entering vehicles for intersections and per million vehicle miles for segments, would be likely to increase.

B. Project proposed significant new or modified infrastructure is predicted to have a collision rate as indicated above higher than the median collision rate as reported in the City's most current annual traffic safety report for the same facility classification type (Artieral, Collector, Local).

Neighborhood Traffic Analysis

Projects which include new local residential streets or have trips forecasted on local residential street will typically be required to evaluate the impact of neighborhood traffic conditions. Project impacts are considered significant if the maximum neighborhood ADT or speed thresholds established in Table below, of the Circulation element, are exceeded or the project adds traffic to a neighborhood already exceeding the ADT threshold.

Street Classification	Maximum ADT	Maximum Speed
Local Residential	1,500	25 mph
Residential Collector	3,000	25 mph

A monitoring program shall be a standard mitigation measure for all projects with a potentially significant impact on neighborhood traffic conditions. Because it's not feasible to estimate speed impacts, follow-up monitoring programs will be the primary method for estimating impacts on neighborhood speeds. Unless there are any documented events or conditions that could affect observed baseline speeds it shall be assumed that any increase in neighborhood speeds after the project is occupied is attributed to the project.

Modal Priorities

In addition to maintaining minimum levels of service the City's circulation element establishes priorities for various modes such that construction, expansion, or alternation for one mode should not degrade the level of service of a higher priority mode. Project impacts are considered significant if the project proposes to improve a lower priority mode resulting in the degradation

of a higher priority mode. If a project's mitigation would result in the degradation of a higher priority mode that shall be considered a residual impact and addressed as well.

Table 3 Modal Priorities for Level of Service

Complete Streets Areas	Priority Mode Ranking
Downtown & Upper Monterey Street	1. Pedestrians 3. Transit 2. Bicycles 4. Vehicle
Residential Corridors & Neighborhoods	1. Pedestrians 3. Vehicle 2. Bicycles 4. Transit
Commercial Corridors & Areas	1. Vehicles 3. Transit 2. Bicycles 4. Pedestrians
Regional Arterial and Highway Corridors	1. Vehicles 3. Bicycles 2. Transit 4. Pedestrians

Notes:
Exceptions to multimodal priorities may apply when in conflict with safety or regulatory requirements or conflicts with area character, topography, street design, and existing density..

Mitigation Measures

When significant impacts are identified as part of the traffic impact analysis mitigation measures shall be included to address those impacts. The impact study should establish the legal nexus between the project and the mitigation measures. The traffic study's description of each mitigation measure should include the following:

1. Comparison table of impacted locations listing conditions (ie. LOS, VMT, etc..) with and without mitigation.
2. Figure schematically depicting location and nature of each mitigation measure and description of implementation feasibility (ie..ROW requirements, constructability, etc..).
3. If specifically scoped planning level cost estimation of each mitigation measure, timing/phasing of measures, and equitable share calculation.

Strategies

Development of mitigation measures should follow the City's Circulation Element Goals & Objectives of supporting environmentally sound technological advancement, supporting a shift in modes of transportation, and establishing beautiful & livable street corridors. For example if a project creates a vehicle capacity impact at an intersection, mitigation measures that would reduce vehicle demand generated by the project, such as enhanced bike & pedestrian facilities or improved transit service, should be considered before measures that would increase vehicle capacity.

Intersection Control Type Selection

Circulation Element policies *7.0.2 Street Network* and 9*.1.6 Streetscapes & Major Roadways* establish roundabouts as the City's preferred intersection control type where feasible. Per these policies, roundabout control should be the first and preferred mitigation measure considered when there are not unworkable right-of-way issues, environmental factors, or other design constraints.

When roundabout control is infeasible, consideration and evaluation of multi-way stop control or signalized control should utilize the California MUTCD's Multi-Way Stop and Traffic Signal warrants. Detailed consideration should be given when determining the applicability of individual warrants.

For example the Peak Hour signal warrant "*shall only be applied in unusual cases, such as office complexes, manufacturing plans, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time*". The peak hour warrant should only be used when the volume in a peak hour exceeds 45% or more of the 24hr volume.

Equitable Share Responsibility

Equitable share calculations are not applicable to safety and neighborhood impacts. Also In circumstances where the project is receiving substantial benefit from the identified mitigation measure and that measure would not have otherwise been considered if the project was not proposed, the project should take full share responsibility. Examples of these types of circumstances include but are not limited to.

- A new access point for a project where upgraded control and/or associated striping at that intersection is an identified mitigation measure.
- A mitigation measure is identified within a generally built out area where there are no planned transportation improvements.

Multimodal Level of Service & Capacity Impacts

For level of service and capacity mitigation, equitable share responsibility shall be calculated based upon the percent of project trips forecasted on the impacted facility for the corresponding analysis & time period. In cases where the impact is primarily attributed to a specific component of the facility, such as a left turn lane, it may be more appropriate to calculate the percent of project trips forecasted on the specific impacted component of the facility as opposed to the whole facility.

Neighborhood Impacts

Because the objective in mitigating neighborhood impacts is to reduce volume and speed as opposed to increasing capacity, monetary equitable share responsibility may not applicable.

When existing and/or forecasted neighborhood traffic volumes are within Circulation Element thresholds and added project traffic causes total volumes or speeds to exceed those thresholds, the project shall be fully responsible for installing traffic calming measures to reduce volumes and/or speeds to below the maximum thresholds. When existing and/or forecasted neighborhood traffic volumes are already exceeding Circulation Element thresholds and added project traffic worsens an already deficient condition, the project shall be fully responsible for installing traffic calming measures to offset only the volume and/or speed increased as a result of the project.