City of Los Angeles Mobility Performance Measurement Study

prepared for

Los Angeles Department of Transportation

Southern California Association of Governments

prepared by

Cambridge Systematics, Inc.

with

Kittelson & Associates, Inc.
Robert Leiter, AICP

April 2014

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1.0 Introduction

The City of Los Angeles Mobility Performance Measurement Study reviews potential modifications to the Los Angeles Department of Transportation's (LADOT) traffic analysis procedures to assess a proposed project's effects on transit, pedestrian, and bicycle modes, and to expand the transportation mitigation toolbox to include multimodal solutions. The objective is to provide greater flexibility for infill development or infrastructure projects that benefit nonauto modes. In addition, the study presents a framework that other California jurisdictions may use to develop a checklist to determine which projects qualify for multimodal transportation impact analysis (MTIA) project review and an ordinance to enact the MTIA procedures.

1.1 BACKGROUND

Traffic impact studies completed as part of a California Environmental Quality Act (CEQA) process have historically had an automobile focus. Such focus has arisen, in part, because traffic volume changes have been cited as an example of direct project impacts in the Governor's Office of Planning and Research (OPR) CEQA Guidelines for preparing traffic impact analyses. As a consequence, mitigations proposed to address project impacts have tended to focus on reducing automobile congestion through capital improvements.

Concerns surrounding livability, health, air quality, and compliance with regional greenhouse gas (GHG) emissions targets established pursuant to Senate Bill (SB) 375 (Steinberg 2007) have prompted some California communities to embrace a more multimodal approach to traffic impact studies. In the most recently adopted changes to the CEQA Guidelines, the OPR has explicitly sanctioned such as an approach. The revisions, which reflect regulatory amendments adopted in 2010 pursuant to SB 97, indicate that transportation impacts should be assessed through reference to multimodal transportation system measures of effectiveness adopted by the jurisdiction. To take advantage of this new flexibility, communities must select appropriate measures and establish thresholds for determining when impacts rise to the level of significance, thus requiring mitigation.

As the Mobility Performance Measurement Study neared completion, SB 743 (Steinberg, 2013) was passed and signed. This law requires OPR to amend the CEQA Guidelines to provide an alternative to LOS for evaluating transportation impacts within areas that are well-served by transit. According to the law, the alternative criteria must "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." Once the CEQA Guidelines are amended to include those alternative criteria, auto delay will no longer be considered a significant impact under CEQA for areas that areas that are well-served by transit. OPR must publish an initial

draft of the alternative criteria by July 1, 2014. SB 743 will significantly change traffic analyses under CEQA, so the City should focus future performance measurement development efforts on OPR's pending updates. However, this report can inform the City's potential changes because jurisdictions can still adopt local analysis requirements.

1.2 OVERVIEW

The study's initial objective was to develop and obtain agreement from the project's Technical Advisory Committee (TAC) on implementable, defensible multimodal traffic analysis procedures; but, the study's objective was modified following interim project results. The consultant team developed a framework outlining long-term and short-term approaches for LADOT, because case study results suggested that the methodology the TAC favored would be problematic to implement.

As described in Section 2.0, the first phase of the study included stakeholder interviews, developing draft objectives for the revised traffic impact analysis (TIA) procedures, and a preliminary proposal about how to incorporate multimodal performance measures into Los Angeles' existing traffic analysis guidelines. Based on this analysis, the TAC initially considered the 2010 Highway Capacity Manual's (HCM) Multimodal Level of Service (MMLOS) site-specific methodology to be the best candidate. The TAC considered HCM's MMLOS methodology to be more technically defensible than other alternatives and more likely to be implemented in the short term.

Section 3.0 documents the case study analysis conducted to apply the 2010 HCM's MMLOS to local case studies to assess how well the methodology could be applied to LADOT's CEQA project review process. The case study results presented to the TAC in September 2012, confirmed two findings:

1. An inconsistent relationship between nonauto mitigation strategies and MMLOS results; and
2. A general lack of sensitivity in nonauto MMLOS results with smaller traffic volume changes.

As a result of the case study findings, most TAC members expressed concern that the drawbacks of the HCM MMLOS procedures outweighed its potential benefits. As a result, the TAC and the LADOT project managers requested a framework that outlines long-term options to implement alternate multimodal performance measures and medium and short actions that the LADOT may take in the interim. Section 4.0 summarizes long-term approaches, as follows:

- An areawide fee program that would address nonautomobile transportation needs in a coordinated manner for new development within a defined area.

- Modifying the Institute of Transportation Engineer's (ITE) vehicle trip generation rates through new data collection to facilitate use of pedestrian, bicycle, and transit projects in lieu of roadway-based mitigations.
- Reducing automobile LOS thresholds in areas with existing, high-quality multimodal transportation facilities will support in-fill development in these "high-accessibility" areas.
- A Hybrid approach to multimodal assessment and mitigation, which may take many forms. One option is a program that includes two elements: 1) an areawide fee program to calculate a developer's fair share; and 2) modifying trip generation rates for projects designed to facilitate multimodal travel (e.g., projects located in high-quality transit area (HQTA)/low-vehicle miles traveled (VMT) area, projects that comply with uniform design standards, or projects that include parking management strategies).

Section 5.0 presents annotated outlines for a model developer checklist and a model ordinance which can serve as examples for jurisdictions interested in developing MTIA procedures and mitigation programs. This work is one element of a Strategic Growth Council (SGC) grant to the Southern California Association of Governments (SCAG). The SGC grant was awarded to address the core challenges of implementing SB 375 – the Sustainable Communities and Climate Protection Act of 2008. SB 375 is intended to help California meet its Assembly Bill (AB) 32 (Nunez 2006) goals by promoting transportation and land use planning to reduce GHG emissions from passenger vehicle travel.

2.0 Best Fit Procedures

2.1 MOBILITY MEASURES STUDY

Introduction

This section summarizes the background research and the key findings from the stakeholder interviews conducted to provide a basis to evaluate the potential effectiveness of alternative TIA methodologies for LADOT. It discusses the project's preliminary objectives, and identifies the most promising approaches identified for further investigation. It includes the following components:

- A summary of stakeholder interviews;
- A list of objectives emerging from the stakeholder interviews and ideas for how objectives could be met;
- A summary of several approaches to revising the traffic analysis procedures considered in prior studies and evaluated against the objectives for this study; and
- A preliminary proposal regarding how LADOT could incorporate multimodal performance measures into its traffic analysis procedures.

Stakeholder Interview Findings

Introduction

This section summarizes major findings from eight group interviews held in April and May 2012 to obtain input from key stakeholders. Interviewees included:

- Traffic engineering consultants (11 interviewees);
- Los Angeles City Planning Department (2 interviewees);
- Land use attorneys (2 interviewees); and
- Environmental consultants (2 interviewees).

Interviews focused on the following topics:

- Challenges with current procedures for traffic impact analysis;
- Ideas for updating the procedures to address these challenges and incorporate consideration of multiple modes, including lessons from other jurisdictions; and
- Interviewees' concerns regarding updates to the procedures.

Interview results are summarized according to major themes that emerged from the discussion. The themes reflect interviewee's thoughts concerning the ideal characteristics of a revised process for traffic impact analysis.

Note that these themes do not represent the consensus of interviewees. They reflect the range of opinions and concerns expressed during the interviews. Comments or concerns raised by several interviewees are marked with the following symbol (++). Comments not marked with this symbol were made by one interviewee.

Interview Themes – Ideal Characteristics of the Revised Traffic Impact Analysis Procedures

Supportive of Infill Projects and Alternative Mode Investments

- The current system works against innovative projects if they have any negative impacts on automobile congestion (examples include the Bicycle Plan, Bus Rapid Transit, or road diet projects). The new system should not penalize these types of investments (++).
- The current street classification system in the general plan indicates streets have to be built to very specific standards for certain roadways even if it would cause negative impacts to certain modes of travel. These standards should be revised concurrent with the update to ensure support for nonauto modes.
- The ITE trip generation rates used in Los Angeles are not reflective of local conditions, and work against infill development by assuming that infill projects will generate the high levels of auto trips seen in suburban areas around the country. Infill developments can receive special credits, but one interviewee stated that the credits could be better matched to local conditions. Improved, locally based trip generation rates would strengthen the transparency of LADOT's trip reduction credits. The City of Santa Monica has recently invested in improving its trip generation rates and could serve as a model. Also, better data on nonmotorized trips is needed to support multimodal impact analysis.

Supportive of Nontraditional Mitigations

- The revised procedures should make it easier to justify nontraditional mitigations. Currently, the bar for justifying these mitigations is set very high and developers at times have to commit to monitor trip reductions over time or risk a penalty. This reduces developer interest in infill projects/nontraditional mitigations (++).
- Separate studies may be necessary to develop methods for justifying mitigations under the revised metrics/procedures. For example, LADOT conducted research to develop quantitative justification for the benefits of traffic signal system upgrades in improving auto LOS. Similar studies could

be necessary to develop quantitative benefit information for other types of nontraditional mitigation measures.

- The auto LOS metric could be retained, but more effort could be put into justifying the positive impacts of nontraditional mitigation measures (e.g., transportation demand management (TDM), transit) on auto LOS.

Technically Defensible

- Any new multimodal metrics selected for the revised procedures must be able to be forecast and show sensitivity to development impacts.
- New metrics must improve in response to mitigation; ideally this improvement must be quantifiable (++). Although quantitative analysis of mitigations is not necessary under all areas of environmental analysis, it has become expected in the transportation area due to the political nature of traffic impacts and the fact that a skilled body of professionals (traffic engineers) exist to develop quantitative analysis. Additionally, the appropriate mitigations should be implementable. For example, developer purchase of new transit vehicles would not be an implementable mitigation since the Los Angeles County Metropolitan Transportation Authority (LA Metro) may lack operating funds. Also, it can be difficult to show that current buses are capacity constrained (many are not).
- The new metrics must lend themselves to rational mitigation thresholds. This may be difficult for many metrics (++).
- If multiple metrics are included, consideration must be given to tradeoffs among the metrics (++). For example, a situation could occur where a project causes significant impacts on pedestrians and bicyclists, but mitigating those impacts would trigger a significant impact on automobiles. Either a single metric should be used to avoid this problem, or very clear guidance must be provided on how to address tradeoffs among the modes of travel.
- If the revised procedures retain the auto LOS metric, several changes should be considered.
  - One interviewee suggested consideration of alternatives to the critical movement analysis (CMA) procedures. He felt these procedures are vulnerable to legal challenge since many other jurisdictions are using more sophisticated approaches. Another interviewee felt the CMA procedures should not be changed because they are simple and easy to implement, and the HCM procedures would be much more costly.
  - The current procedures use an unrealistic analysis base for the future. LADOT assumes a certain lane capacity, but lanes frequently exceed the maximum capacity today. Setting an unrealistically low-lane capacity makes development impacts look worse and can alarm local communities.

- The CMA procedures often produce forecasts inconsistent with those derived from microsimulation and regional modeling. The current CMA analysis does not capture suppressed traffic volumes (e.g., latent demand). It is necessary to adjust the V/C ratios if they do not produce accurate LOS results.

Understandable to the Public and Elected Officials

The new procedures must be simple and understandable to community members and elected officials (++). The strength of the current LOS metric is that it is easy to understand and explain, and familiar to community members.

Some community members distrust LADOT and the results of traffic impact analyses (++). In particular, communities are often skeptical of whether nontraditional mitigations, such as new transit service, will generate positive benefits (++). Educating the community on the new procedures and the positive impacts of mitigations will be a critical component of this project (++). For example, community members initially questioned whether signal upgrade improvements under the Automated Traffic Surveillance and Control (ATSAC) System would deliver promised benefits, but educational efforts and research have helped persuade them.

Do not Significantly Increase Cost of Traffic Analysis

- The new procedures should not significantly increase the cost or complexity of existing traffic analysis procedures; doing otherwise may deter new development (++). Multiple techniques could be used to reduce the complexity of the process, including:
  - Use the layered street network approach being considered as part of the General Plan update to limit where multimodal analysis is conducted.
  - Limit the full multimodal analysis to arterial-arterial or arterial-freeway intersections only. This could be difficult however since there will be pressure to expand the number of intersections analyzed to ensure impacts are fully captured.
  - Limit the full multimodal analysis to only larger sized projects.
  - Consider a simple checklist approach to mitigation. While such an approach might be simple to complete, some interviewees stated that it might be more vulnerable to legal challenges.
  - Accept lower auto LOS threshold in certain areas (++) – the City of San Jose does this (more detail in the next section), as does the Portland Metro region and other jurisdictions.
  - Exempt certain areas from auto LOS analysis, but require developers to provide multimodal amenities around the project by requiring these amenities in the general plan.

- Use a single metric that represents multiple types of impacts rather than trying to do analysis for multiple modes.
- Ask developers to pay into a fund to mitigate their impact over a broad area. Only require site-level analysis at project access points (++) – more detail on this in the "Other Thoughts" section.
- Provide centralized resources to reduce the cost of analysis, including a centralized database with traffic counts and geometric signing and striping plans on the Navigate LA system.

Consistently Applied and Predictable

The current guidelines are not consistently applied and the process is unpredictable for developers (++). Developers are willing to pay for mitigations as long as the process is clear, transparent, predictable, and they get credit for their mitigations (++).

Two guidance documents exist for traffic impact analysis (DOT's guidelines and the Los Angeles CEQA threshold guidelines developed by the planning department). These documents conflict in some places (for example in procedures for signalized intersections). Conflicts should be resolved (++).

Flexible to Meet the Needs of Different Communities

The system needs to be responsive to the diversity of neighborhoods in Los Angeles. Neighborhoods have different values and tools for mitigating impacts (++). Getting the buy in of neighborhood council representatives will be very important.

One way of addressing the needs of different neighborhoods would be to adopt different mitigation thresholds by neighborhood; however, this might be more subject to challenge. The more straightforward and simple the thresholds are, the less vulnerable to challenge.

Other Thoughts

- Consider metrics that would reflect impacts across a broader area than just specific intersections and segments (++), such as automobile trips and vehicle miles of travel (VMT). This would have several advantages, including:
  - Supporting sustainability and GHG reduction goals associated with SB 375.
  - Avoiding the need to define geographic boundaries for a project's impact. The current system results in inclusion of many intersections to ensure all potentially affected intersections are included. If the metric of impact was an area metric such as VMT, site-level analysis would no longer be necessary (except perhaps at project access points).

  - Allowing developers to contribute to mitigations that have areawide rather than site-level benefits (++). Developers generally prefer to pay a fee to mitigate their impact rather than build specific projects.
  - Better capturing the environmental impacts of planning documents (e.g., general plans, community plans). It currently is challenging to use site-level metrics (e.g., intersection LOS) to measure the impact of these plans.
  - Providing more flexibility to LADOT, since developers could mitigate impacts by paying into an areawide fund for projects rather than very specific projects associated with the development.
- It would be very helpful to have a comprehensive database where each major project is tracked so developers could contribute to the same mitigation measures. There is no clear process right now for developer sharing of mitigation credit (++).
- It may be necessary to work with LA Metro on its Congestion Mitigation Program (CMP) update and countywide fee program to develop a shared approach.
- Consider safety and maintenance metrics, not just multimodal metrics.
- This project will be very challenging (++).

Most Important Outcomes

In addition to the general questions listed previous, interviewees were asked to name the single most important outcome they saw for the study. They indicated it should:

- Demonstrate development impacts on multiple modes/capture overall performance of the transportation system (++);
- Avoid mitigation measures becoming much more expensive and extensive than they already are;
- Result in lowering of the auto LOS thresholds and elimination of LOS C and D requirements;
- Be understandable to the average person (++);
- Be simple/usable/implementable rather than technically sophisticated (++);
- Be technically defensible;
- Avoid increasing the cost of traffic impact analysis; and
- Avoid raising the bar for CEQA such that more projects become environmental impact reports (EIR).

Objectives for Revised Procedures

Based on the stakeholder interviews and the study's first TAC meeting, the revised procedures should have the following characteristics:

- Support alternative modes;
- Technically defensible;
- Allow mitigation by nontraditional measures;
- Low cost;
- Understandable to the public/elected officials; and
- Flexible.

As discussed below, multiple options exist for meeting these objectives.

Supportive of Alternative Modes

The procedures should enable considering development's impacts on multiple modes, or at least avoid biasing the process against specific types of modal investments (e.g., conversion of a traffic lane to a bus-only lane, which has negative automobile level of service (LOS) impacts). Three methods could be used to revise the procedures to support investment in alternative modes:

1. **Multiple metrics.** The procedures could be revised to include multiple metrics reflecting development impacts on the major modes of travel (automobile, pedestrian, bicycle, transit). Development could be considered to impact these modes in the following ways:
   - By creating the need for additional capacity to serve travelers. Generally, this would apply primarily to automobile travel – capacity for transit users, bicyclists, and pedestrians is not typically constrained, though exceptions exist. Trips from new development consume capacity and require the addition of new capacity to address this impact. This primarily applies to capacity to serve private automobiles, but transit capacity on certain high-ridership corridors could be constrained, causing the need for investment in additional transit services to accommodate increased transit usage. Sidewalk or bicycle lane capacity is rarely constrained.
   - By causing travel delay. Additional automobile trips from new development create additional delay on the network that impacts other automobiles and transit vehicles. Bicyclists and pedestrians are not typically impacted except perhaps at intersection crossings, where additional vehicle turning movements could increase pedestrian crossing delay.
   - By generating additional roadway collisions. Additional automobile, transit, pedestrian, and bicycle trips from new development increase

exposure and risk which have the potential to lead to additional collisions, injuries, and fatalities.

- By negatively impacting user experience. Development of the 2010 HCM involved research demonstrating that drivers, transit riders, bicyclists, and pedestrians' perceptions of their travel experience are impacted by factors related to new development, such as peak-hour traffic volumes and traffic speeds.
- By impacting pavement condition. Pavement quality, depending on existing physical characteristics, deterioration rates, and ongoing maintenance is negatively impacted by new development if it generates additional trips by heavy vehicles. Pavement condition is an input into the bicycle LOS methodology in the HCM, but could potentially be its own stand-alone metric.

2. **Single metric.** The procedures could be amended to include a single metric that reflects the overall efficiency of the transportation system for all modes of travel (e.g., person throughput, person delay). Efficiency could potentially be negatively impacted by congestion resulting from new development. Some jurisdictions have considered using automobile travel itself (either automobile trips or VMT) as the measure of development impact, since automobile trips are correlated with a range of secondary impacts, including congestion, reduced air quality, increased GHG, and increased roadway collisions.
3. **Lowered thresholds or exemptions.** Rather than adding new metrics to capture development impacts on multiple modes, lowering auto LOS thresholds or exempting certain areas from automobile LOS analysis is an option for supporting investment in alternative modes.

Technically Defensible

Technical defensibility under CEQA requires that: 1) metrics can be forecast and are sensitive to development impact; 2) metrics lend themselves to establishment of a rational mitigation threshold; and 3) metrics are sensitive to the positive impact of mitigation measures. Each of these criteria is discussed in more detail below.

Sensitive to the Impact of Development and Able to be Forecast

New metrics must be sensitive to the impact of future development and be able to be forecast in the future. Certain metrics cannot be easily forecast. For example, in exploring alternatives to LOS, the City of Pasadena wanted to use travel-time reliability as a system performance metric, but could not identify practical forecast methods.

Metrics must be sensitive to new development. This means that in most cases, the metric must change in response to new trips, or changed vehicle speeds or roadway volumes, rather than infrastructure. For example, measures of pedestrian LOS used in Fort Collins, Colorado are based on factors such as the presence of lighting, the

existence of sidewalks, and the connectivity of the pedestrian network. These factors are not typically impacted by development, unless the development would result in sidewalk removal or elimination of pedestrian lighting.

On the other hand, some new transportation projects or planning documents subject to CEQA could more directly impact infrastructure conditions or accessibility. Accessibility or infrastructure quality metrics would be more appropriate for these types of projects than they would be to measure the impact of new development.

Conducive to Establishing Rational Mitigation Thresholds

Rational mitigation thresholds must be established based on substantial evidence and linked to general plan policies. Specifically, guidelines prepared by the Governor's OPR state that thresholds should be quantitative rather than qualitative wherever reasonably possible and must be backed by "substantial evidence," – enough facts, data and other credible information that support choosing a certain threshold as the point at which an impact acquires significance.[1]

Some candidate metrics immediately lend themselves to rational mitigation thresholds based on national research (e.g., the 2010 HCM). Others might require review of existing research, or collection of new research. The subsequent section evaluates several methodologies in light of their connection to a rational mitigation threshold.

Allows Mitigation by Nontraditional Measures

The revised procedures should enable the benefit of nontraditional mitigations to be quantified, in addressing impacts; and they should be able to show that impacts can be fully mitigated in some instances. If impacts are defined such that mitigation is not fully possible, many more projects will need to prepare environmental impact reports rather than mitigated negative declarations, thereby increasing the cost of traffic analysis prepared under CEQA and potentially deterring developers from investing in Los Angeles.

The LADOT *Traffic Study Policies and Procedures* include a toolbox of nontraditional mitigations that can be used to address significant traffic impacts from development. Table 2.1 lists some of the measures in the toolbox. Ideally, the revised procedures would demonstrate that some or all of the strategies in the toolbox would mitigate development impacts; however, they are defined, to less than significant levels.

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[1] As stated in Letunic, N., and C. Ferrell, *CEQA Thresholds of Significance: A Do-it-Yourself Guide for Public Agencies*, American Planning Association, March/April 2007.

Table 2.1 LADOT Mitigation Measures Toolbox
Potential for Quantifiable Linkage to Development Impacts

	Mitigation Measure Benefits by Mode										
	Auto Network/Overall				Transit Network			Bicycle Network		Pedestrian Network	
Transportation Mitigation Measures	Vehicle Delay Reduction/Capacity Enhancement	VMT Reduction/ Mode Shift to Transit, Bike, Pedestrian	Conflict Reduction (Safety)	Increased Person Throughput	Increased Transit Capacity	Increased Transit Flow/Person Throughput	Improved Transit User Experience	Improved Bicycle User Experience	Improved Bicycle Safety	Improved Pedestrian User Experience	Improved Pedestrian Safety
TDM											
Flexible/Alternative Work Schedules	Q	q	q	q							
Provision of Bicycle Amenities (bike racks, lockers, showers, etc.)	Q	q						q			
Provision of/Subsidization of Transit Passes	Q	q		q							
Provision of Pre-tax Dollar Transit Commute Expense Accounts	Q	q									
Provision of Mixed-Use Developments that Facilitate Non-auto Trip Making	Q	q	q								
Trip Cap and/or Parking Cap Monitoring Agreements	Q	q									
Transit Capacity and Transit Access Improvements											
Funds or Equipment to Increase the Capacity of Transit System	Q	Q	q	Q	Q	Q	q				
Development Provided Transit Shuttles, Vans, etc.	Q	Q	q	Q	Q	Q	q				
Contribution to Transit Centers/Stations		q	q	q	Q	Q	q				
Provision of Facilities or Equipment Which Expedite Transit Flow	q	Q	q	Q	Q	Q	q				
Contributions Towards Transit Operations/Maintenance Costs		q			q	q					

Transportation Mitigation Measures	Mitigation Measure Benefits by Mode										
	Auto Network/Overall				Transit Network			Bicycle Network		Pedestrian Network	
	Vehicle Delay Reduction/Capacity Enhancement	VMT Reduction/ Mode Shift to Transit, Bike, Pedestrian	Conflict Reduction (Safety)	Increased Person Throughput	Increased Transit Capacity	Increased Transit Flow/Person Throughput	Improved Transit User Experience	Improved Bicycle User Experience	Improved Bicycle Safety	Improved Pedestrian User Experience	Improved Pedestrian Safety
Parking Management Measures											
Contribution to Implement Intelligent Parking Systems		q									
Unbundling of On-Site Parking in Residential/ Non-Res Developments		q									
Development Measures											
Incorporation of Work Force Housing/Mixed-use Development	q	q									
Traffic Signal Operational Improvements											
Non-Development Serving Traffic Signal Enhancements	Q		Q	Q		Q			q		
Roadway Improvements											
Street Widening Improvements/Associated Enhancements	Q		Q	Q	Q	Q					
Quality of Life Enhancements											
Traffic Calming Enhancements			Q						Q		Q
Streetscape Features/Improvements			q						Q		Q

Key:

- Mitigation measure is primarily linked to the modal benefit.
- Mitigation measure is secondarily linked to the modal benefit.
- Mitigation measure has no link to the modal benefit.
- Q Mitigation Measure Benefits can be quantifiably measured.
- q Mitigation Measure Benefits are not easily quantifiable.

The extent to which the benefits of these measures can be quantified depends in part on how development impacts are defined. Table 2.1 compares several ways of defining development impacts and looks at the potential of the mitigation measures to be quantified against those types of impacts.

As shown in the table, not all mitigation measures can be directly linked to every type of impact. For example, if development impact is defined in terms of person throughput, then it will be difficult to justify measures such as provision of bicycle racks or traffic calming measures that would directly improve person throughput.

Low Cost

Multiple approaches can be used to minimize the additional cost of technical analysis required by the new procedures. Table 2.2 lists suggestions from interviewees and from the project's first TAC meeting.

With regard to the option of limiting analysis to specific locations, revised OPR CEQA Guidelines and recent state legislation provide a basis for streamlined CEQA analysis in certain locations. These include:

- **Projects consistent with a community plan or zoning.** According to the revised CEQA Guidelines, projects that "are consistent with the development density established by existing zoning, community plan, or general plan policies for which an EIR was certified shall not require additional environmental review," except to establish project-specific significant effects particular to the project or its site.[2]
- **SB 375.** Under SB 375, California's law requiring regional GHG reduction, projects that contain at least 50 percent residential use, have a minimum net density of 20 units an acre; and are located within 0.5 mile of a major transit stop or high-quality transit corridor included in a regional transportation plan (RTP) qualify for either a complete or partial exemption from CEQA review depending on project characteristics.[3]

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[2] *2012 California Environmental Quality Act (CEQA) Statute and Guidelines*, Association of Environmental Professionals, Article 12, Section 15183.

[3] To qualify for a complete exemption the project must be no bigger than 8 acres or 200 units; be served by existing utilities; not have a significant effect on historic resources; exceed building energy efficiency standards; and provide any of: 5 acres of open space, 20 percent of moderate income housing; 10 percent low-income housing; or 5 percent very low-income housing.

Table 2.2 Options for Simplifying Technical Analysis

Strategy	Options
Choose a single metric rather than multiple metrics	• Site specific: Corridor person-throughput; corridor person-delay. • Areawide: Automobile trips generated, VMT, VMT/capita, motorized travel time.
Limit where the analysis is conducted	• Exempt some areas from CEQA analysis by taking advantage of CEQA streamlining provisions, by tiering off of general plan EIR, or by demonstrating that a program of projects would fully mitigate impacts (as was done in San Francisco). • Limit analysis by neighborhood type (e.g., downtown versus outlying neighborhoods). • Exempt or limit analysis according to how accessible the study site is from a multimodal perspective (e.g., analysis could be limited when certain accessibility thresholds are met, such as number of bus or transit stops within a one-quarter-mile walk of the site, number of essential destinations that are located within a one-quarter-mile walk of the site, and presence of bicycle networks serving the site[4]). • Limit analysis by street type – Draw on the Layered Street Network concept being developed for the revised Mobility Element of the general plan. • Limit analysis by conditions at impacted intersections (e.g., exempt LOS E and F intersections). • Set thresholds of significance such that only very large projects would need to conduct analysis.
Provide centralized resource to reduce the cost of analysis	• Enhanced count databases. • Lookup tables for analysis inputs. • Database with geometric signing and striping plans.

- **SB 226.** SB 226 (Simitian 2011)provides even broader CEQA streamlining benefits for infill projects. To qualify as infill, the project must:
  - Be located on a previously developed site or on a vacant site where at least 75 percent of the site perimeter is surrounded by developed areas.
  - Be consistent with the regional Sustainable Communities Strategy (SCS).
  - Have impacts that were analyzed in a prior EIR for a planning-level decision (e.g., a general plan, EIR) or have impacts that would be fully mitigated by uniformly applicable development policies or standards.

[4] Accessibility measures are currently used in some certification programs such as LEED for Neighborhood Development (LEED ND). The Oregon DOT is currently conducting research to explore the development of similar accessibility-based measures that could be used to address some development impacts located in urban settings.

- Meet specific performance criteria for infill projects. These are defined in detail by the Governor's OPR, and generally include all areas with lower-than-average VMT per capita as compared to the rest of the metropolitan region or areas near a major transit station.[5]

Some jurisdictions have already used their general plan EIR to exempt certain areas from analysis. The City of San Jose has designated certain intersections in downtown or transit-oriented developments (TOD) as "protected." As stated in Hiatt et al., 2007, "proposed projects causing a significant LOS impact at a protected intersection are required to implement improvements to other parts of the City's transportation system and areas in the vicinity of the project site. These improvements are not considered to be mitigation measures under CEQA because they would not reduce or avoid significant impacts. However, project sponsors do not need to prepare an EIR if their only impacts are on protected intersections. Instead, environmental review for the project "tiers" off the EIR certified by the City when it created its list of protected intersections. That EIR acknowledged that traffic at protected intersections will eventually exceed the City's LOS standards, and adopted a statement of overriding consideration for LOS impacts to those intersections."[6]

Understandable to the Public and Elected Officials

Options for keeping the revised methodology understandable to the public and elected officials include:

- Use one or few simple, easy-to-understand metrics;
- Use simple, transparent analysis procedures;
- Provide maps and graphics illustrating the characteristics of different parts of the City to justify application of different metrics and thresholds in different areas; and
- Provide studies to demonstrate the benefits of mitigation measures currently questioned by the public.

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[5] Requirements are fully documented on OPR's web site: http://www.opr.ca.gov/s_sb226.php.

[6] Hiatt, R., Ferrell, C., and Letunic, N., *An Alternative to LOS: A Traffic Impact Analysis Standard Based on Auto Trips Generated*, paper published for the 2007 meeting of the Transportation Research Board.

Flexible

Many of the methods listed previously to reduce the cost of traffic impact analyses would allow flexibility to meet the needs of different communities, such as by:

- Varying mitigation thresholds by community type (e.g., lower the auto LOS threshold in denser downtown areas).
- Varying required analysis by community type (e.g., only require analysis of transit impacts in areas with significant transit usage).
- Varying analysis procedures and/or metrics by study type. One set of methods could be used for general plans and specific plan environmental impact reports, which typically can accommodate more in-depth analysis. Simplified methods could be used for project-level EIRs.

Review of Existing Approaches

LADOT already has reviewed several approaches to multimodal traffic impact analysis, drawing from national research and practices in use in other communities, including:

- Equation-based MMLOS methods;
- Checklist-based MMLOS methods;
- Single metric methods to capture impacts at a specific site; and
- Single metric methods to capture systemwide impacts.

LADOT's prior work focused on evaluating these measures and their potential applicability in Los Angeles, and found that no existing method will work "off the shelf." However, these methods have potential for adaptation to the Los Angeles context, with modifications that consider the traffic impact analysis process holistically, including metrics, thresholds, and analysis requirements.

This section briefly summarizes applicable methods, including those previously evaluated by LADOT and a few others. It then evaluates them against the previously identified objectives. The evaluation shows these methods could potentially work in Los Angeles if certain drawbacks could be minimized. The evaluation tables rate each method against each criterion, where:

- A full circle means it meets the criteria;
- A one-half circle means adjustments would be needed to fully meet the criteria; and
- An empty circle means major adjustments, procedural changes or additional research would be necessary to meet the criteria.

Computational MMLOS Methods

Two major approaches are available for evaluating MMLOS using empirical models. These include methods in the Florida Quality/Level of Service Handbook and in the 2010 HCM. Both methods rely on empirical research to predict MMLOS as a function of a range of input variables. LADOT did not extensively evaluate the Florida methods, but did for the 2010 HCM, which is emerging as a national best practice for multimodal analysis.

The 2010 HCM provides methods for measuring the LOS for the major modes of travel (automobile, transit, bicycling, walking). Average daily traffic (ADT) and peak-hour traffic volumes are included as inputs for each mode's LOS calculation; these variables change with the addition of new development. The remaining input variables primarily relate to the quality of available infrastructure relevant to each mode.

HCM methods employ extensively vetted national research and, therefore, could be less prone to successful challenge. On the other hand, the metrics are labor-intensive to compute and the nonautomobile LOS variables show weak sensitivity to development impacts and mitigations. LADOT tested the HCM methods at several sites and found that varying input values (including peak-hour automobile volumes and other variables) up to 50 percent above and below the starting value produced relatively small changes in LOS values for pedestrian, bicycle, and transit modes, compared to auto (Figure 2.1). For example, varying peak-hour traffic volume by 50 to 150 percent resulted in a maximum 23 percent change in the auto LOS score, but only a 5 percent change in the pedestrian LOS score.

Table 2.3 evaluates the HCM method in light of the criteria emerging from the stakeholder interviews.

Checklist-Based/Partially Computational MMLOS Approaches

LADOT previously evaluated several checklist-based MMLOS approaches, including pedestrian and bicycle LOS methods used in Charlotte, North Carolina, and San Francisco, California (the latter includes the Pedestrian and Bicycle Environmental Quality Indices or PEQI and BEQI). These methods allow an expert to assign points for various criteria indicating multimodal quality of service (e.g., for pedestrians, presence of sidewalks, volume of adjacent traffic), or use simple computational methods. They are simpler and more transparent than the HCM methods, but could be more prone to challenge since the research behind them does not have the same level of rigor as the HCM.

Figure 2.1 Percent Change in HCM LOS Variables Resulting from Varying Input Variables by 50 to 150 Percent

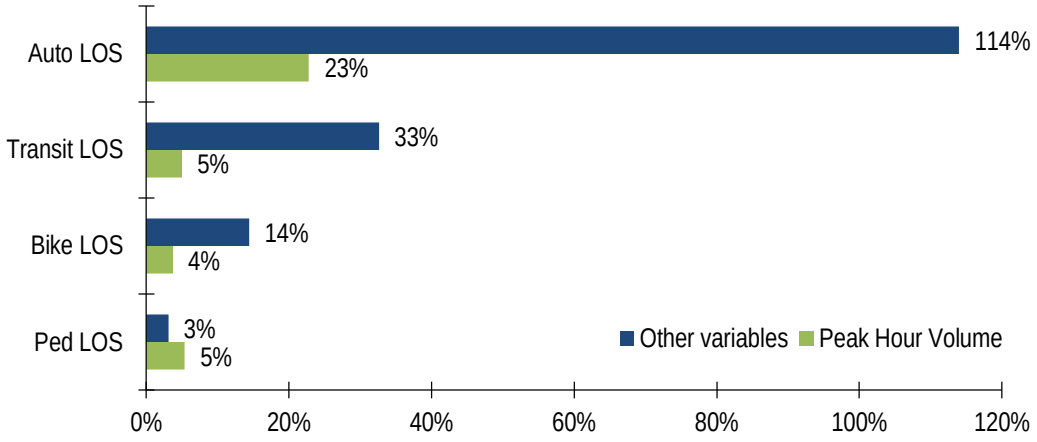

Table 2.3 HCM MMLOS Methods

Criteria	Rating	Evaluation of Current Method	Possible Adjustments
Supportive of multiple modes	●	Includes LOS procedures for multiple modes.	
Forecastable – sensitive to development impact	◐	Sensitivity to development impact varies by mode. Pedestrian LOS in particular is not very sensitive to development impact.	Could thresholds be modified to show greater sensitivity (e.g., introducing +/- letter grades?).
Rational mitigation threshold	●	HCM LOS thresholds based on national research; may become a national model.	Some research or justification could still be needed to determine which letter grade to choose as the threshold for each mode.
Benefit of mitigations can be quantified	◐	Impacts could be mitigated but not all mitigations produce significant changes in LOS – particularly for pedestrian mitigations.	Could LOS thresholds be modified to show greater sensitivity to mitigation?
Lower cost	○	LOS analysis requires many data inputs and is complex relative to current process.	Could analysis only be required in a limited number of circumstances to reduce costs? Could the analysis procedures be simplified while still retaining technical defensibility? Could LADOT provide and maintain databases of inputs to reduce the cost to developers of performing analysis? Could LADOT develop default input parameters for some of the variables?
Understandable	◐	The LOS concept is familiar and intuitive, but results are based on complex equations that may be difficult to explain to the public.	Will community members demand to see and understand underlying LOS equations? If so, could they be educated to understand?
Tradeoff issues	◐	MMLOS methods provide information about multiple modes that is subject to tradeoff analysis.	May be necessary to provide guidance regarding which modes would receive priority.

Table 2.4 evaluates the methods from Charlotte and San Francisco. LADOT also evaluated methods used in Fort Collins, Colorado, that covered all modes of travel. However, the Fort Collins methods are not included in the table because they do not include any input variables that would vary significantly in response to development impact (such as peak-hour traffic).

Table 2.4 Checklist/Point-Based MMLOS Methods
Including PEQI, BEQI, and Charlotte MMLOS

Criteria	Rating	Evaluation of Current Method	Possible Adjustments
Supportive of multiple modes	●	Includes LOS procedures for bicycling and walking.	Identify alternative measures for measuring transit impact, such as through a checklist-based approach that takes into account congestion impacts from additional automobile trips.
Forecastable – sensitive to development impact	◐	PEQI, BEQI include inputs affected by development, including vehicle speeds and volumes; Charlotte includes inputs for left turns into pedestrian's path. However, the level of sensitivity to development impact has not yet been tested.	Sensitivity to development impact could be tested, and thresholds adjusted to ensure appropriate sensitivity.
Rational mitigation threshold	◐	Mitigation thresholds appear to be based on expert judgment rather than empirical research regarding how people value different amenities. This could be less defensible than research-based methods.	Ask attorney advice on risk. Conduct a study to identify existing conditions throughout Los Angeles and set thresholds to be reflective of existing conditions.
Benefit of mitigations can be quantified	◐	Checklist-based methods assign points for the presence of specific infrastructure features. Since points are not based on empirical research, this could lead to a challenge.	Ask attorney advice on risk.
Lower cost	◐	Checklist-based methods require collection of a number of inputs, but analysis procedures are simple to apply.	Could analysis only be required in a limited number of circumstances to reduce costs?
Understandable	●	Process for assigning points can be made transparent and understandable to the average person; no complex equations are used.	
Tradeoff issues	◐	MMLOS methods provide information about multiple modes that is subject to tradeoff analysis.	May be necessary to provide guidance regarding which modes would receive priority.

Single Metric Approach – Site Specific

Several interviewees suggested an approach that uses one rather than several metrics to represent multimodal development impacts. This could simplify analysis requirements and avoid the issue of having to balance tradeoffs among multiple modes. Table 2.5 discusses the option of a single metric – person delay – that would be evaluated at the site level (segment(s) and/or intersections).

Table 2.5 Single Metric-Based Approach
Site Specific; Person Delay

Criteria	Rating	Evaluation of Current Method	Possible Adjustments
Supportive of multiple modes	◐	A single metric would not fully capture all relevant impacts to all modes, but would reflect broader goals for system efficiency. Person delay would be similar to auto delay in many locations except those with significant numbers of transit, bicycle or pedestrian trips.	Could this be supplemented by requirements for developers to provide specific amenities for non-motorized modes around the development site?
Forecastable – sensitive to development impact	●	Intersection person delay can be forecast and would be sensitive to development impact.	
Rational mitigation threshold	○	A rational mitigation threshold for person-delay would need to be established.	A study could be conducted to identify current conditions for person delay – thresholds could be set based on benchmarking current conditions.
Benefit of mitigations can be quantified	◐	The method would favor mitigations similar to those used for automobile LOS methods, but would provide greater justification for non-traditional mitigations that would reduce person delay in downtown areas (such as transit signal priority treatments).	
Lower cost	◐	Would require transit vehicle occupancies and frequencies, automobile occupancies, and estimates of automobile, transit, bicycle, and pedestrian demand.	Limit single analysis to only a few key intersections or roadway segments.
Understandable	◐	Person-delay is unfamiliar to the public, but could be explained through an educational process.	
Tradeoff issues	●	Use of a single metric avoids the problem of tradeoffs among modes.	

Continued use of automobile LOS as a single, site-level metric could also be considered. Some of the drawbacks of this approach, namely disadvantaging certain infrastructure and development projects in downtown areas, could be partly addressed by lowering auto LOS thresholds in downtown areas or exempting those areas completely from auto LOS analysis. Table 2.6 lists some considerations for this approach.

Table 2.6 Modified Auto LOS Method

Criteria	Rating	Evaluation of Current Method	Possible Adjustments
Supportive of multiple modes	○	Continuation of use of auto LOS method would not demonstrate development impacts on nonauto modes.	Would lowering thresholds/exempting infill/ downtown areas from auto LOS analysis requirements sufficiently reduce the drawbacks of the auto LOS approach? Could developers be required to provide specific amenities for all modes within and at access points to the development to ensure multimodal access is supported? Could simple multimodal analysis procedures be required for planning/informational purposes only?
Forecastable – sensitive to development impact	●	Auto LOS can be forecast and is sensitive to development impact.	
Rational mitigation threshold	●	A rational mitigation threshold already exists.	
Benefit of mitigations can be quantified	◐	The benefits of some types of nontraditional mitigation measures can be quantified under the auto LOS framework, but others are harder to quantify (transit investments, TDM measures).	Can more effort be put into quantifying the benefits of nontraditional mitigations in improving auto LOS (e.g., TDM measures, etc.), or setting more explicit policy to use nontraditional mitigations to address congestion rather than road widening or signal timing changes?
Lower cost	●	Would retain current procedures.	Improving the accuracy of automobile trip generation rates could better capture the benefits of land use measures on reducing auto trips.
Understandable	●	Auto LOS metric is familiar to the community and elected officials.	
Tradeoffs	●	Use of a single metric avoids the problem of tradeoffs among modes.	

Single Metric Approach – Areawide

Another option is to use a metric that reflects development impacts over a broader area. This would represent a departure from current practice, in which impacts are always analyzed at specific sites (intersections and road segments). However, nothing in the CEQA Guidelines specifically requires analysis of site-level impacts except for intersections on the CMP-designated highway and arterial network.

Several interviewees felt an areawide metric could be advantageous, because it would provide a basis for developers to contribute to a fund for areawide mitigation rather than committing to specific projects (which they felt developers would prefer). San Francisco has used just such an approach in its proposed Transportation Sustainability Fee (TSF). In San Francisco's program, developers are asked to contribute to funding a package of citywide mitigations that would mitigate cumulative development impacts as defined by two new metrics – transit travel time (TTI) per trip and transit crowding. By contributing to the fund, developers fully mitigate their project's impact and CEQA analysis is no longer required for most projects.

Table 2.7 evaluates an areawide approach using an automobile trips generated metric. Amount of use measures such as VMT or VMT/capita could be evaluated similarly using trip length assumptions, or through use of a travel demand model. Travel-time measures (e.g., vehicle hours of travel, vehicle hours of delay, travel time per trip) also are possible but require use of a regional travel demand model. San Francisco used a travel demand model to confirm that the package of citywide mitigations under the proposed TSF would fully mitigate development impact on TTI and transit crowding. Use of the travel demand model was not a barrier, because the analysis will not be repeated for specific projects.

Summary

This section identifies a draft list of objectives for the update to LADOT's traffic impact analysis procedures and an analysis of previously considered performance measurement approaches. In addition, it suggests options for modifying the approaches to better meet these objectives, including the following preliminary conclusions:

- Changes to performance measures, thresholds, mitigations, and analysis requirements must be considered together as a package. These elements cannot be considered in isolation as decisions on one element influence the others.
- The revised procedures cannot adopt a "one size fits all" approach. The metrics, thresholds, and/or analysis requirements will need to be varied (e.g., by roadway type, community type, project type, etc.) to meet the differing objectives of communities and stakeholders in Los Angeles.
- It will not be possible to fully optimize all of the stakeholder objectives for the update, since some objectives work against others. For example, simplifying analysis procedures to lower costs might be less defensible in some cases. Although all objectives must be met at some level, some objectives must be prioritized more highly than others.

Table 2.7 Single Metric-Based Approach
Areawide; Auto Trips Generated

Criteria	Rating	Evaluation of Current Method	Possible Adjustments
Supportive of multiple modes	◐	A single auto trips generated metric would not fully capture all relevant impacts to all modes, but would reflect broader goals for air quality improvement, GHG reduction, and safety, since these are all correlated with auto trips.	
Forecastable – sensitive to development impact	●	Automobile trips generated can be forecast and are a direct measure of development impact.	
Rational mitigation threshold	◐	A rational mitigation threshold for automobile trips may be difficult to establish.	The City of Palo Alto has established a rational mitigation threshold using automobile trips.[7] Their approach would need to be examined for adaptability to Los Angeles.
Benefit of mitigations can be quantified	◐	Mitigations that directly reduce automobile trips would be prioritized (e.g., TDM measures, land use measures). Improvements to nonmotorized infrastructure (especially for pedestrians) would be more difficult to justify as capable of producing trip reduction. Developers could potentially contribute to a group of projects to mitigate impacts over a broad area.	Could developers be required to provide infrastructure for nonmotorized modes around the project site?
Lower cost	●	Auto trips already are estimated as part of traffic analysis.	Improving the accuracy of automobile trip generation rates would be particularly critical if this method were adopted.
Understandable	●	An automobile trip metric is simple to explain and may resonate with community concerns surrounding the impacts of additional automobile travel on their community.	
Tradeoff issues	●	Use of a single metric avoids the problem of tradeoffs among modes.	

[7] A project in Palo Alto would have a significant negative effect if it would increase vehicles per day by 25 percent or more on a residential, local, collector, or arterial street. An increase of up to 150 vehicles per day is acceptable regardless of the percentage increase or street type. No increase is allowed on a local street beyond a total volume of 2,500 vehicles per day. Palo Alto's threshold is based on local officials' experience using the Traffic Intrusion on Residential Environments (TIRE) index. The TIRE index is based on research indicating that traffic volumes become noticeable for every 0.1 change in the index (corresponding to a 25-percent increase in traffic). Source: Hiatt, R., Ferrell, C, and Letunic, N, *An Alternative to LOS: A Traffic Impact Analysis Standard Based on Auto Trips Generated*, paper published for the 2007 meeting of the Transportation Research Board.

2.2 APPROACH TO MULTIMODAL ANALYSIS PROCEDURES

After discussing the pros and cons of several concepts for revising Los Angeles' traffic analysis procedures at the June 2012 TAC meeting, TAC members agreed that the proposal for a best fit procedure should include an evaluation of one or more areawide metrics for assessing project impacts across the transportation network, along with multimodal metrics for assessing the localized impacts of new projects not fully captured by the area metric. Additionally, TAC members agreed the analysis procedures may need to be varied by project type, location and planning context.

This section presents an initial proposal regarding how Los Angeles DOT could incorporate multimodal performance measures into its Traffic Impact Analysis Guidelines and planning documents based on feedback received at the June 2012 TAC meeting. The initial proposed metrics and analysis procedures are summarized below and details are presented in several appendices.

Areawide Fee

New development projects would pay a fee to mitigate transportation impacts under CEQA. The fee would be based on a metric that would reflect the cost of mitigating areawide transportation impacts. The exact metric and fee level would need to be defined through a nexus study. Appendix A proposes possible metrics and next steps for a nexus study.

The TAC and consultants found the areawide fee program approach attractive for the following reasons:

- An areawide metric would better capture the cumulative multimodal impacts of new development projects and planning efforts. Not all pertinent impacts can be measured at specific sites.
- An areawide metric and fee program may be attractive to developers if it improves the predictability of the development review process and reduces the need to perform complex traffic studies and fund incremental mitigations.
- A fee program would provide the City flexibility to implement systemwide transportation improvements that typically can't be funded by any one development project. Mitigation fees could be used to support the development of nonauto transportation infrastructure or other projects identified for inclusion in the program.
- An areawide metric is consistent with the recent update of OPR's CEQA Guidelines and review checklist, which included introduction of the following question: *"Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the circulation system, taking into account all modes of transportation...?"* This revision was made to "change the

focus from an increase in traffic at a given location to the effect of a project on the overall circulation system in the project area."[8]

- An areawide metric and fee program would simplify the development review process for city staff by minimizing the traffic study scoping, review, and mitigation negotiation time.

High-Accessibility Zone Discounts

The fee would be discounted if the development is sited within a high-accessibility zone. Appendix B proposes a range of characteristics that could be used to define high-accessibility zones.

Providing discounts for high-accessibility zones is attractive for the following reasons:

- It incentivizes development in areas with preexisting, high-quality multimodal transportation infrastructure that can more readily absorb additional transportation demand generated by new development. This is consistent with regional goals for directing a greater share of new development to infill areas to reduce GHG impacts under SB 375, and also is consistent with SCAG's plans to offer CEQA streamlining in high-quality transit areas.
- It provides a means for compliance with AB 3005 (Jones 2008), which requires impact fees based on automobile trip generation to be discounted in transit-oriented areas to reflect lower automobile trip generation rates in these areas.[9]

No Additional Analysis for Small Projects

If the development generates a small number of trips (such as below 500 trips or 43 p.m. peak-hour vehicle trips – the thresholds currently used in the City's Traffic Analysis Guidelines), no additional multimodal analysis would be required beyond payment of the areawide fee.

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[8] California Natural Resources Agency, *Final Statement of Reasons for Regulatory Action: Amendments to the State CEQA Guidelines*, December 2009.

[9] Specifically, automobile trip generation rates must be discounted for residential developments in areas located: 1) within one-half mile of a transit station and there is direct access between the housing development and the transit station along a barrier-free walkable pathway not exceeding one-half mile in length; 2) convenience retail uses, including a store that sells food, are located within one-half mile of the housing development; and 3) the housing development provides either the minimum number of parking spaces required by the local ordinance, or no more than one on-site parking space for zero to two bedroom units, and two on-site parking spaces for three or more bedroom units, whichever is less.

Code Consistency Checks

Although no additional site-level analysis would be required for smaller projects, the site could be checked for consistency with requirements for providing multimodal amenities as documented in city code. The consultant team recommends that city code be reviewed and revised to require consistent provision of multimodal amenities at project sites, such as secure bicycle parking, showers, on-site carsharing, shared parking, or other innovations.

Additional Localized Analysis for Large Projects

If the development generates a large number of trips, it also would be required to analyze localized multimodal impacts at specific segments and intersections within a defined boundary of the project site. Appendix C proposes a definition for this boundary. Appendix D proposes methods for analyzing multimodal impacts, including automobile, transit, bicycle, and pedestrian impacts on street segments.

Table 2.8 summarizes the approach suggested by the team.

TAC Feedback and Next Steps

During the initial two tasks of this project, LADOT and the TAC considered site-specific and areawide options to supplement the City's current traffic analysis procedures. While current site-specific methods provide traffic analysis information that generally interests residents near a proposed project, these methods do not detect an individual projects' effects on nonauto travel modes. On the other hand, areawide analysis can better capture the cumulative effects of a larger-scale development project (or projects) across multiple modes, but are less sensitive to localized effects.

Table 2.8 Summary of Recommended Analysis Procedures

	Accessibility	
Auto Trip Generation[a]	High-Accessibility Zone	Other
Low (< 25 weekday peak-hour trips)	• None; code compliance check	• None; code compliance check
Moderate (25-42 weekday peak-hour trips)	• Pay discounted impact fee • Code compliance check	• Pay nondiscounted impact fee • Code compliance check
High-Auto Trip Generation (>43 weekday peak-hour trips)	• Pay discounted impact fee; analyze local impacts; develop neighborhood traffic management plan if required	• Pay nondiscounted impact fee; analyze local impacts; develop neighborhood traffic management plan if required

[a] These thresholds are based on those currently used in the Traffic Analysis Guidelines. In applying the impact fee, project-level auto trip generation would be determined on the basis of a lookup table that converts the number of dwelling units or square feet by land use type into an automobile trip generation rate. This would simplify the fee-payment process for developers.

Some TAC members expressed interest in the areawide analysis and fee program concept to fund nontraditional mitigation measures. Such a concept can be structured to provide a simple and transparent basis for linking developer contributions with necessary mitigations. This concept also can provide the City with flexibility to implement systemwide transportation improvements, and can provide more predictability for developers. However, other TAC members and the LADOT project manager advocated for a site-specific methodology because it is similar to existing traffic analysis procedures and it is considered to be more feasible to implement in the short term.

TAC members suggested that two site-specific methods described in Section 2.0 be potentially considered in the Task 3 analysis:

1. A menu of predetermined mitigation options that were each assigned mitigation point values; and
2. The 2010 HCM MMLOS.

LADOT and the TAC decided to move forward with the 2010 HCM MMLOS site-specific methods for further consideration since the method is based on empirical research and is considered technically defensible. The TAC directed the consultant team to apply the 2010 HCM MMLOS to local case studies since prior research and tests noted that the HCM MMLOS procedures and scoring system might not calculate results with sufficient sensitivity to adequately assess the multimodal impacts of individual development projects. The case study results are described in Section 3.0.

3.0 Existing Methodology Comparison

This section summarizes the case studies conducted to determine if the MMLOS methodology represents a significant improvement over current practice and documents the TAC feedback. The case study results, which were presented to the TAC in September 2012, confirmed two prior findings:

- An inconsistent relationship between nonauto mitigation strategies and MMLOS results; and
- A general lack of sensitivity in nonauto MMLOS results with smaller traffic volume changes.

3.1 MMLOS CASE STUDY ANALYSIS

This section documents the Task 3 MMLOS case study analysis and results.

Case Study Descriptions

The consultant team applied the 2010 HCM MMLOS methods to test transit, bicycle, pedestrian, and auto LOS impacts and mitigations associated with two prior development proposals:

1. *Traffic Impact Study Report for Proposed Millennium Hollywood Development*, Hollywood, California, Crain and Associates, June 2012.
2. *Traffic Impact Study for IL Villaggio Toscano, Proposed Mixed-Use Project at Sepulveda Boulevard and Camarillo Street, Community of Sherman Oaks*, Crain and Associates, December 2008.

The case study analysis tested several scenarios to illustrate how the MMLOS scores differ based on traffic volumes and mitigation measures. For each case study, the team calculated MMLOS scores for existing conditions (no project scenario), existing conditions plus project, and project conditions with several mitigation measures. Mitigation measures included wider sidewalks, a bicycle lane, a continuous barrier between the curb and sidewalk, travel, and bus shelters.

Case Study Results

The case study analysis produced the following results:

- The additional traffic generated by the development projects, which was substantial in some cases, had a relatively small impact (one to three percent)

on the overall MMLOS scores for the bicycle pedestrian, and transit modes when comparing existing conditions to existing conditions plus project.

- In most cases, sidewalk and/or bicycle lane improvements (wider sidewalks, the provision of continuous barriers between the sidewalk and curb, and bicycle lane addition) mitigated the degradation in MMLOS scores at the segment level.
- As anticipated, the MMLOS analysis resulted in pedestrian, bicycle, and transit scores that were not very sensitive to the traffic volume increases being generated by the proposed development projects. However, there was a measurable impact. Further case study analysis would need to be completed to better understand the different levels of impact under different urban characteristics.

Appendix E provides further detail regarding the case study process, analysis results, and findings.

The case study analysis uncovered two potential concerns with applying the HCM MMLOS methods in Los Angeles:

1. Pedestrian, bicycle, and transit scores were not very sensitive to the traffic volume increases generated by the proposed development projects. But, the analysis did produce a measurable impact.
2. The methodology produced unexpected relationships between bicycle mitigation measures and bicycle MMLOS score. This finding is noteworthy because traffic analysis procedures must accurately calculate mitigation effectiveness.

TAC Meeting Follow-up

Following the September 2012 TAC meeting, the consultant team was directed to continue researching possible potential new multimodal traffic analysis methods or adaptations of the MMLOS methods. The team contemplated a simplified version of the HCM MMLOS approach based on lookup tables; such an approach might address the TAC's concern regarding the complexity and cost of implementing original HCM MMLOS methods. After developing and reviewing some initial lookup table concepts, LADOT and the consultant team concluded that such an approach and assumptions would still be too complex to explain to the public and decision-makers. Therefore, LADOT instructed the consultant team to suspend further efforts to identify an MMLOS approach as part of this project, and to instead prepare recommendations for smaller-scale changes to the existing auto LOS methodology.

TAC Meeting Overview

The September 2012 TAC meeting included a presentation and extensive group discussion of the MMLOS case study results. The major presentation findings and feedback included the following:

- Each case study's MMLOS scores fell by a small percentage in response to the new auto trips generated by each project, indicating that project traffic caused only a slight degradation of MMLOS. However, the changes observed were sufficient to potentially constitute a CEQA significant impact.
- Pedestrian and transit mitigation measures (e.g., wider sidewalks, a bicycle lane, a continuous barrier[10] between the curb and sidewalk travel, and bus shelters) led to improved pedestrian and transit MMLOS scores at a level equal to or exceeding the impacts created by project-generated auto traffic. These results indicated that pedestrian and transit MMLOS could be used to quantify the impact of new development and the benefits of developer-funded mitigations.
- Bicycle-related mitigation measures did not have a consistent relationship with bicycle MMLOS scores. For example, adding a bicycle lane did not always positively improve bicycle LOS score.

During the discussion, most TAC members indicated that the drawbacks of the HCM MMLOS procedures outweighed its potential benefits. Among the drawbacks, TAC members noted that the bicycle LOS score did not demonstrate a consistently positive relationship with new bicycle treatments. TAC members also reiterated that the HCM MMLOS method is computationally complex, requires additional data collection, and would be difficult to explain to decision-makers and the public. Finally, TAC members expressed concern that the methods would be difficult to justify since they would not consistently result in lower-cost mitigation options.

The TAC discussed possible next steps, including abandoning the current HCM LOS method without a replacement method, pursuing an areawide approach that might include in-lieu fees for nonauto mitigations, further locally based refinements to the MMLOS method, and pursuing some other method. However, TAC members did not reach a consensus.

[10]For the purpose of the analysis, a continuous barrier is defined as a repetitive vertical object (e.g., trees, bollards, etc.) that are at least three feet high and have an average spacing of twenty feet or less.

4.0 Implementation Recommendations

This section outlines four potential longer-term options for reflecting multimodal considerations as part of the City of Los Angeles' current transportation impact analysis procedures. The four recommended options are as follows:

1. **Areawide approach.** An areawide fee program would address nonautomobile transportation needs in a coordinated manner for new development within a defined area. It also would inform fair share contributions for individual development projects within the area.
2. **Modified vehicle trip generation rates.** Trip generation rates can be fined tuned through new data collection to facilitate use of pedestrian, bicycle, and transit projects in lieu of roadway-based mitigations.
3. **Modified automobile LOS significance thresholds.** Reducing automobile LOS thresholds in areas with existing, high-quality multimodal transportation facilities will support in-fill development in these "high-accessibility" areas.
4. **Hybrid approach.** A hybrid approach to multimodal assessment and mitigation may take many forms. One option is a program that includes two elements: 1) an areawide fee program to calculate a developer's fair share; and 2) modifying trip generation rates for projects designed to facilitate multimodal travel (e.g., projects located in an HQTA or low-VMT area, projects that comply with uniform design standards, or projects that include parking management strategies).

These options reflect previously documented findings that a suitable analysis technique and associated criteria are not readily available to replace or augment the City's current automobile LOS approach. However, the options describe possible ways to modify current policies and analysis practices so that innovative projects incorporating robust multimodal elements are encouraged.

The remainder of Section 4.0 describes the basic elements of each option along with examples. Each option's elements are described in a broad manner to facilitate customization to the City's many planning areas and neighborhoods, and to accommodate the additional data collection that is recommended in several cases. The section concludes with several interim actions that support implementation of one or more longer-term options and deliver some immediate benefits.

4.1 LONG-TERM APPROACHES

Areawide Approach

Although it may take time to shift from current practices, the LADOT might explore an areawide approach to multimodal traffic analysis. An areawide fee program can provide a quantitative basis for linking developer contributions with a package of transportation mitigations, including both roadway improvements and nontraditional improvements to improve walking, biking, and transit conditions. An areawide fee program can serve as a basis for Los Angeles to fund a broader package of multimodal improvements than a project-level approach. Similarly, an areawide program is more likely to allow Los Angeles to plan and coordinate mitigation projects more effectively, because planning can be conducted at the regional rather than project level. Multimodal transportation improvement projects that are well-integrated in the broader transportation system are more likely to influence travel behavior and mode choice.

In addition to generating more efficient multimodal improvements, a standard areawide approach would simplify the development review process for city staff. It would minimize the traffic study scoping, review, and mitigation negotiation time and, therefore, reduce costs for both the City and developers.

The areawide fee program may include the following elements:

- Discounts for projects located in HQTAs or low-VMT zones to encourage development in areas with existing transportation facilities or land use patterns that facilitate nonvehicular trips or relatively low VMT per resident, employee or visitor. For example, these areas may be served by preexisting high-quality multimodal transportation infrastructure or they may have neighborhood-oriented land use patterns.
- No additional analysis for small projects beyond payment of the areawide fee, if the development generates a small number of vehicle trips (e.g., below 500 daily vehicle trips or 43 p.m. peak-hour vehicle trips – the thresholds currently used in LADOT's *Traffic Study Policies and Procedures*).
- Modify city code to require uniform development standards and check that all project sites comply. Uniform development standards that encourage multimodal travel may include transit-oriented development; infill development; parking caps; street design; and the provision of multimodal amenities (e.g., secure bicycle parking, showers, on-site car sharing, shared parking, or other innovations).
- Require parking supply and management commitments by developers in transit-oriented and mixed-use developments. In conjunction with broader transportation improvement plans, requiring parking supply and management practices (e.g., pricing, parking cash out programs, etc.) provides incentives for travelers to walk, bike, use transit, or carpool.

- Additional local traffic analysis for large projects that generate a large number of vehicle trips.

Example – City of Santa Monica's Multimodal Transportation Impact Fee

The City of Santa Monica adopted a Multimodal Transportation Impact Fee to ensure that new development funds its fair share of the transportation infrastructure needed to accommodate the City's new growth. The fee revenue will fund a package of capital projects to help achieve the City's goal to maintain existing PM peak vehicle traffic levels through 2030.

The Multimodal Transportation Impact Fee's Nexus Study[11] evaluates the link between development and transportation impacts in two different areas:

1. **Area 1.** Downtown Santa Monica, the Special Office District, and Bergamot Transit Village; and
2. **Area 2.** All areas in the City of Santa Monica, not included in Area 1.

Different vehicle trip generation rates for comparable land uses and the fee per dwelling unit and square foot are used for each area. Generally, but not in all cases, Downtown Santa Monica and the rest of Area 1 have lower vehicle trip generation rates and, thus, lower fees, due to the area's transit accessibility and diverse land uses. Both of these characteristics tend to reduce vehicle travel demand.

Modified Vehicle Trip Generation Rates

Most jurisdictions, including the City of Los Angeles, use ITE *Trip Generation Manual* to establish vehicle trip generation rates for traffic impact studies, subarea studies, specific plans, and similar work. While the ITE rates are based on robust, peer-reviewed data, they are generally recognized to have several shortcomings such as:

- Most data have been collected at single-use, free-standing sites;
- A substantial portion of the ITE data were collected over 20 years ago;
- The rates have generally been calculated using linear regression analysis with a relationship between one independent (or explanatory) variable and project trip generation;
- The single explanatory variable generally captures project size (e.g., gross floor area, employees, and dwelling units);

[11] City of Santa Monica, Transportation Impact Fee Nexus Study, April 2012, available at http://www.smgov.net/uploadedFiles/Departments/PCD/Transportation/Developers/Santa-Monica-Nexus-Study.pdf.

- The *Trip Generation Manual's* procedures for adjusting trip generation rates to reflect site-specific and community characteristics rely predominately on subjective professional judgment.

In reality, many factors beyond project size influence a project's potential vehicle trip generation. Neighboring land uses' density and diversity; pedestrian, bicycle, and transit access; and multimodal amenities influence trip generation, internal capture, and mode selection. A substantial body of research shows that multiuse projects served by high-quality transit in areas surrounded by diverse destinations within walking or biking distance are more likely to generate fewer vehicle trips and a higher share of walking, biking, and transit trips. In these "high-accessibility" areas a larger portion of total trips will be transit, bicycle, or walking trips that will not generate additional vehicles on roadways. The ITE trip generation rates do not account for these factors.

Vehicle trip generation rates that explicitly account for such factors will more accurately reflect travel patterns for projects within HQTAs. In recognition of the *Trip Generation Manual's* limitations in this regard, many jurisdictions, including the City of Los Angeles, allow granting a trip reduction "credit" on a case-by-case basis. Such credits typically result in a somewhat modest rate reduction.

The following three approaches could be used to support a more aggressive rate reduction for the most innovative projects:

- Adjust the ITE average trip generation rate based on project and site characteristics to reflect the range of vehicle trip generation rates expected;
- Include additional explanatory variables in a multivariate regression analysis; and
- Collect new trip generation data that better reflects local conditions.

The approaches are not independent. In fact, partial to full implementation of all three approaches might be warranted to create the "substantial evidence" needed to support changes to a local agency's CEQA procedures and policies.

Adjust Average Trip Generation Rate

For each land use category, ITE publishes the average trip generation rates and the standard deviation. The standard deviation indicates how widely dispersed the data points are around the calculated average. Based on-site design and project area characteristics, LADOT may explore a standard method of estimating the how much a project's trip generation rate is likely to deviate from ITE's average.

For example, according to the ITE *Trip Generation Manual, 9th Edition,* the General Office Building land use[12] generates 1.49 vehicle trips per 1,000 square feet of gross floor area (GFA) during the weekday p.m. peak hour. The standard deviation is 1.37 vehicle trips per 1,000 square feet of GFA. Given a sample size of 236 studies, this suggests that two out of three times when we use a vehicle trip rate of 1.49 trips per 1,000 square feet, the actual rate would be between 0.12 and 2.86 trips per 1,000 square feet of GFA.

The variation in actual vehicle trip generation may be explained in part by factors that facilitate nonautomobile travel such as transit accessibility, site design, multimodal amenities, and other project area characteristics. The variation in actual vehicle trip generation rates cannot all be attributed to these factors; other factors also contribute, including regional roadway congestion and sampling error.

The transit/walk trip credit that LADOT awards to transit-friendly projects with multimodal amenities is a proxy for this modified trip generation approach. The credit attempts to capture the share of total project trips that will be made by nonautomobile modes (e.g., walking, biking or transit) and will not impact roadways. LADOT's *Traffic Study Policies and Procedures* specify LADOT's guidelines for allowing transit/walk trip credits. LADOT may allow transit/ walk trip credits up to 25 percent on a case-by-case basis. According to these guidelines, the vehicle trip generation factor for ITE's General Office Building land use may be as low as 1.12 vehicle trips per 1,000 square feet GFA in an area with high-quality transit and multimodal amenities.

The modified trip generation approach gives LADOT more flexibility than existing methods to account for pedestrian, bicycle, and transit trips. Based on the existing transit/walk trip credit guidelines, LADOT may allow General Office development projects, for example, to use vehicle trip generation rates for General Office Buildings as low as 1.12 vehicle trips per 1,000 square feet GFA during the weekday p.m. peak hour. This modified method, which applies the standard deviation reported by ITE, would allow rates to range from 0.12 and 2.86 trips per 1,000 square feet of GFA during the weekday p.m. peak hour; however, some of the variation in the vehicle trip generation rates would be attributed to factors other than transit access, site design, multimodal amenities, and local area characteristics.

Implementing this approach would require the following actions:

- Define HQTAs or low-VMT areas where projects would qualify to use the modified trip generation rates. This definition may be relatively simple classifying certain districts as HQTAs/low-VMT areas. The definition also may be more nuanced classifying districts as high, medium, or low

[12] Land Use Code: 710.

accessibility, based on defined transit service levels, multimodal amenities, and land use patterns.

- Analyze local project trip generation rates for land uses that qualify for this analysis by mode (e.g., vehicle, transit, bicycle, pedestrian). Separate analyses should be conducted for each district type defined in Step 1.

Additional Explanatory Variables in Regression Analysis

Dummy variables may be included to indicate the absence or presence of factors that influence trip generation. These factors may include the presence of multimodal infrastructure, including transit service, sidewalks, and bike lanes; the quality of transit service (i.e., Fixed route service? How frequently do trains/ buses run?); mix of land uses; and average block size. Dummy variables that may enhance the regression analysis include:

- Sidewalk adjacent to project site;
- Bike lane adjacent to project site;
- Transit station or stop within one-quarter mile of project site with 15-minute or less headways during peak travel periods;
- Gross building area within one-quarter mile of project site is less than "X" percent residential; and
- Average block size within one-quarter mile of project site is less than "X" feet.[13]

Local Trip Generation Data

SANDAG's *Smart Growth Trip Generation Study*[14] provides an empirical basis that in certain cases conventional vehicle trip generation methods overestimate smart growth developments' trip generation if appropriate reductions are not included. The study was conducted to test the reduction in vehicle trips observed traveling to and from mixed-use and transit-oriented developments, compared to typical suburban developments. It also validated the mixed-use trip generation method to calculate the amount of trip reduction that can be attributed to smart growth at sites within San Diego and nationwide. The City of Los Angeles may consider conducting similar studies to obtain and verify local results.

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[13] Institute for Transportation and Development Policy, *TOD Standard Draft*, March 2013. http://www.itdp.org/documents/TOD_Standard_v.0.7_FINAL.pdf

[14] Caltrans, Trip Generation for Infill in California, June 2009, available at http://www.dot.ca.gov/research/researchreports/reports/2009/final_summary_report-calif._infill_trip-generation_rates_study_july_2009.pdf.

Modified Significance Thresholds

Automobile LOS thresholds define the point at which a proposed projects' net increase in vehicle trips constitutes a significant transportation impact. LADOT determines significant transportation impacts based on the project-related increase in congestion compared to thresholds, both measured in terms of vehicle to capacity ratio (V/C).

Adopting thresholds that differ by neighborhood is one way to address the needs of different neighborhoods and support investment in alternative modes and in-fill projects; As with all changes to CEQA-related thresholds or policies, any such differentiation will need to be based upon "substantial evidence."

The following methods may be used to distinguish areas in which different automobile LOS significance thresholds are established:

- Vary significance thresholds by neighborhood type (e.g., downtown versus outlying neighborhoods).
- Vary significance thresholds based on a site's multimodal accessibility. For example, reduced automobile LOS significance thresholds could be used when certain accessibility criteria are met, including:
  - Is the project located in a HQTA/low-VMT zone?
  - Is there a bus or transit stop with frequent service within one-quarter mile of the project?
  - Is the project located within a one-quarter mile of certain predefined destinations (e.g., grocery store, drug store, etc.)?
  - Is the project served by sidewalks and/or a bicycle network?
- Vary significance thresholds at certain intersections (e.g., exempt LOS E and F intersections).
- Reduce significance thresholds in districts where project design standards are enforced. Uniform design standards may include the following criteria:
  - Density:
    - » Minimum residential density (dwelling units per acre); and
    - » Minimum employment density (employment per acre).
  - Intensity:
    - » Minimum floor area ratio;
    - » Minimum building height;
    - » Minimum lot coverage; and
    - » Average number of shops and pedestrian building entrances per "X" feet of block frontage.

- Parking:
  - » Maximum parking per dwelling unit or square feet of retail/office;
  - » Maximum surface parking;
  - » Shared versus single use parking; and
  - » Parking pricing.
- Mixed-use and diversity:
  - » Average jobs/housing ratio; and
  - » Mix of uses (e.g., percentage of residential, percentage of nonresidential).
- Street network:
  - » Average block size.
- Multimodal amenities:
  - » Percentage of sidewalk that is shaded;
  - » Secure, weather-protected bicycle parking;
  - » Proximity to transit stop/station with frequent service; and
  - » Landscaping.

Example – City of Oakland

The City of Oakland is an example of a jurisdiction that uses different significance thresholds for different districts in the City. For signalized intersections, Oakland has one set of significance thresholds for the Downtown area and another set for all other areas in the City. For unsignalized intersections, the significance threshold is uniform citywide. Oakland uses the following significance thresholds for signalized intersections by area:

- For all areas in Oakland, the project would have a significant impact on the environment if:
  - Where the LOS is "E," the project would cause an increase in the average delay for any of the critical movements of six seconds or more.
  - Where the LOS is "F," the project would cause:
    - » The total intersection average delay to increase by two or more seconds;
    - » An increase in average delay for any of the critical movements of four seconds or more; or
    - » The V/C ratio exceeds three percent.
- Within the Downtown area, the project would have a significant impact on the environment if:

  - The project would cause the LOS to degrade to worse than LOS E (i.e., LOS F).

- Outside the Downtown area, the project would have a significant impact on the environment if:
  - The project would cause the LOS to degrade to worse than LOS D (i.e., LOS E or F); and
  - Where the LOS is LOS E, the project would cause the total intersection average vehicle delay to increase by four or more seconds, or degrade to worse than LOS E (i.e., LOS F).

Example – City of San Jose

The City of San Jose is another example of a jurisdiction that applies different automobile LOS thresholds to different areas of the City. San Jose's *Traffic Impact Analysis Handbook* outlines the City's traffic impact procedures. The handbook states that proposed projects, which are expected to generate a net increase in traffic that will degrade intersection performance below the City's LOS D performance threshold, are considered to have a significant traffic impact. Projects with a significant impact must identify improvements to mitigate the project's impacts.

The City's *Transportation Impact Policy* outlines the following exceptions in which projects are not subject to the citywide traffic analysis requirements:

- The Downtown Core Area, as defined by the City's General Plan.
- Any area subject to an Area Development Policy adopted pursuant to the City's General Plan. Each Area Development Policy specifies its own guidelines for implementing LOS policy.
- Specific intersections within Special Strategy Areas that are not required to meet a minimum LOS D. Special Strategy Areas identified in the General Plan include Transit-Oriented Development Corridors, Transit Station Areas, Planned Communities, Neighborhood Business Districts.
- The City of San Jose identifies these specific intersections in Appendix A of its *Traffic Impact Analysis Handbook*. According to San Jose's Traffic Impact Analysis Handbook, "These intersections are built to their maximum capacity, where further expansion would cause significant adverse effects upon existing or approved transit or other multimodal facilities, nearby land uses, or local neighborhoods." Therefore, the City permits infill development that generates congestion causes the performance of those specified intersections to fall below the City's minimum LOS D, if the project is otherwise consistent with General Plan policies that encourage smart growth. These projects are required to construct improvements to other elements of the transportation system to improve capacity and enhance non-automobile travel modes.

Hybrid Approach

A hybrid approach to multimodal assessment and mitigation may take many forms by combining varying types of trip generation and significant thresholds, with the changes potentially varying in different part of the City. As an example, a hybrid approach could include the following two elements:

1. An areawide fee program to calculate a developer's fair share of transportation costs; and
2. A traffic analysis procedure that allows projects designed to facilitate multimodal travel (e.g., located in HQTA/low-VMT area, complies with uniform design standards, or includes parking management strategies) to use modified trip generation rates to calculate fee amount and to conduct the local traffic impact analysis, if required.

Figure 4.1 illustrates a second example that could be implemented with or without an areawide fee program. This second example highlights illustrative decision paths for determining if:

- A local traffic impact analysis should be conducted;
- Reduced trip generation rates should be used; or
- A mitigation monitoring plan should be developed and enforced.

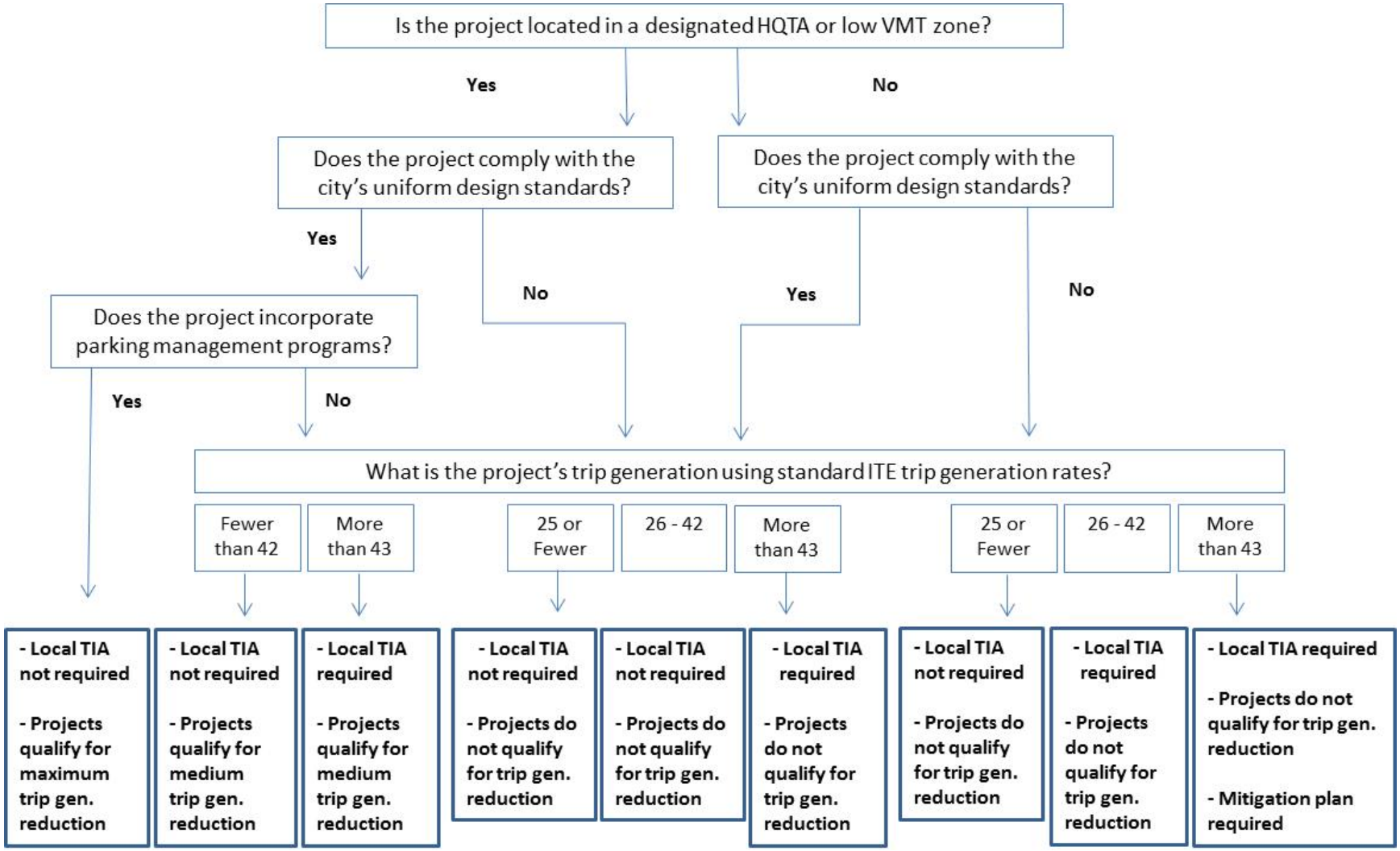
In the Figure 4.1 example, a project could bypass a local traffic impact analysis and qualify for a reduced trip generation rate (for fee program purposes) if it is within an HQTA, complies with all uniform design standards, and incorporates parking management programs. A similar project without parking management elements might qualify for a smaller trip generation reduction and might need a local traffic impact analysis depending upon its vehicle trip generation using standard rates.

4.2 SHORT-TERM AND MEDIUM-TERM ACTIONS

The previous approaches presented in Section 4.0 represent longer-term approaches, because they differ fundamentally from LADOT's existing procedures and it may take time for LADOT to shift from current practices. In the short- and medium-term, LADOT may take the following actions to move in the direction of multimodal traffic analysis and mitigation procedures:

- **Convene a local working group.** A working group comprised of public and private sector practitioners, researchers, neighborhood groups, and the development community would assist with vetting tradeoffs of potential analysis procedures. If carefully structured and engaged, such a group can provide both a technical peer review and a policy-level reality check.

Figure 4.1 Sample Analysis Procedure



- **Engage Metropolitan Planning Organization (MPO) work groups.** This will give LADOT the opportunity to share its experiences and learn about approaches other communities are using.
- **Define Los Angeles' HQTA/low-VMT zones.** As described in previous sections, predefined HQTAs or low-VMT zones may be used to determine areas eligible for discounts under the areawide fee program or reduce significance thresholds. The City should actively participate with SCAG, other MPOs, and OPR as guidance is developed and adopted. The City also should be prepared to implement such guidance so that areas are designated and approved in a timely manner.
- **Establish uniform design standards.** Project design has the potential to affect travel and support Los Angeles' VMT goals to reduce VMT. Uniform design standards will play a key role in promoting convenient, comfortable, and safe nonautomobile travel. They may be integrated into the areawide fee program and the reduced significance thresholds approaches.
- **Explore the technical methods and conduct case studies.** Develop technically defensible procedures and conduct case studies to test the procedures on proposed development projects.

5.0 Developer Checklist and Model Ordinance

5.1 INTRODUCTION

This section presents annotated outlines for a model developer checklist and a model ordinance that were developed to serve as examples for local jurisdictions (typically cities or counties) that are interested in developing MTIA procedures and mitigation programs. MTIA may be defined as an approach to evaluating the impacts of new development on the transportation system that evaluates not only impacts to the roadway system but also to the public transit, pedestrian and bicycle systems, along with other transportation modes that are available within a given planning area. This type of transportation analysis is most relevant in areas where a multimodal transportation system already exists or is planned, and where new development projects are designed to take advantage of the multimodal system.

Section 5.0 starts with a review of existing MTIA approaches used by three California jurisdictions, along with studies prepared by other California transportation planning agencies pertaining to this subject.

It then provides background information on the characteristics of multimodal transportation planning analysis at different scales to illustrate how the transportation impact analysis that is conducted at the project level is related to analysis that is conducted at larger scales (regional, subregional, and "focused planning area").

Section 5.0 then presents key MTIA planning factors and proposed MTIA procedures. These MTIA procedures would be implemented through adoption of a developer checklist and an implementing ordinance, based on the model documents set forth in this report. Finally, this section includes a "developer checklist" that outlines a sample approach to identify development projects that qualify for MTIA, and an annotated outline for a model ordinance that local jurisdictions may use as an example when establishing MTIA procedures in their communities. This work is one element of a SGC grant to SCAG. The SGC grant was awarded to address the core challenges of implementing SB 375 – the Sustainable Communities and Climate Protection Act of 2008. SB 375 is intended to help California meet its AB 32 goals by promoting transportation and land use planning to reduce GHG emissions from passenger vehicle travel.

5.2 DEVELOPER CHECKLIST AND MODEL ORDINANCE OVERVIEW

A city or county that wishes to allow MTIA will ultimately need to adopt regulations that set forth the requirements for projects that will qualify for MTIA and the procedures and standards for conducting an MTIA. Once such regulations are in place, a city or county will typically provide those who are involved in this process (i.e., project applicants, consultants, city or county staff, and interested community members) with the following:

- A checklist (which also could be designed as a preliminary application form) that can be used to obtain information from a project applicant regarding the project's location, community context, and project characteristics. This information can be used to determine whether the project would qualify for use of an MTIA rather than a conventional traffic impact analysis, and to help determine the some of the specific parameters that will be used in reviewing the project.
- An ordinance that sets forth the procedures and standards for the preparation of an MTIA, and for review of the document by the city or county.

Detailed outlines for such a checklist and ordinance are provided later in this section to assist a city or county that wishes to implement MTIA for projects within its jurisdiction. These outlines will benefit city or county planning staff members who are typically charged with preparing such a checklist and ordinance, and for city or county legal staff who are responsible for reviewing these documents prior to their adoption. Outlines, rather than complete model documents, are provided in recognition that every city and county prepares its developer checklists and ordinances differently. Further, each jurisdiction also will need to conduct research and analysis, and obtain public input, prior to finalizing them.

5.3 TRANSPORTATION IMPACT ANALYSIS GUIDELINES REVIEW

This section includes a brief summary of the transportation impact analysis guidelines used by the Cities of Los Angeles, Pasadena, and San Jose to provide context about alternative MTIA approaches that California cities currently are using. The approaches used by these jurisdictions helped to inform the model developer checklist and model ordinance. The following categories of key planning factors arose during the review:

- **Project context**. Do the guidelines provide alternative traffic analysis methods for projects located in high-quality transit areas or other predefined planning areas?

- **Transportation modes and performance standards**. Do the guidelines include performance standards for automobiles? Do they provide standards for nonauto modes?
- **Transportation impact analysis methodology**. What is the City's approach to MTIA? Does the City require a quantitative assessment of a project's nonauto impacts?
- **Mitigation measures**. Do the guidelines specify mitigation measures that may qualify projects for trip reduction credits? If so, what are the requirements to qualify for trip reduction credits and what is the process?

City of Los Angeles

LADOT's *Traffic Study Policies and Procedures* (2013) sets forth the City's traffic study requirements.

Project Context

LADOT's *Traffic Study Policies and Procedures* applies to projects throughout the City of Los Angeles. The City's guidelines are designed to ensure that traffic studies are prepared consistently. Traffic studies are required to use ITE vehicle trip generation rates from the most recent handbook, unless LADOT approves an alternative. LADOT provides "transit credits" for projects that are located in proximity to dedicated transit line stations.

These guidelines may differ in areas with specific plans or other ordinances. Specific plan ordinances may allow the use of alternative trip rates, alternative methods to determine trip reduction credits, or mitigation measures that are tied to areawide programs.

Transportation Modes and Performance Standards

The Los Angeles guidelines set forth roadway LOS standards for intersections, and CEQA significance thresholds are tied to these intersection LOS standards. The guidelines do not include standards for transit, pedestrian, or bicycle system performance.

Traffic Impact Analysis Methodology

The LADOT guidelines lay out a conventional approach to TIA, which may require travel demand simulation modeling if the project is expected to generate a significant number of regional trips.

Mitigation Measures

The LADOT procedures outline traffic mitigation measures that may be included in the traffic study to qualify the project for trip reduction credits. The guidelines set forth an approach to mitigation that focus on minimizing single-occupancy vehicle trips by encouraging nonauto modes, including public transit, bicycling, and walking.

LADOT's guidelines include the following mitigation categories:

- TDM;
- Transit capacity and access improvements;
- Parking management measures;
- Jobs/housing balance measures;
- Traffic signal operational improvements;
- Street widening and other physical improvements; and
- Street restriping and parking prohibitions.

In Transportation-Specific Plan areas, developers may be required to pay "trip fees" into a mitigation trust fund for regional transportation projects that are specified in the plan.

City of Pasadena

The City of Pasadena Department of Transportation recently updated its guidelines for transportation impact review. *Transportation Impact Review: Current Practice and Guidelines* describes the City's automobile and multimodal transportation review requirements. In addition, the document recommends multimodal transportation elements to consider during the review process.

Project Context

The guidelines are applicable to projects citywide, there are provisions for "trip credits" for certain land uses located on major corridors and/or within the City's Transit-Oriented District.

Transportation Modes and Performance Standards

Pasadena's guidelines include thresholds to determine the type of transportation review required. The thresholds are based on the number of dwelling units for residential projects and the number of new auto trips for commercial projects.

Applicants required to prepare a Transportation Impact Study also must conduct a street segment impact analysis using significance thresholds that are tied to project-related increased daily trips. In addition, the analysis must assess project impacts on pedestrians, bicyclists, and transit operations, using methodologies such as Pedestrian Environmental Quality Index, Bicycle Environmental Quality Index, and/or 2010 HCM MMLOS.

Traffic Impact Analysis Methodology

Pasadena's guidelines set forth detailed procedures to prepare a Transportation Impact Study, including a multimodal analysis of street

segments and intersections. Specifically, Pasadena requires a transit use analysis and an analysis of auto and bicycle parking.

Mitigation Measures

Pasadena's guidelines include specific provisions regarding the following mitigation measures:

- Improve environmental quality for pedestrians and bicyclists when Transportation Impact Study findings reveal below average physical conditions;
- Mitigate project-related increases in vehicle traffic when LOS at any study intersection or on any street segment exceeds the thresholds;
- Submit an approved report substantiating the relationship between mitigation measures and trip reduction; and
- Provide a preliminary-cost estimate, illustrate all proposed roadway mitigation measures to show the new intersection configuration, including lane widths, assignments, street widening projects, and trip reduction attributed to required TDM strategies.

In addition, Pasadena's guidelines include an extensive list of suggested mitigation measures to consider, including transit enhancements, TDM measures (such as provision of transit passes instead of free parking); and parking management.

City of San Jose

The City of San Jose's *Traffic Impact Analysis Handbook* (2009) sets forth the City's traffic impact analysis methodologies and requirements.

Project Context

San Jose's guidelines are applicable to projects throughout the City with the following exceptions:

- Projects located in the Downtown Core Area, which is defined by the City's General Plan, are not required to prepare a traffic impact analysis;
- Projects located in areas subject to an Area Development Policy, which is adopted pursuant to the City's General Plan, must comply with the area's guidelines for implementing LOS Policy; and
- Specific intersections within Special Strategy Areas are not required to meet citywide roadway LOS standards. Special Strategy Areas identified in the General Plan include Transit-Oriented Development Corridors, Transit Station Areas, Planned Communities, and Neighborhood Business Districts.

In addition, projects located near transit stations or major bus lines and mixed-use projects may qualify for trip reductions.

Transportation Modes and Performance Standards

San Jose's guidelines include direct references to the multimodal transportation policies contained in the City's General Plan. These policies address pedestrians, bicycles, neighborhood streets, transit facilities, and regional freeways. In addition, they require that new developments not degrade signalized intersection performance fall below the City's minimum LOS standard (LOS D), unless governed by an Area Development Policy or "protected intersection" designation. (Note: "Protected intersections" are intersections where the City has determined that additional physical improvements to the intersection configuration are not allowed).

CEQA significance thresholds are tied to LOS standards for signalized intersections. General Plan policies or guidelines do not contain specific performance standards for nonauto modes; however, the guidelines indicate that a proposed development is required to construct traffic improvements necessary to meet the LOS standard "unless these improvements would have an unacceptable impact on other transportation facilities (such as pedestrian, bicycle, and transit systems and facilities)."

Traffic Impact Analysis Methodology

San Jose's guidelines for conducting a Traffic Impact Analysis are similar to those described previously for the City of Los Angeles. However, San Jose's guidelines specifically call out requirements for cumulative impact analysis for General Plan Amendments, using the City's traffic forecasting model. In addition, San Jose requires "cumulative intersection analysis" and "cumulative freeway analysis" for certain projects, using a methodology established by the City.

Mitigation Measures

San Jose's guidelines state that "physical improvements" are required to mitigate all project impacts unless an intersection is designated as a "protected intersection." Physical improvements include street widening, lane additions, changes in allowed movements, traffic signal modifications or installations, and/or modification of the development project.

5.4 REVIEW OF OTHER RELEVANT STUDIES

In addition to the review of traffic analysis guidelines, we reviewed relevant studies and programs administered by regional and local planning agencies, including:

- San Diego Association of Governments (SANDAG) has conducted studies that may be useful to jurisdictions interested in developing MTIA procedures. SANDAG's *Regional Multimodal Transportation Analysis* reviews and recommends MTIA approaches. SANDAG's *Smart Growth Trip Generation Study* validates a mixed-use vehicle trip generation

method that can be used to calculate the amount of trip reduction attributable to smart growth sites in San Diego and nationwide.

- Sacramento Area Council of Governments' (SACOG) *SB 375 CEQA Streamlining* pilot program is the first attempt by a MPO in California to develop transportation analysis guidelines that incorporate CEQA's streamlined environmental review provisions.
- The City and County of San Francisco is an example of a local jurisdiction that is developing an areawide fee program that serves as a mechanism to fund citywide mitigation projects.

San Diego Association of Governments

Regional Multimodal Transportation Analysis

SANDAG's *Regional Multimodal Transportation Analysis* (2011) was prepared to provide options to local and regional planning agencies in the San Diego region for conducting MTIA. SANDAG's study addresses the need to evaluate the impact of new development on regional transportation facilities and services (e.g., highways, regional public transit services, etc.) and local transportation facilities and services. The report assessed three alternative approaches to multimodal transportation analysis that would consider impacts on regional facilities and services, each representing a different level of geographic analysis: a Regionwide Program, a Subregional Program, and a Lead Agency Program.

Based on the evaluation's results, a fourth alternative was recommended – Local Agency Program – that combined the most effective characteristics of the Subregional and Lead Agency Program alternatives. Under this approach, regional planning agencies such as SANDAG and California Department of Transportation (Caltrans) would follow a standardized multimodal transportation analysis methodology when conducting corridor studies and other subregional transportation studies. Regional planning agencies would conduct these studies in a manner that would allow local governments to require mitigation measures for both regional and local transportation facilities and services impacted by new development

Smart Growth Trip Generation Study

SANDAG's *Smart Growth Trip Generation Study* was conducted to evaluate the number of vehicle trips traveling to and from mixed-use and transit-oriented developments compared to typical suburban developments. The study found that conventional vehicle trip generation methods will typically overestimate smart growth developments' trip generation if the analysis does not include appropriate trip reductions. The study also validated the mixed-use trip generation method to calculate the amount of trip reduction that can be attributed to smart growth at sites within San Diego and nationwide.

Sacramento Area Council of Governments

SB 375 CEQA Streamlining Pilot Project

In June 2011, the SACOG Strategic Planning Committee selected three case study areas where SACOG would use HUD Sustainable Communities Regional Planning Grant funding to implement the agency's Metropolitan Transportation Plan (MTP)/SCS. The case studies were selected to test SB 375's CEQA reform provisions for streamlined environmental review through an expedited Sustainable Communities Environmental Assessment for Transit Priority Projects (TPP) that are consistent with the SCS. These case studies currently are underway, and a staff member from SACOG participated in the September 10 Workshop to report on the status of these projects.

MTP/SCS Project Consistency Checklist

Following the adoption of its MTP/SCS, SACOG developed a checklist to identify proposed projects that meet the following criteria and may qualify for streamlined environmental review:

1. The proposed project qualifies as a TPP based on the land use characteristics and project location;
2. The proposed project qualifies as a residential or mixed-use residential project; and
3. The TPP or residential/mixed-use residential project is consistent with the general land use designation, density, intensity and applicable policies of the MTP/SCS for 2035 adopted by SACOG.

The "consistency checklist" determinations are used to determine if a particular project qualifies for "CEQA streamlining" under SB 375's provisions.

City and County of San Francisco

San Francisco developed its Transportation Sustainability Program (TSP) to evaluate the cumulative effects of new development on the transportation system with consideration of all modes. The TSP includes a TSF to serve as a means to fund mitigation measures to mitigate development projects' impacts on San Francisco's transportation system. The fee includes a policy credits program, under which the following types of projects are eligible for fee waivers or reductions: small businesses, reduced parking developments, affordable housing projects, and small residential projects. The TSP's environmental review is underway.

5.5 MULTIMODAL TRANSPORTATION PLANNING

As reflected in the review of existing MTIA approaches, transportation planning studies are conducted at various geographic scales ranging from regional-scale planning by MPOs to project-scale planning and development review conducted by local jurisdictions. For purposes of this discussion, multimodal transportation planning is typically conducted at the following four distinct geographic scales, which are described in more detail in Table 5.1:

1. **Regional**. MPOs prepare their RTPs at the regional level.
2. **Subregional**. Planning studies are prepared for a variety of subregional geographic units, including counties, corridors, and cities. For example, in the SCAG region, the Regional Transportation Planning Agencies (RTPA) (e.g., Los Angeles County Metropolitan Transportation Authority and Orange County Transportation Authority) prepare a long-range transportation plan for their subregional jurisdictions (Los Angeles County and Orange County respectively). Another example is a corridor planning study such as those prepared by MPOs, RTPAs, or Caltrans for study areas adjoining major highways, rail corridors, or public transit corridors. Also, cities and counties are required to prepare Circulation Elements for their General Plans that address multimodal transportation system performance within their jurisdictional planning areas.
3. **Focused planning area**. Transportation planning studies also are prepared for geographic areas that are typically smaller than a subregion, and that have certain distinct transportation and land use characteristics that warrant focused analysis. Such small geographic areas are often referred to as a "focused planning area" (FPA). Examples include specific planning areas, transit villages, or smart growth opportunity areas. Cities or counties often prepare transportation plans for these smaller areas in conjunction with land use plans.
4. **Project level**. Project-level transportation planning studies are required for individual development projects of a certain size or scale. These studies assess the impact that the additional vehicle trips generated by an individual project have on transportation system performance within a defined study area.

5.6 REGULATORY CONTEXT

In California, state planning and environmental laws govern transportation planning at each geographic scale and stage of analysis, and have a direct bearing on the types of transportation impact analysis conducted by regional and local governments.

Table 5.1 Multimodal Transportation Impact Analysis Characteristics at Different Scales

Planning Factors	Regional	Subregional	Focused Planning Area (FPA)	Project Level
Planning Area	Entire region	Defined subregion, such as: • RTPA jurisdictional planning area • City or county jurisdictional planning area • Subregional corridor study area	Small geographic area that is typically served by regional transit (e.g., Specific Plan Area, Transit Village, Smart Growth Opportunity Area, etc.)	Individual development project and adjoining study area
Time Horizon	20 year	20 year	10 to 20 years	10 to 20 years
Growth Assumptions	All existing and future development in region through horizon year	All existing and future development in subregional study area through horizon year	Existing and future development within FPA boundary	Existing and future development within project study area (with and without project)
Transportation Modes Considered	Highways/roadways, regional transit	Highways/Roadways, Regional Transit	Highways/Roadways, Regional and Local Transit, Bicycles, Pedestrians	Highways/Roadways, Regional and Local Transit, Bicycles, Pedestrians
Performance Standards for Each Mode	Highway/roadway LOS, regional transit travel-time standards	Highway/Roadway LOS, regional transit travel-time standards	Modified Highway/Roadway LOS; regional transit travel-time standards; pedestrian and bicycle indices	Same as FPA-level standards
Traffic Impact Analysis (TIA) Methodology	Regionwide TIA (performed by MPO in conjunction with RTP/SCS update)	Subregional TIA (varies by jurisdiction)	FPA-Level TIA (varies by jurisdiction)	Project-level TIA (typically conforms to CEQA requirements)
Mitigation Programs	Regional Expenditure Plan (infrastructure, operations, TDM, Transportation System Management (TSM), active transportation, etc.)	Subregional mitigation program (varies by jurisdiction)	FPA-Level mitigation program (varies by jurisdiction)	Individual Project mitigation program (typically designed to conform to CEQA requirements)
Funding	Federal, state, regional sources	Subregional Impact Fee Program (varies by jurisdiction)	FPA-Level Impact Fee Program, Public Financing	Developer exactions and contributions

State Planning Laws

The California Government Code sets forth specific requirements for preparing transportation plans at each planning level. State laws regarding the regional planning conducted by MPOs and RTPAs are interwoven with Federal laws that govern the preparation and adoption of long-range regional and subregional transportation plans. In addition, the California Government Code contains state planning laws that include requirements for local government general plans and specific plans.

In 2008, California enacted SB 375, which set forth changes in regional transportation planning requirements. SB 375 requires that MPOs prepare an SCS that addresses the relationship between future land use patterns and future transportation system performance. In addition, it requires that regional plans consider the GHG emissions associated with implementing the RTP/SCS. SB 375 requirements have had an indirect influence on local planning by calling for the designation of HQTAs, which SCAG's RTP/SCS defines as a generally walkable transit village or corridors with a minimum density of 20 dwelling units per acre and located within a one-half mile of a transit stop with 15-minute or less service frequency during peak commute hours. Local governments are encouraged to develop compatible local plans for these areas.

California Environmental Quality Act (CEQA)

CEQA, which is set forth in the California Public Resources Code, lays out specific legal requirements for environmental planning studies and development projects, including transportation impact analysis. As noted above, SB 375 changed the way RTPs are prepared and called for the designation of HQTAs in which local development projects may qualify for "CEQA streamlining" benefits.

Senate Bill 743

Late in the 2013 State Legislative Session, SB 743 was approved by the Legislature and signed by the Governor. SB 743 includes statutory language that may influence how local governments approach MTIA in infill areas. The most relevant provisions of SB 743 are as follows:

- The law directs OPR to prepare guidelines for "transit priority areas," defined as areas within one-half mile of an existing or planned transit stop. These revised guidelines will specify significance criteria and thresholds for determining transportation impacts of projects within transit priority areas. The law states that once the CEQA Guidelines establish these new criteria, automobile delay "shall not support a finding of significance" pursuant to CEQA.
- The law revives "infill opportunity zones," revises the definition of these zones, allows designation of new zones that meet the "transit priority area" definition, and allows local governments to opt out of Congestion Management Plan automobile LOS standards in these zones.

- Provides that aesthetic and parking impacts of residential, mixed-use residential, and employment center projects on infill sites within transit priority areas "shall not be considered significant impacts on the environment." However, the bill permits local agencies to continue to set their own thresholds.

SB 743 also creates a new CEQA exemption for residential, mixed-use and employment center projects that meet the following four criteria:

1. Located within transit priority areas;
2. Are undertaken to implement, and are consistent with, a specific plan for which an Environmental Impact Report was certified;
3. Are consistent with basic elements of an SB 375 SCS or Alternative Planning Strategy; and
4. Do not trigger subsequent CEQA review under the standards of CEQA Section 21166.

SCAG and its partners might further evaluate this exemption provision to determine how it applies to previously adopted specific plans that meet the exemption criteria and to specific plans that are prepared and adopted in the future.

Assembly Bill 417

During the 2013 Legislative Session, the Legislature passed and the Governor signed AB 417 (Frazier 2013). According to the Legislative Counsel's Digest for this bill:

This bill, until January 1, 2018, would exempt from CEQA a bicycle transportation plan for an urbanized area, as specified, and also would require a local agency that determines that the bicycle transportation plan is exempt under this provision and approves or determines to carry out that project, to file notice of the determination with the OPR and the county clerk.[15]

This new law will allow local jurisdictions to adopt certain types of bicycle transportation plans, which could facilitate project-level and specific plan-level mitigation measures, without requiring a separate CEQA review.

5.7 PLANNING FACTORS

Our analysis in the previous sections suggests that for a city or county to develop an effective approach to multimodal traffic impact analysis, the following are important considerations:

[15] California AB 417, Frazier, Environmental Quality: California Environmental Quality Act, available at http://legiscan.com/CA/text/AB417/2013.

- The *scale* at which such analysis is likely to be conducted;
- The *plans and laws* which the analysis needs to address; and
- The *planning factors* that the analysis needs to consider.

Scale

Our previous discussion suggests that the scale at which MTIA will occur most frequently is at the project level; However, local jurisdictions whose general plans are promoting multimodal transportation solutions will often identify specific geographic areas (e.g., a "downtown" area, "transit village," etc.) in which specific plans or other "focused area" plans should be prepared. Therefore, a city or county's MTIA procedures will need to consider both the project-level and FPA scales.

Context

Our previous discussion also suggests that an understanding of the legal context is critical to developing an effective approach to project-level and FPA MTIA for a city or county. The primary laws that are in play include state laws governing the adoption of local general plans and zoning, and local development review, along with CEQA. However, recent laws such as SB 375 and SB 743, while focused on regional-scale planning, also have incorporated provisions that have a direct bearing on local planning, development review and environmental review. Therefore, it is important to have a good understanding of the requirements of these laws and their interrelationships with regional and local planning.

Planning Factors

Our evaluation of the MTIA approaches that currently are in use in Los Angeles, Pasadena, and San Jose (Section 5.2) suggests that several distinct planning factors should be addressed when developing a workable MTIA approach for a local jurisdiction. This section outlines these factors and discusses how they.

Planning Area Boundaries

At each scale of transportation planning, the clear delineation of planning area boundaries is an important consideration. For regional plans and for subregional plans such as city or county general plan circulation elements, the planning area boundaries are usually coterminous with the jurisdictional boundaries of the subregional planning agency that is responsible for preparing the plan. However, in some cases the planning area for a city general plan also may include adjoining areas that are within the jurisdiction of the county, but are including within the City's sphere of influence or are otherwise important to consider in preparing the plan.

For FPA transportation planning studies, such as those prepared for specific plans, the setting of planning area boundaries requires a careful qualitative analysis. Unless the boundaries are specifically designated in a subregional plan (e.g., the boundaries for the City of San Jose's Downtown Area and other specific planning areas are designated in its General Plan), the boundaries for an FPA planning study require consideration of the transportation system and land use characteristics of the study area. For example, if the FPA study is intended to focus on a "priority development area" that is broadly defined as being within the service area of a regional transit station, the study area boundaries should include consideration of the transportation system characteristics of the surrounding area and the existing and future land use patterns of the area.

For project-level planning studies, most public agencies rely on criteria for setting study area boundaries that are based on State Planning Law and CEQA requirements.

Planning Horizon Years

For most regional and subregional planning studies, a planning horizon year that is at least 20 years from the baseline date of the study is used. For such planning studies, scenarios are typically constructed to evaluate "existing or baseline conditions," horizon year conditions, and one or more intermediate-year conditions. For example, an RTP could include an existing conditions analysis for the year 2013; a horizon-year analysis for the year 2035; and an intermediate-year analysis for the year 2025.

For FPA and project-level planning studies, the same horizon years may be used as those which have been used in relevant regional and subregional planning studies (e.g., RTP, general plan circulation element). However, some agencies allow such studies to focus analysis on nearer-term planning horizons (say 10 to 15 years,) and may exclude longer-term transportation planning analysis.

Project Definition and Cumulative Growth Assumptions

At each scale of transportation planning, a clear delineation of what constitutes the "project" also is important.

For most planning studies at the *subregional* level, the definition of "project" under CEQA will typically consist of all transportation projects that are planned to be built within the jurisdictional planning area during the time horizon of the study, and growth assumptions are based on regional growth forecasts for the same geographic area and for the same-time horizon.

For FPA studies, the definition of "project" would include all transportation projects and services that are planned for the selected study area at the planning horizon year, and cumulative growth for the study area at the horizon year.

For project-level analysis, the project is typically defined as an individual development project, based on information supplied by the project applicant (a

private developer or public agency applicant) in accordance with definitions provided by the lead agency in accordance with CEQA and other relevant state and local laws. For project-level transportation impact analysis under CEQA, the applicant also may be required to provide information regarding reasonably foreseeable projects within a prescribed area adjoining the project.

Use of Reduced Trip Generation Factors

Another important MTIA consideration is the use of modified "trip generation factors" (factors that are used to calculate the amount of traffic that will be generated by various land use types) that are applicable to the specific types of development (e.g., mixed-use development, etc.) and the urban planning context in which the development is being planned (e.g., "transit-oriented districts," "priority development areas," "smart growth opportunity areas," or other small geographic areas in which high-quality transit service is being provided or planned). There are specific methods that are described in published studies (e.g., see SANDAG report entitled *Trip Generation for Smart Growth*) that should be referenced in determining an appropriate method for adjusting trip generation rates.

Transportation Modes

At each scale of transportation planning, it is important to delineate the specific transportation modes that will be analyzed quantitatively.

For most *regional* and *subregional* planning studies, the quantitative transportation planning analysis typically focuses on:

- Highways;
- Regionally significant roadways, such as arterials;
- Rail service; and
- Regional transit services.

Under SB 375, the quantitative transportation planning analysis that is used to predict GHG emissions in RTP/SCSs is limited more specifically to passenger vehicle travel, and is typically limited to the modes listed above.

For FPA studies, at a minimum, the same transportation modes should be analyzed. However, for FPAs reliant on an integrated local multimodal transportation system, the transportation planning analysis also may need to include quantitative analysis of local roadways, local transit services, bicycle access, pedestrian access, and intermodal connections. During the September 10 workshop, it was mentioned that in some small areas, personal electric vehicles may be identified as an alternative mode that should be included in a multimodal traffic impact analysis.

For project-level planning studies, the lead agency typically defines the modes that should be evaluated. These studies typically include the same modes that have been addressed in the relevant subregional and FPA studies.

Performance Standards for Each Mode

For each mode that is analyzed quantitatively in a transportation planning study, it is necessary to select a performance standard to evaluate the quality of service provided for that mode under existing conditions, and to predict performance quality under different future planning scenarios. In addition, as discussed at the workshop on September 10, performance measures can be used to evaluate not only "user experience" outcomes but also "sustainability" outcomes; a local government may decide to include performance measures that address transportation impacts from both perspectives.

For analysis of highway and roadway system performance from a "user experience" perspective, there are a variety of LOS standards that can be considered. LOS standards are typically based on "grading" of the quality of roadway performance, either within defined roadway segments or at roadway intersections, with an "A" grade representing free-flow conditions and an "F" representing unacceptable flow conditions that lead to significant travel delays and also may have adverse impacts on vehicle-related air pollution and GHG emissions. Once an LOS methodology is determined, a service-level standard or "target" is normally selected; many transportation planning studies call for a target LOS of C or D on designated roadways and/or at key intersections.

For analysis of transit system performance, the selection of a performance standard also is important. There is less consistency in the ways that planning agencies evaluate the quality of transit system performance compared to roadway system performance. One approach to performance measurement which has been applied at a regional scale involves the evaluation of regional transit service in terms of comparative travel times. For example, the planning agency may select key regional transportation corridors in which high-quality regional transportation service is being provided or is proposed. The agency then designates critical segments of this corridor that carry a large number of travelers to and from home, work, and other important destinations. For each of these segments, the average travel time for regional transit service can be measured under current conditions and also can be predicted for future planning scenarios. However, this standard does not capture frequency of service.

Another performance standard for transit developed in academic research is standard that measures bus crowding. This is a graded standard with an "A" grade referring to a bus in which any rider can have a seat without anyone next to them, and an "F" grade determined by standing room only.

Currently there are few performance standards in place for pedestrian and bicycle infrastructure. The League of American Bicyclists does have a program for rating municipalities on their overall support and encouragement of cycling. At the jurisdiction and FPA levels, performance standard candidates relate to the infrastructure quality and network completion.

Traffic Analysis Methodology Components

While it is not within the scope of this report to recommend detailed technical specifications for TIA methodology to be use at the various planning levels, our review of existing methodologies and reports suggests that the following components should be considered in developing guidelines for FPA and project-level MTIAs:

- Clear delineation of planning area boundaries, horizon years and cumulative growth assumptions;
- Specific determinations regarding the transportation modes to be considered, along with specific performance standards for each mode;
- Updated "significance thresholds" (i.e., project-related increases in projected traffic that are considered "significant impacts" under CEQA) that take into account the relationship of project-specific impacts to overall performance targets for an FPA;
- Appropriate assumptions regarding TDM programs and TSM programs that will be implemented at the FPA level, and that could have a beneficial effect on travel demand and/or capacity within the study area.

Mitigation Programs

In order to align the requirements that are applied to individual development projects within an FPA with the areawide programs and mitigation strategies that have been identified for the FPA, many FPA studies include recommended mitigation programs that provide a menu of options to developers. Counties and cities have developed a variety of approaches to require or encourage developers to implement certain measures, including density bonuses and community benefit agreements.

Funding Options

In conjunction with the preparation of an FPA transportation impact analysis, a city or county may decide to develop one or more funding mechanisms that will determine the appropriate fair share of transportation system infrastructure improvements and/or operational improvements for which any single development project is responsible. (For a detailed discussion on alternative ways in which agencies can determine "fair share" allocation of multimodal transportation improvement costs, see SANDAG's report on "Regional Multimodal Transportation Impact Analysis.")

5.8 ANALYSIS AND RECOMMENDATIONS

Section 5.0 has overviewed factors to consider in developing an effective MTIA methodology. In analyzing the various approaches used by public agencies in California, we have described four distinct scales at which such planning

analysis currently is being conducted, and have identified several characteristics that are commonly addressed at each scale, and the context in which transportation impact analysis is conducted at each scale.

Based on the analysis described above, this report recommends that local jurisdictions that are interested in establishing an efficient process for evaluating development projects in HQTAs (or other small geographic areas that have characteristics conducive to use of public transit and other alternative transportation modes) consider adopting guidelines that would allow for a two-tiered process.

Two-Tier MTIA Process

The first tier in this process would be preparation of an FPA MTIA, such as a neighborhood or village, that is located in an HQTA. The study area boundaries may already be delineated in a local general plan (e.g., through designation of specific planning area boundaries). The boundaries also could be determined through an evaluation of local and regional transportation and land use plans and policies to identify an area which has the following characteristics:

- Existing and future transportation system characteristics that would be conducive to multimodal transportation services;
- Existing and/or future land use and urban design characteristics that would be supportive of multimodal transportation system use; and
- Adequate future cumulative development potential to consider areawide improvements and mitigation programs that could be implemented over time.

Once an FPA MTIA is completed, then individual development projects located within the boundary of the MTIA could be evaluated individually at such time as those projects are taken forward for approval. However, since the FPA MTIA will already have considered future development potential of the subject project along with the cumulative development potential of other project sites within the same planning area, and will already have identified areawide improvements and mitigation programs in which each individual project can participate, then the project-level MTIA should be much simpler than if each individual project were required to prepare its own project-level MTIA and consider the cumulative impacts of other projects within the same geographic area.

A process chart for conducting an FPA MTIA is shown in Table 5.2, and a process chart for a project-level MTIA is shown in Table 5.3. In cases where an individual development project proposal is being submitted and an FPA MTIA that covers the project site has not been prepared, it would be possible for both MTIAs to be prepared more or less concurrently.

Table 5.2 Focused Planning Area MTIA Process Chart

Task	Ordinance Sections
Determine whether Multimodal Transportation Impact Analysis is appropriate for a given study area	Section 2 – General Applicability
Initiate planning process for Focused Planning Area MTIA	Section 3 a – Processing Requirements
Define study area boundaries for planning analysis	Section 3 b – Planning Area Boundaries
Determine Planning Horizon Years	Section 3 c – Planning Horizon Years
Determine Cumulative Growth Assumptions: a. Existing conditions (baseline) b. Future build-out to planning horizon years	Section 3 d – Cumulative Growth Assumptions
Determine applicable trip generation factors: a. Factors to be applied to existing development (baseline) b. Factors to be applied to new development	Section 3 e – Use of Reduced Trip Generation Factors
Identify applicable transportation modes and performance standards for each mode: a. Identify existing and planned transportation modes within study area b. For each mode, identify appropriate performance measures, along with any applicable standards or targets	Section 3 f – Transportation Modes and Performance Measures
Conduct multimodal transportation impact analysis: a. Evaluate results for each mode individually in relation to adopted standards or targets b. Compare results by mode; determine whether mitigations are necessary in order to optimize performance across modes c. Identify possible "significance thresholds" for individual projects within study area that would require further project-level analysis	Section 3 g – Traffic Analysis Methodology Components
Develop proposed mitigation program for Focused Planning Area: a. Identify applicable categories of mitigation measures to be considered in order to mitigate identified impacts; b. Identify specific mitigation measures that should be incorporated into mitigation program c. Determine how mitigation requirements will be implemented (project-by-project review and/or contribution toward areawide mitigation fee program)	Section 3 h – Mitigation Measures
Prepare draft MTIA document	Section 3 i – Preparation of Draft Document
Conduct public review of draft MTIA document; determine final contents of MTIA	Section 3 j – Review of Draft and Adoption of Final Document
Produce and adopt final MTIA document	Section 3 j – Review of Draft and Adoption of Final Document

Table 5.3 Project-Level MTIA Process Chart

Task	Ordinance Sections
Determine whether individual project qualifies for MTIA: a. Proposed project is located within boundary of previously prepared Focused Planning Area MTIA b. Proposed project is consistent with any applicable land use requirements and design standards contained in Focused Planning Area MTIA or other applicable planning document (reference to "Developer Checklist" in Appendix F)	Section 4 a – Applicability and Relationship of Project-Level Analysis to Focused Planning Area Analysis and Mitigation Program
Initiate planning process for Project-level MTIA	Section 4 b – Processing Requirements
Define study area boundaries for planning analysis	Section 4 c – Planning Area Boundaries
Determine Planning Horizon Years	Section 4 d – Planning Horizon Years
Determine Cumulative Growth Assumptions: a. Existing conditions (baseline) b. Future build-out to planning horizon years	Section 4 e – Cumulative Growth Assumptions
Determine applicable trip generation factors: a. Factors to be applied to existing development (baseline) b. Factors to be applied to new development	Section 4 f – Use of Reduced Trip Generation Factors
Identify applicable transportation modes and performance standards for each mode: a. Identify existing and planned transportation modes within study area b. For each mode, identify appropriate performance measures, along with any applicable standards or targets	Section 4 g – Transportation Modes and Performance Measures
Conduct multimodal transportation impact analysis: a. Evaluate results for each mode individually in relation to adopted standards or targets b. Compare results by mode; determine whether mitigations are necessary in order to optimize performance across modes c. Identify possible "significance thresholds" for individual projects within study area that would require further project-level analysis	Section 4 h – Traffic Analysis Methodology Components
Develop proposed mitigation program for Focused Planning Area: a. Determine specific requirements for participation in areawide mitigation programs, including possible mitigation fee programs b. Identify project-specific mitigation measures that should be incorporated into mitigation program	Section 4 i – Mitigation Measures
Prepare draft MTIA document	Section 4 j – Preparation of Draft Document
Conduct public review of draft MTIA document; determine final contents of MTIA	Section 4 k – Review of Draft and Adoption of Final Document
Produce and adopt final MTIA document	Section 4 k – Review of Draft and Adoption of Final Document

Single-Tier Option

There may be circumstances in which a two-tier approach may not be warranted for a proposed development project. For example, a proposed project may be located in an HQTA, but there may not be any foreseeable development potential on other properties in the vicinity of this project that could lead to additional impacts on the transportation system. In this case, the city or county could allow the preparation of a project-level MTIA without a separate FPA MTIA. The requirements for such an MTIA would be similar to those for the project-level MTIA described above, with documentation of the circumstances that led to the determination that only a project-level MTIA was warranted.

Developer Checklist and Model Ordinance Outlines

As discussed previously, it is recommended that local jurisdictions establish a two-tier process for conducting MTIA, which would include both FPA analysis and a project level analysis that is linked directly to the FPA analysis, thereby allowing use of the cumulative impact analysis that is prepared for the FPA MTIA and allowing for use of areawide mitigation measures. The following developer checklist and model ordinance outlines are intended to assist local jurisdictions in preparing a standard checklist and an ordinance that would set forth MTIA procedures and standards. The checklist and ordinance could be modified to allow preparation of a single-tier MTIA where circumstances warrant it.

Appendix F contains an outline for a model developer checklist that could be used by a local planning agency to provide guidance to developers regarding the information that would need to be submitted to determine whether a project would qualify for a project-level MTIA.

Appendix G contains an annotated outline for a model ordinance that local planning agencies could use as an example to establish MTIA guidelines and procedures. The outline sets forth the major components of a two-tiered MTIA approach, which would include both FPA and project-level MTIAs. Tables 5.2 and 5.3 show the relationships between the individual steps involved in both types of MTIAs and the corresponding sections of the ordinance. The annotated outline also identifies some of the issues and factors that a local government would need to consider in preparing and implementing such an ordinance (for additional guidance on these issues and factors, see discussion in Section 5.6).

5.9 NEXT STEPS

The City of Pasadena will be developing and adopting specific MTIA performance standards in the coming months. Other local jurisdictions in the SCAG region, such as the Cities of Burbank, Long Beach, and Santa Ana, have recently adopted or are in the process of preparing updated General Plan mobility elements, and are considering MTIA options. SCAG should continue to

work with these local governments as they move forward in this area, to share "best practices" and provide technical assistance in certain areas. One specific approach that SCAG and these local governments may consider is to prepare case studies using MTIA methods, similar to the approach being undertaken by SACOG in the Sacramento region. Alternatively, SCAG may wish to perform validation studies of alternative trip generation and transportation impact analysis methodologies. In addition, the provisions of SB 743 should be carefully evaluated to determine how they will affect the options available to local governments in this area.

6.0 Conclusions

This study has explored potential modifications to the LADOT traffic analysis procedures to assess project effects on transit, pedestrian, and bicycle modes ("nonauto travel") and provides a short-term and long-term framework LADOT may use to continue exploring multimodal traffic analysis procedures that are most suitable for the City of Los Angeles.

Although, the project's TAC initially considered the HCM's MMLOS site-specific methodology to be the most promising alternative traffic analysis method, case study results demonstrated that the method's drawbacks may outweigh its potential benefits. The case study analysis confirmed the following results:

- An inconsistent relationship between nonauto mitigation strategies and MMLOS results; and
- A general lack of sensitivity in nonauto MMLOS results with small traffic volume changes.

The HCM MMLOS method is also viewed as computationally complex, data intensive, and difficult to explain to decision-makers and the public. TAC members expressed concern that the methods would be difficult to justify since they would not consistently result in lower-cost mitigation options.

This report outlines an alternative framework to implement the following long-term approaches considered by the TAC to be the best alternatives to the HCM MMLOS methodology:

- **Areawide approach.** An areawide fee program would address nonautomobile transportation needs in a coordinated manner for new development within a defined area. It also would inform fair share contributions for individual development projects within the area.
- **Modified vehicle trip generation rates.** Trip generation rates can be fined tuned through new data collection to facilitate use of pedestrian, bicycle, and transit projects in lieu of roadway-based mitigations.
- **Modified automobile LOS significance thresholds.** Reducing automobile LOS thresholds in areas with existing, high-quality multimodal transportation facilities will support in-fill development in these "high-accessibility" areas.
- **Hybrid approach.** A hybrid approach to multimodal assessment and mitigation may take many forms. One option is a program that includes two elements: 1) an areawide fee program to calculate a developer's fair share, and 2) modifying trip generation rates for projects designed to facilitate multimodal travel (e.g., projects located in an HQTA or low-VMT area,

projects that comply with uniform design standards, or projects that include parking management strategies).

These options reflect findings, documented in this report, that a suitable analysis technique and associated criteria are not readily available to replace or augment the City's current automobile LOS approach. However, the options describe possible ways to modify current policies and analysis practices so that innovative projects incorporating robust multimodal elements are encouraged.

In the short or medium term, LADOT may take the following steps towards developing multimodal traffic analysis and mitigation procedures:

- **Engage MPO work groups.** This will give LADOT the opportunity to share its experiences and learn about approaches other communities are using.
- **Define Los Angeles' HQTA/low-VMT zones.** As described in previous sections, predefined HQTAs or low-VMT zones may be used to determine areas eligible for discounts under the areawide fee program or reduce significance thresholds. The City should actively participate with SCAG, other MPOs, and OPR as guidance is developed and adopted. The City also should be prepared to implement such guidance so that areas are designated and approved in a timely manner.
- **Establish uniform design standards.** Project design has the potential to affect travel and support Los Angeles' VMT goals to reduce VMT. Uniform design standards will play a key role in promoting convenient, comfortable, and safe nonautomobile travel. They may be integrated into the areawide fee program and the reduced significance thresholds approaches.
- **Explore the technical methods and conduct case studies.** Develop technically defensible procedures and conduct case studies to test the procedures on proposed development projects.

This study also may be used by other jurisdictions interested in developing MTIA. It presents a framework for developing model developer checklist and a model ordinance presented in this report were developed to serve as examples for other jurisdictions interested in developing MTIA procedures and mitigation programs.

A. Areawide Metrics and Approach to Nexus Study

Areawide metrics may be useful in assessing the multimodal impacts of new development proposals, transportation projects, or planning documents on the circulation system as a whole. These metrics could be used for the following (potentially overlapping) purposes:

1. Plan-level analysis;
2. Analysis of cumulative impacts under CEQA; and
3. Analysis of development impacts for the purpose of charging a fee to mitigate impacts, as defined through a nexus study.[16]

A.1 General Metrics for Plan-Level Analysis

Any number of metrics could be used to analyze the impacts of planning documents without tying these impacts to CEQA. The team suggests the City of Los Angeles adopt a small number of metrics that would be consistently used in planning documents. Caltrans' Smart Mobility Framework[17] is a good source for appropriate metrics for analyzing multimodal impacts at a planning level. A subset of key metrics follows. Prediction of most or all of these metrics requires a travel demand model. Any of them could be reported by income category to analyze social equity impacts.

- **Smart mobility.** Share of trips by foot, bicycle, or transit;
- **Accessibility.** Number of households within 30-minute transit ride of major employment center, within 20-minute auto ride of employment, within walking distance of schools;
- **Multimodal travel mobility.** Travel times and costs by mode between representative origins and destinations, aggregated over corridor or region;
- **Air quality and GHG.** VMT per capita by speed range relative to state and regional targets and associated air quality impacts;

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[16]Note that if a fee is charged to build mitigations, they must be built in five years or the fee returned (or agency certifies continuing need for the fee and continuing intention to build the mitigation), California Government Code 66000.

[17]See page 55 of Caltrans, 2010, *Smart Mobility: A Call to Action for the New Decade*, http://www.dot.ca.gov/hq/tpp/offices/ocp/smf_files/SMF_handbook_062210.pdf.

- **Safety.** Collision rate and severity by travel mode and facility, compared to statewide averages for each user group and facility type.

A.2 METRICS FOR ANALYZING DEVELOPMENT IMPACTS UNDER CEQA OR FOR A FEE PROGRAM

Selecting metrics to serve the second and third purposes is a more complex exercise, as the metrics must meet the following criteria:

- Worsen in response to development impact.
- Be able to be fully or partially mitigated with a set of desired mitigation measures. If full mitigation is desired, the metric must be chosen very carefully to ensure impacts can be fully mitigated with an implementable program of projects, as was done in the recent San Francisco Transportation Sustainability Fee (TSF) nexus studies. Preparation of a fully mitigating fee program is more technically difficult and is likely to be costly and time-consuming, but less prone to legal challenge. As an alternative, a set of projects that only partially mitigates development impacts could be used to justify a statement of overriding considerations for development impacts under CEQA, as was done in San Jose (discussed in the Task 1 report for this project).

To prepare the nexus study, the following would be required:

- A policy decision regarding whether full or partial mitigation of impacts under CEQA is desired.
- Identification of one or more metrics to represent development impact on the transportation system.
- An estimate of future expected development over a specific time horizon (e.g., 2015 to 2035) and the estimated impact of the development as measured by the metric of choice.
- A list of transportation projects that would partially or fully mitigate development impact. The list could include a variety of multimodal investments so long as sufficient justification could be provided that the projects would mitigate development impact.

A number of metrics could be tested during the nexus study. Possibilities discussed in the previous Task 1 memorandum provided for this project include automobile trips generated or VMT. Eligible mitigations would include those that can be shown to reduce automobile trips or trip lengths, such as new transit service, priced parking, congestion pricing, bicycle infrastructure, travel demand management programs, and others. Pedestrian facility investments would be more difficult to justify, as they are difficult to link to reductions in automobile trips. Additionally, it would be difficult to show full mitigation of automobile

trips/VMT by new development; however, partial mitigation could be used to support a statement of overriding considerations.

Another option would be to establish a set of facilities standards (e.g., the quantity of pedestrian, bicycle, or transit facilities per capita) and charge developers to maintain the standard as population and employment are added.[18] Facilities standards are frequently used to calculate development impact fees under the California Mitigation Fee Act. In the San Francisco experience, a facilities standard was not ultimately used due in part to low-revenue generation potential relative to a performance-based approach. It also is unclear whether facilities standards would adequately capture the environmental impacts of new development on the transportation system under CEQA.

A.3 POTENTIAL COORDINATION WITH COUNTYWIDE PROGRAM

The City may be able to coordinate a nexus fee program with the ongoing county of Los Angeles Congestion Mitigation Fee (CMF) nexus study. Under the CMF program, all jurisdictions in Los Angeles County have submitted a program of transportation projects that would partially mitigate development-related increases in vehicle hours of delay (VHD) on the designated CMP network. The CMP network is composed of roads of regional significance, as defined by local jurisdiction, which typically consist of major arterials and highways.

If the CMP fee program is adopted by the county board in September, local jurisdictions, including the City of Los Angeles, will be asked to implement the program by preparing their own nexus studies, which will be funded by Los Angeles Metro. One option for leveraging this effort is as follows:

- Adopt VHD as the metric for measuring areawide transportation impacts under CEQA. While VHD is not a multimodal measure, a wide variety of multimodal projects are being proposed and justified to mitigate VHD, including signal timing, transit, and bicycle projects. The benefits of pedestrian projects may be more difficult to quantify.
- Expand the City's definition of the CMP network to include a larger number of facilities so that all or most development impacts on the roadway network could be encompassed. Jurisdictions have flexibility to define which roads are on the CMP network, but roads clearly meant to serve local traffic (e.g., residential roads, cul-de-sacs, alleyways) should not be included.

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[18] For example, if there is currently one mile of bicycle lane per 100 capita, and new development adds 50 people, the standard falls to one mile per 150 capita. New development would be charged to add one-half mile of bicycle lane to bring the standard back to 1:100.

- Expand upon the program of projects submitted during the CMF pilot study to include additional projects on the expanded CMP network, as desired by the City.
- Use the nexus study results, which will show that the desired program of project partially mitigates VHD impacts, as justification for a statement of overriding considerations for development impacts under CEQA, so that developers would not have to reanalyze these areawide impacts by completing large-scale traffic studies.

Another option would be for the City to restrict the VHD metric to the CMP system as it is defined today (e.g., primarily arterials and highways), and then to introduce additional multimodal metrics (such as automobile trips generated, or pedestrian/bicycle/transit facilities per capita) to measure impacts off the CMP system. This would require development of a separate program of projects that would not overlap with projects submitted for the CMF fee program. Additionally, although the consultant team has not consulted with LA Metro on the topic, we feel LA Metro would require the City of Los Angeles to provide supplemental funding for any part of the nexus study not directly relevant to the CMP system.

B. Proposed Definition for High-Accessibility Zones

In general, high-accessibility areas are typically served by multiple modes of travel, have greater densities of residential and employment than surrounding areas, have direct access to high-capacity transit or transit stations, include a mix of office, residential, commercial, and civic uses, and are well connected from a multimodal perspective. Table B.1 identifies possible criteria for generating a customized definition of high-accessibility zones. Included are a mix of residential/employment density, transit orientation, land use mix, and multimodal infrastructure thresholds. These criterion and thresholds are compatible with, but more comprehensive than the definition of discounted fee zones listed in AB 3005. Individual or a mixture of criterion/thresholds can be refined and tested using geographic information systems analysis to determine the share of land area in the City of Los Angeles that would qualify for this definition.

For development projects located in these zones, a lower transportation mitigation fee could be assessed compared to similar projects located elsewhere. Development would be required to meet most or all of these criteria to qualify for the discount.

Table B.1 Criteria for Defining High-Accessibility Zones

Criterion	Description	Threshold
Transit Orientation	Distance from land uses to bus stops and fixed transit stations	• Single-Family Residential: a quarter mile to bus stop or 1 mile to fixed transit station • Multifamily Residential: a quarter mile to bus stop or a half mile to fixed transit station • Nonretail Employment: a quarter mile to bus stop or a half mile to fixed transit station
Employment Access	Jobs to Housing Ratio	• Jobs-to Housing Ratios in the 1.0 to 2.0 range
Residential Density	Number of dwelling units per acre	• Minimum 25 dwelling units per net acre within a quarter mile of transit station
Employment Density	Number of employees per acre	• Minimum 50 employees per net acre within a quarter mile of transit station • Minimum 25 employees per net acre within a half mile of transit station
Residential Mix	Minimum percentage of multifamily, apartment, and affordable housing	• 30 percent multifamily housing • 30 percent affordable housing
Connectivity	The ratio of street intersections divided by the sum of street intersections and dead ends	• Ratios of 0.75 or higher are desirable[a]
Bicycle Infrastructure	Minimum bicycle infrastructure	• At least one of the following conditions[b] – An existing bicycle network of at least 5 continuous miles in length within a quarter-mile bicycling distance; – An existing bicycle network within a quarter-mile bicycling distance of the study area and connects to a school or employment center within 3 miles' bicycling distance; or – An existing bicycle network within a quarter-mile bicycling distance that connects to at least 10 diverse uses within 3 miles' bicycling distance from the study site.

Sources:

[a] U.S. Environmental Protection Agency, Smart Growth Index (SGI) Model, www.epa.gov/smartgrowth/topics/sgipilot.htm, 2002.

[b] U.S. Green Building Council, LEED 2009 For Neighborhood Design, 2009.

Note: Numbers and percentages shown in this table are illustrative examples.

C. Proposed Boundary for Localized Project Impacts

The site-level analysis is intended to address the auto, pedestrian, bike, and transit impacts on those intersections, roadway segments, and site access driveways likely to be significantly impacted by large-scale development projects. Only projects generating a certain number of trips (e.g., greater than 43 peak-hour vehicle trips, as currently required in the traffic analysis guidelines) would need to consider analysis of additional localized project impacts beyond those covered by payment of the fee.

The local study area shall be based on engineering judgment and an understanding of existing and future land use and traffic conditions in the vicinity of the site. The following considerations shall form the basis of establishing the localized study area.

- Any site driveway on the public roadway network that provides direct or indirect access to the development site.
- Any public street segment fronting or located through a development site. The street segment focus area would extend beyond the project site frontage to the next major cross street at the collector level or higher.
- Any intersection of two streets, each with a classification of collector or higher, where net new site traffic will exceed one percent growth.

Within this boundary, multimodal impacts would be measured for each mode on each affected street or intersection. Where tradeoffs between modes arise (e.g., mitigation of impacts for the auto mode would trigger significant impacts for the pedestrian mode), the layered street network would be used to determine which mode should receive priority. Alternatively, the analysis could be conducted for the priority mode only by street. This would reduce the analysis requirements for developers but provide less information to policy-makers regarding tradeoffs among modes.

D. Proposed Approach to Multimodal Site-Level Assessment – Signalized Intersections and Street Segments

For development projects estimated to generate a large number of vehicle trips, a secondary site level analysis would be required. This site-level analysis would be multimodal in scope and focus on intersections and roadway segments within the immediate influence area of the development, as defined in Appendix C. This approach would involve the following two steps:

1. **Analyze automobile impacts.** Automobile impacts would be analyzed within the immediate influence area using the analysis procedures, requirements, and LOS performance thresholds currently outlined in the latest edition of the LADOT *Traffic Study Policies and Procedures*. The purpose of this step would be to identify site-specific impacts (site driveway operations, vehicle queuing impacts, site circulation, neighborhood circulation and traffic management impacts, etc.) not addressed via the areawide fee assessment.
2. **Perform initial pedestrian, bicycle, and transit impact assessment.** Following completion of the automobile impact analysis, a multimodal assessment process would be used to determine if the project, including any mitigations proposed to address impacts to automobiles, would significantly negatively impact pedestrian, bicycle, and transit modes of travel. Research developed for the HCM showed that the experience of these users may be negatively impacted by increases in traffic volumes (site-generated traffic through study intersections), changes to the intersection and roadway segment infrastructure (such as turn-lane or roadway widening mitigation), signal modifications (such as signal timing, phasing, or cycle length mitigations), and public access modifications (such as the addition or consolidation of site driveways to the public street network).

The first step in the process would be to generate a multimodal evaluation score using the questions in Table D.1. A negative score would indicate that the project will significantly impact the pedestrian, bicycle, and transit user experience. A neutral or positive score would indicate that the project is not significantly impacting the pedestrian, bicycle, and transit user experience. Note that the cutoff values in Table D.1 are placeholders subject to refinement during the testing process.

Table D.1 Multimodal Impacts
Initial Evaluation Table

Development Questions Based on Outcome of Vehicle-Based Traffic Operations Analysis	Multimodal Evaluation Scores		
	Increases	Stays the Same	Decreases
Will the project result in a change of peak hour of generator vehicle trips along adjacent street segments and/or at adjacent intersections as follows:[a]			
Peak-hour vehicle volumes ≤ 50?	-0.25	0	+0.25
50 < Peak-hour vehicle volumes ≤ 100?	-0.50	0	+0.50
100 < Peak-hour vehicle volumes ≤ 150?	-0.75	0	+0.75
150 < Peak-hour vehicle volumes ≤ 200?	-1	0	+1
Will the project result in a change in crossing distances for pedestrians and bicyclists across adjacent street segments and/or at adjacent intersections?	-1	0	+1
Will the project result in a change to the number and/or width of driveways along the adjacent street segments?	-1	0	+1
Will the project change traffic signal cycle lengths at adjacent signalized intersections?	-1	0	+1

[a] The peak-hour volume figures are intended to account for the large range in traffic volumes that could be generated by different sized development project. These volumes are for illustration purposes only and would need to be refined during testing to identify the appropriate volume striations.

In cases where a significant impact on pedestrians, bicyclists, and transit users is expected to occur, the developer would be required to mitigate impacts. The consultant team is still considering two options for mitigating impacts:

3. **Detailed MMLOS analysis.** The HCM currently has procedures in place that would_allow for a detailed pedestrian, bicycle, and transit LOS analysis at both the signalized intersection and roadway segment levels. Following the development and adoption of MMLOS thresholds for these modes, development projects would then be required to perform existing and future-year analyses to quantify any changes in multimodal LOS resulting from the project, and to determine which mitigations (as represented by variables in the HCM) would mitigate impacts. This would provide a structured, research-based methodology for determining how much mitigation is necessary to mitigate localized impacts. However, depending upon the size of the local study area, it also would require a fairly extensive MMLOS analysis.
4. **Simplified mitigation "menu."** A menu of predetermined mitigation options could be made available to address the multimodal impacts. The menu would be drawn from variables in the HCM that improve the LOS score. Point values would be assigned to different mitigations, and

developers would be required to select enough mitigations from the menu to achieve a desired point value. Table D.2 provides a sample menu of mitigation options drawn from HCM variables. This approach has the advantage of simplicity, but is less technically defensible. Different mitigation menus could be prepared specific to the transit, pedestrian, and bicycle modes.

Table D.2 Example Mitigation Menu

Mitigation Options	Mitigation Values[a]
Widen a deficient curb-side travel lane to existing standards.	0.5
Widen a deficient bike lane to existing standards	0.5
Install street trees	0.25
Widen the shoulder parking width	0.5
Install appropriate traffic calming measures	0.25
Install transit amenities at adjacent transit stops	0.25

[a] The mitigation point values are placeholders subject to refinement during the testing process. It may be preferable to develop different mitigation menus for pedestrians, bicyclists, and transit.

E. Mobility Performance Measurement – Summary of MMLOS Case Studies

E.1 BACKGROUND

As part of the project's initial analysis, the project team investigated several potential concepts/methodologies that could be used by the LADOT to better assess the areawide and local impacts of new development projects. One of these concepts centered on the use of multimodal metrics that could be applied at the site-specific level to assess the impacts of new development projects on the adjacent multimodal infrastructure. Through further investigation and consultation with the project's Technical Advisory Committee (TAC), it was determined that the MMLOS metrics outlined in the HCM were a preferable starting point due to the fact that the methodology already had been developed and is considered to be technically defensible. However, it also was noted that the HCM MMLOS procedures and scoring system might not have sufficient sensitivity to adequately assess the multimodal impacts of individual development projects.

To better understand the use of the HCM MMLOS methodology and its application on potential development projects, LADOT staff provided the following two Traffic Impact Assessments for development projects in the Los Angeles area:

- *Traffic Impact Study Report for Proposed Millennium Hollywood Development*, Hollywood, California, Crain & Associates, June 2012; and
- *Traffic Impact Study for IL Villaggio Toscano, Proposed Mixed-Use Project at Sepulveda Boulevard and Camarillo Street*, Community of Sherman Oaks, Crain & Associates, December 2008.

Using available data from the two traffic impact studies and infrastructure details and measurements derived from on-line mapping, an attempt was made to test the applicability of the HCM MMLOS methodology. The following sections outline our findings.

E.2 MILLENNIUM HOLLYWOOD CASE STUDY

The Millennium Hollywood case study involved the potential development of a large mixed-use development in the Hollywood area of the City of Los Angeles.

The project was proposed to include residential, office, retail, quality restaurant, sports/fitness club and luxury hotel uses on two sites located at the intersection of Vine Street and Yucca Street. Upon completion, the study estimated that the project would generate approximately 9,922 net daily trips, including 574 trips during the AM peak hour (321 inbound, 253 outbound) and 924 trips during the PM peak hour (486 inbound, 438 outbound).

Using traffic volume inputs available from the traffic study and inputs derived from judgment/analysis of on-line mapping images, a MMLOS analysis was run for the Vine Street corridor from Franklin Avenue to Fountain Avenue.[19] The following hypothetical scenarios were investigated to show how the MMLOS scores change under different traffic volume and improvement scenarios:

- Existing Conditions;
- Existing Conditions Plus Project;
- Existing Conditions Plus Project – Testing the impacts of adding two additional feet to the existing sidewalk width along both sides of the Vine Street corridor;
- Existing Conditions Plus Project – Testing the impacts of revising the existing sidewalk to contain a continuous barrier[20] between the curb and sidewalk travel way along both sides of the Vine Street corridor; and
- Existing Conditions Plus Project – Testing the impacts of adding a continuous six-foot bike lane along both sides of the Vine Street corridor.

Figures E.1 through E.3[21] summarize the pedestrian, bicycle and transit LOS findings for each scenario.

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[19] The MMLOS analysis was completed using the Complete Street LOS software, which is based on the 2010 HCM MMLOS procedures.

[20] A continuous barrier is defined as repetitive vertical objects (e.g., trees, bollards, etc.) that are at least three feet high and have an average spacing of 20 feet or less.

[21] Prepared by and courtesy of Cambridge Systematics, Inc.

Figure E.1 Pedestrian Level of Service for the Six Different Vine Street Segments

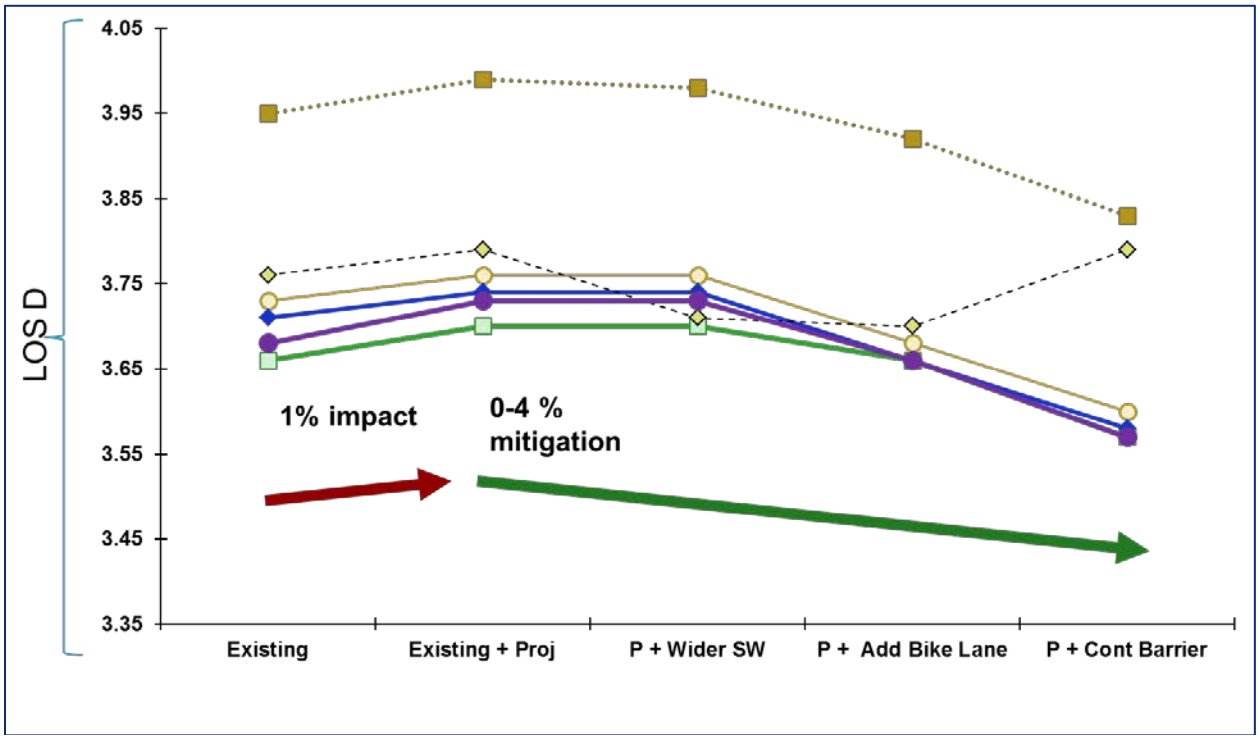


Figure E.2 Transit Level of Service for the Six Different Vine Street Segments

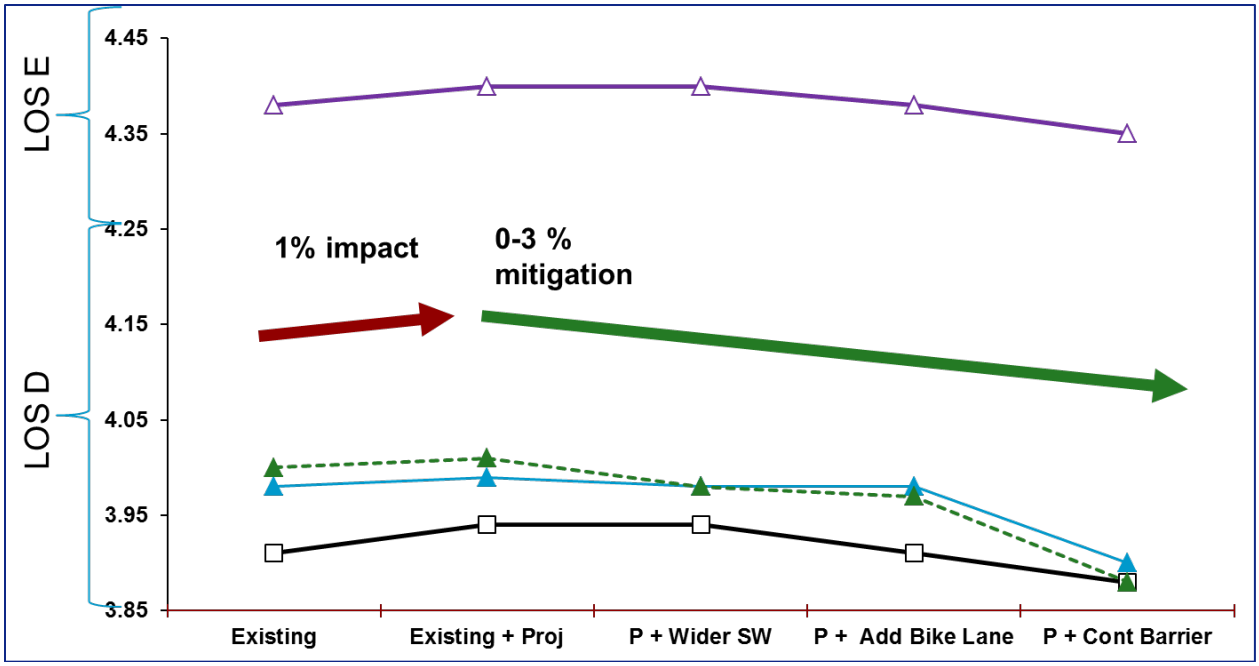
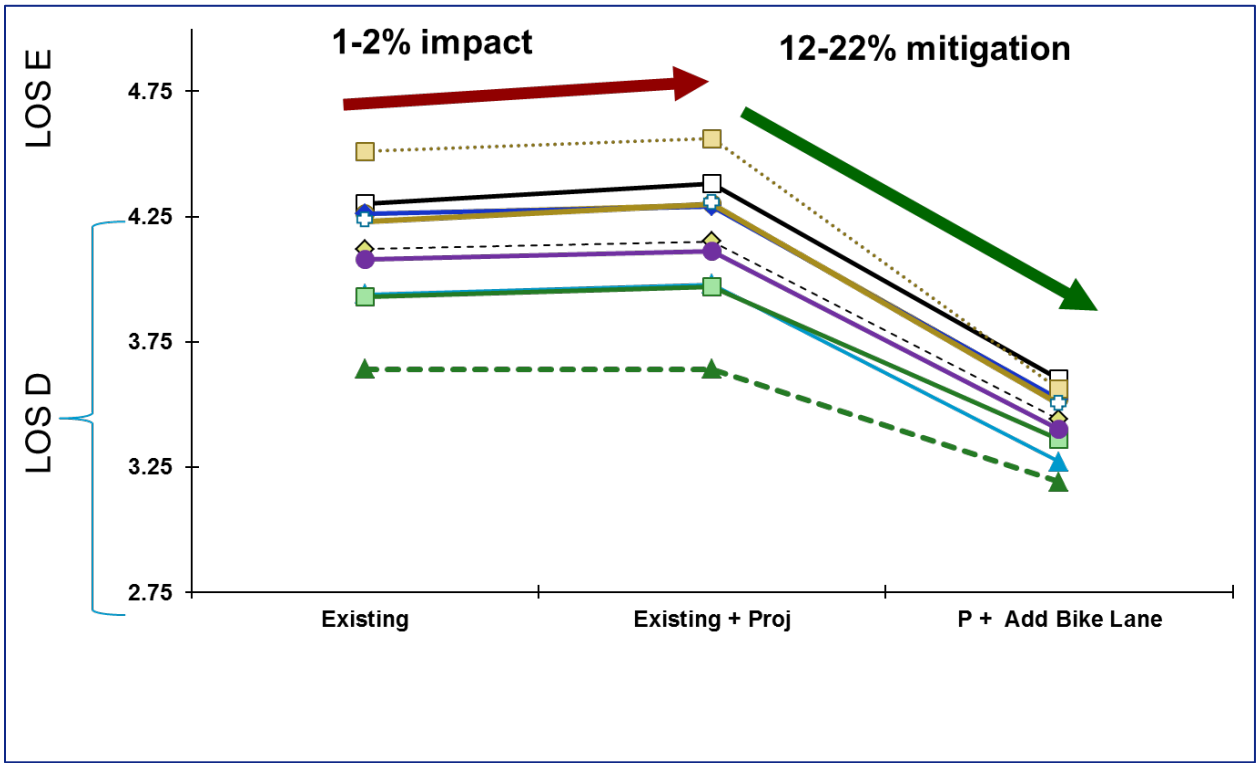


Figure E.3 Bicycle Level of Service for the Six Different Vine Street Segments



E.3 VINE STREET SEGMENT FINDINGS SUMMARY

As shown in Figures E.1 through E.3, the additional traffic volumes being generated by the proposed Millennium development project are estimated to have, on average, a small one to two percent degradation on the pedestrian, bicycle, and transit LOS segment scores for each of the different Vine Street segments. However, the exhibits also show that for most segments, the tested sidewalk and bike lane improvements would have a mitigating effect (one to four percent improvement) that equaled or slightly exceeded the impact of the proposed project. Also, as evident in Figure E.3, the addition of a separate bicycle lane along the entire segment would have the biggest mitigating effect (12 to 22 percent improvement) on the bicycle LOS score.

E.4 IL VILLAGGIO TOSCANO CASE STUDY

The IL Villaggio Toscano case study involved a proposal to develop a residential/retail mixed-use project, on a 5.1-acre, triangular shaped parcel on the northwest corner of Sepulveda Boulevard and Camarillo Street. The proposal included 500 multiple-family dwelling units and approximately 55,000 gross square feet of retail, including up to 45,000 gross square feet for a grocery

store. It was estimated that the project would generate approximately 5,844 net daily trips, including 321 AM and 549 PM peak-hour trips.

Using traffic volume inputs available from the traffic study and inputs derived from judgment/analysis of on-line mapping images, a MMLOS analysis was run for a segment of Sepulveda Boulevard corridor from U.S. 101 to Camarillo Street. This segment includes the Sepulveda Boulevard site frontage. The following scenarios were investigated to show how the MMLOS scores change under the increased traffic volumes of the proposed development:

- Existing Conditions;
- Existing Conditions Plus Project;
- Existing Conditions Plus Project – Testing the impacts of adding an eight-foot wide sidewalk along the west side (site frontage) of Sepulveda Boulevard;
- Existing Conditions Plus Project – Testing the impacts of adding an eight-foot wide sidewalk and a four-foot continuous barrier along the west side (site frontage) of Sepulveda Boulevard; and
- Existing Conditions Plus Project – Testing the impacts of adding an eight-foot wide sidewalk, a four-foot continuous barrier, and bus shelters along the west side (site frontage) of Sepulveda Boulevard.

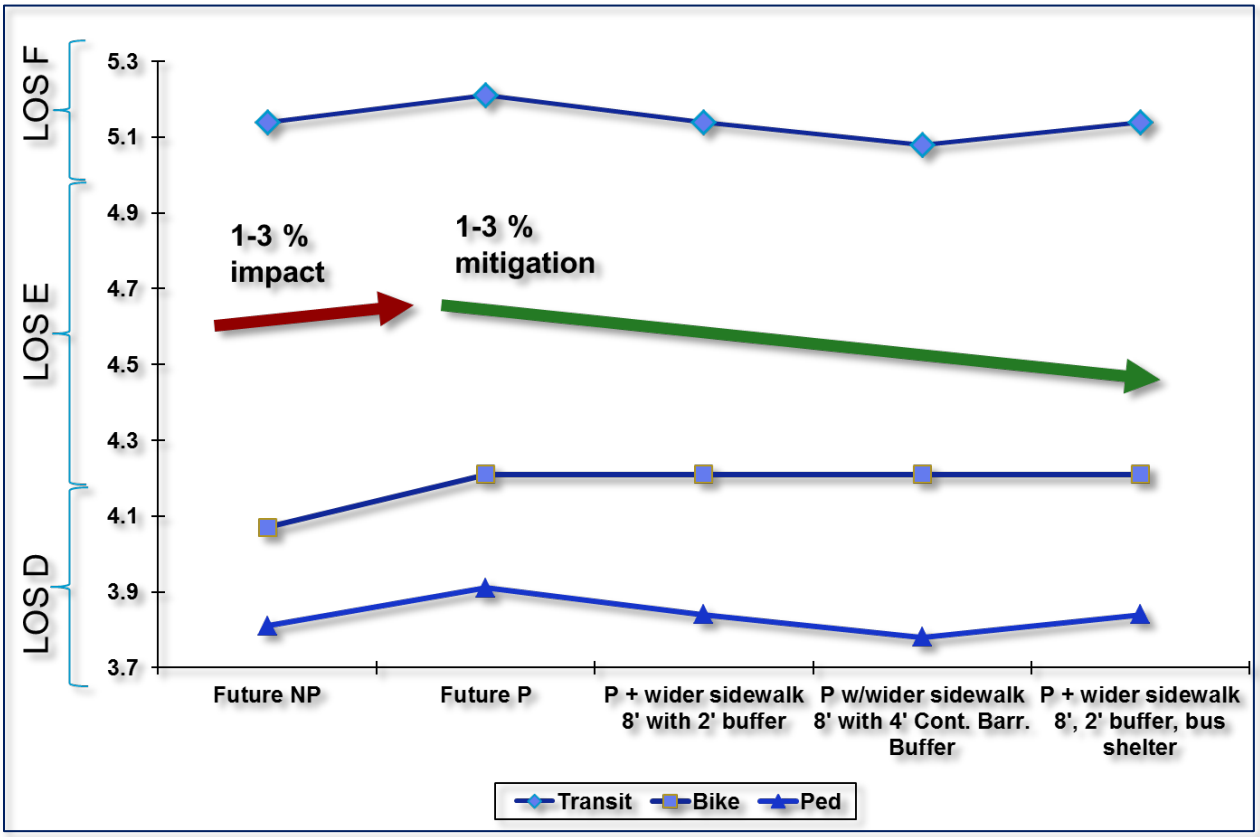
Figure E.4 summarizes the pedestrian, bicycle, and transit LOS findings for each scenario.

E.5 SEPULVEDA BOULEVARD SEGMENT FINDINGS SUMMARY

As shown in Figure E.4, the additional traffic volumes being generated by the proposed IL Villaggio Toscano development project are estimated to have a one to three percent degradation on the pedestrian, bicycle, and transit LOS segment scores for the Sepulveda Boulevard segment. As with the Vine Street analysis, the figure also shows that the tested sidewalk improvements along the site frontage would have a mitigating effect (one to three percent improvement) that equaled the impact of the proposed project.[22]

[22] Transit shelters had no measurable improvement.

Figure E.4 Pedestrian, Transit, and Bicycle Level of Service for the Sepulveda Boulevard Site Frontage



E.6 CONCLUSIONS

The following conclusions are based on results from the two case studies:

- The additional traffic generated by the development projects, while substantial in some cases, had a relatively small impact (one to three percent) on the overall MMLOS scores for the bicycle, pedestrian, and transit modes when comparing existing conditions to existing conditions plus project.
- In most cases, sidewalk and/or bike lane improvements (wider sidewalks, continuous barriers between the sidewalk and curb, and the provision of bicycle lanes) mitigated the degradation in MMLOS scores at the segment level.
- As anticipated, the MMLOS analysis resulted in pedestrian, bicycle, and transit scores that were not very sensitive to the traffic volume increases being generated by the proposed development projects. However, there was a measurable impact. Further case study analysis would need to be completed to better understand the different levels of impact under different urban characteristics.

F. Developer Checklist to Identify Qualifying Projects for MTIA (Annotated Outline)

1. Description of Project Location/Community Context:
   a. Specific Area Designations (e.g., Priority Development Area, Specific Plan Area, etc.)
      i. Describe specific types of designations that are applicable to the city or county, based on local General Plan, zoning regulations, and/or regional transportation plan designations.
   b. Other contextual factors:
      i. Provide guidance regarding how specific contextual characteristics (e.g., common ownership and/or operation of large-scale facilities such as hospital, education facility, etc.) may affect ability to promote use of alternative transportation modes.
      ii. Identify other contextual factors that may lead to increased use of alternative transportation modes.
2. Description of Proposed Project Characteristics:
   a. Land use:
      i. Land use types (Provide guidance regarding types of land uses that may be considered most conducive to multimodal analysis, such as mixed use development or "transit-oriented" land use types.)
      ii. Relationship to Community Context (Describe how land use types included in project may interact with community context characteristics described above.)
      iii. Density/intensity of development project (Obtain detailed information regarding density and intensity of land use types as needed to determine whether modified trip generation factors may be applicable.)
      iv. Urban design features, characteristics (Identify any unique project design features that may lead to reduced traffic impacts.)
   b. Transportation – Provide detailed information on existing and proposed project factors that are related to use of various transportation modes:
      i. Access to public transit.

ii. Access to bikeways.

iii. Access to sidewalks.

iv. Parking spaces proposed on-site.

c. Other relevant characteristics

3. Relationship of Project to "Focused Planning Area" Multimodal Transportation Impact Analysis:

a. Where a two-tiered MTIA approach is being used, provide information regarding the relationship between the proposed project and the Focused Planning Area MTIA (a copy of which would be provided to the project applicant by the city or county):

i. Consistent with land use and growth assumptions?

ii. Consistent with transportation planning assumptions?

iii. Consistent with any adopted areawide mitigation programs?

(a) Transportation Demand Management.

(b) Transportation System Management.

(c) Other.

G. Model Ordinance to Establish MTIA Guidelines (Annotated Outline)

1. Statement of Purpose
   a. Include references to General Plan policies; other regional and subregional plans and policies; and state laws that are relevant to the use of Multimodal Transportation Impact Analysis (MTIA) by the local jurisdiction
2. General Applicability
   a. Describe circumstances under which a MTIA approach may be preferable to conventional TIA (e.g., Specific Plan Area designated in local general plan, High-Quality Transit Area as defined in regional plan, qualifying areas pursuant to state law, etc.)
   b. Describe applicability of guidelines to specific geographic areas of the local jurisdiction and/or certain types of land uses pursuant to General Plan policies and zoning regulations
3. Multimodal Transportation Impact Analysis for focused planning area
   a. Processing Requirements
      i. Describe how a Focused Planning Area MTIA is initiated, and how the costs of preparation of the analysis are covered
   b. Planning Area Boundaries
      i. Provide guidance on setting study area boundaries for the Focused Planning Area study, depending on the nature of the planning area (i.e., Specific Plan Area, High-Quality Transit Area, etc.)
   c. Planning Horizon Years
      i. Provide guidance regarding the horizon years for which analysis should be prepared
   d. Cumulative Growth Assumptions
      i. Describe information required to define "project" pursuant to CEQA
      ii. Describe approach to evaluating cumulative impacts of "project" and other related future development within or adjoining the study area
   e. Use of Reduced Trip Generation Factors

i. Describe circumstances under which reduced auto trip generation factors may be used in the Focused Planning Area MTIA (e.g., land use types, project context, availability of alternative modes, etc.)

ii. Provide guidance regarding allowable sources of information to be used in estimating reduced trip generation rates for Focused Planning Area MTIA (e.g., nationally published studies, studies produced by the local jurisdiction and/or regional transportation agency, etc.)

f. Transportation Modes and Performance Standards for Each Mode

i. Identify specific transportation modes to be evaluated in MTIA

ii. For each mode, identify specific performance measures to be used in the analysis, along with any adopted performance standard or target

g. Traffic Analysis Methodology Components

i. Describe specific methods by which each mode should be evaluated individually

ii. Describe the method by which the analysis should compare results by mode and identify possible tradeoffs that may be needed to achieve acceptable levels of performance among all modes

iii. Identify possible "significance thresholds" or other criteria for determining whether future individual development projects within study are would require further specific project-level analysis

h. Mitigation Measures

i. Provide guidance on the types of mitigation measures that may be included to reduce impacts for each mode, including but not limited to the following categories:

(a) Transportation Demand Management (TDM)

(b) Transit Capacity and Access Improvements

(c) Parking Management Measures

(d) Jobs/Housing Balance Measures

(e) Traffic Signal Operational Improvements

(f) Street Widening and Other Physical Improvements

(g) Street Restriping and Parking Prohibitions

ii. Identify any priorities among possible mitigation measures (e.g., should TDM measures be given a higher priority than street widening and other physical improvements?)

iii. Describe mitigation measures that can be applied on an areawide basis versus those that should be considered on a project-by-project basis

iv. Describe possible means by which the costs of implementing areawide measures may be allocated on a "fair share" basis to new development within the Focused Planning Area

i. Preparation of Draft Document

i. Provide guidance on how the draft MTIA document is prepared (may reference procedures for conventional TIA documents, with identification of any variations required to meet specific requirements for MTIA)

j. Review of Draft Document and Adoption of Final Document

i. Provide guidance on how the public review of the draft MTIA document is conducted, and how the final MTIA document is prepared and acted on by the local jurisdiction (may reference procedures for conventional TIA documents, with identification of any variations required to meet specific requirements for MTIA)

4. Transportation Impact analysis for individual projects covered in focused planning area Multimodal Transportation Impact Analysis

a. Applicability and Relationship of Project-Level Analysis to Focused Planning Area Analysis and Mitigation Program

i. Describe how eligibility and specific requirements for environmental review for an individual project within a Focused Planning Area are determined through:

(a) Evaluation of Project Description (including Project Context and Project Characteristics) using the "Developer Checklist" (See Appendix F)

(b) Specific requirements and provisions contained in the Focused Planning Area MTIA.

b. Processing Requirements

i. Describe how a Project-level MTIA is initiated, and how the costs of preparation of the analysis are covered

c. Study Area Boundaries

i. Provide guidance regarding setting study area boundaries for project level analysis (inclusion of project site and adjoining areas and transportation facilities that will potentially be affected by the project)

d. Planning Horizon Years

i. Provide guidance regarding the horizon years for which project-level analysis should be prepared

e. Cumulative Growth Assumptions

i. Describe approach to evaluating cumulative impacts of "project" and other related future development within or adjoining the study area

f. Use of Reduced Trip Generation Factors

i. Describe circumstances under which reduced auto trip generation factors may be used in the MTIA (e.g., land use types, project context, availability of alternative modes, etc.)

ii. Provide guidance regarding allowable sources of information to be used in estimating reduced trip generation rates

g. Transportation Modes and Performance Standards for Each Mode

i. Identify specific transportation modes to be evaluated in project-level MTIA

ii. For each mode, identify specific performance measure to be used in the analysis, along with any adopted performance standard or target

h. Traffic Analysis Methodology Components

i. Describe specific methods by which each mode should be evaluated individually

ii. Describe the method by which the analysis should compare results by mode and identify possible tradeoffs that may be needed to achieve acceptable levels of performance among all modes

i. Mitigation Measures

i. Describe means by which specific requirements for participation in areawide mitigation programs identified in Focused Planning Area MTIA will be implemented at the project level.

ii. Provide guidance on other types of project-specific mitigation measures that may be included to reduce impacts for each mode, including but not limited to the following categories:

(a) Transportation Demand Management (TDM)

(b) Transit Capacity and Access Improvements

(c) Parking Management Measures

(d) Jobs/Housing Balance Measures

(e) Traffic Signal Operational Improvements

(f) Street Widening and Other Physical Improvements

(g) Street Restriping and Parking Prohibitions.

j. Preparation of Draft Document

i. Provide guidance on how the draft project-level MTIA document is prepared (may reference procedures for conventional TIA and

Focused Planning Area MTIA documents, with identification of any variations required to meet specific requirements for project-level MTIA)

k. Review of Draft Document and Adoption of Final Document

   i. Provide guidance on how the public review of the draft project-level MTIA document is conducted, and how the final MTIA document is prepared and acted on by the local jurisdiction (may reference procedures for conventional TIA documents and Focused Planning Area MTIA documents, with identification of any variations required to meet specific requirements for project-level MTIA)

5. Process for Combined Focused Planning Area/Project Level Multimodal Transportation Impact Analysis

   a. Describe circumstances in which a single project may qualify for preparation of a Multimodal Transportation Impact Analysis

   b. Lay out specific procedures for preparing a combined Focused Planning Area/Project Level analysis