



DATE: April 4, 2022

TO: Honorable Mayor and City Council

FROM: Laura Rubio-Cornejo, Director of Transportation

SUBJECT: **MUNICIPAL SERVICES COMMITTEE RECOMMENDATIONS TO THE LOCAL MOBILITY ANALYSIS UPDATE TO THE CITY'S TRANSPORTATION IMPACT ANALYSIS CURRENT PRACTICE AND GUIDELINES**

BACKGROUND:

On February 8, 2022 the Municipal Services Committee (MSC) reviewed and provided comments on the recommended updates to the Local Mobility Analysis (LMA) section (formerly referred to as "Outside CEQA") of the Transportation Impact Analysis Current Practice and Guidelines.

The Committee voted unanimously to recommend adoption of the recommended updates to the LMA section of the Guidelines, with the addition of a recommendation that City Council acknowledge that the recommendations in the LLG Recommendations report dated October 19, 2021 be included in the updated Transportation Impact Analysis Guidelines. In addition, the Municipal Services Committee provided the following comments:

1. Evaluate the ability to upgrade the Level of Service (LOS) cap in Transit Oriented District (TOD) areas to LOS D from LOS E
2. Evaluate the ability to use empirical data for internal capture in mixed-use projects as opposed to the ITE Trip Generation Manual and/or Handbook
3. Evaluate if there is a way to combine the Neighborhood Intrusion/Cut-Through analysis with Traffic Investigations to look at addressing potential problems on a more proactive basis
4. Clarify what "triggers" Active Transportation improvements

Detailed responses prepared by Linscott, Law and Greenspan, Engineers (LLG) are provided in Exhibit A, and summarized below.

RESPONSES TO MUNICIPAL SERVICES COMMITTEE COMMENTS:

1. *Evaluate the ability to upgrade to Level of Service (LOS) D from LOS E in Transit Oriented District (TOD) areas.*

LOS is a measure of vehicular delay at intersections, and improvements to LOS often require prioritizing vehicular progression and travel speeds over the needs of other users at the intersection. The City of Pasadena's current Guidelines state that the Level of Service (LOS) cap for signalized intersections within a Transit Oriented District (TOD) is LOS E. As defined in the City of Pasadena Zoning Code §17.50.340, TOD development standards provide for a mixture of commercial, high-density residential, mixed-use, public, and semi-public uses in close proximity to light rail stations, encouraging transit use in conjunction with a safe and pleasant pedestrian-oriented environment. TOD areas are intended by design to be areas of higher pedestrian activity. In order to promote the use of walking and bicycling in these areas, the needs of pedestrians, bicyclists, and other vulnerable roadway users must be included in intersection design and operations.

The use of LOS E in TOD areas was extensively discussed at Planning Commission meetings in 2014 as part of the development of the current guidelines. A change in the minimum LOS for TOD areas to LOS D would ignore the intentional differences and specific characteristics of an area intended by design to function with higher pedestrian activity. Intersections which are designed to proactively address the safety and comfort of pedestrians often require operational changes to reduce or eliminate conflicts with turning vehicles, resulting in a larger portion of the traffic signal cycle dedicated to providing appropriate pedestrian clearance intervals/phasing, etc.

LOS E equates to an average intersection delay greater than 55 seconds up to 80 seconds. This level of congestion is considered by many agencies to be the limit of acceptable delay. LOS E indicates a greater level of congestion and a lower level of traffic progression, which results in correspondingly lower average vehicle speeds. It is widely recognized within the transportation industry that higher vehicle collision speeds result in more severe injuries and a higher likelihood of fatalities for pedestrians, bicyclists, and other vulnerable road users. Intersections which are designed to prioritize peak hour vehicular LOS over pedestrian needs may consequently accommodate higher vehicle speeds than would be desirable in a pedestrian-oriented TOD area during non-peak traffic periods. In recognition of the trade-offs required to continue accommodating the needs of all travel modes in TOD areas, it is recommended to maintain LOS E as the minimum vehicular LOS cap or threshold for signalized intersections that fall within a City-designated TOD.

2. *Evaluate the ability to use empirical data for internal capture in mixed-use projects as opposed to the ITE Trip Generation Manual*

Use of empirically derived trip generation data may be appropriate for unique land uses which are not contained in the Institute of Transportation Engineers' (ITE) Trip Generation

Manual, or for land uses that have small sample sizes in the Trip Generation Manual. Should empirical data be utilized, data should be obtained from same or similar land uses in the City of Pasadena or other nearby communities. Supporting documentation for any empirically-derived trip generation data should be submitted to DOT staff for approval as part of the transportation study scoping process. Empirical data may be used to develop a project's baseline trip generation forecast and/or applicable trip generation credits and adjustments. Empirical data has been used in completing traffic studies in Pasadena such as with the Shriners for Children Medical Center on 909 South Fair Oaks Ave, a proposed car wash on 2030 East Colorado Boulevard, and in the queuing study for the proposed Chick Fil A restaurant on 790 North Lake Avenue.

3. *Evaluate if there is a way to combine the Neighborhood Intrusion/Cut-Through analysis with Traffic Investigations to look at addressing potential problems on a more proactive basis*

The Local Mobility Analysis Guidelines Update includes a detailed review of any potential effects on nearby residential neighborhood streets caused by cut-through project trips. Per the recommended Local Mobility Analysis (LMA) updates, the transportation consultant selected to prepare the Local Mobility Analysis for each development project will conduct detailed observations and surveys at the specific study location(s) selected for analysis. The LMA site visit and survey will include, if necessary, conducting updated 24-hour (daily) street segment traffic volume counts, conducting visual observations of traffic flows during peak and off-peak time periods, identifying the existing and potential of any apparent neighborhood intrusion issues, and documenting any observed violations of existing restrictions at adjacent intersections along the street segment being analyzed (i.e., violations of posted signage, violations of diverters intended to prohibit certain vehicular turning movements, or violations of other restrictive measures). This process is similar to the traffic investigation process conducted by City staff for existing conditions.. If a project's net new trip generation on any street segment analysis location exceeds the average daily traffic volume caps contained within the Guidelines, measures to discourage use of the residential street segment to and from the project site should be developed.

Separate from the LMA, traffic investigations can also be initiated by DOT when a request is submitted or received from the public for any existing and observable condition. Some types of investigations require field data collection and engineering analysis, while others require a petition process. Information and data collected may include speed data, volume data, accident history data, and a review of existing field conditions. This is an existing and on-going process, separate from a Local Mobility Analysis review of a proposed development project.

4. *Clarify what "triggers" Active Transportation improvements*


There is no quantifiable threshold applicable for the Active Transportation trigger, and a threshold is not recommended since the assessment is based on a qualitative review of active transportation elements within the project vicinity. As proposed, the Active

Transportation assessment will identify whether there are any existing deficiencies along a project's frontage. The transportation assessment should evaluate the potential for the project to result in either the removal or degradation of existing facilities, or an increase in demand where the facilities are missing or not to current standards. If such deficiencies exist, an applicant may be required, or could volunteer as a community benefit, to fund and construct such measures as a formal Condition of Approval.


Each project's characteristics regarding land use types, patron/employee/resident demographics, and site context are distinctly different, thus no "one size fits all" threshold of specific increases in pedestrian, bicycle, or transit ridership volumes are recommended where specified off-site larger-scale active transportation improvement measures would be triggered. Rather, it is understood that the City has established a formal funding mechanism for implementing City-wide transportation network improvements through the requirement of development impact fees. The Active Transportation assessment can inventory and address infrastructure needs more holistically.

It is therefore anticipated that smaller scale existing deficiencies at a project site or immediately adjacent to a project's frontage within a 0.25-mile radius of the project site will be identified and improved through the Active Transportation assessment. The specific improvements required as Conditions of Approval would be determined on a case-by-case basis.

Prepared by:


Conrad Viana
Engineer

Approved by:


Laura Rubio-Cornejo
Director

Attachment: (1)

Exhibit A – LLG Memo: "City of Pasadena Transportation Impact Analysis Guidelines Update – Responses to Comments Received at the Municipal Services Committee (MSC) Public Meeting (Local Mobility Analysis Recommendations)" (March 14, 2022)

MEMORANDUM

To:	Joaquin Siques, T.E. City of Pasadena Department of Transportation	Date:	March 14, 2022
From:	Clare Look-Jaeger, P.E. Grace Turney, EIT Linscott, Law, & Greenspan, Engineers	LLG Ref:	1-21-4431-2
Subject:	City of Pasadena Transportation Impact Analysis Guidelines Update – Responses to Comments Received at the Municipal Services Committee (MSC) Public Meeting (Local Mobility Analysis Recommendations)		

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Linscott, Law & Greenspan, Engineers (LLG) has prepared this memorandum to summarize the technical responses to four primary comments received at the Municipal Services Committee meeting held on February 8, 2022. The Councilmembers requested further evaluation of the following four areas:

1. Evaluate the ability to upgrade to Level of Service (LOS) D from LOS E in Transit Oriented District (TOD) areas.
2. Evaluate the ability to use empirical data for internal capture in mixed-use projects as opposed to the ITE Trip Generation Manual and/or Handbook.
3. Evaluate if there is a way to combine the Neighborhood Intrusion/Cut-Through analysis with Traffic Investigations so as to look at addressing potential problems on a more proactive basis.
4. Clarify what “triggers” Active Transportation improvements.

Pasadena
Irvine
San Diego
Woodland Hills

The comments were in response to the joint Pasadena Department of Transportation (DOT)/LLG presentation on the recommended updates to the City’s Local Mobility Analysis Guidelines. These responses have been prepared at the request of DOT staff, and are based on a further review of Best Practices, information provided by DOT staff, and LLG’s professional experience.

RESPONSES TO MUNICIPAL SERVICES COMMITTEE COMMENTS

1. Evaluate the ability to upgrade to LOS D from LOS E in TOD areas.

The City of Pasadena’s current Guidelines note a minimum Level of Service (LOS) cap or threshold of LOS E for signalized intersections that fall within a City-designated Transit Oriented District (TOD) (refer to Table 5 of the current Guidelines). In order to respond to the comment requesting consideration to modify the minimum LOS within TOD areas to LOS D from LOS E, it is first important to note that this minimum standard LOS was extensively discussed during the last Guidelines update effort back in 2014. As discussed at the July 23, 2014 Planning Commission hearing, a change was made at that time from DOT’s original recommendation of LOS F as the minimum signalized intersection LOS within

designated TOD areas, to LOS E, which is currently recommended to be maintained. It is also understood that the Councilmembers' request to consider LOS D in TOD areas reflects a desire to promote and enhance pedestrian and bicycle safety at local intersections.

LOS E equates to an average intersection delay of greater than 55 seconds up to 80 seconds of delay. This level of congestion is considered by many agencies to be the limit of acceptable delay. It is recognized that a delay of roughly 85 seconds represents the average traffic signal cycle length for signalized locations within the City¹. As defined in the City of Pasadena Zoning Code §17.50.340, TOD development standards provide for a mixture of commercial, high-density residential, mixed-use, public, and semi-public uses in close proximity to light rail stations, encouraging transit usage in conjunction with a safe and pleasant pedestrian-oriented environment. A change in the minimum LOS for TOD areas to LOS D, which is equivalent to the minimum LOS threshold for signalized intersections within the rest of the City, would not recognize the differences and specific characteristics of these areas.

LOS is a measure of vehicular delay at intersections, and improvements to LOS often require prioritizing vehicular progression and travel speeds over the needs of other users at the intersection. However, TOD areas are intended by design to be areas of higher pedestrian activity. In order to promote the use of walking and bicycling in these areas, the needs of pedestrians, bicyclists, and other vulnerable roadway users must be included in intersection design and operations. Intersections which are designed to proactively address the safety and comfort of pedestrians often require operational changes to reduce or eliminate conflicts with turning vehicles, provide appropriate pedestrian clearance intervals/phasing, etc. For example, when volumes and congestion levels are higher, motorists may be less likely to yield to pedestrians and could engage in other behaviors which could be perceived as "uncomfortable" for pedestrians, thus requiring greater control/assignment of the right-of-way at intersections. In addition, curb bulb-outs and other physical infrastructure which protect pedestrians from vehicle conflicts may result in lower vehicular capacities at intersections. Likewise, minimizing pedestrian delay by implementing shorter traffic signal cycles may result in poorer vehicular progression. At times, pedestrian and vehicular needs conflict with each other, and giving greater priority to pedestrians may require accepting greater vehicular delays.

In many areas of the City, DOT has already implemented a number of signal timing strategies and other infrastructure improvements to prioritize pedestrian needs at intersections, including but not limited to leading pedestrian crossing intervals, exclusive pedestrian phases/ped scrambles, vehicular turning-movement restrictions

¹ Based on statements made during the DOT presentation to the Planning Commission on July 23, 2014, regarding the proposed adoption of the new (now current) transportation metrics and thresholds.

(e.g., no left-turns, or no right-turn on red), etc. These measures, in turn, reduce the amount of green signal time devoted to clearing vehicular traffic volumes, thus frequently resulting in a lower vehicular LOS.

It is also widely recognized within the transportation industry that higher vehicle collision speeds result in more severe injuries and a higher likelihood of fatalities, especially for collisions involving pedestrians, cyclists, and other vulnerable road users. Intersections which are designed to prioritize peak hour vehicular LOS over pedestrian needs may consequently accommodate higher vehicle speeds than would be desirable in a pedestrian-oriented TOD area during non-peak traffic periods.

In recognition of the trade-offs required to continue accommodating the needs of all travel modes in TOD areas, it is the recommendation of DOT and LLG to maintain LOS E as the minimum vehicular LOS cap or threshold for signalized intersections that fall within a City-designated TOD.

2. Evaluate the ability to use empirical data for internal capture in mixed-use projects.

The Local Mobility Analysis Guidelines Update has included a detailed review of the City's current guidelines and it is the recommendation of DOT and LLG that refinements be included with respect to the development of a project's trip generation forecast and allowable trip credits, including but not limited to the integration of internal capture trip reductions, where applicable and appropriate.

It is recommended by DOT and LLG that the City formally include the option of utilizing empirical data when preparing trip generation forecasts. Use of empirically derived trip generation data may be appropriate for unique land uses which are not contained in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, or for land uses that have small sample sizes in the *Trip Generation Manual*. Should empirical data be utilized, data should be obtained from same or similar land uses in the City of Pasadena or other nearby communities. Supporting documentation for any empirically-derived trip generation data should be submitted to DOT staff for approval as part of the transportation study scoping process. Empirical data may be used to develop a project's baseline trip generation forecast and/or applicable trip generation credits and adjustments.

As noted in LLG's October 19, 2021 recommendations memorandum, under the *Internal Capture Adjustments* heading, "Internal capture trips are described as trips that occur between project land use components (e.g., within a mixed-use development). A trip generation credit may be applied to mixed-use projects to account for these trips which are made internal to the project site. It further notes that internal capture may be estimated using information provided in the latest edition of the ITE *Trip Generation Handbook*, the Transportation Research Board (TRB) National Cooperative Highway Research Program (NCHRP) *Report 684: Enhancing Internal Capture Estimation for Mixed-Use Developments*, or other appropriate sources." These reference documents include discussion of mode splits, vehicle

occupancy, trip origins and destinations, among others. Thus, the topic of internal capture and the methodology for determining these reductions has previously been extensively surveyed and studied by ITE, TRB, and other agencies.

The general topic of empirical surveys is typically in relation to the conduct of site-specific (empirical) surveys of vehicle trip generation and typically are only necessary in the case of a land use that is unique in nature and is not contained within the industry-standard trip generation manuals. With respect to the specific MSC comment about obtaining internal capture data for new projects based on empirical and site-specific surveys of other existing projects within the City, it is recognized that each development project's location is uniquely distinct, and differences in land use sizes, mix, and site context affect the internal capture characteristics which may be expected at the project site. The type and distribution of land uses within an existing mixed-use project will also never exactly mirror what is being proposed for a future project.

The most effective way of verifying a project's level of internal trip making characteristics would be to conduct employee and resident surveys, as well as formal patron/visitor-intercept surveys (i.e., conducting in person interviews or surveys). Such surveys may only be conducted at existing and occupied mixed-use project sites, and can be costly and difficult to conduct based on a project's number of access points and building entries/exits. Since the topic has been extensively studied by ITE, TRB, and other agencies, this level of documentation is not recommended for every mixed-use project required to prepare a Local Mobility Analysis.

It is noted that projects which must comply with City of Pasadena Municipal Code §10.64 – Transportation Demand Management (TDM) Program, are required to provide an Annual Transportation Demand Management Status Report. TDM plans are required for the following existing or proposed development projects:

- Multi-family residential developments that are 100 or more units;
- Mixed-use developments with 50 more residential units; or 50,000 square feet or more of non-residential development; or
- Nonresidential projects that exceed 75,000 square feet.

Among other things, the annual status report includes a survey of employee travel modes and trip-making behaviors, such as:

- solo driver
- motorcycle
- carpool
- vanpool
- transit
- bicycle
- walk
- compressed work week
- electric vehicle
- telecommute
- non-commute
- no response
- off peak
- other

It is therefore recommended that, at the discretion of DOT staff, travel data from annual reports submitted by comparable projects may be considered an appropriate source of empirical data when estimating trip generation credits.

3. Evaluate if there is a way to combine the Neighborhood Intrusion/Cut-Through analysis with Traffic Investigations.

The Local Mobility Analysis Guidelines Update has included a detailed review of the City's current guidelines and it is the recommendation of DOT and LLG that required transportation assessments should identify any potential detrimental effects on nearby residential neighborhood streets caused by project trips which may be classified as cut-through trips. The transportation consultant selected to prepare the Local Mobility Analysis for each development project will be required to conduct detailed observations during site visits at the specific study location(s) selected for analysis. If necessary, the neighborhood intrusion/cut-through analysis may require conducting updated 24-hour (daily) street segment traffic volume counts, researching the collision history along the study roadway, visiting the site to conduct visual observations of traffic flows during peak and off-peak time periods, identifying any apparent intrusion issues, and documenting of any violations of existing restrictions at adjacent intersections along the street segment being analyzed (i.e., violations of posted signage, violations of diverters intended to prohibit certain vehicular turning movements, or violations of other restrictive measures), if applicable.

LLG's Local Mobility Analysis recommendations memorandum included language noting that if a project's net new trip generation on any required street segment analysis location exceeds the average daily traffic volume caps contained within the current Guidelines, measures to discourage use of the residential street segment to and from the project site should be developed. The development of such measures would therefore follow the review of collision history, roadway volumes, and site visit described above.

Having stated the above, a formal traffic investigation for existing conditions can also be conducted by DOT when a request is submitted or received from the public. Some types of investigations require field data collection, and engineering analysis, while others require a petition process. Information and data collected may include speed data, volume data, accident history data, and a review of existing field conditions. This is an existing and on-going process, separate from a Local Mobility Analysis review of a proposed development project.

It is the recommendation of DOT and LLG the neighborhood intrusion/cut-through analysis should incorporate similar steps as a traffic investigation, to the extent applicable, by reviewing collision history, traffic volumes, and an existing conditions site visit. However, it is recommended that the term traffic investigation should be reserved for the specific studies conducted by DOT in response to community requests.

4. Clarify what “triggers” Active Transportation improvements.

DOT and LLG have recommended a more comprehensive review and assessment of active transportation elements within the project vicinity be included in the Local Mobility Analysis Guidelines Update. It was recommended that this should include an inventory of all pedestrian, bicycle, and transit facilities within a 0.25-mile radius of the project boundary. The inventory should include existing and planned facilities, including but not limited to: sidewalks and sidewalk widths, pedestrian curb ramps and Americans With Disabilities Act features, curb extensions and bulb-outs, crosswalks, pedestrian push buttons and signals, bicycle lanes, bicycle parking, bike-share locations, transit stops, benches and shelters, public trash receptacles, and other active transportation infrastructure. The City intends to include this information as part of its on-going database/record files. It is also recommended that the inventory note facilities which are missing or not to current standards (e.g., cracked pavement or sidewalks, obstructions in pedestrian paths, etc.). Significant destinations in the vicinity of the project site such as major transit stations, schools/daycares, parks, public services (e.g., senior citizen centers, hospitals, libraries, post offices, etc.) or other uses which could potentially attract pedestrian trips from the development project should also be identified. In its October 19, 2021 memorandum, LLG also recommended that the active transportation inventory should be presented in map format, with additional written discussion of missing or substandard facilities provided in the report text. The transportation assessment should evaluate the potential for the project to result in either the removal or degradation of existing facilities, or an increase in demand where the facilities are missing or not to current standards.

In recognition of the unique location, transportation network context, and potential for active transportation demand that may be associated with each development project, application of a quantifiable threshold or “trigger” for requiring specific pre-determined active transportation improvements is not recommended by DOT or LLG at this time.

This recommended update to the Active Transportation assessment was developed based on the review of Best Practices prepared by LLG Engineers as part of the Local Mobility Analysis update effort. A total of 17 of the 18 agencies included in the Best Practice review require some form of pedestrian, bicycle, and transit infrastructure, access, and/or demand review. Only a minority of these agencies required the level of detailed review and assessment which has been recommended by DOT and LLG. Of the 18 agencies included in the Best Practices review, none of the agencies which required any degree of pedestrian, bicycle, and transit infrastructure and/or demand assessment provided criteria or thresholds for requiring additional improvements beyond correcting existing deficiencies at or immediately adjacent to a project site.

Pursuant to the findings of the Best Practices review, the recommended first step of the Active Transportation assessment is to identify whether there are any existing

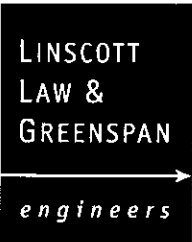
deficiencies in the vicinity of a project site. If such deficiencies exist, on a case-by-case basis DOT may require an applicant to fund and construct improvements as a formal Condition of Approval. Implementation of such measures would be required prior to issuance of the final Certificate of Occupancy for the subject project. It is envisioned that the conditioned improvements would address smaller scale or “spot” deficiencies identified through the inventory review (e.g., installing missing curb ramps, or improving a nearby transit stop to meet current standards). It is recommended that the DOT staff review the potential effects of increases in active transportation travel modes on a case-by-case basis in order to identify whether additional improvements are feasible or recommended (e.g., installation of protected pedestrian crossings where high pedestrian demand is expected, etc.).

Each project’s characteristics regarding land use types, patron/employee/resident demographics, and site context are distinctly different, thus no “one size fits all” threshold of specific increases in pedestrian, bicycle, or transit ridership volumes are recommended where specified off-site larger-scale active transportation improvement measures would be triggered (e.g., installation of a City-wide bike lane, or changes to Pasadena Transit service). Rather, it is understood that the City has established a formal funding mechanism for implementing City-wide transportation network improvements through the requirement of development impact fees.

Through the 2004 Update to the City of Pasadena’s General Plan Land Use and Mobility Elements, City Council directed staff to study a new “fair share” transportation impact fee, known as the Traffic Reduction and Transportation Improvement Fee (TR/TIF). TR/TIF fees are used to implement the municipal transportation projects identified in the Transportation Facilities Needs List identified in the “City of Pasadena Transportation Development Impact Fee Study”, prepared by David Taussig & Associates and Iteris, Inc. in 2017. The projects included on the Needs List were identified based on the City’s General Plan Mobility Element, the ITS Master Plan Framework Final Report, the Pasadena Bicycle Master Plan, the Old Pasadena and Playhouse District Specific Plan, and the ADA Transition Plan.

The City’s Capital Improvements Program (CIP) also includes a list of municipal transportation projects which include both City-wide and specific improvement projects. The current CIP list for the Transportation Department includes Active Transportation/Complete Streets projects, Traffic Operations, Traffic Signals, and ITS projects, and Transit projects. It should be noted that the TR/TIF Needs List includes pedestrian, transit, and Complete Streets projects such as those listed in the City’s current Capital Improvements Program for the Transportation Department. To the extent that projects on the Needs List are also included in the current CIP, the TR/TIF may be used to fund these broad-reaching City-wide active transportation improvement projects.

It is therefore anticipated that smaller scale deficiencies within a 0.25-mile radius of the project site will be identified and corrected through the Active Transportation



assessment. The specific improvements required as Conditions of Approval would be determined on a case-by-case basis. An applicant may choose to fund and/or implement additional active transportation improvements as a community benefit, which would be included as a formal Condition of Approval. However, improvements beyond those that can be implemented within the applicant's control (e.g., above and beyond a project's frontage or within the project site), or those which are already incorporated on the City's CIP and/or Needs List are expected to continue to be funded and implemented through the City's established TR/TIF program.

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