TRAFFIC STUDY GUIDELINES

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Department of Public Works and Transportation

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Exhibits

WHY A TRAFFIC STUDY IS REQUIRED

Historically, and since the adoption of the City's Traffic Impact Analysis (TIA) Guidelines in 2004, now renamed Traffic Study Guidelines, a hierarchy of federal and state laws has required the correlation of the Land Use Element building intensities in the General Plan with the Circulation Element capacity (i.e., Government Code 65302(C), Congestion Management Program (CMP), California Environmental Quality Act (CEQA), and Measure M). Specific only to CEQA, new CEQA legislation (SB 743) adopted by the State of California in 2017 mandates that local jurisdictions, by July 1, 2020, adopt a new measure of traffic impact to satisfy CEQA requirements. This new Vehicle Miles Traveled (VMT) measure of traffic impact replaces the prior level of service (LOS) metric previously defined for identifying CEQA traffic impacts. Analysis with this new VMT measure of traffic impacts to satisfy CEQA requirements is inaddition to the LOS analysis outlined in this Traffic Study Guidelines document. The City's CEQA VMT Impact Analysis Guidelines is included as Exhibit 8 of this Traffic Study Guidelines and is applicable for all projects that require CEQA clearance.

The traffic study serves as a test of this correlation during the development review process. The following outlines the criteria for when each type of analysis is applied.

WHEN IS A COMPREHENSIVE AND LIMITED SCOPE TRAFFIC STUDY REQUIRED?

A comprehensive traffic study shall be required under the conditions outlined in Exhibit 3. These conditions for preparation of a traffic study are based on adopted Zoning Ordinance language, project description, level of discretionary or non-discretionary approval required, and geographic location (i.e., specific Planning Area of the project).

- Discretionary projects generating 50 or more peak hour trips during the morning peak period or the evening peak period from a project site where no budget/trip cap has been established for the site and/or Planning Area; or

- Discretionary projects which exceed the established trip cap for the project site by 50 or more peak hour trips.

The project's trip generation shall be calculated using the City's approved Irvine Transportation Analysis Model (ITAM) land use trip generation rates. If the City- approved rates do not correlate to the use(s) proposed, the Director of Public Works and Transportation or designated staff under the direction of the Director will approve the use of another rate.

A comprehensive traffic study may also be required for:

- Projects pursuant to the Congestion Management Program (CMP) requirements or as otherwise required by City Ordinances/resolutions.

A limited scope traffic study is required for:

- Discretionary projects generating between 1 and 49 AM or PM peak hour trips from a project site where no budget/trip cap has been established for the site and/or Planning Area; or

- Discretionary projects which exceed the established trip cap for the project site and/or Planning Area by one to 49 morning or evening peak hour trips. If the project exceeds the established trip cap by 50 or more morning or evening peak hour trips, see the requirements for a traffic study above. The project's trip generation shall be calculated using the City's approved land use trip generation rates. If City approved land use trip generation rates do not correlate to the use(s) proposed, the Director ofPublic Works and Transportation or designated staff under the direction of the Director will approve the use of another rate.

In cases where projects are within approved budget/trip caps and zoning, but are proposing new or altering existing access points, the site access analysis procedures outlined in the Special Issues section shall be followed in order to design and locate access points.

Exhibit 2 highlights the key differences between a Comprehensive Traffic Study and a Limited Scope Traffic Study.

Transfer of Development Rights (TDRs) and Intensity Shifts

- Within the Irvine Business Complex (IBC), TDRs are permitted. Outside of the IBC, transfer of development (intensity shifts) may be allowed, if permitted by the zoning ordinance and/or land use regulations. If a TDR or an intensity shift is proposed, City approved land use trip rates shall be used in determining whether a traffic study or limited scope traffic study is required. If the project involves a TDR or intensity shift of 50 morning or evening peak hour trips or more, a traffic study will be required. If the project involves a TDR or intensity shift of between1 and 49 morning or evening peak hour trips, a limited scope traffic study will be required. In either case, a cumulative analysis may be required that includes all known applications on file with the City at the time of the subject project's scope of work approval including General Plan Amendment or Zone Changeapplications(see Cumulative Analysis).

The use of an existing traffic/limited scope traffic study for a project can be considered by the Director of Public Works and Transportation or designated staff under the direction of the Director if the land use assumptions, background conditions, and character of traffic analyzed in the existing study are not significantly changed in the proposed project.

METHODOLOGY OF SUBMITTAL

Prior to beginning any study, the applicant and/or his/her transportation consultant shall meet with City staff. This meeting is considered the "Pre-Application Conference." The purpose of the Pre-Application Conference is to establish assumptions and the process of preparing the study. When inter-jurisdictional impacts are anticipated, appropriate representatives from the affected agencies will be informed in writing of the agreed upon assumptions by the Director of Public Works and Transportation or designated staff under the direction of the Director.

In order to establish a Pre-Application Conference, the applicant shall submit to the Director of Community Development a Pre-Application. For information on the submittal of the Pre-Application, the applicant is referred to the "Pre-Application" Information Sheet provided at the Community Development planning counter and City's on-line formcatalog.

The following points will be discussed and methodology established at the Pre-Application Conference regarding traffic:

Site Plan and Development Assumptions
Access Points
Committed Roadway Improvements[1]
Trip Generation
Trip Distribution
Trip Assignment
Preliminary Study Area
Background Traffic (Ambient Growth and Approved Developments)
Development Time Frame and Phasing
Processing Schedule
Other Pertinent Factors

Additional planning issues, submittal requirements, etc. may also be addressed at this Pre-Application Conference, as identified and deemed appropriate by City staff.

The schedule shall be determined in accordance with the overall schedule associated with the type of application being requested and/or with CEQA requirements. The Pre-Application Conference shall also identify information which will be supplied by the City.

Scope of Work

Based on the agreements reached at the Pre-Application Conference, a scope of work shall be prepared by the applicant's transportation consultant and approved prior to commencement of the study. Waiver of portions of these guidelines for a project may

[1]See definition in the Committed Improvements section.

be approved by the Director of Public Works and Transportation or designated staff under the direction of the Director. Studies will not be accepted unless the traffic study scope of work has been approved by city staff under the direction of the Director of Public Works and Transportation.

The City Council reserves the right to approve traffic study scopes of work. Once approved by the City Council, they will be processed in the same manner as if approved by or under the direction of the Director or Public Works and Transportation.

An approved scope of work is valid for twelve months. Prior to commencing the study, the applicant shall confirm with the City the appropriate version of ITAM to utilize. The study must be submitted for the first screen check review within twelve months of the scope of work approval. A new scope of work is required if the twelve month period expires without a submittal.

Scopes of Work for projects within the North Irvine Traffic Mitigation (NITM) Program are subject to the specific requirements defined in NITM Resolution 03-61 included as Exhibit 7.

Approval

City staff under the direction of the Director of Public Works and Transportation shall review a traffic study and determine if the traffic study is consistent with the approved scope of work. If deemed consistent, city staff under the direction of the Director shall approve and advance the traffic study with any recommendations to the next reviewing/approval body for appropriate action.

Miscellaneous Submittal Requirements

Three (3) hard copies and an electronic copy of the first screen check draft study shall be submitted in conjunction with the remainder of the development application package.Two hard copies and an electronic copy of each subsequent screen check draft study shall be submitted thereafter. It should be noted that no development application for which a study is required, will be accepted without the appropriate number of copies of that study. Once finalized, four copies of the final study including one appendix (if provided as a separate document), as well as an electronic copy of the final document including appendix shall be provided to staff for use in Commission packets and files. If City Council approval of the project is required, a total of 10 copies of the final study shall be provided.

The applicant shall be responsible for the study and all costs associated with it. This may include, but is not limited to, preparation of the scope of work, preparation of the study, including consultant fees and computer model runs, review of the study by City staff and Commissions/Committees/Council.

All studies must be prepared under the supervision of and signed, stamped and dated

by a Registered Traffic or Civil Engineer with appropriate transportation engineering and/or planning credentials.

OBJECTIVES OF A TRAFFIC STUDY

The study has four basic objectives, as outlined below:

1. To provide a tool to analyze a specific project as it relates to the General Plan (long term).

2. To provide a means to identify specific short term circulation, operational and access needs.

3. To provide a basis for equitable traffic circulation improvement needs.

4. To demonstrate compliance with SB 743 for CEQA purposes, when applicable.

TRAFFIC/LIMITED SCOPE TRAFFIC STUDY FORMAT

In order to provide consistency and facilitate staff review of studies, the format identified below and in the approved scope of work must be followed. Under each heading, the content and methodologies to be utilized are discussed. An outline of the study is attached as Exhibit 1.

Executive Summary

The Executive Summary of the report shall be a clear, concise description of the study findings. It shall include a general description of all data, project scope and purpose, findings, conclusions, mitigation measures, and recommendations.

Technical publications, calculations, documentation, data reporting, and detailed design should not be included in this section. The Executive Summary should be concise, complete in itself, and not dependent on supplementary data included by reference.

Introduction

The Introduction shall supply the reader with a general description of the project. This description shall include the size of the parcel, general terrain features, and the existing and proposed uses of the site (including phasing) based on the zoning and general plan categories outlined in the City's Zoning Ordinance and the General Plan. In addition, specific uses for which the request is being made must be identified, as a number of uses may be permitted under the same Zoning or General Plan Category. This information shall include the square footage of each use or number and size of units proposed.

The intent of the study is to evaluate potential adverse effects to traffic for the most probable case or maximum entitlement permitted for the development or parcel proposed by the Subdivision Map, Zoning Ordinance or the General Plan. If several different uses are permitted, the land use(s) that identify the greatest overall traffic circulation improvements shall be assumed in the study, unless the applicant specifies the uses for the site. This most probable case analysis may be waived by the Director of Public Works and Transportation or designated staff under the direction of the Director only if the development is conditioned for the specific uses analyzed in the study.

In addition, the location of the project site shall be described. As part of this description,a vicinity map shall be provided. The map shall include roadways, which afford access to the site and are included in the study area.

For projects which are reviewed in accordance with CEQA requirements, the required alternatives to the project shall be analyzed. The proposed alternatives shall be defined in the Introduction section.

The limits of the study area for the traffic study shall be based on the potential adverse effects of the proposed project on the City's existing and ultimate street network, and the existing traffic conditions surrounding the site. In all instances, however, the study area limits must include areas with significant impacts based on the approved Performance Criteria (see the Performance Criteria section). If an agreement cannot be reached on an appropriate study area boundary, the Director of Public Works and Transportation or designated staff under the direction of the Director may require that a preliminary study area be established through a "select zone" analysis of ITAM. This preliminary study area shall be expanded or reduced, as appropriate, to meet the Performance Criteria or adverse effects by phase of the development.

The study area boundary for a limited scope traffic study is limited to all project access points and immediately adjacent intersections.

Existing Conditions

The study must identify the existing conditions in the vicinity of the project site, including a description of the area to be affected by the development. This is to provide a comparison of the impacts over time on land use and circulation. Existing roadway conditions shall include the following:

- Existing roadway network
- Number of existing lanes
- Intersection lane configurations
- Traffic control (i.e., signal, stop sign, etc.) - For signalized intersections, where split phasing or right turn overlap is in place, this information shall be provided in the study

- Traffic counts[2,3]
  - Average Daily Traffic (ADT)
  - Peak hour intersection volumes, Both AM and PM by turning movements
- Pedestrian activity/circulation (identification of pedestrian activity, trails, sidewalks in the project area)
- Level of Service calculations both daily and peak hour

Future Traffic <u>Without</u> Proposed Development

<u>Projected Traffic</u>

Future traffic without the proposed development is called "background" traffic or "baseline" traffic. This baseline traffic consists of three components:

- Regional traffic - Through traffic which has neither origin nor destination within Orange County.

- Sub-regional traffic - Through traffic which has either an origin or destination within Orange County but not within the City of Irvine.

- Other development traffic - Traffic generated by all other development with either origin or destination within the City of Irvine. If the proposed project involves a TDR, General Plan intensity modification or intensity shift, the development traffic of project applications on file with the City will be assumed in a cumulative analysis (see Page 11 - Cumulative Analysis for details). A list of all said projects shall be included as an attachment in the approved scope of work

Within the City of Irvine, background traffic is generally estimated using ITAM.

The following horizon years are required to be analyzed:

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[2]Counts for intersections on the CMP Highway System (i.e., Irvine Blvd., Irvine Center Drive, Jamboree Road, and Laguna Canyon Road) shall be conducted on at least three separate days (not necessarily consecutive). An average of three counts will be used for existing LOS in the Level of Service calculation.

[3]Count data must have been collected within the previous one year period from the approval date of the scope of work but cannot be older than 18 months from the date of the first screen check traffic/access study submittal unless deemed otherwise by the City. Count data must be collected during the AM (generally between 7-10 a.m.) and PM (generally between 3:30-6:30 p.m.) peak periods. For access analysis purposes, midday peak hour counts may be requested by the City depending on where the project is located in relation to certain intersections. Counts should be conducted on a Tuesday, Wednesday or Thursday during weeks not containing a holiday. Current counts which have been performed by the City will be made available at the request of the applicant. However, if the City does not have counts or if the counts are not current, the applicant will be required to perform the counts. Should concerns or discrepancies arise regarding the traffic count data collected, the City may request additional counts.

- Existing
- Short-term Interim Year (typically a 5-year horizon), assumptions include committed roadway improvements by this timeframe and tolled corridor facilities
- Long-range Interim Year (typically 20 to 25 year horizon), assumptions include committed improvements by this timeframe and tolled corridor facilities
- Buildout of City, assumptions include full buildout of adopted General Plan and Master Plan of Arterial Highways and tolled corridor facilities

The database shall be modified to include only those uses for the project site which exist at the time of application (i.e., existing land use - if vacant, the database shall have zero land use for that site) or, in the case of legally vested development, that amount of land use which is vested. Documentation of the vesting of land uses will be required of the applicant with the application. Computer model runs will then be performed for all horizon years. These runs will represent the background traffic volumes against which the "with project" analyses will be compared to develop transportation improvements that may be needed. In an expansion project, the expansion and any existing development to be expanded will be considered the "with project" scenario (see Exhibit 3).

For limited scope traffic studies, the Short-term Interim Year will be the only horizon year analyzed to identify potential LOS improvements. Cumulative analysis may be required by the City as deemed necessary.

The study shall specify the volumes and levels of service associated with the daily, AM and PM peak hour conditions. Daily information shall be shown in a graphic format. Peak hour information shall be summarized in a table which identifies the levels of service (volume-to-capacity ratios from the Intersection Capacity Utilization {ICU} worksheets). In addition, ICU worksheets shall be attached as an appendix.

Committed Improvements

For interim conditions, improvements funded by government agencies (i.e., in the Capital Improvement Program {CIP}) or other development (as approved by the Directorof Public Works and Transportation) shall be identified. This list would include the nature of the improvement project, its extent, implementation schedule, and the agency or funding source responsible. An official list of these "committed improvements" shall be obtained from the City. A list shall be provided showing the location of such facilities or projects.

The currently approved General Plan Master Plan of Arterial Highway Designation (General Plan Figure B-1) and the Orange County Master Plan of Arterial Highways (MPAH - for adjacent Cities' or County roadways, as appropriate) shall be the basis for roadway improvements considered to be in place for the buildout analysis. The network assumptions for the analysis years will be discussed in the report.

Proposed Project Level of Service (LOS) Improvements

Definition of LOS Improvements

Improvements on the circulation network that are required as a result of development are based on a comparison to the existing land use of the site at the time of submittal for development approval or, in the case of vested development, that amount of land use which is vested. Documentation of the vesting of land use will be required of the applicant with the application.

Model Trip Generation

The calculation of traffic volumes used to determine traffic improvements required of the development shall be based on the latest plans submitted for planning areas or on land use intensity allowed (including a trip cap adopted by the City) under the existing (or proposed) Zoning Ordinance or the General Plan.

For proposed mixed-use developments, the analysis will assume the plan presented by the developer and any trip cap established for the area.

When a zone change is requested that proposes to increase the trip cap, the traffic study for the proposed use will assess the potential adverse effects of the project by comparing the new proposal to a no-project condition. Traffic improvements that are required as a result of this comparison must be discussed in the traffic study and the technical results of those improvements (i.e., ICU and LOS of intersections and/or links with improvements in-place) must be summarized in the traffic study and included in the appendix of the traffic study.

Trip generation rates shall be based on the most recently approved socioeconomic data-based trip rates or as approved through the NITM Program for NITM area projects,when applicable.

Land use trip generation rates will be based on the most recent edition of Institute of Transportation Engineers utilized by ITAM (at the time of this publication ITE 10th Edition was used).

Land use information will be converted to the following socioeconomic variables:

- Single-Family Residential
- Multi-Family Residential
- Population
- Employed Residents
- Retail Employment
- Service Employment
- Other Employment

- K to 12 Students
- University Students

The conversion shall be based on the most recently approved land use to socioeconomic data conversion factors. These factors are included in the technical documentation for ITAM.

Additional information, such as income or special generators, shall be based on the most recent regional model, Orange County Transportation Analysis Model (OCTAM) or as otherwise approved by the City.

Non-ITE land use trip generation rates may be used, based on recognized local resources or rates based on three-day traffic counts taken for three similar and preferably local sites, if available, at the discretion of the Director of Public Works and Transportation or designated staff under the direction of the Director. The detailed recommended rate methodology shall be included in the scope of work and approvedby the Director of Public Works and Transportation or designated staff under the direction of the Director.

A summary table listing each type of land use, corresponding size or number of units (square feet, dwelling units, beds, rooms, etc.) for the project site for all horizon years of model runs shall be provided. The table should include:

- AM peak hour, PM peak hour and daily vehicle trips based on socioeconomic data for each use, if feasible, otherwise for the project.
- AM peak hour, PM peak hour and daily vehicle trips based on land use trip rates for each use.
- A comparison of the project trip generation and land uses versus the zoning level trip cap allocation available on the site.

Adjustments to Trip Generation

The City may examine the feasibility of implementing a policy which would allow applicants a reduction in trip generation rates for the subject project's study. If the City establishes such a program, a reduction in trip generation may be granted by the City, at the applicant's request, for the project. The City may require, at a minimum, that the following information be included in the request and corresponding study: 1) demonstration of the ability to achieve the specific levels of trip reduction assumed; and 2) documentation of a monitoring and compliance program to ensure the success of its Transportation Demand Management (TDM) program. The City may require additional mitigation or the payment of fees if the project generates trips in excess of the levels approved through the study. Additional information regarding TDM is provided in the Transportation Demand Management section.

Where applicable, trip rate reductions for projects within Spectrum that participate in the Spectrumotion TMA or other areas of the city that may be subject to participation in an established TDM program may be considered if sufficient evidence is provided including but not limited to the two conditions outlined above.

Trip Distribution and Trip Assignment

Traffic generated by the site must be distributed and assigned to the roadway network in order to determine the project's impacts. Trip distribution refers to the direction a vehicle will take to access or leave the project site and can vary depending on:

- Type of proposed development surrounding the site;
- Similar land uses in the vicinity;
- Size of the proposed development; and
- Conditions on the roadway network in the vicinity.

For each horizon year, the distribution of project trips shall be shown in graphic format using percentages of project traffic by geographical direction. Trip distribution shall be based on model output. Adjustments to the model output may be necessary. However, any adjustments shall be approved by the Director of Public Works and Transportation or designated staff under the direction of the Director prior to the submittal of the study. The text should describe the methodology and assumptions which are used in the determination of trip distribution.

Trip assignment identifies the actual routes taken by project traffic to and from the site. The identification of the project assignment shall be performed utilizing ITAM. Graphic presentations, as well as discussions of the analysis and results in text of the trip assignment, shall be provided in the report.

Phased Projects

This section discusses phased construction of developments, trips they will generate, and phased mitigations planned. Studies for projects planned to be developed in phases must document an impact assessment as the phases develop (i.e., Phase 1 impacts separately, Phase 2 impacts would include Phase 1 impacts).

Traffic generation for the project phases shall be determined as outlined earlier in the report based on the applicant's phasing proposal. The development shall be conditioned to adhere to the phasing schedule, as building permits shall be conditioned to be tied to the approved phasing plan.

Projections of future traffic, both with and without the project, shall be determined as outlined above. If the phase completion year does not have an existing database, alternate methods of projecting traffic may be utilized, with the approval of the Director

of Public Works and Transportation or designated staff under the direction of the Director.

Future Traffic with Proposed Development

In order to develop mitigation measures for development, conditions with the project in place must be known. These future conditions with the proposed development are based on computer model runs for horizon years which include the project's proposed land use.

As in "Future Traffic Without Proposed Development" above, traffic projections shall be developed through the use of ITAM. The assumed land use for the project shall be based on the proposed land uses for the site. This information shall be added to the database. This will represent the "with project" condition.

Cumulative Analysis

A cumulative analysis is required if a proposed project involves a Transfer of Developer Rights (TDR), General Plan and/or Zoning Ordinance intensity modification or intensity shift from one development area to another. Further, if a project does not involve one of the above conditions, but other pending applications for projects within the traffic study area do involve one of the above conditions, the Director of Public Works and Transportation or designated staff under the direction of the Director may require that the cumulative analysis described below be performed. The cumulative analysis will include, in addition to those scenarios outlined and discussed in the "Future Traffic Without Proposed Project" and "Future Traffic With Proposed Project" sections, a "baseline plus cumulative projects without project" and a "baseline plus cumulative projects with project" scenario for each horizon year. The cumulative analysis is one that analyzes a project with other projects currently on file with the City that are likely and foreseeable at the time of the project scope of work approval. For a cumulative analysis, a project to be included as a cumulative project is defined as one that also involves a TDR, General Plan and/or Zoning Ordinance intensity modification or intensity shift from one development area to another that also requires a traffic study. The analysis may consider the inclusion of all project applications (also requiring a traffic study) on file with the City at the time of the scope of work approval. At a minimum, the projects within the study area boundary shall be included in the cumulative analysis. Projects outside the study area boundary will be included in the analysis as determined by the Director of Public Works and Transportation or designated staff under the direction of the Director. A list of all these projects to be assumed as part of the cumulative analysis shall be included as an attachment in the approved traffic study scope of work. If the cumulative analysis yields potential deficiencies, responsibility of improvements required will be based on a fair-share contribution.

Analysis

Level of Service (LOS) Analyses

Level of Service (LOS) E shall be considered acceptable for links and intersections in accordance with the City's General Plan Objective B-1 and as approved in the Level of Service E Policy for the Northern Sphere Area developments (see appendix B). LOS D shall be considered acceptable for all other areas of the City.

In general, levels of service are defined in the City of Irvine General Plan as follows:

Level of Service A: The volume/capacity ratio ranges from 0.0 to 0.60. At this LOS, traffic volumes are low and speed is not restricted by other vehicles. All signal cycles clear with no vehicles waiting through more than one original cycle.

Level of Service B: The volume/capacity ratio ranges from 0.61 to 0.70. At this LOS, traffic volumes begin to be affected by other traffic. Between one and ten percent of thesignal cycles have one or more vehicles which wait through more than one signal cycle during peak traffic periods.

Level of Service C: The volume/capacity ratio ranges from 0.71 to 0.80. At this LOS, operating speeds and maneuverability are closely controlled by other traffic. Between 11 and 30 percent of the signal cycles have one or more vehicles which wait through more than one signal cycle during peak traffic periods.

Level of Service D: The volume/capacity ratio ranges from 0.81 to 0.90. At this LOS, traffic will operate at tolerable operating speeds, although with restricted maneuverability.

Level of Service E: The volume/capacity ratio ranges from 0.91 to 1.00. Traffic will experience restricted speeds, vehicles will frequently have to wait through two or more cycles at signalized intersections, and any additional traffic will result in breakdown of the traffic carrying ability of the system.

Level of Service F: Long queues of traffic, unstable flow, stoppages of long duration with traffic volumes and traffic, speed can drop to zero. Traffic volumes will be less than the volume which occurs at Level of Service E.

For existing and future conditions, Levels of Service at intersections shall be calculated using the Intersection Capacity Utilization (ICU) method. All calculations shall recognize special phasing arrangements, where applicable. In addition, the lane capacity used in the ICU calculations shall be 1,700 vehicles per hour, per lane. Adjustment factors for this value shall consist of the following:

- A lost time of 0.05 shall be added to the ICU calculation.

- If the distance from the edge of the outside through lane is at least 19 feet and parking is prohibited during the peak period, right turning vehicles may be assumed to utilize this “unofficial” right turn lane. Otherwise, all right turn traffic shall be assigned to the outside through lane. If a right turn lane exists,right turn on red may be assumed, if not prohibited at that location. However, the assumption of the number of vehicles turning right on red must be reasonable and not conflict with any other critical movements. If a free right turn lane exists (right turns do not have to stop for the signal), a flow rate of 1,700 vehicles per hour, per lane may be assumed. The volume-to-capacity (V/C) ratio of the right turn lane should be reported but not included in thesum of the critical V/C ratios.

Pedestrian adjustments shall be performed on a case-by-case basis and assessed according to procedures outlined in Chapter 16 of the latest version of the Highway Capacity Manual (HCM) for those intersections which have more than 100 existing pedestrians per peak hour, per intersection leg. No adjustment is required for pedestrian volumes less than 100 per peak hour.

Link LOS shall be determined using the Average Daily Trips (ADT) V/C ratios and peak hour link V/C ratios. Values of V/C associated with the various levels of service are stated below:

LEVEL OF SERVICE	V/C
A	0.00 - 0.60
B	0.61 - 0.70
C	0.71 - 0.80
D	0.81 - 0.90
E	0.91 - 1.00
F	> 1.00

The capacities to be used to determine V/C ratios for roadway links shall be those approved by the City of Irvine. They are outlined below, subject to future revisions:

Facility Type	Number of Lanes	Capacity	
		LOS D	LOS E
Freeways	10	189,000	210,000
	8	158,400	176,000
	6	121,500	135,000

	4	81,000	90,000
Freeway Ramps	2	19,800	22,000
	1	14,400	16,000
Expressway	6	121,500	135,000
Major Highway	8	64,800	72,000
	6	48,600	54,000
Primary Highway	4	28,800	32,000
Secondary Highway	4	25,200	28,000
Commuter	2	11,700	13,000
Commuter (Rural)	2	16,200	18,000

Roadway facility types shall be based on the General Plan Circulation Element's Figure B-1, Master Plan of Arterial Highways. If not listed on the above table, facility/number of lanes/capacity will be interpolated.
**NOTE: Intersections and roadway links shall be analyzed and meet the performance criteria on an individual basis. Grouping and screen line calculations will not be accepted.

Performance Criteria

Performance criteria are established in order to determine what traffic improvements would be required of the development based on its impacts.

A traffic LOS impact occurs when:

- A location is at acceptable level of service (LOS) in the baseline condition and the project causes the location to become deficient; or
- A location is deficient (i.e., at unacceptable LOS) in the baseline condition and the project causes the location to further deteriorate by two percent or more.

For intersection analysis, if an intersection is determined to have an LOS impact based on the criteria above, then the project will be required to mitigate the intersection, at a minimum, back to the baseline condition.

For intersections and roadway links projected to be deficient in the most recent Circulation Phasing Analysis Report, the criteria as follows will be applied in the interim year (short term) only:

> Greater than or equal to 0.01, rounded to the third decimal place, then project mitigation will be required back, at a minimum, to baseline as determined in "Definition of Impact" or contribution of fair share towards a mitigation back to an acceptable level of service. If mitigation back to baseline condition is not feasible by determination of the Director of Public Works and Transportation or designated staff under the direction of the Director, then the contribution of fair share towards a mitigation will be considered.

For roadway link analysis, if a roadway link is determined to have an LOS deficiency based on performance criteria, the project will be required to mitigate back, at a minimum, to baseline as determined in "Definition of Impact". Improvement opportunities include capacity augmentation, in accordance with the provisions of Objective D-1, Implementing Action (m) of the Circulation Element.

For roadway links projected to be deficient based on ADT V/C ratios, further Peak Hour Link Analysis (PHLA) is required to determine if the roadway link has an LOS impact based on performance criteria.

Peak Hour Link Analysis

A Peak Hour Link Analysis (PHLA) will be required for all links which exceed the defined Level-of-Service (LOS) standards when comparing the forecasted average daily traffic (ADT) volume-to-roadway capacities, as defined by the City. The PHLA shall be consistent with the December 16, 1996, Transportation and Infrastructure action approving the "Revised Peak Hour Link Analysis Methodology".

The PHLA will determine directional AM and PM V/C ratios for each link which is projected to exceed LOS standards. The peak hour capacity will be determined by multiplying the midblock number of lanes for each direction by a lane capacity of 1,600 vehicles per hour. Where the distance between controlled intersections is one or more miles, the midblock number of lanes shall be multiplied by a lane capacity of 2,000 vehicles per hour.

If the peak hour V/C ratio results do not meet City LOS standards, additional lanes will be needed for each deficient direction consistent with the Master Planof Arterial Highways. The added lane(s) may function either as an auxiliary lane (does not go through the downstream intersection) or a through lane, as determined by the ICU analyses of the downstream intersections and roadway links.

When the study area boundary, arterials and intersections fall under the jurisdiction of agencies outside the City of Irvine, the City may establish per CEQA regulations the applicable performance criteria but will consider the applicable performance criteria and practices for those jurisdictions.

A VMT impact analysis may be required for improvements that are needed to address project-related intersection or roadway link deficiencies. Refer to VMT Impact Analysis Guidelines (SB 743) included in Exhibit 8.

Special Issues (As Needed)

Every project is unique and, therefore, may have special issues which require

discussion and analysis. In many instances, concerns are raised regarding issues, which though transportation related, are not always included in studies. These include, but are not limited to, site access, traffic signals, stacking/queuing analyses and pedestrian circulation. The inclusion of any or all of the special issues analyses shall bedetermined by the Director of Public Works and Transportation or designated staff under the direction of the Director prior to approval of the scope of work. The scope of work shall outline the extent and type of analyses required. Analysis of these issues shall be provided in the manner outlined below.

Site Access Analysis

The project's impact to access points and on-site circulation will be analyzed. The analysis will, as appropriate, include the following:

- number of access points needed without negatively impacting traffic flow along the arterials, deceleration lanes into the site
- spacing between driveways and intersections
- signalization of driveways
- shared access
- turn conflicts/restrictions
- adequate sight, distance/corner clearance
- driveway improvements
- any other operational characteristics

If the proposed project is a residential use with privacy gates or a non-residential use with controlled access gates, the applicant shall provide a stacking analysis for review and approval. If the proposed project is a non-residential use with security gates, a stacking analysis is not required unless required by the Director of Community Development (per City Zoning Ordinance Section 4-4-8, Gates). The adequacy of the interface with the arterial network may be analyzed and necessary improvements to adjacent intersections may be required.

The site access analysis shall comply with adopted City standards and utilize, as appropriate, the City's Transportation Design Procedures (dated February 2007).

ITAM will be used to determine the project's trip distribution. The trips shall be manually reallocated to the access points based on the latest ITE land use trip generation rates for the site.

Any existing trips or trips associated with other approved uses, utilizing the same access points as the proposed project's trips, will be added in order to capture the full impacts to the access points.

When details of a project site may not be available, such as at the zoning level, access points and their locations are considered conceptual in nature. The final placement of

such access points shall be finalized and approved as part of the subsequent development application or when the project details have been refined.

Independent of traffic study requirements and thresholds, when a project is within approved trip budget/caps and zoning and is only altering existing or proposing new access points, the discussion outlined in this Site Access Analysis section is the only applicable section of the document.

The scope of work for and the approval of a site access analysis that is independent of a comprehensive traffic study or limited scope traffic study are the purview of the Director of Public Works and Transportation or designated staff under the direction of the Director. All site access analyses that are part of a larger traffic study shall be approved as part of the larger study consistent with the parameters discussed in this document.

Traffic Signals

The need for new traffic signals shall be based on warrants outlined in the latest edition of the California Manual on Uniform Traffic Control Devices (CA MUTCD).

The application of signal warrants, including the appropriate warrants, figures and assumptions (ex: roadway speed) to be utilized shall be clearly outlined and identified in the study's scope of work.

In determining the location of a new signal on an arterial street, traffic progression is of paramount importance. Impacts on the progression for arterial network may be analyzed using procedures deemed appropriate by the City's Traffic Engineer. Currently, the City uses SYNCHRO software for signal progression purposes. The applicant shall contact the City Traffic Engineer prior to commencement of a signal progression analysis to discuss the study and appropriate signal progressionmethodology and assumptions.

Pedestrian Circulation and Transit Connectivity

The City places special emphasis on the safety and protection of pedestrians and bicyclists especially school children on their way to and from school. The study shall identify all existing and future pedestrian interface locations affected by the project, pedestrian facilities within a project and explore the need for appropriate traffic control devices. City General Plan Objective B-3: Pedestrian Circulation shall be the goal of every project. In addition, to the extent applicable, the study shall address the project's conformance to City General Plan Objectives B-4: Bicycle Circulation and B-5: Riding and Hiking Trail Networks.

Other special issues and the appropriate analyses required to address said issues shall be identified by the City at the pre-application conference.

Congestion Management Program (CMP) Consistency/Requirements

In June 1990, California voters approved Proposition 111 which established a nine cent per gallon gas tax, staged over a 5-year period, for the purpose of funding transportation related improvements statewide. In order to be eligible for the revenues associated with Proposition 111, Congestion Management Program (CMP) legislation (AB 471 amended to AB 1791) requires urbanized counties in California to adopt a Congestion Management Program. The goal of CMP is to promote a more coordinated approach to land use and transportation decisions. As part of the requirements for CMP, a traffic impact analysis may be required of certain developments. The City of Irvine requires that all roadways, including those on the CMP Highway System, be analyzed as outlined below. Completion of the City of Irvine "CMP Monitoring Checklist: Land Use Coordination Component" (Exhibit 4) shall be required of the applicant or his/her consultant, as outlined in the Congestion Management Program (CMP) Consistency/Requirements section. The completed checklist shall be submitted with the application for development.

As part of the study, the applicant shall be required to demonstrate that roadways on the CMP network will not deteriorate due to the development below the requirements for CMP purposes. Exemptions from the requirements for CMP are outlined in Exhibit 6. Exemption from the completion of a CMP traffic impact analysis does not exempt the applicant from the completion of a traffic impact analysis based on the City of Irvine requirements.

Within the City of Irvine, the following roadways are on the CMP Highway System:

- Irvine Boulevard
- Jamboree Road
- Irvine Center Drive
- Laguna Canyon Road/SR-133
- Tollways: SR-133, SR-241, SR-261, SR-73
- Freeways: I-5, I-405

For these roadways and specifically any intersections on these roadways, the completion of the "CMP Monitoring Checklist: Land Use Coordination Component" for the City of Irvine (Exhibit 5) is required. Any future additions to the CMPHS will be subject to the same CMP requirements outlined in this section.

CEQA VMT Impact Analysis

A summary of the project's VMT Impact Analysis shall be provided for all projects subject to CEQA requirements. If a VMT Impact Analysis is not required, then this will be stated in this Special Issues section. The VMT Impact Analysis will be based on the CEQA VMT Impact Analysis Guidelines (SB 743) included in Exhibit 8. Any technical updates to the VMT threshold goal values contained in the VMT Impact Analysis

Guidelines (SB 743) are subject to approval by the Transportation Commission at the recommendation of the Director of Public Works and Transportation.

Required Improvements/Recommendations

Improvement Needs

LOS improvements to the roadway network (including intersections) required due to the project shall be identified for all portions of the network which meet the Performance Criteria outlined above. The recommendations section shall include:

Proposed Recommendation LOS Improvements: This section shall describe the location, nature, and extend of proposed improvements to assure sufficient roadway capacity. Improvements required shall be identified for all years analyzed. A plan drawing of each improvement may be required in the study illustrating the length, width, and other pertinent geometric features of the proposed improvements.

The determination of whether a plan is needed shall be made by the Director of Public Works and Transportation or designated staff under the direction of the Director.

Level of Service Calculations: A table illustrating the effectiveness of the improvement for all years analyzed shall be provided. The table shall include the LOS for the "with" project scenario without proposed LOS improvements, and the "with" project scenario with proposed LOS improvements.

The application of an Advanced Transportation Management Systems (ATMS) credit may be considered as an alternative mitigation measure. Such consideration will be made only if the City maintains an appropriately adopted ATMS policy and implementation methodology, and such ATMS consideration is made in full compliance with both. (See Appendix B - City Council Ordinance 03-08 adopted March 25, 2003).

For LOS improvements required at Circulation Phasing Analysis Report identified intersections, if a previously identified ultimate improvement is required in the interim year, fair share will be determined through negotiations with the Director of Public Works and Transportation or designated staff under the direction of the Director and the applicant.

It should be noted that various types of improvements may be required of the development. In addition to LOS improvements required to meet the performance criteria as outlined above, additional improvements may be required as a result of the TDP operational analysis. In addition, mitigation measures may be required to address VMT impacts. All identified improvements that are the responsibility of the project must be summarized and will be conditioned on the project through conditions of approval,

where applicable. If conditions of approval are not applicable (i.e., amendment to the General Plan and/or Zoning Code), these improvements must be identified in the applicable General Plan and/or zoning amendment action.

Schedule/Cost of Improvements

The timing of the proposed improvements, based on the various years analyzed, shall be identified in this section of the report.

In addition, preliminary cost estimates for the improvements may need to be identified, if deemed necessary by the Director of Public Works and Transportation or designated staff under the direction of the Director. These cost estimates shall include, but not be limited to, costs associated with studies, design, signalization, signing, pavement markings, bridges, engineering, construction and construction administration as well as right-of-way.

The construction component shall include, but not be limited to, maintenance of traffic, clearing and grubbing, earthwork, subgrade stabilization, base material, paving, curb and gutter, and sidewalks. Reconstruction improvements shall be increasedaccordingly to account for such items as removal of concrete pavement, bituminous pavement, poor soil, subsoil excavation and replacement with acceptable material,connecting streets, and driveway connections.

Current unit values for the various items shall be used in the cost estimates. These values will then be adjusted, if necessary, based on Construction Pricing Indices orother appropriate inflation indices.

Fee Assessment/Responsibility for LOS Improvements

A few mechanisms exist for the purpose of assigning responsibility for mitigation of LOS traffic impacts to the development. A project may be fully or partially responsible for implementing an improvement needed and may do so through construction of the improvement as part of the project or through agreement between the City and the developer to define the terms of the implementation of the improvement.

Fair-share responsibility of an improvement may be identified if the LOS traffic impact is identified in the cumulative (or “pending”) scenario. The fair-share responsibility calculation is defined by the ratio of the project’s contributing peak hour volume to the total peak volume at an intersection or roadway link.

For intersections, the fair-share responsibility is defined as the project’s contributing peak hour volume at all approaches divided by the total peak hour volume at allapproaches, during the peak hour period in which an impact is identified. If an impact occurs during both the morning and evening peak periods, then the project is responsible for the higher fair-share percentage calculated.

For roadway links, the fair-share responsibility is determined based on a multi-step process. First, the higher percentage calculated by direction, based on the contributing peak hour volume for each directional link of the roadway segment divided by the total peak hour volume for each directional link of the roadway segment. If an impact occurs during both the morning and evening peak periods, then the project is responsible for the highest fair-share percentage calculated by directional link and by peak period.

Development within the North Irvine Mitigation Program (NITM) is subject to the NITM Ordinance in terms of NITM mitigation fee responsibilities. Sections of the NITM Ordinance (Resolution 03-61) are included as Exhibit 7.

Transportation Demand Management

In some cases, there are opportunities to provide for transportation alternatives to the single occupant automobile, or to shift the impacts of automobile use. Developers may be required to provide facility improvements in accordance with the City's Trip Reduction Ordinance (TRO), City Council Ordinance No. 91-22, subsequently updated as City Council Ordinance No. 96-03, that encourage use of alternative modes of transportation to and from the worksite. In addition, projects within the Irvine Spectrum and Irvine Business Complex (IBC) will be subject to Spectrum Trip Reduction and IBC Trip Reduction Programs. TDM is further discussed in the VMT Impact Analysis Guidelines (Exhibit 8).

The City may examine the feasibility of implementing a policy which would allow applicants a reduction in trip generation rates for the subject project's study. If the City establishes such a program, a reduction in trip generation may be granted by the City, at the applicant's request, for the project. The City may require, at a minimum, that the following information be included in the request: 1) demonstration of the ability toachieve the specific levels of trip reduction assumed; and 2) documentation of the monitoring and compliance program to ensure success of its TDM program. The City may require additional mitigation or the payment of fees if the project generates trips in excess of the levels approved through the study. Exhibit 8 should be referenced for further discussion of TDM.

Another approach may be to determine allowable trip thresholds instead of granting square footage thresholds. Monitoring shall be used to establish progress toward trip thresholds. The applicant shall be responsible to limit trip generation through ridesharing, transit, and other means. If the applicant fails to limit trips to the approved threshold, the City may require the applicant to forego future development (for phased projects), provide additional mitigation measures, or pay fees. Each applicant shall be conditioned to implement a monitoring and compliance program to ensure the successful implementation of its TDM program.

Conclusion

This section of the study shall summarize the required improvements and the proposed

mitigation measures. This shall include:

- Roadway Improvements
- Resultant LOS with Proposed Improvements in Place
- Costs
- Schedule
- Funding Sources
- TDM Inclusion
- Identification of TDM Monitoring
- Results of VMT impact analysis (if applicable)

INTER-JURISDICTIONAL REVIEWS

Review of the traffic study by jurisdictions potentially affected by the development shall be consistent with city requirements and CEQA guidelines when applicable, as well as any agreements that may be in place between the City and that jurisdiction.

Any comments received from the affected jurisdiction shall be addressed by the applicant, to the satisfaction of the Director of Public Works and Transportation or designated staff under the direction of the Director.

If LOS improvements within other jurisdictions are identified, such improvements shall be identified. The applicant shall be conditioned to enter into an agreement between the applicant (and/or his/her successors), the City of Irvine and the affected jurisdiction. This agreement shall establish the manner in which the improvements will be made, timing of those improvements and the procedure by which funding shall be made by the applicant for the improvements.

REVISIONS TO THE TRAFFIC STUDY GUIDELINES

The Transportation Commission at the recommendation of the Director of Public Works and Transportation may periodically revise the City's Traffic Study Guidelines when it is determined: (1) such revisions are consistent with the policies, goals, and objectives of the City as declared by the City Council, and (2) such revisions are essentially technical and/or administrative and conforming in their nature and, thus, do not require processing through normal amendatory proceedings of the City.

Any technical updates to the VMT significance thresholds to address SB 743 that are contained in the VMT Impact Analysis Guidelines (Exhibit 8) are subject to approval by the Transportation Commission at the recommendation of the Director of Public Works and Transportation. All other revisions to the Traffic Study Guidelines shall be approved by Resolution of the City Council.

EXHIBITS

Exhibit 1: Traffic Study Outline

I. Executive Summary

II. Introduction
  A. Study Area

III. Existing Conditions

IV. Existing Conditions with Proposed Development

V. Future Traffic Without Proposed Development
  A. Projected Traffic
  B. Committed Improvements

VI. Proposed Project Impacts
  A. Model Trip Generation
  B. Adjustments to Trip Generation
  C. Trip Distribution and Trip Assignment
  D. Phased Projects

VII. Future Traffic With Proposed Development

VIII. Cumulative Analysis (if applicable)

IX. Analysis/Performance Criteria

X. Special Issues (As Needed)
  A. Site Access Analysis
  B. Transit Connectivity and Pedestrian Circulation
  C. Congestion Management Program (CMP) Consistency/Requirements
  D. Circulation Phasing Locations
  E. CEQA VMT Analysis Summary
  F. Others, as appropriate

XI. Required Improvements/Recommendations
  A. Improvement Needs
  B. Schedule/Cost of Improvements
  C. Fee Assessment/Responsibility for Improvements
  D. Transportation Demand Management

XIII. Conclusion

Exhibit 2: Comprehensive Traffic Study vs Limited Scope Traffic Study Requirements

A comprehensive traffic study and a limited scope traffic study are generally prepared in the same manner and under the same general criteria. The following table highlights the key differences between a comprehensive traffic study and a limited scope traffic study:

	Comprehensive Traffic Study	**Limited Scope Traffic Study**
Study Area	Per guidelines	Limited to adjacent intersections
Analysis	Short-term and Long-range Interim Years, General Plan Buildout Year	Short-term Interim Year (Project Buildout)
Scopes of Work	Approved by Director of Public Works and Transportation or designated staff under the direction of the Director	Approved by Director of Public Works and Transportation or designated staff under the direction of the Director
Approval	Director of Public Works and Transportation recommendation to the Commission body and/or City Council	Director of Public Works and Transportation recommendation to the Commission body and/or City Council if appropriate

Exhibit 3: Traffic Study Types

Traffic Study Type	When is this type of study required?	What is included in this study?
APPLICABLE CITYWIDE (except NITM and IBC areas)		
Comprehensive Traffic Study	• If proposed project requires a General Plan Amendment/Zone Change (GPA/ZC); or • Proposed project is estimated to generate 50 or more peak hour trips beyond existing or previously entitled use(s)	• Potential project impacts (including cumulative impacts) • Existing, short-term, long-range, build-out conditions • Large study area • Includes Access Study if site access and operations known
Limited-Scope Traffic Study	If proposed project is estimated to generate between 1 and 49 peak hour trips beyond existing or previously entitled use(s).	• Potential project impacts (incl. cumulative impacts) • Existing and short-term conditions • Localized study area • Includes Access Study
Access Study	If proposed project includes a new, removed or relocated driveway with no other changes to land use or estimated peak hour trips that would trigger the need for a comprehensive or limited-scope traffic study	Analysis of site access and operations (e.g., driveway lengths, turn pocket lengths, etc.)
Trip Generation/Unit Comparison Report	• If proposed project is determined by City Engineer in coordination with the City Traffic Engineer to be in "substantial conformance" with prior map approval when applicable; and • If the proposed project land use is generally consistent with the previously approved project "A" map, "B" map or CUP/Master Plan; and • If the proposed project generates trips equal to or less than prior approval based on ITE trip rates (or other trip generation rate approved by the City).	Comparison of project description and trips against previously approved project and trips
APPLICABLE IN NORTH IRVINE TRANSPORTATION MITIGATION (NITM) AREA ONLY *(Planning Areas 1, 5, 6, 9, 40 and 51)*		
Comprehensive Traffic Study	If proposed project requires a General Plan Amendment/Zone Change (GPA/ZC);	• Potential project impacts (including cumulative impacts) • Existing, short-term, long-range, build-out conditions • Extensive NITM study area (defined in NITM Ordinance) • Includes Access Study if site access and operations known

Map-Level Traffic Study	• If proposed project includes a large-scale ("A" map) that entitles land uses; or • If proposed project includes a more detailed ("B" map) that increases trips above prior approved map-level traffic study.	• Potential project impacts • Short-term condition • Extensive NITM study area • Includes Access Study
Traffic Evaluation Report	• If proposed project is determined to be "additive" consistent with Section 9-0-3(C) of the City's Municipal Code and General Plan Land Use Element Objective A-4; or • If proposed project includes a change in land uses that is inconsistent with the previously approved project "A" map, "B" map or CUP/Master Plan; or • If proposed project is determined by City Engineer in coordination with the City Traffic Engineer to not be in "substantial conformance" with the roadway network from a previously approved project "A" map or "B" map; and • If proposed project does not propose an increase in trips.	• Potential project impacts to confirm findings of previously approved project • Smaller study area than previously approved study • Includes Access Study
Access Study	If proposed project includes a new, removed or relocated driveway with no other changes to land use or estimated peak hour trips that would trigger the need for a more comprehensive study	Analysis of site access and operations (e.g., driveway lengths, turn pocket lengths, etc.)
Trip Generation/Unit Comparison Report	• If proposed project is determined by City Engineer in coordination with the City Traffic Engineer to be in "substantial conformance" with prior map approval when applicable; and • If the proposed project land use is generally consistent with the previously approved project "A" map, "B" map or CUP/Master Plan; and • If the proposed project generates trips equal to or less than prior approval based on ITE trip rates (or other trip generation rate approved by the City).	Comparison of project description and trips against previously approved project and trips.
APPLICABLE IN IRVINE BUSINESS COMPLEX (IBC) ONLY ***(Planning Area 36)***		
Comprehensive Traffic Study	• If proposed project requires a General Plan Amendment/Zone Change (GPA/ZC); or • If proposed project requires a Transfer of Development Rights (TDR); or • If proposed project is estimated to generate 50 or more peak hour trips beyond existing or previously entitled use(s).	• Potential project impacts (including cumulative impacts) for multiple study years: existing, short-term, long-range, build-out conditions • Large study area • May include ADT Waiver Report if project proposes an ADT beyond the ADT DIV • Includes Access Study if site access and operations known

Limited-Scope Traffic Study	If proposed project is estimated to generate between 1 and 49 peak hour trips beyond existing or previously entitled use(s).	• Potential project impacts (incl. cumulative impacts) • Existing and short-term conditions • Localized study area • May include ADT Waiver Report if project proposes an ADT beyond the ADT DIV • Includes Access Study
Access Study	If proposed project includes a new, removed or relocated driveway and no other changes to land use or estimated peak hour trips are proposed that would trigger the need for a comprehensive or limited-scope traffic study	Site access and operations (e.g., driveway lengths, turn pocket lengths, etc.)
Trip Generation/Unit Comparison Report	• If proposed project is determined by City Engineer in coordination with the City Traffic Engineer to be in "substantial conformance" with prior map approval when applicable; and • If the proposed project land use is generally consistent with the previously approved project "A" map, "B" map or CUP/Master Plan; and • If the proposed project generates trips equal to or less than prior approval based on ITE trip rates (or other trip generation rate approved by the City).	Comparison of project description and trips against previously approved project and trips
Average Daily Trips (ADT) Waiver Report	If proposed project results in additional average daily trips (ADT) beyond the ADT Development Intensity Values (DIVs) designated to that parcel	• Potential project impacts (including cumulative impacts) for adjacent roadway links in the existing, short-term, long-range and build-out conditions • Localized study area

Exhibit 4: Expansion of Use Assumptions Matrix

If a proposed development exceeds its trip budget or zoning entitlement, an analysis is performed using the following matrix:

Horizon Year	Vacant	Existing Development
Short-term Interim Year	**Baseline** – zero **With Project** - Total development proposed by this timeframe	**Baseline** – Existing development on the ground **With Project** – Total development proposed by this timeframe including any retained existing development
Long-range Interim Year	**Baseline** – approved zoning **With Project** – Total development proposed by this timeframe	**Baseline** –approved zoning **With Project** – Total development proposed by this timeframe including any retained existing development
General Plan Buildout Year	**Baseline** – approved zoning **With Project** – Total development proposed by this timeframe	**Baseline** –approved zoning **With Project** – Total development proposed by this timeframe including any retained existing development

Note: All previously approved/analyzed entitlement is assumed to have been mitigated.

Exhibit 5: CMP Monitoring Checklist

CONGESTION MANAGEMENT PROGRAM
(CMP) MONITORING CHECKLIST
LAND USE COORDINATOR COMPONENT

The CMP legislation requires that the CMP Agency monitor the implementation of the Orange County CMP, including CMP land use coordination component requirements. The following is a CMP Monitoring Checklist for the Land Use Coordination Component which has been developed to monitor impacts on CMP Highway System (CMPHS) links and intersections.

1. Project Applicant: _____

2. Project Name: _____

3. Project Description (Describe proposed land uses, square footage, # of dwelling units, size of parcel, etc.): _____

4. Previous Approvals: _____

5. Address/Location: _____

6. Case Number: _____

7. Date of Case Submittal: _____

8. Total Average Daily Trips: _____

9. Level of Service at CMP intersection: _____

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Development Project Submittal:

10. Does the proposed development project generate 2,400 or more Average Daily Trips?

    ____ Yes _____ No

11. Does the proposed development project generate more than 1,600 Average Daily Trips with direct access to, or in close proximity to, a CMP HighwaySystem?

    _____Yes No

** If you have answered NO to Items 10 and 11, a CMP Traffic Study is not required.

** If you have answered YES to Items 10 and 11, a CMP Traffic Study is required. Please continue.

CMP Traffic Impact Analysis:

12. Did the Traffic Study identify whether any CMP Highway Systemlinks/intersections would exceed their established Level of Service standard as a result of project related traffic?

    _____Yes No

13. If so, which CMPHS links/intersections and proposed mitigation?

    _____
    _____
    _____
    _____

14. Which, if any, of these impacted CMPHS links/intersections are located outside the boundaries of the City of Irvine?

    _____
    _____
    _____
    _____

15. Did the City of Irvine participate in interjurisdictional discussions with the affected jurisdictions to develop a mitigation strategy for each impacted link/intersection?

    _____Yes No

    If Yes to 15, briefly explain:_____

Projects Exempt From CMP Requirements:

16. Is the proposed development project exempt from CMP requirements?
_____ Yes _____ No

17. If so, please identify why the project was exempt from CMP requirements.
_____
_____
_____
_____

** A brief explanation to those items answered NO should be provided by the Transportation Engineer/Analyst.

Checklist Reviewed By:

_____ _____

Director of Public Works and Transportation Date

Exhibit 6: CMP Traffic Impact Analysis Exempt Projects

Those projects which are exempt from the mandatory CMP Traffic Impact Analysis are listed below. This list is not meant to be all-inclusive. Any inquiries regarding exemptions shall be transmitted in writing to the City of Irvine and the Orange County Transportation Authority, attention CMP Program Manager.

1. Applicants for subsequent development permits (i.e., conditional use permits, subdivision maps, site plans, etc.) for entitlement specified in and granted in a development agreement entered into prior to July 10, l989. [3]

2. Any development application generating vehicular trips below the Average Daily Trip (ADT) threshold for CMP Traffic Impact Analysis, specifically, any project generating less than 2,400 ADT total, or any project generating less than 1,600 ADT directly onto the CMPHS.[2,3]

3. Final tract and parcel maps.[1,2,3]

4. Issuance of building permits.[1,2,3]

5. Issuance of Certificates of Use and Occupancy.[1,2,3]

6. Minor modifications to approved developments where the location and intensity of project uses have been approved through previous and separate local government actions prior to January 1, 1992. [1,2,3]

---

[1]A CMP TIA is not required for these projects only in those instances where development approvals granting entitlement for the project sites were granted prior to the effective date of CMP TIA requirements (i.e., January 1, 1992).

[2]Exemption from conduction of a CMP TIA shall not be considered an exemption from such projects' participation in approved, transportation fee programs established by the local jurisdiction.

[3]Vehicular trips generated by CMP TIA-exempt development applications shall not be factored out in any traffic analyses or levels of service calculations for the CMPHS.

Source: Orange County Congestion Management Program-2001, Orange County Transportation Authority

Exhibit 7: North Irvine Traffic Mitigation (NITM) City Council Ordinance 03-61

CITY COUNCIL RESOLUTION NO. 03-61

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF IRVINE ADOPTING SCOPE OF WORK REQUIREMENTS FOR THE NORTH IRVINE TRANSPORTATION MITIGATION (NITM) PROGRAM

WHEREAS, by City Council Ordinance No. 03-21, the City of Irvine has adopted the North Irvine Transportation Mitigation ("NITM") Program, for the purposeof funding, implementing and expediting the coordinated and phased installation of required traffic and transportation improvements identified in previously certified CEQA documents in connection with land use entitlements for City Planning Areas 1, 2, 5, 6, 8, 9, 30, 40, and 51; and

WHEREAS, Section 6-3-703.E of the NITM Program requires the City Council to adopt, by Resolution, the required scope of work for a Comprehensive NITM Traffic Study, a Transfer of Intensity Analysis, a NITM Future Development Area Fee Allocation Plan, and a TTM/TPM Traffic Study, each of which is required to be conducted and/or prepared pursuant to the NITM Program (the "NITM Scopes of Work"); and

NOW THEREFORE BE IT RESOLVED that the City Council does hereby resolve as follows:

1. The scopes of work attached hereto and incorporated herein as Exhibit "A" as the NITM Scopes of Work are hereby approved.

2. Pursuant to Section 6-3-703.E of the NITM Program, the Director of Community Development is hereby authorized to revise any of the attached NITM Scopes of Work upon the unanimous recommendation of all of the members of the NITM Advisory Committee.

PASSED AND ADOPTED by the City Council of the City of Irvine at a regular meeting held on the 27th day of May 2003.

MAYOR OF THE CITY OF IRVINE

ATTEST:

CITY CLERK OF THE CITY OF IRVINE

STATE OF CALIFORNIA)
COUNTY OF ORANGE) SS
CITY OF IRVINE)

I JERI L. STATELY, City Clerk of the City of Irvine, HEREBY DO CERTIFY that the foregoing resolution was duly adopted at a regular meeting of the City Council of the City of Irvine, held on the 27th day of May 2003.

AYES:	5	COUNCILMEMBERS:	Krom, Mears, Shea, Ward and Agran
NOES:	0	COUNCILMEMBERS:	None
ABSENT:	0	COUNCILMEMBERS:	None

CITY CLERK OF THE CITY OF IRVINE

Comprehensive NITM Traffic Study

I. Background

The North Irvine Transportation Mitigation (NITM) Program was initially conducted in conjunction with the entitlement of Northern Sphere development, Planning Area 40, and the City of Irvine's Great Park (the "NITM Properties"). This program will provide the required funding for implementing the identified circulation improvements within the study area. It is recognized that this program will require periodic updates in response to the changes in land use and circulation system surrounding the analysis area. Furthermore, changes may be warranted in response to applications for modified development plans within the areas subject to the fee Ordinance. Therefore, the following procedures are established for conducting Comprehensive NITM Traffic Studies.

II. When a Comprehensive NITM Traffic Study is Required

A comprehensive NITM Traffic Study is required to be prepared in conjunction with anyof the following:

- 5-Year Reviews or Interim Reviews to reflect the latest land use, circulation, traffic modeling assumptions and procedures, and significant changes in the development features outside the NITM Properties. (See Section III.D.)

- Interim Reviews, as requested by an applicant, to address a proposed General Plan Amendment/Zone Change affecting one or more Future Development Areas. (See Section III.E.)

- Interim Reviews, as requested by an applicant, to address potential reduction to the List of NITM Improvements and associated NITM Fees due to land use intensity reduction within one or more Future Development Areas. (See Section III.F.)

The City shall initiate 5-Year Reviews in accordance with the NITM Program until such time that all required NITM Improvements are implemented and the collected fees are expended.

All Comprehensive NITM Traffic Studies shall be reviewed by the NITM Advisory Committee.

ID. Comprehensive NITM Traffic Study Scope and Methodology

Each Comprehensive NITM Traffic Study shall contain the following key elements and shall be prepared in accordance with the methodology outlined below:

A. Executive Summary

The type of review shall be discussed in this section. If the review is related to a project application, a short, clear, and concise description of the project triggering the review and the analysis findings shall be included in this section. Also included in this section shall be a summary of the recommended changes to the List of NITM Improvements and the correspondingly recommended NITM Fee modifications.

B. Introduction

This section of the report shall include a comprehensive description of the Project including the size of the Future Development Area and existing and proposed uses within each zoning category. Also included in this section shall be a detailed comparison of the proposed project to the assumptions included in the April 30, 2003 NITM Program Nexus Study prepared by Austin-Foust Associates or the latest Comprehensive NITM Traffic Study, whichever is more current.

The following elements shall be identified for the purpose of conducting the Comprehensive NITM Traffic Study:

Project Site

Project-specific information.

A project vicinity map showing the existing and the planned roadways to serve the project site, and a project site plan shall be included in this section of the report.

2. Study Area Boundary

The study area boundary for all Comprehensive NITM Traffic Studies shall be as shown on Exhibit A.

3. Existing, General Plan and Proposed Site Uses

Existing site uses and zoning as included in the April 30, 2003 NITM Program Nexus Study prepared by Austin-Foust Associates or the latest Comprehensive NITM Traffic Study, whichever is more current, shall be described. Proposed land uses shall be described and tabulated.

C. Existing Conditions

A summary of the status of the List of NITM Improvements (i.e. whetherconstructed, funding commitments from other programs) shall be discussed in this section.

D. 5-Year Reviews And Interim Reviews

It is anticipated that land use patterns and circulation system conditions will change in the future. These changes may impact the need for certain unconstructed NITM Improvements. Therefore, this review procedure shall be conducted to assess the need for the NITM Improvements previously identified on the List of NITM Improvements. This review procedure will not add any further projects to the List of NITM Improvements but could identify that some NITM Improvements are not needed or identify alternative improvements to the current List of NITM Improvements.

The following future conditions shall be analyzed for 5-Year Reviews and Interim Reviews, except for (i) Interim Reviews associated with a General Plan Amendment/Zone Change (GPZ/ZC) and (ii) project intensity reductions, which are discussed in Sections III.E. and III.F.:

1. New Interim Year (currently Year 2007)

The latest adopted Interim Year ITAM shall be used for conducting this study. Land use and circulation assumptions within the NITM study area shall be reviewed to ensure consistency with the latest approvals and project features. The model network and land use assumptions shall be updated, as required. The purpose of this analysis is to aid the City in its identification of NITM Improvement phasing priorities or alternative improvements.

2. Interim Year Long Term (currently Year 2025)

The latest adopted Interim Year Long Term ITAM (currently Year 2025) shall be used for conducting this analysis. Land use and circulation assumptions within the NITM study area shall be reviewed to ensure consistency with the latest approvals and project features. The model network and land use assumptions shall be updated, as required. The purpose of this analysis is to determine if any NITM Improvements are no longer required based on updated assumptions or if alternative improvements are appropriate.

3. Build-out (Currently Post 2025)

The latest adopted Build-out Year (currently Post 2025) ITAM shall be used for conducting this study. Land use and circulation assumptions within the NITM study area shall be reviewed to ensure consistency with the latest approvals and project features. The model network and land use assumptions shall be updated, as required. The purpose of this analysis is to determine if any NITM Improvements are no longer required based on updated assumptions or if alternative improvements are appropriate.

4. Cost Estimates

Cost estimates for all projects on the List of NITM Improvements shall beupdated for 5-Year Reviews only. Actual costs will be reflected for constructed improvements. Updated estimates will be prepared for unconstructed improvements.

5. Fair Share Allocation Update

Upon review of the List of NITM Improvements resulting from the analysis conducted in Sections III.D.2. and III.D.3. and by utilizing the ITAM model version and methodology used in the April 30, 2003 NITM Program Nexus Study prepared by Austin-Foust Associates or the latest Comprehensive NITM Traffic Study, whichever is more current, NITM Fees shall be recalculated as specified in Section 6-3-706 of the Ordinance. The fair-share percentage allocation to any Future Development Area shall be the same allocation as established in the April 30, 2003 NITM Program Nexus Study prepared by Austin-Foust Associates or as revised with the Interim Reviews conducted per Sections III.E. and III.F. or as revised through a Transfer of Intensity Analysis. Any new improvements which have not been included in the List of NITM Improvements are assumed to have been caused by land use/circulation changes outside of the NITM Properties and thus will not be added to the List of NITM Improvements. However, the 5-Year Review and Interim Reviews will include a discussion on alternative funding strategies that could be adopted to ensure construction of these new improvement needs.

E. Interim Reviews For General Plan Amendment/Zone Change Applications

As discussed ear1ier, project related Interim Reviews are required to be prepared for several scenarios. A GPA/ZC in a Future Development Area or deletion of a General Plan level roadway will require an Interim Review. The impacts of such a land use change or road deletion must be analyzed and appropriate potential mitigation measures must be identified. The applicant is 100% responsible for implementing any new circulation mitigation measures resulting from the GPA/ZC that are not included in the List of NITM Improvements. Also, the applicant shall be responsible for any increased fair-share allocation for NITM Improvements allocated to the future development of the Future Development Area in which the subject GPA/ZC is located, which would simultaneously result in a reduction of fair-share allocation to other Future Development Areas, as specified in Section 6-3-706 of the Ordinance.

GPA/ZC associated NITM Reviews shall conduct the following analysis:

1. Interim Year (currently Year 2007)

The latest adopted interim year ITAM version shall be revised to reflect the proposed project changes and new findings shall be presented regarding the phasing needs for NITM Improvements or alternative improvements.

2. Interim Year Long Term (currently Year 2025)

The latest adopted Interim Year Long Term (currently Year 2025) shall be revised to reflect the proposed project changes. The purpose of this analysis shall be to determine if a) any new improvements are needed, b) any NITM Improvements are no longer needed or c) alternative improvements are appropriate.

3. Build-out (currently Post 2025)

The latest adopted Build-out ITAM (currently Post-2025) shall be revised to reflect the proposed project changes. The purpose of this analysis shall be to determine if a) any new improvements are needed, b) any NITM Improvements are no longer needed or c) alternative improvements are appropriate.

4. NITM Fee Update for GPA/ZC

Upon review of the List of NITM Improvements resulting from the analysis conducted in Section III.E.2. and III.E.3., and by utilizing the ITAM model version and methodology used in the April 30, 2003 NITM Program Nexus Study prepared by Austin-Foust Associates, the NITM Fees shall be recalculated per the requirements of Section 6-3-706 of the Ordinance and reflecting any fair-share allocation modifications based on previously approved 5-Year Reviews, Interim Reviews and/or Transfer of Intensity Analyses. However, the fair-share allocation to any Future Development Area, except the Future Development Area site included in the GPA/ZC, shall not exceed the allocation established prior to the Interim Review. In no case will the NITM Fees for a Future Development Area which is not the subject of a GPA/ZC be increased.

F. Interim Reviews For Project Intensity Reductions

Intensity reductions in a Future Development Area without a GPA/ZC would potentially reduce the number or extent of NITM Improvements identified in the List of NITM Improvements. Such reductions shall not result in the increase of NITM Fees to any other Future Development Areas. Therefore, the following scenarios may be analyzed by the project applicant for determining if NITM Fees can be reduced:

1. Interim Year (Currently 2007)

The latest adopted interim year ITAM (currently 2007) study traffic model shall be revised to reflect proposed project changes if such changes might impact the City's assessment of NITM Improvement priorities or alternatives.

2. Interim Year Long Term (currently 2025)

The latest adopted Interim Year Long Term ITAM (currently 2025) shall be revised to reflect the proposed project changes and new findings will be presented including updated improvements. The purpose of this analysis is to determine if the reduced land use intensity will eliminate any needed NITM Improvements or result in alternative improvements.

3. Revised Build-out (currently Post 2025)

The latest adopted NITM analysis traffic model shall be revised to reflect the proposed project changes and new findings shall be presented including updated improvements. The purpose of this analysis is to determine if the reduced land use intensity will eliminate any needed NITM Improvements or result in alternative improvements.

4. NITM Fee Update For Intensity Reductions

Upon review of the List of NITM Improvements resulting from the analysis conducted in Sections III.F.2. and III.F.3., and by utilizing the ITAM model version and methodology used in the April 30, 2003 NITM Program Nexus Study prepared by Austin-Foust Associates, the NITM Fees shall be recalculated by eliminating any NITM Improvements no longer needed and reflecting any fair-share allocation modifications based on previously approved 5-Year Reviews, Interim Reviews and/or Transfer of Intensity Analyses. The fair-share percentage allocation to any Future Development Area for the remaining projects on the List of NITM Improvements shall be the same level as established prior to the Interim Review.

N. Comprehensive Traffic Study Technical Elements

A. Fair-Share Allocation

It is recognized that updated trip generation rates, circulation assumptions and land use assumptions will be used in Comprehensive NITM Traffic Studies prepared in conjunction with the NITM Program. However, for the purpose of re-calculating the fair-share allocation of Future Development Areas for the List of NITM Improvements, the methodology and assumptions (i.e. trip generation rates)

shall be consistent with the methodology and assumptions used in the April 30, 2003 NITM Program Nexus Study prepared by Austin-Foust Associates.

B. Trip Distribution

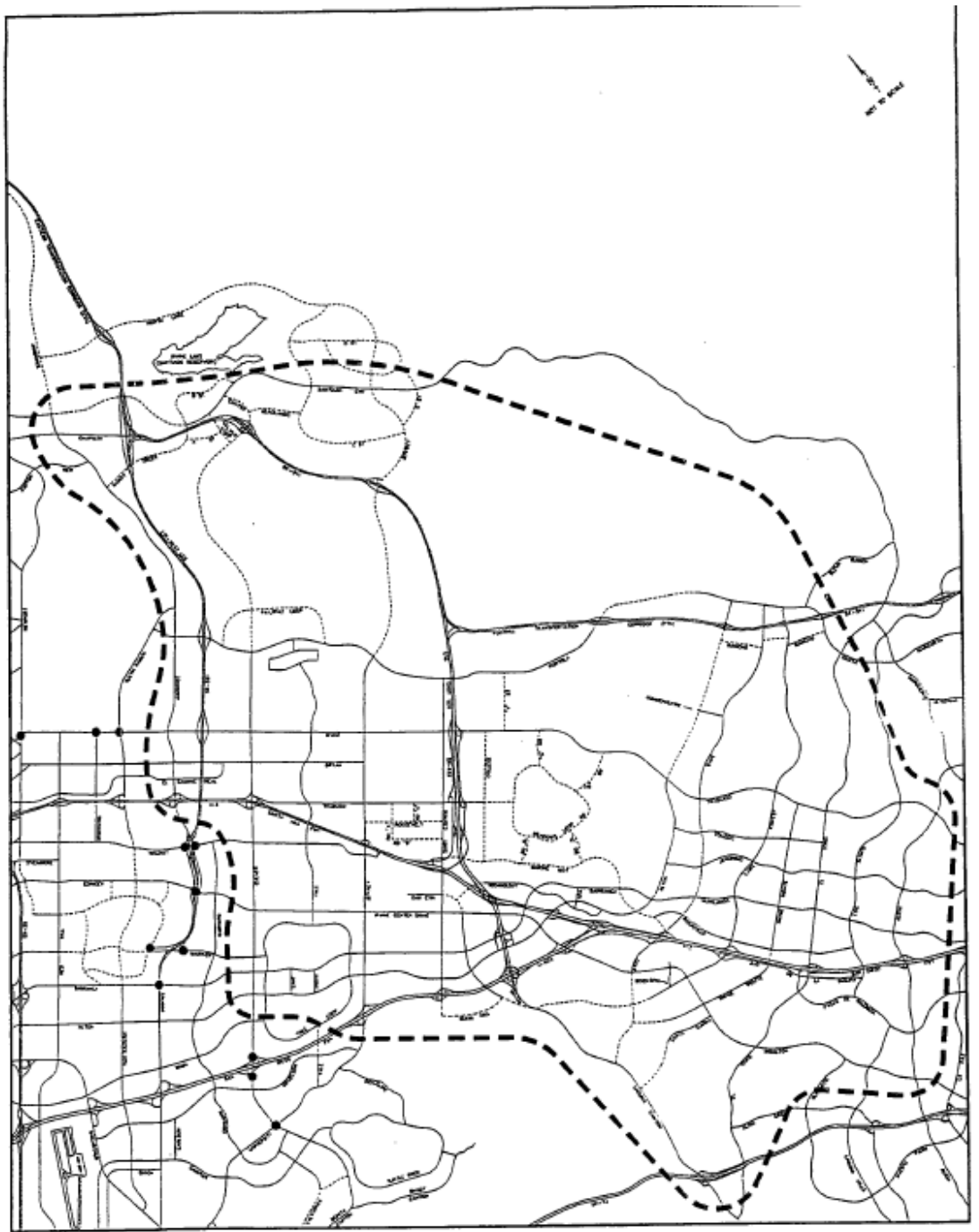
Trip distribution shall be based on ITAM model distribution.

C. Trip Assignment

Trip assignment shall be based on ITAM model assignment.

V. Performance Criteria

The performance criteria to re-assess the List of NITM Improvements and revise NITM Fees for 5-Year Reviews and Interim Reviews shall be consistent with the methodology utilized in the April 30, 2003 NJTM Program Nexus Study prepared by Austin-Foust Associates, and is attached as Exhibit B. It is recognized that performance criteria for assessing the impacts for a proposed GPA/ZC for CEQA purposes would be updated, as applicable.



Legend

- Study area boundary.
- Intersections analyzed outside of the defined study area.

Figure 1-1

NITM PROGRAM TRAFFIC ANALYSIS
STUDY AREA

EXHIBIT A

Table 1-:2

CIRCULATION SYSTEM PERFORMANCE CRITERIA

I. Arterial Roads

V/C Calculation Methodology

Level of service to be based on average daily traffic (ADT) volume/capacity (V/C) ratios calculated using the following capacities:

City of Irvine		
Major Arterial	8 lane	72,000
	6 lane	54,000
Primary Arterial	4 lane	32,000
Secondary Arterial	4 lane	28,000
Commuter	2 lane	13,000
City of Orange		
Major Arterial	8 lane	75,000
	6 lane	56,300
Primary Arterial	4 lane	37,500
Secondary Arterial	4 lane	24,000
Commuter	2 lane	15,000
County of Orange and Cities of Aliso Viejo, Laguna Hills, Laguna Woods, Lake Forest, Mission Viejo and Tustin		
Major Arterial	8 lane	75,000
	6 lane	56,300
Primary Arterial	4 lane	37,500
Secondary Arterial	4 lane	25,000
Commuter	2 lane	12,500

As required by the City of lrvine Link Capacity Analysis guidelines, arterial deficiencies identified based on ADT V/C ratios are to be further examined using peak hour data.

Performance Standard

CMP arterials outside the City of lrvine, PA33 (Spectrum I/Irvine Center) arterials and Lake Forest commercial streets: Level of Service E (peak hour V/C less than or equal to 1.00).

All other arterials: Level of Service D (peak hour V/C less than or equal to 0.90).

II. Intersections

V/C Calculation Methodology

Level of service to be based on peak hour intersection capacity utilization (ICU) values calculated using the following assumptions:

Saturation Flow Rate: 1,700 vehicles/hour/lane

EXHIBIT B

Table 1-2 (cont)
CIRCULATION SYSTEM PERFORMANCE CRITERIA

II. Intersections (cont)

V/C Calculation Methodology (cont)

Clearance Interval: 0.05
Right-Turn-On-Red Utilization Factor*: 0.00 for County of Orange intersections, 0.75 for intersections in all other jurisdictions.
* "De-facto" right-tum lane is assumed in the ICU calculation if 19 feet from edge to outside of through-lane exists and parking is prohibited during peak periods.

Performance Standard

CMP and Irvine Planning Area 33 (Spectrum I/Irvine Center) intersections, the Bake Parkway/ I-5 northbound ramp intersection, and intersections of Lake Forest commercial streets: Level of Service E (peak hour ICU less than or equal to 1.00).

All other intersections: Level of Service D (peak hour ICU less than or equal to 0.90).

III. FreewayfTollway Mainline Segments

V/C Calculation Methodology

Level of service to be based on peak hour V/C ratios calculated using the following capacities:

2,000 vehicles per hour per lane (vphpl) for mixed-flow (general purpose) lanes.

1,600 vphpl for a one-lane buffer-separated HOV facility.

1,750 vphpl for a two-lane buffer-separated HOV facility.

Performance Standard

Level of Service E (peak hour V/C less than or equal to 1.00).

IV. Freeway/Tollway Ramps

V/C Calculation Methodology

Level of service to be based on peak hour V/C ratios calculated using the following capacities:

Metered On-Ramps

A maximum capacity of 900 vehicles per hour (vph) for a one-lane metered on-ramp with only one mixed-flow lane at the meter.

Table 1-2 (cont)
CIRCULATION SYSTEM PERFORMANCE CRITERIA

IV. Freeway/Tollway Ramps (cont)

V/C Calculation Methodology (cont)

Metered On-Ramps (cont)

A maximum capacity of 1,080 (20 percent greater than 900) vph for a one-lane metered on-ramp with one mixed-flow lane at the meter plus one high occupancy vehicle (HOV) preferential lane at the meter.

A maximum capacity of 1,500 vph for a one-lane metered on-ramp with two mixed- flow lanes at the meter.

A maximum capacity of 1,800 vph for a two-lane metered on-ramp with two mixed-flow lanes at the meter.

Toll Ramps (On-Ramps and Off-Ramps)

A maximum capacity of 1,500 vph for a one-lane toll ramp with one cash (stopped) lane and one FasTrak (unstopped) lane.

Non-Metered and Non-Tolled On-Ramps and Off-Ramps

A maximum capacity of 1,500 vph for a one-lane ramp.

A maximum capacity of 2,250 (50 percent greater than 1,500) vph for a two-lane on- ramp that tapers to one merge lane at or beyond the freeway mainline gore point and for a two-lane off-ramp with only one auxiliary lane.

A maximum capacity of 3,000 vph for a two-lane on-ramp that does not taper to one merge lane and for a two-lane off-ramp with two auxiliary lanes.

Performance Standard

Level of Service E (peak hour V/C Jess than or c qual to 1.00).

Abbreviations: CMP - Orange County Congestion Management Program

EXHIBIT A-2

TENTATIVE MAPS (TTM/TPM) TRAFFIC STUDY SCOPES OF WORK

Tentative Maps (TTM/TPM)
Traffic Study Scope-Of-Work

The traffic study is intended to analyze the potential impacts of a proposed project on the affected segments of the circulation system and to identify appropriate mitigation measures where needed. The analysis will assess the potential impacts of a project in the short range City model horizon year scenario.

The study will address the transportation impacts of a project at the Tentative Map (TTM/TPM) level. The participation of the project in the NITM Program will address the project's long range and area-wide impacts. This study will serve as the basis of design for all internal project level roadways and it is intended to satisfy the requirements of all future phases of development within the project area, which will be developed consistent with the assumptions used in this analysis.

The Map level traffic study will also be utilized by the City in determining the priority of implementation for the List of NITM Improvements. Additionally, the City will use the information presented in these studies in evaluating the applicants' request for construction of improvements and corresponding credit and reimbursements in accordance with Section 6-3-709 of the Ordinance.

The traffic study will include the following key elements:

I. EXECUTIVE SUMMARY

This section will provide a short, clear and concise description of the project and the traffic study findings. Also, included in this section will be the proposed project mitigation measures. A discussion will be included to indicate that for purposes of this traffic analysis the project is assumed to be fully built-out by the City model short range horizon year (Interim Year - currently 2007).

II. INTRODUCTION

This section of the report will include a comprehensive description of the project including size of the planning area, general terrain features, existing and proposed uses within each zoning category, and key elements of the traffic analysis.

The following elements are identified for the purpose of conducting the traffic study:

A. Project Site

Project-specific information.

A project vicinity map showing the existing and the planned roadways to serve the project site, and a project site plan will be included in this section of the report.

B. Traffic Study Boundary

The traffic study boundary for all map level traffic studies will be consistent with the study area included in the April 30, 2003 NITM Program Nexus Study prepared by Austin-Foust Associates.

C. Existing, General Plan and Proposed Site Uses

Existing site uses and zoning will be described. Proposed land uses will be described and tabulated.

III. EXISTING CONDITIONS

A. Existing Site Uses

Existing land use on the site will be identified.

B. Existing Roadways and Intersections

The characteristics of the site's surrounding roadway network will be surveyed to verify the existing number of lanes, traffic signal locations, intersection configurations, and other visible factors which may have to be analyzed.

Existing roadway volumes, volume to capacity ratio and Level of Service at intersections will be included for the surrounding roadways and intersections adjacent to the project site.

IV. FUTURE CONDITIONS

The following future condition will be analyzed in the report:

A. Interim Year (currently 2007) without Proposed Project

The most current City of Irvine Transportation Analysis Model (ITAM) Interim Year version, with the most recently approved land uses and corresponding

network assumptions, will be used for conducting this analysis. Any additional development beyond the existing uses in the project area that might be assumed in ITAM will be deleted for the analysis of this scenario.

B. Interim Year (currently 2007) with Proposed Project

The most current City of Irvine Transportation Analysis Model (ITAM) Interim Year version, with the most recently approved land uses and corresponding network assumptions, will be used for conducting this analysis. The project will be assumed to be fully built-out for this analysis.

V. MODELING METHODOLOGY/APPROACH

The latest adopted Short Range Horizon Year (currently 2007) version of ITAM, which has been updated with the most recently approved land uses and corresponding circulation system features, will be used for conducting the traffic analysis. The modeling methodology and post processing procedures utilized in the model will be consistent with the methodology used in the April 30, 2003 NITM Program Nexus Study prepared by Austin-Foust Associates or the latest Comprehensive NITM Traffic Study, whichever is more current.

VI. PROPOSED PROJECT IMPACT

A. Trip Generation

A summary of trip generation characteristics and trip generation rates for each and all proposed land uses will be included in the report, consistent with ITAM trip generation rates and methodology. This information will be provided in a tabular form in the report.

B. Trip Distribution

The directions of approach to and departure from the site will be obtained based on the ITAM distribution and will be shown on an exhibit in the report. Where modifications are needed, appropriate methodology will be presented in the report for review and approval by the City.

C. Trip Assignment

Trip assignment will be based on model assignment.

VII. PERFORMANCE CRITERIA

The performance criteria to determine project impact and mitigation will be consistent with the City's criteria as utilized in the NITM Program analysis, which are consistent with the criteria used in Environmental Impact Reports (EIR) for Northern Sphere, Planning Area 40, and the City's Great Park. The traffic analysis performance criteria are further detailed on the attached Table 1. Also, the peak hour link analysis methodology utilized in the Northern Sphere and Great Park traffic studies will be followed for evaluating roadway capacity conditions and need for mitigation measures.

The use of and justification for utilizing the ATMS credit is subject to approval by the Director of Public Works per the applicable provisions of the City's ATMS program.

In accordance with the adopted City Council Resolutions No. 02-64 and 02-65, Level of Service "E" will be deemed acceptable in the: Irvine Spectrum Area (Planning Areas 13, 30, 31, 32, 33, 34, 35, 39) and at Sand Canyon/I-5 interchange intersection.

VIII. PHASING

The project will be assumed to be fully built-out by Interim Year (currently 2007).

IX. SPECIAL ISSUES

A. Project Site Access and Internal Circulation Analysis

The traffic study will evaluate the design and location of the proposed project access locations. Traffic control measures, including traffic signal warrant analysis, will be completed and discussed in the study. Also, the traffic analysis will address the internal circulation system design, traffic control measures, and lane requirements. Additionally, the study will provide recommendations for left turn and right turn pocket design features and lengths at all project access points, new intersections and modified existing intersections.

B. Pedestrian and Bicycle Circulation

The pedestrian and bicycle circulation and corresponding traffic control measures within the project area will be discussed in this section of the report.
The report will include a discussion demonstrating how Policies a, b, and c of General Plan Objective B-3, and how Policies a-k of Objective B-4 will be met with this project.

C. Circulation Phasing Report Intersections

Should the project adversely impact any Circulation Phasing Report identified intersections (latest City of Irvine version) within the project study area, an analysis, as required, will be included in this section of the study.

D. CMP Checklist

A Congestion Management Program (CMP) checklist will be completed in this section. Any affected CMP facility will be analyzed consistent with the CMP procedures.

E. Other issues as deemed appropriate by the Director of Public Works.

X. REQUIRED MITIGATION MEASURES AND/OR RECOMMENDATIONS

Project mitigation measures will be identified for the analysis horizon year. Based upon the results of the analysis, physical and/or operational improvements required in order to mitigate any potentially adverse project impacts will be identified in the traffic study. If NITM Improvements are proposed to be constructed as part of the project, the analysis shall be performed to identify the Level of Service at the location of the NITM Improvement both with and without the proposed NITM Improvement.

If the analysis identifies an impact at a location where there are no proposed NITM Improvements, then the applicant must implement the required improvement to mitigate this impact if the deficiency is caused by the project. However, if the project is adding to an existing deficiency at this location then the applicant will be required to pay its fair share of the required improvements to mitigate this impact. The fair share responsibility shall be determined consistent with the procedures utilized to determine NITM Fees.

XI. CONCLUSIONS

A summary of the results of the analysis and recommended improvements will be prepared.

XII. REVISIONS TO TRAFFIC STUDY

Revisions to the traffic study will be provided to respond to City of Irvine comments.

XIII. SIGNATURE

The traffic study will be prepared under the supervision of and signed, stamped and dated by a registered traffic engineer or a registered professional civil engineer with appropriate engineering and/or planning credentials.

Approved: _ _

Date: _____

Table 1

TRAFFIC ANALYSIS PERFORMANCE CRITERIA

I. **Arterial Roads**

V/C Calculation Methodology

Level of service to be based on average daily traffic (ADT) volume/capacity (V/C) ratios calculated using the following capacities:

City of Irvine

Major Arterial	8 lane	72,000
	6 lane	54,000
Primary Arterial	4 lane	32,000
Secondary Arterial	4 lane	28,000
Commuter	2 lane	13,000

City of Orange

Major Arterial	8 lane	75,000
	6 lane	56,300
Primary Arterial	4 lane	37,500
Secondary Arterial	4 lane	24,000
Commuter	2 lane	15,000

County of Orange and Cities of Aliso Viejo, Laguna Hills, Laguna Woods, Lake Forest, Mission Viejo and Tustin

Major Arterial	8 lane	75,000
	6 lane	56,300
Primary Arterial	4 lane	37,500
Secondary Arterial	4 lane	25,000
Commuter	2 lane	12,500

Performance Standard

CMP arterials outside the City of lrvine, PA33 (Spectrum I/Irvine Center) arterials and Lake Forest commercial streets: Level of Service E (peak hour V/C less than or equal to 1.00).

All other arterials: Level of Service D (peak hour V/C less than or equal to .90).

Mitigation Requirement

For V/C greater than the acceptable level of service, mitigation of the project contribution is required to bring link location back to acceptable level of service or to no-project conditions if project contribution is .02 or greater or greater than .03 for CMP roadways outside the City of Irvine (the impact threshold specified in the CMP).

(continued)

Table I (cont)
TRAFFIC ANALYSIS PERFORMANCE CRITERIA

II. **Intersections**

V/C Calculation Methodology

Level of service to be based on peak hour intersection capacity utilization (ICU) values calculated using the following assumptions:

Saturation Flow Rate: 1,700 vehicles/hour/Jane
Clearance Interval: .05
Right-Tum-On-Red Utilization Factor*: .00 for County of Orange intersections, .75 for intersections in all other jurisdictions.

- "De-facto" right-tum lane is assumed in the ICU calculation if 19 feet from edge to outside of through-lane exists and parking is prohibited during peak periods.

Performance Standard

CMP and Irvine Planning Area 33 (Spectrum 1/lrvine Center) intersections, the Bake Parkway/ I-5 northbound ramp intersection, and intersections of Lake Forest commercial streets: Level of Service E (peak hour ICU Jess than or equal to 1.00).

All other intersections: Level of Service D (peak hour ICU less than or equal to .90).

Mitigation Requirement

For ICU greater than the acceptable level of service, mitigation of the project contribution is required to bring intersection back to acceptable level of service or to no-project conditions if project contribution is greater than .03 at CMP locations (the impact threshold specified in the CMP), .02 or greater at locations in the Cities of Aliso Viejo, Irvine, Laguna Hills, Laguna Woods, Lake Forest, Mission Viejo, Orange and Tustin, and .01 or greater at County of Orange locations (the impact threshold specified in the GMP).

III. **Freeway/Tollway Mainline Segments**

V/C Calculation Methodology

Level of service to be based on peak hour V/C ratios calculated using the following capacities:

2,000 vehicles per hour per lane (vphpl) for mixed-flow (general purpose) lanes.
1,600 vphpl for a one-Jane buffer-separated HOV facility.
1,750 vphpl for a two-lane buffer-separated HOV facility.

Performance Standard

Level of Service E (peak hour V/C less than or equal to 1.00).

Mitigation Requirement

Approved: _ _

Date: _____

For V/C greater than the acceptable level of service, mitigation of the project contribution is required to bring freeway/tollway mainline location back to acceptable level of service or to no-project conditions if project contribution is greater than .03 (the impact threshold specified in the CMP).

(continued)

Table 1 (cont)
TRAFFIC ANALYSIS PERFORMANCE CRITERIA

IV. Freeway/To11way Ramps

VIC **Calculation Methodology**

Level of service to be based on peak hour V/C ratios calculated using the following capacities:

Metered On-Ramps

A maximum capacity of 900 vehicles per hour (vph) for a one-lane metered on-ramp with only one mixed-flow lane at the meter.

A maximum capacity of 1,080 (20 percent greater than 900) vph for a one-lane metered on-ramp with one mixed-flow lane at the meter plus one high occupancy vehicle (HOV) preferential lane at the meter.

A maximum capacity of 1,500 vph for a one-lane metered on-ramp with two mixed-flow lanes at the meter.

A maximum capacity of 1,800 vph for a two-lane metered on-ramp with two mixed-flow lanes at the meter.

Toll Ramps (On-Ramps and Off-Ramps)

A maximum capacity of 1,500 vph for a one-lane toll ramp with one cash (stopped) lane! and one FasTrak (unstopped) lane.

Non-Metered and Non-Tolled On-Ramps and Off-Ramps

A maximum capacity of 1,500 vph for a one-lane ramp.

A maximum capacity of 2,250 (50 percent greater than 1,500) vph for a two-lane on-ramp that tapers to one merge lane at or beyond the freeway mainline gore point and for a two-lane off-ramp with only one auxiliary lane.

A maximum capacity of 3,000 vph for a two-lane on-ramp that does not taper to one merge lane and for a two-lane off-ramp with two auxiliary lanes.

Performance Standard

Level of Service E (peak hour V/C less than or equal to 1.00).

Mitigation Requirement

For V/C greater than the acceptable level of service, mitigation of the project contribution is required to bring ramp back to acceptable level of service or to no-project conditions if project contribution is greater than .03 for ramps at CMP intersections (the impact threshold specified in the CMP), .02 or greater for ramps at intersections in the Cities of Aliso Viejo, Irvine, Laguna Hills, Laguna Woods, Lake Forest, Mission Viejo, Orange and Tustin, and .01 or greater for ramps at County of Orange intersections (the impact threshold specified in the GMP).

Approved: _ _

Date: _____

Abbreviations: CMP - Orange County Congestion Management Program
GMP - Growth Management Plan

Approved: _ _

Date: _____

EXHIBIT A-3

TRANSFER OF INTENSITY ANALYSIS

Transfer of Intensity Analysis

1. Transfer of Intensity Analysis

   A Transfer of Intensity Analysis shall be prepared in connection with a proposed transfer of development rights or intensity (dwelling unit transfers) between Future Development Areas as permitted in City of Irvine Zoning Code, Sections 9-5-7, 9-6-7, 9-8-7 and 9-9-7. The purpose of a Transfer of Intensity Analysis is to identify the amount of Total Future Development Area NITM Impact Fees which will be transferred from one Future Development Area to another Future Development Area.

2. Transfer of Intensity Analysis Scope-of-Work

   a. In conjunction with the filing of a request for a transfer of development rights, the applicant shall submit a Transfer of Intensity Analysis to the Director. This request will identify the specific number of dwelling units to be transferred from one Future Development Area to another Future Development Area.

   b. The Transfer of Intensity Analysis shall identify the amount of Total Future Development Area NITM Fees to be transferred based on ADT trip generation. The NITM Fees to be transferred will be in direct proportion to the percentage of trip generation within a Future Development Area that is being transferred. For example, if 5% of the ADT is being transferred, then 5% of the Total Future Development Area NITM Fees will be transferred.

EXHIBIT A-4

NITM FEE ALLOCATION PLAN

NITM Fee Allocation Plan

Pursuant to the NITM Ordinance, an applicant may, prior to the earlier of (i) the Issuance of First Building Permit, or (ii) the Commencement of Construction, elect a payment method other than that of paying, at that time, all of the Total Future Development Area NITM Fees for a particular Future Development Area. After such election has been made, a NITM Fee Allocation Plan ("Plan") must be submitted to the City of Irvine ("City") Director of Community Development ("Director") in conjunction with the submittal of an application for each TPM or TTM within that Future Development Area that covers property which has not already been mapped in a previous TPM or TTM.

NITM Fee Allocation Plan

The following procedures must be followed in developing a Plan:

1. Identify Payment Option

   With submittal of the First TTM or TPM within an FDA, identify the payment option to be selected for the first TTM or TPM as outlined in Section 6-3-705.B of the Ordinance. Payment of all or a portion of Total Future Development Area NITM Fees can be satisfied through use of available credits and/or construction of NITM Improvements (see 3 below).

2. Alternative Payment Selection

   After the applicant has elected one of the three alternative payment selection options identified in Section 6-3-705.B, the applicant shall submit a Plan that assigns NITM fees to the entire TTM/TPM and apportions these fees to each of the Parcels within the TTM/TPM. The Plan shall include the following elements:

   a. In the case in which the TTM or TPM covers the entire FDA, the Plan shall identify whether the Total Future Development Area NITM Fees shall be funded through an Assessment District ("AD"), Community Facilities District ("CFD"), contractual arrangement, building permit impact fees, utilization of available credits, construction of NITM Improvements or a combination of the above. If a portion of the Total Future Development Area NITM Fees are to be satisfied through the use of available credits and/or construction of NITM Improvements, the Plan must identify which Parcel(s) will utilize such credits or NITM Improvements towards satisfaction of its Total Parcel NITM Fee obligation.

   b. For cases in which the TTM or TPM is a portion of the FDA, the Plan shall include an allocation of the Total TPM/TTM NITM Fees for the subject TTM or TPM, as well as a summary of the status of the remaining Total Future Development Area NITM Fee obligation, by providing the following:

- Submission to the Director of a trip generation-based "Cost Assignment Matrix" clearly showing the amount of the Total Future Development Area NITM Fees to be allocated to the TTM or TPM and the amount of the Total Future Development Area NITM Fees to be allocated to other properties within the FDA. The amount to be allocated to a TTM or TPM shall be based on the percentage of socioeconomic-based trip generation ADT of the TTM or TPM to the total ADT within the FDA. The socioeconomic-based trip generation rates shall be the same rates utilized in the April 30, 2003 NITM Nexus Study prepared by Austin-Foust and Associates. If a TTM or TPM has previously been approved within a FDA, the Total TTM/TPM NITM Fee allocation for the subsequent TTM or TPM shall be based on the percentage of ADT of the subsequent TTM or TPM to total ADT within the FDA less the ADT of the previously approved TTM or TPM. The following example demonstrates how this allocation procedure will be implemented:

Total FDA NITM Fee	=	$10,000,000
Total FDA ADT	=	10,000
Initial TIM ADT	=	2,000
Remainder of FDA ADT = (10,000-2,000)	=	8,000
Initial TTM NITM Fee = $1OM x (2,000/10,000)	=	$2,000,000
Remainder of FDA NITM Fee	=	$8,000,000
Second TTM ADT	=	4,000
Second TTM NITM Fee == $8M x (4,000/8,000)	=	$4,000,000
Remainder of Total FDA NITM Fee	=	$4,000,000

- Identification of how the allocation of Total TTM/TPM NITM Fees will be funded through AD, CFD, contractual arrangement, available credits, construction of NITM improvements or a combination of theabove. The Plan should summarize the status of the Total Future Development Area NITM Fee obligations for the FDA.

- Summary of the portion of the Total Future Development Area Fees that will not be funded by the TTM or TPM.

- If a portion of the Total TTM/TPM NITM Fees are to be satisfied through the use of available credits and/or construction of NITM Improvements, the Plan must identify which specific Parcel(s) will utilize such credits or NITM Improvements towards satisfaction of its NITM Fee obligations.

c. Assessment District or Community Facilities District Financing

Where AD or CFD financing is used, provide information on the boundary of the AD or CFD, timing of availability of funds, and NITM Improvements to be constructed by AD or CFD. The Plan shall identify how NITM Fees within the TTM or TPM are to be paid if bond proceeds are not available prior to issuance of the First Building Permits or Commencement of Construction.

d. Contractual Arrangement

Where a contractual arrangement financing is to be used, describe proposed arrangement including payment schedule, utilization of available credits (if any), and timing of construction (if any) of NITM Improvements (see 3 below). The Plan shall identify how NITM Fees shall be paid within the TTM or TPM if the NITM Improvements are not constructed per the terms of the agreement required in Section 6-3-709 of the Ordinance.

e. Building Permit Fees

Where NITM Fees are to be paid with building permits, provide how the Total TTM/TPM NITM Fee obligation will be distributed among the Parcels within the TTM or TPM. The actual unit fees must be identified at the time a subsequent TTM or TPM or Master Plan is filed, as noted below.

- The developer of each Parcel shall be responsible for paying the Total Parcel NITM Fees, even if the development ultimately proposed and constructed is less than the amount of development assumed when the Plan was approved. The Total Parcel NITM Fees may only be modified in conjunction with the approval of a General Plan Amendment, Zone Change, Transfer of Intensity, or a Five Year Review, Interim Review, or annual inflation escalator.
- With the exception of the annual inflation escalator, the Total Parcel NITM Fees assigned to each Parcel may not be adjusted for any reason once a final map has been recorded within that Parcel and a building permit has been issued.
- In conjunction with subsequent applications to develop or subdivide a Parcel, the applicant shall submit a plan to allocate the Total Parcel NITM Fee obligation through a unit based fee payment schedule with a fixed amount per dwelling unit, building square foot or acre. The plan shall account for the entire Total Parcel NITM Fee obligation. This plan must be approved prior to the issuance of the first building permit or commencement of construction within the Parcel.

3. Identify those NITM Improvements and associated costs that the applicant is proposing to construct in conjunction with the development of the TTM or TPM in lieu of payment of NITM Fees. If these improvements and associated costs do not cover the Total TTM/TPM NITM Fees covered by the Plan, explain how the remainder of the Total TTM/TPM NITM Fees will be paid. Submit an exhibit showing any applicant owned right-of-way, which has been identified for NITM Improvements, and associated costs that the applicant is proposing to provide to the City in conjunction with the development of the TTM or TPM in lieu of payment of NITM Fees. Any reimbursements or credits for such improvements and/or right-of-way are subject to the provisions of Section 6-3-709 of the Ordinance.

Exhibit 8: VMT Impact Analysis Guideline (SB 743)

RESERVED

CEQA VMT IMPACT ANALYSIS GUIDELINES

Adopted by City Council on June 23, 2020
Technical Update approved on March 21, 2023
by the Transportation Commission as
authorized by CityCouncil Resolution No. 20-59

Prepared by:

City of Irvine

Department of Public Works and Transportation

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INTRODUCTION

Vehicle miles traveled (VMT) impact analysis is required in order to comply with the State's updated California Environmental Quality Act (CEQA) Guidelines and Senate Bill (SB) 743 (Steinberg). On September 27, 2013, Governor Jerry Brown signed SB743 into law, which requires a shift in the way cities measure environmental impacts. The Office of Planning and Research (OPR) is requiring all cities to measure transportation impacts using VMT as the metric to determine the significance under CEQA. This approach promotes the reduction of greenhouse gas emissions, the development of multimodal transportation networks prioritizing safety and access for all street users, and a diversity of land uses.

State guidelines require that all cities implement VMT as the metric for CEQA impact analysis by July 1, 2020. This document serves as the implementation guide for VMT impact analysis required for land use and transportation projects within the City of Irvine.

The City's methodology for evaluating traffic operations based on level of service (LOS) outside of the CEQA requirements will remain unchanged.

BACKGROUND

The VMT approach was selected by OPR to address traffic impacts with the goal of reducing vehicle emissions by optimizing land use planning through job-housing balancing in localized areas and by enhancing the multimodal transportation system, both of which promote less dependency on vehicles. Prior CEQA laws addressed traffic impacts also with the goal of reducing vehicle emissions but by way of improving Level of Service (LOS) or traffic delay. The LOS is improved by construction of new roadways or additional capacity on roadways, that in turn reduces vehicle idling and thereby lowers emissions. The unintended consequence is that the added capacity supports vehicle dependency, thereby increasing vehicle emissions.

VMT captures the daily automobile trips generated by a proposed development, multiplied by the estimated number of miles driven for each trip. In December 2018, OPR issued a Technical Advisory that recommended using VMT per capita for residential projects and VMT per employee for office projects as "efficiency" metrics, rather than the absolute VMT. The VMT per capita for residential projects (or VMT per employee for office projects) is then compared to a threshold of significance to determine whether a project results in a significant impact. The thresholds of significance are determined based on the regional or sub-regional existing VMT rates for similar land uses or some desired reduction thereof.

The rationale for using the per capita and per employee "efficiency" metric is that population growth is unavoidable, and therefore total VMT is expected to increase. However, decreasing VMT on a per-person basis, in combination with other measures to increase vehicle efficiency and reduce fuel carbon content, will result in a measurable decrease in greenhouse gas production.

CEQA VMT IMPACT ANALYSIS FOR LAND USE PROJECTS

Consistent with the framework outlined in the OPR Technical Advisory, the steps taken to satisfy CEQA for land use project evaluation include: (1) first determine which projects require a VMT impact analysis (i.e., screening); (2) calculate the project VMT metric; (3) compare the metric to a threshold to determine whether the project creates significant impacts(s) on the environment; and (4) develop mitigation to reduce or avoid the significant effects. An overview of the process is illustrated in Figure 1 (right column). Each step is described within this document and the attached Technical Appendix provides documentation to support the City's screening process, methodology, thresholds and mitigation measures.

Screening

All discretionary land use projects subject to CEQA will be considered for a VMT impact analysis as part of the environmental review process. A discretionary development application is a development proposal that requires approval by the City Council, Planning Commission, or Zoning Administrator at a public hearing, before grading or building permit applications may be submitted and/or approved.

Examples of discretionary development applications include, but are not limited to:

- Master Plans (MP) for development of certain sites and land uses in particular zoning districts;
- Conditional Use Permits (CUP) for development of proposed land uses not permitted by right in a particular zoning district as identified in the Zoning Ordinance; and
- Subdivision, Maps (i.e., tentative tract and/or parcel) for development that divides land into lots for the purpose of sale, leasing, or financing.

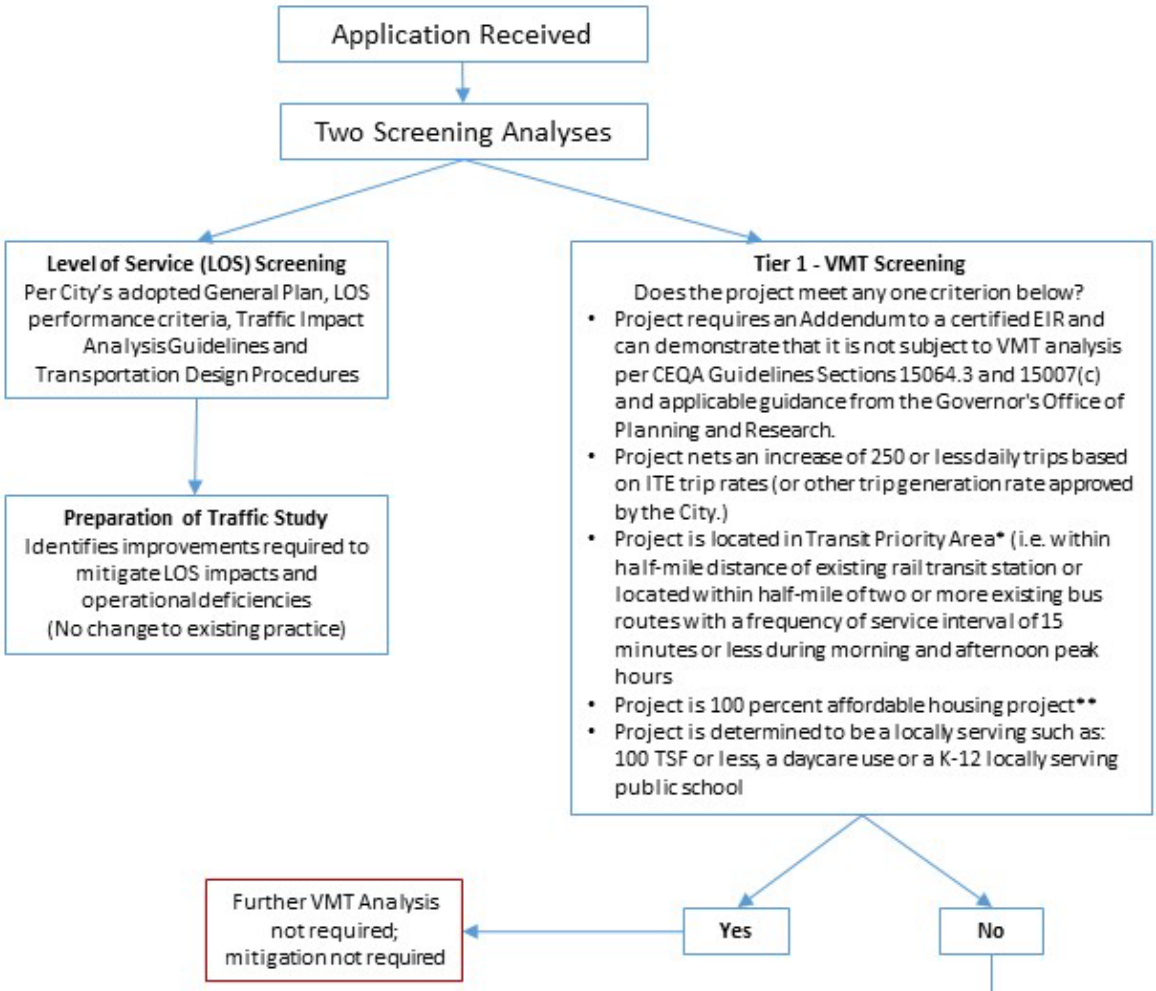
If an analysis of environmental impacts related to transportation (i.e., VMT impact analysis) is required for a discretionary project, but the project applicant demonstratesto the satisfaction of the Director of Public Works and Transportation (or assigned staff under the direction of the Director) that the project meets any one of the following five screening criteria, then no further VMT impact analysis is required:

1. The project requires an Addendum to a certified EIR and can demonstrate that it is not subject to VMT analysis per CEQA Guidelines Sections 15064.3 and 15007(c) and applicable guidance from the Governor's Office of Planning and Research.
2. The project results in a net increase of 250 or less weekday daily trips based on latest edition of the Institute of Transportation Engineers (ITE) trip rates (or other trip generation rate approved by the City).
3. The project is located in a Transit Priority Area (i.e., within half-mile distance of existing rail transit station or located within half-mile of two or more existing bus routes with a frequency of service interval of 15 minutes or less during morning and evening peak hours) except when the project:

a. Has a Floor Area Ratio (FAR) of less than 0.75;
b. Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking);
c. Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization; or
d. Replaces affordable residential units with a smaller number of moderate, or high-income residential units.

4. The project is a 100 percent restricted affordable housing units (Note: If less than 100 percent, the number of restricted affordable units is not subject to VMT impact analysis. “Restricted” for VMT analysis purposes shall mean having a recorded instrument against the property that defines affordability terms).
5. The project is locally serving such as 100,000 square feet or less of retail use, a daycare use or a locally serving public school (kindergarten through 12th grade).

Figure 1
VMT Impact Analysis Methodology Flow Chart for Land Use Projects



*Except when the project: (1) has a Floor Area Ratio of less than 0.75, (2) includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking), (3) is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization), or replaces affordable residential units with a small number of moderate- or high-income residential units
** If less than 100 percent, the number of restricted affordable units is not subject to VMT impact analysis. "Restricted" for VMT impact analysis purposes shall mean having a recorded instrument against the property that defines affordability terms.
*** indicates that other VMT-contributing groups may be applicable for residential projects with an affordability component and non-residential projects, such as medical office, with project-specific expected number of patients per day.

Tier 2 – Comparison with VMT Rate Threshold(s)

Step 1: Calculate the change in VMT Rate based on residential or non-residential project uses. If mixed use, calculate each use.

Calculation:

$$\text{Project VMT Rate} = \frac{\text{(Project VMT)}}{\text{(Project Pop or Emp + Other VMT-Contributing Groups***)}}$$

Step 2: Compare the Project VMT Rate against the City's VMT Rate Threshold. This calculation is done for both residential component and non-residential component separately if project is mixed use.

Step 3: If project VMT rate is less than the City's VMT threshold rate for each project use, no mitigation is required. For mixed-use projects, the project will mitigate the use that causes the impact. If both uses cause impact, mitigate both uses.

Impact Analysis Methodology for Land Use Projects

All projects that require CEQA analysis must include a VMT Impact Analysis discussion (i.e., Tiers 1 and 2 in Figure 1) within the Special Issues section of a project's traffic study.

For those projects that are not screened out, the project's analysis of resulting VMT rate must be evaluated and compared against the applicable adopted VMT rate threshold, using the City's VMT traffic model (ITAM TransCAD 2018 VMT). The City's VMT traffic model is calibrated and validated to represent baseline existing conditions, and this unique VMT traffic model was used to determine existing VMT rates and will also be used for VMT impact analysis for a project.

The steps for VMT impact analysis include:

- For residential projects, the project's Residential VMT per capita rate will be evaluated against the residential VMT per capita threshold goal:
  - If the project's residential VMT rate is less than or equal to the City's adopted residential VMT rate threshold, then no impact results and no mitigation is required.
  - If the project's residential VMT rate is greater than the City's adopted residential VMT rate threshold, then the project has a VMT impact and mitigation is required.
- For non-residential projects (i.e., office, industrial, retail greater than 100,000 total gross square feet, hotels, hospitals, commercial recreation, university uses),the project's non-residential VMT per employee rate will be evaluated against thenon-residential VMT per employee threshold goal:
  - If the project's non-residential VMT rate is less than or equal to the City's adopted non-residential VMT rate threshold, then no impact results and no mitigation is required.
  - If the project's non-residential VMT rate is greater than the City's adopted non-residential VMT rate threshold, then the project has a VMT impact and mitigation is required.
- For mixed-use projects that include both residential and non-residential uses, all project land uses will be evaluated, except for those specific land uses screened out in Tier 1. Both the residential VMT per capita and non-residential VMT per employee will be evaluated separately. If either residential or non-residential uses cause impacts, such uses will be mitigated.

Each residential project should consider if it is appropriate to account for other VMT-contributing groups (i.e. residential projects with affordability component).

Each non-residential project should consider if it is appropriate to account for VMT-contributing groups in addition to VMT-contributing employees (i.e., medical office

uses).

If the project results in a VMT impact, then mitigation is required to reduce the project's VMT rate to the City's adopted VMT rate threshold.

Thresholds of Significance

The City's goal and associated significance criteria is for new projects to generate 15 percent less VMT per capita (or per employee) compared to existing conditions, which is consistent with OPR's Technical Advisory recommendations. City staff will periodically update the VMT thresholds based on the latest calibrated and validated VMT traffic model. Any technical updates to the VMT significance thresholds are subject to the approval of the Transportation Commission at the recommendation of the Director of Public Works and Transportation.

Table 1 identifies the existing residential VMT per capita and the non-residential VMT per employee, as well as the proposed VMT per capita and VMT per employee significance thresholds, using the City VMT traffic model. The residential significance threshold is based on the countywide population VMT divided by the countywide population, while the non-residential significance threshold is based on the countywide commute and other (i.e., customer and client) VMT trips divided by the number of countywide employees.

Table 1
VMT Rate Threshold Goals for Projects within City of Irvine

Land Use Type	Existing	Threshold Goal* (15 percent reduction)
Residential (VMT per population)	17.50	14.88
Non-residential (VMT per employee)	48.66	41.36

*Any technical updates to the VMT significance thresholds are subject to the approval of the Transportation Commission at the recommendation of the Director of Public Works and Transportation.

If the project VMT rate exceeds the respective significance threshold, then the project creates a significant impact.

MITIGATION MEASURES

When a project results in a significant VMT impact, it must identify the appropriate (i.e., essential nexus and rough proportionality) mitigation measures to reduce the impact to a level that meets the City's adopted VMT threshold. All feasible mitigation measures must be incorporated into the project to substantially reduce the impact even if the project cannot meet the adopted VMT threshold. The City's VMT Mitigation and Percent Reduction is presented in Table 2.

Table 2
VMT Mitigation and Percentage Reduction

Type	Strategy	VMT Reduction Potential	Irvine Programs	Suggested VMT Reduction Value
Tier 1 - On-Site Infrastructure (100% Applicant Funded)	Provide Bicycle and Pedestrian Network Connectivity and facilities	Mode shift to walking	Meet City Standard Plans for non-vehicular connectivity	2.5%
Tier 2 - On-Site TDM (100% Applicant Funded)	Participation in a TDM Program	Mode shift from single occupancy vehicle	Spectrumotion, IBC	5%
Tier 3 - VMT Mitigation Fee Program	Provide Financing	Mode shift to transit	Provide funding for local shuttles, transit access improvements, non-vehicular infrastructure improvements that promote bicycle and pedestrian connectivity.	TBD

As shown in Table 2, residential and non-residential projects may apply two-and-a-half percent (2.5%) VMT rate reduction for on-site connectivity improvements as part of the project design to promote bicycle activity (i.e., bike facilities) and pedestrian walkability (i.e., connected sidewalks from building entrances to public streets). Projects that are participants in a Transportation Demand Management (TDM) program, such as Spectrumotion and comparable TDM programs in Planning Area 51, may apply a five percent (5%) VMT rate reduction in support of the City's goals toward reducing vehicle emissions and VMT.

Projects may propose variations to the VMT Reduction Values identified in Table 2 as well as mitigation measures that are not included in Table 2. The project applicant must demonstrate to the satisfaction of the Director of Public Works and Transportation (or assigned staff under the direction of the Director) that the proposed mitigation measures are supported by substantial evidence documenting their effect on reducing project VMT per capita or VMT per employee.

If the project cannot meet the adopted VMT threshold rate after all feasible mitigations are incorporated, then a Statement of Overriding Considerations must be adopted along with preparation of an Environmental Impact Report in accordance with CEQA Guidelines.

CEQA VMT IMPACT ANALYSIS FOR TRANSPORTATION PROJECTS

According to the OPR Technical Advisory, local agencies should consider the effects of transportation projects on vehicle travel. Projects that lead to additional vehicle travel, called "induced vehicle travel," are required to analyze the growth impacts under CEQA. The Technical Advisory identifies transportation projects that add through lanes on existing or new highways, including general purpose lanes, high occupancy vehicle lanes, peak period lanes, auxiliary lanes, or lanes through grade separated interchanges as projects that would likely lead to a measurable and substantial increase in vehicle travel.

Screening

The following transportation projects would likely not lead to a substantial increase in vehicle travel and therefore, do not require VMT analysis:

- **Maintenance:** Rehabilitation, maintenance, replacement, safety, and repair projects designed to improve the condition of existing transportation assets (e.g., highways; roadways; bridges; culverts; Transportation Management System field elements such as cameras, message signs, detection, or signals; tunnels; transit systems; and assets that serve bicycle and pedestrian facilities) and that do not add additional motor vehicle capacity.
- **Roadside Safety:** Roadside safety devices or hardware installation such as median barriers and guardrails.
- **Roadway Shoulder:** Roadway shoulder enhancements to provide "breakdown space," which is dedicated space for use only by transit vehicles, to provide bicycle access, or to otherwise improve safety, but which will not be used as motor vehicle travel lanes.
- **Non-through Lanes:** Installation, removal, or reconfiguration of traffic lanes that are not for through traffic, such as left, right, and U-turn pockets, two-way left turn lanes, or emergency breakdown lanes that are not utilized as through lanes.
- **Through Lanes:**
    - Addition of roadway capacity on local or collector streets provided that the project also substantially improves conditions for pedestrians, cyclists,and, if applicable, transit (e.g., protected and separated Class IV bikeway as well as pedestrian refuges, bulb-outs, and elements that shorten pedestrian crossing distances);
    - Addition of a new lane that is permanently restricted to use only by transit vehicles;
    - Addition of a new lane on the approach to an intersection that terminates immediately downstream of the intersection;
    - Reduction in number of through lanes;
    - Grade separation to separate vehicles from rail, transit, pedestrian or bicycles, or to replace a lane in order to separate preferential vehicles (e.g. HOV, HOT, or trucks) from general vehicles; or
    - Conversion of streets from one-way to two-way operation with no net increase in number of traffic lanes.
- **Traffic Control Devices:**
    - Installation, removal or reconfiguration of traffic control devices including Transit Signal Priority (TSP) features;
    - Installation of traffic metering systems, detection systems, cameras, changeable message signs and other electronics designed to optimize vehicle, bicycle, or pedestrian flow; or
    - Timing of signals to optimize vehicle, bicycle, or pedestrian flow.
- **Traffic Circles:** Installation of roundabouts or traffic circles.
- **Traffic Calming Devices:** Installation or reconfiguration of traffic calming devices.

- **Traffic Wayfinding:** Addition of traffic wayfinding signage.
- **Parking:**
  - Removal or relocation of off-street or on-street parking spaces; or
  - Adoption or modification of on-street parking or loading restrictions (including meters, time limits, accessible spaces, and preferential/reserved parking permit programs).
- **Active Transportation:**
  - Addition of new or enhanced bike or pedestrian facilities on existing streets/highways or within existing public rights-of-way; or
  - Addition of Class bike paths, trails, multi-use paths, or other off-road facilities that serve non-motorized travel.
- **Fuel/Charging Infrastructure:** Installation of publicly available alternative fuel/charging infrastructure.

Impact Analysis Methodology for Transportation Projects

Transportation projects that are not screened out are required to prepare a VMT impact analysis. This analysis must evaluate the net change in VMT with and without theproject under the build-out condition scenario based on the City's current version of the traffic model at the time of analysis of the proposed transportation project. The difference between with and without project VMT is the VMT attributable to the project.A project that results in no net percentage increase in the total regional VMT results in no significant impact and therefore, does not require mitigation. This impact analysis methodology for transportation projects is consistent with the methodology employed bythe California Department of Transportation as outlined in its *Transportation Analysis Under CEQA*.

A project that results in a net increase in VMT may be deemed significant and may require mitigation such as Intelligent Transportation Systems (ITS) that integrate advanced communications technologies into transportation infrastructure and vehicles to advance safety and mobility.

If a land use project is going to implement transportation improvements to address LOS operational deficiencies and those improvements are not screened out, then the improvements must be analyzed as part of the land use project's VMT impact analysis. Those transportation improvements would be included as part of the "with project" scenario for analysis.

CEQA VMT IMPACT ANALYSIS FORMAT

This section describes the key elements of a typical VMT Impact Analysis. In order to provide consistency and facilitate staff review of VMT Impact Analysis, the format identified below must be followed. This VMT Impact Analysis shall be an appendix to the project's traffic study. A summary of the VMT Impact Analysis shall be included under the Special Issues section of the project's traffic study and reference made to the VMT Impact Analysis within the Appendix of the traffic study.

Executive Summary

The Executive Summary of the report shall be a clear, concise description of the level of VMT Impact Analysis required (Tier 1 or 2) and description of the study findings. It shall include a general description of all data, purpose, findings, conclusions, mitigation measures, and recommendations.

Technical publications, calculations, documentation, data reporting, and detailed design should not be included in this section. The Executive Summary should be concise, complete in itself, and not dependent on supplementary data included by reference.

Introduction and Project Description

The Introduction shall supply the reader with a general description of the project. This description shall include the size of the overall project site including all comprising parcels, general terrain features, all existing/proposed uses and their numbers by type (e.g., units) and sizes (e.g., gross square footage, rooms) (including any project phasing) based on the zoning and general plan categories outlined in the City's Zoning Ordinance and the General Plan.

In addition, the location of the project site shall be described and a vicinity map shall be provided. The map shall include roadways, which afford access to the site and are included in the study area. If multiple project alternatives are proposed, then all alternatives must be defined and discussed in this section.

The study must identify the existing conditions in the vicinity of the project site, including a description of the area to be affected by the development. This is to provide a comparison of the impacts over time on land use and circulation.

The proposed land uses for the project site and any project-related traffic improvements shall be described in this section.

Proposed Project Impacts and Mitigation Measures

The VMT impact analysis for the project is described in this section, including discussion of the use of the City's VMT traffic model (ITAM TransCAD 2018 VMT). VMTimpacts caused by the project are identified based on the methodology outlined inFigure 1. A project's VMT impacts shall be mitigated to the adopted VMT rate thresholds adopted in Table 1, and a discussion of the mitigation measures is includedin this section.

Conclusions

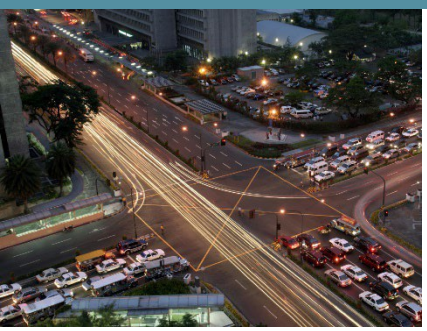
This section of the analysis shall summarize the analysis results and the proposed mitigation measures. This shall include:

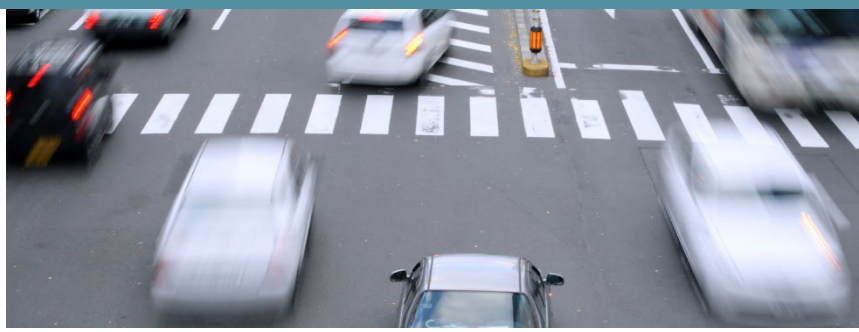
- Land Use project's resultant VMT per capita and/or VMT per employer rate(s) with proposed mitigation measures if applicable
- Transportation project's resultant VMT with proposed mitigation measures if applicable

SB743 Implementation - VMT Technical Appendix

Updated on March 21, 2023 by City of Irvine Transportation Commission in Coordination with Iteris

DRAFT | Version 1.5





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DOCUMENT VERSION CONTROL

DOCUMENT NAME	SUBMITTAL DATE	VERSION NO.
Draft #1	March 5 2020	1.0
Draft #2	March 27 2020	1.1
Draft #3	April 17 2020	1.2
Draft #4	April 20 2020	1.3
Draft #5	City-prepared in coordination with Iteris, 2021	1.4
Draft #6	City-prepared in coordination with Iteris, 2023	1.5

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Figures

1 INTRODUCTION

The purpose of this Technical Appendix is to provide documentation to support the approach and thresholds that the City of Irvine staff is recommending in order to become compliant with Senate Bill (SB) 743 and its requirements. This document is intended to be updated periodically as additional information becomes available regarding the threshold goals, assumptions and methodologies applied, and applicable mitigation measures are updated.

2 BACKGROUND

On September 27, 2013, Governor Jerry Brown signed SB 743 into law. SB 743 tasked the Office of Planning and Research (OPR) with developing alternative methods of measuring transportation impacts pursuant to California Environmental Quality Act (CEQA), other than the current practice of using traffic congestion-based measures, which tend to promote increased vehicle use. On December 30, 2013, OPR released a technical memorandum that identified objectives for developing alternative criteria in support of the State's goals for greenhouse gas reduction by encouraging higher density, mixed-use development in urban areas served by public transit, and more diverse travel options.

In August 2014, OPR proposed to replace roadway capacity and vehicle delay measures often displayed as Levels of Service (LOS) with vehicle miles traveled (VMT), which estimates the total distance people drive by vehicle. This shift in CEQA transportation metric promotes outcomes that reduce reliance on automobile travel, and thus aligns with State goals for reducing emissions, investing in multimodal transportation networks and encouraging higher density in-fill development.

In December 2018, after over five years of stakeholder-driven development through nearly 200 stakeholder meetings, public convening, and other outreach events, the California Natural Resources Agency (Agency) certified and adopted the CEQA Guidelines update package including the guidelines for implementing SB 743. The final text, final statement of reasons, and related materials are posted at https://resources.ca.gov/ceqa. The changes have been approved by the Office of the Administrative Law and are now in effect.

The new CEQA Guidelines (Section 15064.3, Determining the Significance of Transportation Impacts) generally require that VMT-based metrics be used to evaluate transportation impacts beginning July 1, 2020. The CEQA Guidelines give lead agencies discretion to choose the most appropriate methodology to evaluate a project's VMT impacts, however, the methodology must be based on substantial evidence. Importantly, SB 743 "does not preclude the application of local general plan policies, zoning codes, conditions of approval, thresholds, or any other planning requirements pursuant to the police power or any other authority." (Pub. Resources Code § 21099(b)(4).). Thus, it does not preclude the on-going use of congestion measures as a project performance metric for operational analysis for conformance with planning for new development consistent with community values. However, the congestion or operations analysis would not be applicable to determining the significance of transportation impacts under CEQA.

The Agency's Statement of Regulatory Impact Assessment for the updated CEQA Guidelines identified numerous potential direct and indirect benefits of reducing vehicle miles traveled. Realization of those benefits will depend on the degree to which, pursuant to the CEQA Guidelines update, lead agencies use the streamlined approaches for analysis of low-VMT projects, to mitigate high-VMT projects, or to choose lower VMT project alternatives. Lead agencies determine whether any particular mitigation measure is feasible in the context of the project under review. Further, CEQA allows a lead agency to approve a project that has significant environmental impacts so long as it finds that the benefits of the project outweigh those impacts.

New section 15064.3 of the CEQA Guidelines contains several subdivisions, which are described below. In brief, the Guidelines provide that transportation impacts of projects are, in general, best measured by evaluating a project's vehicle miles traveled. Methodologies for evaluating such impacts are already in use for most land use projects, as well as many transit and active transportation projects. Methods for evaluating vehicle miles traveled for highway

capacity projects continue to evolve, however, so these Guidelines recognize a lead agency's discretion to determine the appropriate measure to analyze such projects, provided such analysis is consistent with CEQA and applicable planning requirements.

Subdivision (a): Purpose
Subdivision (a) clarifies that the primary consideration in evaluating a project's transportation impacts for CEQA purposes is the amount and distance that a project might cause people to drive. This captures two measures of transportation impacts: auto trips generated and vehicle miles traveled. These factors were identified by the legislature in SB 743. The last sentence clarifies that automobile delay is not a significant effect on the environment.

Subdivision (b): Criteria for Analyzing Transportation Impacts
While subdivision (a) sets forth general principles related to transportation analysis, subdivision (b) focuses on specific criteria for determining the significance of transportation impacts. It is further divided into four subdivisions: (1) land use projects, (2) transportation projects, (3) qualitative analysis, and (4) methodology.

Subdivision (b)(1): Land Use Projects
SB 743 directed OPR and the Agency to develop Guidelines "for determining the significance of transportation impacts of projects[.]" (Pub. Resources Code § 21099(b)(1).) Therefore, to provide guidance on determining the significance of impacts, subdivision (b)(1) describes factors that may indicate whether or not the amount of a project's vehicle miles traveled may be significant.

Subdivision (b)(2): Transportation Projects
Subdivision (b)(2) focuses on impacts that result from certain transportation projects. Subdivision (b)(2) clarifies that lead agencies should presume that projects that reduce vehicle miles traveled, such as pedestrian, bicycle and transit projects, will have a less than significant impact. This subdivision further provides that lead agencies have discretion regarding what measure to use to evaluate roadway capacity projects, provided that any such analysis is consistent with the requirements of CEQA and any other applicable requirements (e.g., local planning rules). Importantly, this provision does not prohibit capacity expansion. It also does not relieve agencies of the requirement to analyze any other potential impacts of such projects, including, but not limited to, greenhouse gas emissions and other air pollutants. Finally, recognizing that roadway capacity projects may be analyzed at a programmatic level, subdivision (b)(2) states that lead agencies may be able to tier from a programmatic analysis that adequately addresses the effects of such projects.

Subdivision (b)(3)
This subdivision indicates that if existing methods are not available to estimate VMT for a particular project, a lead agency may analyze the project's VMT qualitatively, by evaluating factors such as availability to transit and proximity to other destinations. It further provides that a qualitative analysis of construction traffic may be appropriate for many projects.

Subdivision (b)(4): Methodology
Lead agencies have the discretion to choose the most appropriate methodology to analyze a project's vehicle miles traveled. Depending on the project, vehicle miles traveled may be best measured on a per person, per-household or other similar unit of measurement. Subdivision (b)(4) also recognizes a role for both models and professional judgment in estimating vehicle miles traveled.

Subdivision (c): Applicability
The provisions of this section shall apply prospectively as described in CEQA Guidelines Section 15007. The new procedures may be used immediately upon the effective date of the Guidelines if lead agencies are ready to begin evaluating vehicle miles traveled, but jurisdictions ultimately have until July 1, 2020 to start analyzing vehicle miles traveled.

3 OPR TECHNICAL ADVISORY

OPR developed a series of technical advisories to provide advice and guidance on evaluating transportation impacts in compliance with SB 743. The most current and relevant document, the Technical Advisory on Evaluating Transportation Impacts (Technical Advisory), was published in December 2018. The Technical Advisory provides non-binding technical advice, and is not a formal administrative regulation, like the CEQA Guidelines. However, it does provide a reasonable framework for lead agencies as they implement CEQA Guidelines.

To date, the jurisdictions that have implemented SB 743 have all followed the broad approach outlined in the Technical Advisory, with slight differences for local conditions. The City is also broadly following the approach set forth in the Technical Advisory. The following section outlines the five main areas in the Technical Advisory and provides discussion of the justification of the City's proposed approach:

1. Screening Criteria
2. VMT Calculation Methodology
3. Thresholds of Significance
4. Mitigation Measures
5. Transportation Projects

3.1 Screening Criteria

The Technical Advisory suggests that lead agencies screen out projects that may not warrant VMT analysis under CEQA based on project size, VMT generation characteristics, transit availability and provision of affordable housing.

OPR Guidance Regarding Small Projects: OPR suggests a small project that would generate 110 trips per day or less generally may be assumed to cause a less-than-significant transportation impact and thus not warrant further CEQA analysis. However, a City may adjust this criteria to better reflect local conditions.

City of Irvine Recommendation: The current Irvine Traffic Study Guidelines require a full traffic study if a project generates a net increase of more than 50 peak hour trips and a limited scope traffic study if the project generates a net increase of between 1 and 49 peak hour trips. Fifty peak hour trips is typically equivalent to roughly 450 to 500 daily trips. Considering both the OPR suggestion and current City procedures, as well as existing conditions in the City and the studies and data discussed below, City staff recommends the use of 250 daily trips as a suitable threshold for small projects. The City of Los Angeles also decided to use the 250 daily trip threshold.

An ITE report on behalf of the San Diego Association of Governments (SANDAG) recommended that the small projects threshold be based on regional standards for transportation analyses that were documented in the Guidelines for Traffic Impact Studies in the San Diego Region (ITE/SANTEC, 2000) and have been in use for over 18 years. Their recommendation was that for projects consistent with the General Plan or Community Plan, VMT impacts could be presumed insignificant for projects generating less than 1,000 ADT. For Projects inconsistent with the General Plan or Community Plan, VMT impacts could be presumed insignificant for projects generating less than 500 ADT (www.SANDAG.org\SB743). Analysis by air quality specialists at LSA Associates also suggests that compared to commonly used GHG emissions thresholds, GHG emissions from a project of less than 500 ADT could typically be considered less than significant, as follows:

"In order to characterize the effect of changes in project-related average daily trips (ADT) to the resulting greenhouse gas (GHG) emissions the air quality model CalEEMod was used. This model was selected because it is provided by the California Air Resources Board to be used state-wide for developing project-level GHG emissions. CalEEMod was used with the built-in default trip lengths and types to show the vehicular GHG emissions from incremental amounts of ADT. The following table shows the resulting annual vehicle miles traveled (VMT) and GHG emissions from the incremental ADT:

Representative VMT and GHG Emissions from CalEEMod

Average Daily Trips (ADT)	*Annual Vehicle Miles Traveled (VMT)*	*GHG Emissions (Metric Tons CO_2e per year)*
200	*683,430*	*258*
300	*1,021,812*	*386*
400	*1,386,416*	*514*
500	*1.703,020*	*643*
600	*2,043,623*	*771*

Source: CalEEMod version 2016.3.2. Example project used: 50 Single-Family Homes in Orange County.
CO_2e = carbon dioxide equivalent
GHG = Greenhouse Gas

A common GHG emissions threshold is 3,000 metric tons of carbon dioxide equivalent[i] (CO_2e) per year (MT CO_2e/yr). The vehicle emissions are typically more than 50 percent of the total project GHG emissions. Thus, a project with 500 ADT would generally have total project emissions that would be less than 1,300 MT CO_2e/yr. As this level of GHG emissions would be less than 3,000 MT CO_2e/yr, the emissions of GHG from a project up to 500 ADT would typically be less than significant.

Carbon dioxide equivalent (CO_2e) is a concept developed to provide one metric that includes the effects of numerous GHGs. The global warming potential (GWP) of each GHG characterizes the ability of each GHG to trap heat in the atmosphere relative to another GHG. The GWPs of all GHGs are combined to derive the CO_2e."
Source: LSA Associates, Jan 15, 2020

OPR Guidance Regarding Redevelopment Projects: Where a project replaces existing VMT-generating land uses, if the replacement leads to a net overall decrease in VMT, the project would lead to a less-than-significant transportation impact. If the project leads to a net overall increase in VMT, then the thresholds developed by the jurisdiction should apply.

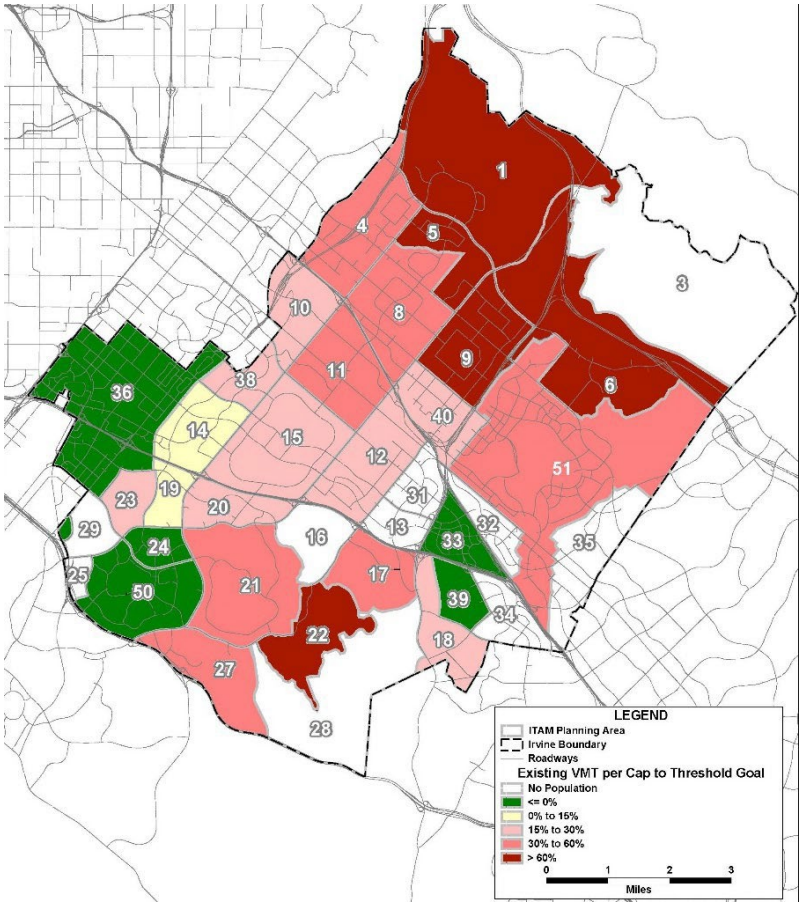
City of Irvine Recommendation: One of the intended goals of SB-743 is to support infill development to encourage active transportation and reduce average trip lengths. In order to encourage such infill development, OPR suggests using a metric that looks at only the net trips generated by the redevelopment project (project trips generated by the new development minus trips generated by the previous development). For redevelopment projects, the City recommends calculation of net project trips generated in accordance with OPR advice. If the net trips generated by the redevelopment is less that the Small Project trip threshold of 250 daily trips (as discussed in the prior section) then no additional analysis is required. If a redevelopment project does not meet this screening criteria, then the redevelopment project is evaluated for impact analysis based on the applicable residential or non-residential VMT rate methodology in accordance with OPR advice, as further discussed in subsequent sections of this document.

OPR Guidance Regarding Map-Based Screening of Projects Within Low VMT Areas: Residential and office (or other land use) projects that are located in areas with low VMT, and that incorporate similar features (i.e., density, mix of uses, transit accessibility), will tend to exhibit similarly low VMT and thus not warrant further CEQA analysis. Maps created with VMT data from a travel demand model can illustrate areas that are currently below threshold VMT.

City of Irvine Recommendation: City staff used ITAM to calculate VMT by Planning Area (PA) and by the smaller Traffic Analysis Zone (TAZ) geography. When staff reviewed the results it was determined that the use of a particular geographic boundary was a somewhat arbitrary criteria for whether a project should be screened out or not. For example, for two identical projects on opposite sides of the same street, one might be screened out because it was in a particular PA or TAZ and another would not be screened out, despite the fact that both projects would likely exhibit the same VMT characteristics. In order to treat all projects consistently, City staff decided not to recommend map-based screening to identify areas of low VMT.

As an example in **Figure 1**, PAs with green and yellow shading represent lower VMT/capita, while PAs with pink and red shading represent higher VMT/capita. There are several locations where a green-shaded PA (lowest VMT) is adjacent to a pink-shaded PA (high VMT). A proposed development might produce similar VMT when placed on one side of a street in a low VMT PA or the other side of the street in a high VMT PA.

Figure 1- VMT per Capita by Planning Area compared to County Average



OPR Guidance Regarding High Quality Transit Areas (HQTAs), also referred to Transit Priority Areas: A HQTA is an area within a half a mile of a major transit stop or a bus transit corridor with service intervals of no longer than 15 minutes during peak commute hours. A "Major transit stop" means *"a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods."* as defined by Public Resources Code §21064.3.

OPR suggests that projects in HQTA's should generally be presumed to have less than significant impacts, but that such presumption might be inappropriate if the proposed development:

- Has a Floor Area Ratio (FAR) of less than 0.75
- Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking)
- Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization)
- Replaces affordable residential units with a smaller number of moderate- or high-income residential units

Existing HQTA's within Irvine are limited to the area around the Irvine train station in Planning Areas 32 and 51 and the area near the Tustin Metrolink station in Planning Area 10. CEQA Guideline Section 15064.3, subdivision (b)(1), states that lead agencies should generally presume that certain projects (including residential, retail and office projects, including mixed use) proposed within a HQTA will have a less than significant impact on VMT and thus not warrant further CEQA analysis.

City of Irvine Recommendation: The City recommends screening out any projects that are located within the two existing HQTAs as shown in Figure 2 and Figure 3 below. To the extent additional areas within the City qualify as HQTA's in the future, projects in such areas would also be screened out. Any such additional HQTA's will be identified in this Appendix, as part of anticipated periodic future updates.

Figure 2- Existing HQTAs in Irvine Area

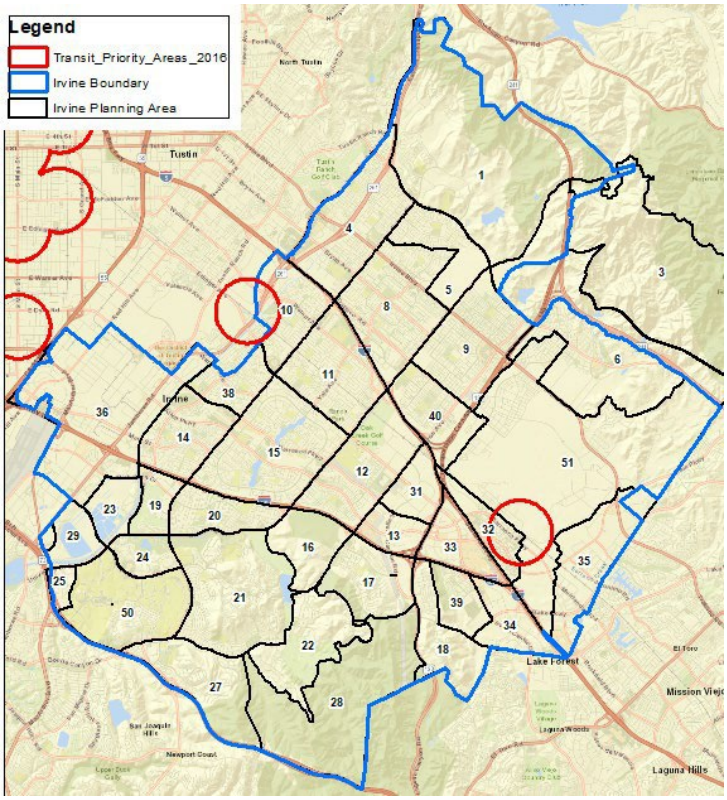


Figure 3– Existing HQTAs around Irvine and Tustin Metrolink Stations

OPR Guidance Regarding Retail Projects: Because new retail development typically redistributes shopping trips rather than creates new trips, estimating the total change in VMT (i.e., the difference in total VMT in the area affected with and without the project) is the best way to analyze a retail project's transportation impacts. By adding retail opportunities into the urban fabric and thereby improving retail destination proximity, local-serving retail development tends to shorten trips and reduce VMT. Thus, lead agencies generally may presume such development creates a less-than-significant transportation impact. Regional-serving retail development, on the other hand, which can lead to substitution of longer trips for shorter ones, may tend to have a significant impact. Where such development decreases VMT, lead agencies should consider the impact to be less-than-significant. While the Technical Advisory suggests that retail uses of less than 50,000 square feet should generally be considered locally-serving, it expressly notes that many cities and counties define local-serving and regional-serving retail in their zoning codes and that lead agencies are in the best position to decide when a project will be local-serving.

City of Irvine Recommendation: The City Council has received comments from residents that Irvine is underserved by existing retail development. City Council has therefore adopted a policy to encourage additional retail uses within the City. While the majority of shopping centers within the City are less than 50,000 square feet in size, analysis of existing shopping centers within the City shows that most larger shopping centers are also neighborhood serving. Even shopping centers in the range between 100,000 and 250,000 square feet typically serve the surrounding neighborhoods and are not believed to attract significant volumes of regional traffic. **Table 1** identifies the existing shopping centers in Irvine, with only four shopping centers currently exceeding 250,000 square feet. However, given the location of the shopping centers within the City, even relatively large shopping centers such as Woodbury (315,469 square feet) seem unlikely to draw significant numbers of regional trips. Two large shopping centers, Irvine Spectrum and Irvine Market Place (combined with Tustin Market Place) might be considered regional draws due to both size and adjacency to freeways.

Table 1 - Retail Centers and Existing Square Footage in Irvine

FROM (SF)	TO (SF)	NUMBER OF CENTERS	DESCRIPTION
1	50,000	76	Multiple small retail establishments
50,000	100,000	7	
100,000	120,000	7	Orchard Hills, Northpark Plaza, Harvard Place, Alton Square, Woodbridge, Spectrum Crossroads, Lakeshore Towers
120,000	150,000	5	Northwood, Oak Creek, Quail Hill, Los Olivos, Irvine Concourse
150,000	250,000	7	Cypress Village, Culver Plaza, Heritage Plaza, Westpark Plaza, Crossroads, Von Karman Plaza, Park Place
250,000	500,000	2	Woodbury, Alton Market Place (Costco)
500,000	750,000	1	Irvine Market Place (738,216 SF excludes adjacent Tustin Market Place)
750,000	1,500,000	1	Irvine Spectrum
	Total	**106**	

Source: Citywide Land Use Database/The Irvine Company

Given the need for additional retail development within the City, as well as the fact that neighborhood shopping centers in Irvine tend to attract traffic from their surrounding villages, staff is recommending that all retail projects under 100,000 square feet be considered locally serving. For projects in excess of 100,000 TSF, the question of whether the use is locally serving will be determined by City staff on a case-by-case basis depending on the size and location of the proposed development.

Additionally other locally serving land uses under 50,000 square feet include daycare centers and public schools. For these types of projects in excess of 50,000 square feet, the question of whether the use is locally serving will be determined by City staff on a case-by-case basis, depending on the size and location of the proposed development.

OPR Guidance Regarding Affordable Housing: OPR guidance indicates that adding affordable housing to infill locations generally improves jobs-housing match, in turn shortening commutes and reducing VMT. Further, "… low-wage workers in particular would be more likely to choose a residential location close to their workplace, if

one is available." In areas where existing jobs-housing match is closer to optimal, low income housing nevertheless generates less VMT than market-rate housing, therefore, a project consisting of a high percentage of affordable housing may be a basis for the lead agency to find a less-than-significant impact on VMT. Evidence supports a presumption of a less-than-significant impact for a 100 percent affordable residential development (or the residential component of a mixed-use development) in infill locations. Lead agencies may develop their own presumption of a less-than-significant impact for residential projects (or residential portions of mixed use projects) containing a particular amount of affordable housing, based on local circumstances and evidence. Furthermore, a project which includes any affordable residential units may factor the effect of the affordability on VMT into the assessment of VMT generated by those units.

City of Irvine Recommendation: Affordable housing units will be considered exempt from VMT analysis, consistent with the OPR Technical Advisory.

OPR Guidance Regarding RTP/SCS Consistency: Section 15125, subdivision (d), of the CEQA Guidelines provides that lead agencies should analyze impacts resulting from inconsistencies with regional plans, including regional transportation plans. For this reason, if a project is inconsistent with the Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS), the lead agency should evaluate whether that inconsistency indicates a significant impact on transportation. Since the City's General Plan land use is integrated in to the RTP/SCS, it is unlikely that an inconsistency would occur, however a project of the scale that would be inconsistent with an RTP/SCS would likely require its own in-depth transportation analysis regardless

City of Irvine Recommendation: Major projects diverging from the General Plan will require a VMT analysis unless the project is screened out. This is consistent with the OPR Technical Advisory.

OPR Guidance Regarding Goods Movement: Section 3 of the Guidelines for Implementation of the California Environmental Quality Act specifies that VMT to be analyzed is defined as the amount and distance of automobile travel attributable to a project. SB 743 therefore does not require the inlusion of heavy-duty truck trips, utility vehicles or other types of vehicles in the VMT analysis. In the case of trucks, the State's strategy for the goods movement sector is not in VMT reduction, but in advances in technology (zero and near-zero emission control strategies).

City of Irvine Recommendation: VMT analysis will be performed for automobile trips only, which is consistent with State policy.

3.2 VMT Calculation Methodology

Section 15064.3 of the CEQA Guidelines explains that a "lead agency may use models to estimate a project's vehicle miles traveled."

"Methodology. A lead agency has discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure. A lead agency may use models to estimate a project's vehicle miles traveled, and may revise those estimates to reflect professional judgment based on substantial evidence. Any assumptions used to estimate vehicle miles traveled and any revisions to model outputs should be documented and explained in the environmental document prepared for the project. The standard of adequacy in Section 15151 shall apply to the analysis described in this section."

"For the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project."

City of Irvine Recommendation: The City of Irvine maintains an in-house traffic model, the Irvine Transportation Analysis Model (ITAM) which is currently used to forecast traffic volumes and calculate Level of Service (LOS) and impacts associated with new development. The traffic model is based on and is certified consistent with the regional Orange County Transportation Model (OCTAM). The City of Irvine

recently converted ITAM to TransCAD, a transportation modeling software also used by OCTA, and has developed a VMT calculation tool that appends to the traffic model. The OPR Guidelines state that whatever model or tool is used to develop the thresholds of significance must also be used to assess the VMT for an individual project, so as to perform an "apples to apples" comparison.

The City's proposed approach to calculating VMT "attributable to the project" is consistent with Section 15064.3 of the CEQA Guidelines. In this approach, ITAM is run with the project land uses, and VMT statistics are calculated using trip tables and travel distance "skims" for the project TAZ to calculate the project VMT rate. The project VMT rate is then compared to the VMT threshold rate. The number of trips for each Origin-Destination pair are multiplied by the distance of that trip for each travel purpose and time period using congested travel times. The trip tables have the following trip purposes:

- Home-Based Work Direct and Strategic - HBW
- Home-Based Other - HBO
- Home-Based School - HSC
- Home-Based University HBU
- Home-based Shop – HBS[1]
- Home-based Social/Recreational – HBSR[1]
- Other-Based Other - OBO
- Work- Based Other - WBO

[1] Combined with Home-based Other

External trips going to and from counties outside the Southern California Association of Governments (SCAG) region are added after this stage. The available time periods are Peak and Off-peak. This allows calculation of VMT associated with different types of trips. Trips resulting in VMT can be separated into **productions** (P) that represent the home end of a trip, and **attractions** (A) which represent the work end of the trip. For trips that do not start or end at home, productions represent either the trip maker's workplace or the trip origin. VMT is calculated for two types of trips, Residential and Non-residential, separately:

1. Residential VMT = HBW(P) + HBSC(P) + HBU(P) + HBO(P)
2. Non-residential VMT = HBW(A) + HBSC(A) + HBU(A) + HBS(A) + HBSR(A) + HOB(A) + OBO(P and A) + WBO(P and A)

Table 2 shows an illustrative example of VMT calculated from ITAM. In this example, Irvine residents "produce" 3.6 million daily VMT going to and from their place of employment wherever that may be, whereas all the employment centers in Irvine "attract" 6.3 million daily VMT from the employees travelling to and from their job in Irvine from their home (wherever that may be). Both numbers include Irvine residents who also work within Irvine (about 28% of Irvine workers). The home-based work attractions are higher than the productions since Irvine is a very job rich City so that more people work in Irvine than are resident workers. The jobs-to-resident ratio in Irvine is 85% compared to the SCAG average of 41%.

Table 2 - City of Irvine VMT from ITAM

PURPOSE	PRODUCTION	ATTRACTION	TOTAL	% TOTAL VMT
Home-based Work	3,649,681	6,285,143	9,934,825	61%
Home-based School	57,230	42,881	100,111	1%
Home-based Other	1,292,970	1,802,655	3,095,625	19%
Home-based University	162,395	470,825	633,219	4%
Work-based Other	614,832	371,777	986,609	6%
Other-based Other	765,065	768,387	1,533,451	9%
TOTAL	**6,542,173**	**9,741,668**	**16,283,841**	**100%**

=Residential VMT
=Non-residential VMT

ITAM also calculates the associated population and employment of a project through its land use to socioeconomic data conversion module. VMT, population and employment for any given project can be calculated. The approach to testing whether a project has a significant impact is to compare the project VMT metric to the adopted threshold for that metric as shown below (thresholds are discussed in Section 3.3):

- **Residential projects:** The residential methodology captures VMT associated with the project and the population resulting from the project. This calculated VMT/capita is compared to the residential threshold. Each residential project should consider if it is appropriate to account for other VMT-contributing groups (i.e. residential projects with affordability component).
- **Non-residential projects**: The non-residential methodology captures all VMT (commute and other non-residential) associated with the project and the number of employees resulting from the project. Non-residential uses include uses such as offices, medical offices, hotels, and other land uses. Each non-residential project should consider if it is appropriate to account for VMT-contributing groups in addition to VMT-contributing employees . For example, a medical office may have a VMT-contributing group that considers project-specific estimated number of patients per day in the project VMT rate calculation. Based on extensive testing of this methodology and its application in the City of Irvine, this methodology meets the intent of SB 743. This calculated VMT/employee is compared to the non-residential threshold.
- **Mixed use projects**: Both the residential VMT/capita and non-residential VMT/employee are calculated. Each type of VMT is then compared to its corresponding threshold. This is consistent with OPRs Technical Advisory P17 *"Lead agencies can evaluate each component of a mixed-use project independently and apply the significance threshold for each project type included (e.g., residential and retail)."*

3.3 Thresholds of Significance

3.3.1 PERCENTAGE REDUCTION FROM EXISTING VMT

A key step in the environmental review process is to determine whether a project may cause a significant effect on the environment. Thresholds of significance can inform not only the decision of whether to prepare an EIR, but also the identification of effects to be analyzed in depth in the EIR, the requirement to make detailed findings on the feasibility of alternatives or mitigation measures to reduce or avoid the significant effects, and when found to be feasible, changes in the project to lessen the adverse environmental impacts.

Section 15064.7 of the CEQA Guidelines defines a threshold as "an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant." (CEQA Guidelines § 15064.7, subd. (a).)

Section 15064 of the CEQA Guidelines provides general criteria to guide agencies in determining the significance of environmental effects of their projects, as required by section 21083 of the Public Resources Code. The Natural Resources Agency updated CEQA Guidelines Section 15064 to expressly clarify that agencies may rely on standards adopted for environmental protection as thresholds of significance. An agency that relies on a threshold of significance should explain how application of the threshold indicates a less than significant effect.

As discussed further below, the OPR Technical Advisory includes recommendations regarding the thresholds of significance to be applied to various types of land use projects. However, individual jurisdictions are free to pursue their own thresholds provided that substantial evidence supporting these thresholds is provided.

Residential Projects: A proposed residential project exceeding a level of fifteen percent below existing VMT per capita may indicate a significant transportation impact. OPR states these thresholds can be applied to either household (i.e., tour-based) VMT or home-based (i.e., trip-based) VMT assessments.

Office [Employment] Projects: OPR recommends that office [employment] projects that would generate vehicle travel exceeding fifteen percent below existing VMT per employee for the region may indicate a significant

transportation impact. OPR uses the term "office" however the likely intent of the advisory was as "employment".

Retail Projects: Because new retail development typically redistributes shopping trips rather than creating new trips, OPR recommends a threshold based on the total change in VMT (i.e., the difference in total VMT in the area affected with and without the project) as the best way to analyze a retail project's transportation impacts.

Mixed-Use Projects: OPR states that lead agencies can evaluate each component of a mixed-use project independently and apply the significance threshold for each project type included. In the analysis of each use, a project should take credit for internal capture. Alternatively, a lead agency may consider only the project's dominant use.

Other Land Use Types: OPR states that land use projects, residential, office [employment], and retail projects tend to have the greatest influence on VMT. For that reason, OPR recommends the quantified thresholds described above for purposes of analysis and mitigation. Lead agencies, using more location-specific information, may develop their own more specific thresholds, which may include other land use types. However, most other types of land uses such as public facilities, recreation and parks are generally perceived as community-serving and not independent trip generators on the scale of residences or workplaces.

City of Irvine Recommendation: The City is proposing to use a fifteen percent reduction from existing VMT per capita as the threshold for residential projects and fifteen percent reduction from existing VMT per employee for non-residential projects. As noted above, for mixed use projects the threshold would consist of both the residential VMT per capita and non-residential VMT per employee components, consistent with the OPR Technical Advisory suggestions, which were developed to contribute to State goals in reducing GHG emissions.

Retail projects over 100,000 SF that are not screened out will be reviewed on a case-by-case basis to determine if any VMT analysis is required based on the project location potentially drawing regional trips. A developer of a retail project over 100,000 SF could support their application by providing a market analysis of potential customers and their likely origins as either locally serving or regionally serving. Adjustment to trip generation in ITAM to account for locally serving trips being reallocated between existing shopping centers could then potentially be requested by the applicant.

Retail projects requiring VMT analysis will be measured against the non-residential VMT threshold goal rate rather than a comparison of the net VMT with and without the retail project. Through extensive traffic model testing, the results indicate that new retail uses nearly always result in a theoretical increase in overall VMT. This increase in VMT occurs in the model despite the nature of retail uses that typically redistribute traffic to reduce overall VMT. For this reason, the City is proposing a methodology in which retail uses within a certain locally-serving size do not require VMT impact analysis. However, if the retail use is larger, it must be analyzed for impacts as a non-residential use based on VMT per employee. The City's proposed methodology for non-residential uses accounts for commute VMT as well as non-commute (i.e. customer, client) VMT; therefore, this is the appropriate analysis for new larger retail uses proposed.

3.3.2 GEOGRAPHIC AREAS USED TO CALCULATE VMT THRESHOLDS

The OPR Advisory also provides jurisdictions with discretion in determining the geographical area used to develop thresholds. This suggests that residential thresholds could be developed based on existing conditions at the city or regional level while non-residential thresholds should be determined at the regional level due to the longer length of employment trips compared to other trip purposes. Verbiage in the OPR Technical Advisory p16 suggest that for very large regions (such as the SCAG region) the county might be a better proxy for regional travel: *"In cases where the region is substantially larger than the geography over which most workers would be expected to live, it might be appropriate to refer to a smaller geography, such as the county, that includes the area over which nearly all workers would be expected to live".*

Figure 4 shows the geographical areas considered for determining VMT thresholds, including the entire SCAG sub-region, Orange County and the City of Irvine. The City of Irvine could choose to develop thresholds at any of these three geographic areas or alternatively propose some other geographic area. **Table 3** shows the results of testing of average residential VMT per capita and commute and total non-residential VMT per employee for these three geographical areas.

The residential VMT per capita is similar between the three geographies although slightly higher for Irvine residents. Commute trip lengths for jobs located in Irvine are also close to the average for Orange County and the SCAG region. For these two components, the choice of geography used for the threshold is unlikely to significantly affect the results. However, for total non-residential VMT, the City of Irvine has lower than average VMT for the SCAG region, as the SCAG regional average was found to be substantially higher than both the Orange County and City of Irvine averages.

Figure 4 – Geographic Areas Considered for VMT Thresholds

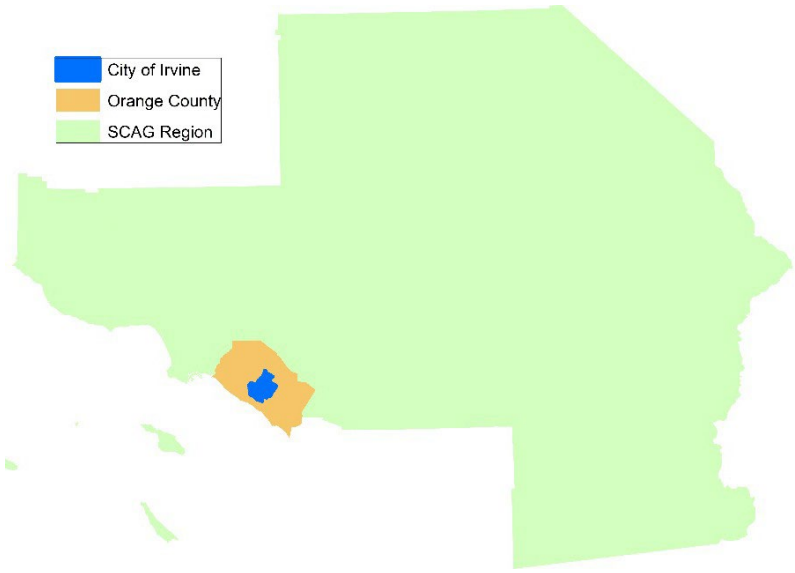


Table 3 – Comparison of VMT Metrics at Alternative Geographic Areas

GEOGRAPHICAL AREA	RESIDENTIAL VMT/CAPITA	NON-RESIDENTIAL VMT/EMPLOYEE
City of Irvine	18.65	42.51
Orange County	17.54	48.85
SCAG Region	17.85	63.15

This difference may be a function of the sparsity of the highway network in OCTAM and ITAM in large swathes within the SCAG region that are distant from Orange County. Additional testing performed on the SCAG regional model where the level of network detail is reasonably uniform throughout the SCAG region also showed the SCAG regional average to be higher than the Orange County average, but not by such a large margin, so the sparse network is only part of the reason. Other reasons likely include better access to other amenities in Irvine compared to the region as a whole.

Consistent with the county's regional OCTAM forecast model, the portions of external trips to and from San Diego

county outside of Orange County, are not included in the calculated project VMT nor threshold values. It was determined through extensive analysis, however, that the percentage of VMT between Orange and San Diego counties (in the range of 1.5%) is negligible.

City of Irvine Recommendation: Since the SCAG region is geographically large compared to Orange County and contains numerous areas with very different characteristics to and a low interaction of trips with Irvine, staff considered the SCAG regional average to be a less relevant comparator than the Orange countywide average. **Table 4** shows census data indicating that the majority of Irvine resident workers work within Orange County. The vast majority of other trip types by Irvine residents, such as home to school and home to shop trips, which are typically much shorter than home to work trips, also occur entirely within Orange County.

For residential VMT, while the City of Irvine itself is a fairly large, diverse City and the City average could reasonably be used as the geographic unit for VMT, for consistency reasons and because the residential rates for the city and the county are so similar, staff recommends comparing both residential and non-residential project VMT to the existing Countywide average as the most suitable threshold.

Table 4 – Work Locations of Irvine Residents, Source: US Census

Jobs Counts by Places (Cities, CDPs, etc.) Where Workers are Employed - All Jobs 2017	Count	Share
All Places (Cities, CDPs, etc.)	93,502	100.0%
Irvine city, CA	26,272	28.1%
Santa Ana city, CA	5,473	5.9%
Los Angeles city, CA	5,115	5.5%
Newport Beach city, CA	4,775	5.1%
Costa Mesa city, CA	4,008	4.3%
Orange city, CA	3,275	3.5%
Anaheim city, CA	3,134	3.4%
Tustin city, CA	2,631	2.8%
Lake Forest city, CA	1,830	2.0%
San Diego city, CA	1,659	1.8%
Huntington Beach city, CA	1,562	1.7%
Mission Viejo city, CA	1,367	1.5%
Fountain Valley city, CA	1,155	1.2%
Aliso Viejo city, CA	1,101	1.2%
Long Beach city, CA	1,099	1.2%
Garden Grove city, CA	958	1.0%
El Segundo city, CA	844	0.9%
Laguna Hills city, CA	782	0.8%
Fullerton city, CA	732	0.8%
San Francisco city, CA	672	0.7%
Brea city, CA	602	0.6%
Torrance city, CA	560	0.6%
Riverside city, CA	531	0.6%
Laguna Beach city, CA	518	0.6%
Corona city, CA	481	0.5%
All Other Locations	22,366	23.9%

4 TRANSPORTATION PROJECTS

The methodology for testing transportation projects is different from a residential or office project in that it looks at the total VMT, rather than an efficiency metric such as VMT per capita. The transportation project VMT analysis looks at the build-out condition scenario with and without the project based on the City's current version of the traffic model at the time of analysis of the proposed transportation project. The difference between with and without project VMT is the VMT attributable to the project. A project that results in no net percentage increase in the total regional VMT results in no significant impact and therefore, does not require mitigation. This impact analysis methodology for transportation projects is consistent with the methodology employed by the California Department of Transportation as outlined in its Transportation Analysis Under CEQA.

For transportation projects that significantly increase roadway capacity, induced travel also needs to be assessed. However, the analysis would only be performed for a subset of capacity increasing projects. According to the Technical Advisory, *"projects that would not likely lead to a **substantial** or measurable increase in vehicle travel, and therefore generally should not require an induced travel analysis, include:"*

- Rehabilitation, maintenance, replacement, safety, and repair projects designed to improve the condition of existing transportation assets
- Installation, removal, or reconfiguration of traffic lanes that are not for through traffic, such as left, right, and U-turn pockets, two-way left turn lanes, or emergency breakdown lanes that are not utilized as through lanes
- Addition of roadway capacity on local or collector streets provided the project also substantially improves conditions for pedestrians, cyclists, and, if applicable, transit
- Addition of an auxiliary lane of less than one mile in length designed to improve roadway safety
- Addition of a new lane that is permanently restricted to use only by transit vehicles
- Reduction in number of through lanes
- Grade separation to separate vehicles from rail, transit, pedestrians or bicycles, or to replace a lane in order to separate preferential vehicles (e.g., HOV, HOT, or trucks) from general vehicles
- Installation, removal, or reconfiguration of traffic control devices, including Transit Signal Priority (TSP) features
- Installation of traffic metering systems, detection systems, cameras, changeable message signs and other electronics designed to optimize vehicle, bicycle, or pedestrian flow
- Timing of signals to optimize vehicle, bicycle, or pedestrian flow
- Installation of roundabouts or traffic circles
- Installation or reconfiguration of traffic calming devices
- Initiation of new transit service
- Conversion of streets from one-way to two-way operation with no net increase in number of traffic lanes
- Removal or relocation of off-street or on-street parking spaces
- Adoption or modification of on-street parking or loading restrictions (including meters, time limits, accessible spaces, and preferential/reserved parking permit programs)
- Addition of new or enhanced bike or pedestrian facilities on existing streets/highways or within existing public rights-of-way
- Addition of Class I bike paths, trails, multi-use paths, or other off-road facilities that serve non-motorized travel
- Installation of publicly available alternative fuel/charging infrastructure

Staff also carefully considered the addition of a lane through an at-grade intersection, including immediately before and after the intersection, and whether a VMT analysis should be performed. Based on ITAM traffic model testing, it was determined that this type of capacity enhancement and safety improvement would not substantially change total VMT. *A determination was therefore made that addition of a through lane that commences before an intersection and terminates downstream of the intersection is exempt from VMT analysis.*

4.1 Induced Travel

OPR states the requirement to assess induced travel as follows:

"*A transportation project which leads to additional vehicle travel on the roadway network, commonly referred to as "induced vehicle travel," would need to* ***quantify the amount of additional vehicle travel in order to assess air quality impacts, greenhouse gas emissions impacts, energy impacts, and noise impacts. Transportation projects also are required to examine induced growth impacts under CEQA.*** *For any project that increases vehicle travel, explicit assessment and quantitative reporting of the amount of additional vehicle travel should not be omitted from the document; such information may be useful and necessary for a full understanding of a project's environmental impacts."*

"A lead agency that uses the VMT metric to assess the transportation impacts of a transportation project may simply report that change in VMT as the impact."

"While CEQA does not require perfection, it is important to make a reasonably accurate estimate of transportation projects' effects on vehicle travel in order to make reasonably accurate estimates of GHG emissions, air quality emissions, energy impacts, and noise impacts. If a project would likely lead to a measurable and ***substantial increase*** *in vehicle travel, the lead agency should conduct an analysis assessing the amount of vehicle travel the project will induce. Project types that would likely lead to a measurable and substantial increase in vehicle travel generally include:"*

"Addition of through lanes on existing or new highways, including general purpose lanes, HOV lanes, peak period lanes, auxiliary lanes, or lanes through grade-separated interchanges*."*

The advisory is silent on whether an additional through lane immediately before and after an intersection would require induced travel analysis. Consistent with ITAM model testing, City staff has taken the view that such a localized improvement would not lead to a substantial increase in travel. Additionally, local and collector streets do not require an analysis of induced travel.

City of Irvine Recommendation: Induced travel analysis should be performed only for projects likely leading to substantial increase in travel. Examples might include:

- Widening of Red Hill Avenue from four to six lanes between MacArthur Boulevard and Main Street
- SR-55 Overcrossing at Alton Parkway
- Extension of Portola Parkway to Lake Forest
- Extension of Marine Way easterly to Barranca Parkway

Available tools for estimating induced travel includes the UC Davis Induced Travel Calculator. The Advisory further notes that adding a new connection, such as the Alton Parkway SR-55 overcrossing, actually has the potential to reduce overall VMT:

"A project which provides new connectivity across a barrier, such as a new bridge across a river, may provide a shortened path between existing origins and destinations, thereby shortening existing trips. In rare cases, this trip-shortening effect might be substantial enough to reduce the amount of vehicle travel resulting from the project below the range found in the elasticities in the academic literature, or even lead a net reduction in vehicle travel overall. In such cases, the trip-shortening effect could be examined explicitly."

The City's proposed transportation project analysis would compare total VMT for No Project and With Project conditions and report total change in VMT in absolute terms and as a percentage of City of Irvine related VMT. VMT impact analysis guideline updates for transportation projects are expected when future OPR Technical Advisory updates are provided based on coordination between OPR and Caltrans.

5 MITIGATION MEASURES

CEQA requires that an environmental impact report identify feasible alternatives and mitigation measures that could avoid or substantially reduce a project's significant environmental impacts (Pub. Resources Code, § 21002.1, subd. (a).) OPR lists potential mitigation measures, many of which require efforts beyond individual projects because "…VMT is largely a regional impact". Regional VMT-reduction programs or an in-lieu fee program based on a programmatic CEQA evaluation are listed as options. OPR's discussion of project alternatives focuses on alternative locations or land uses on a site—which would generally not be an alternative for an individual project applicant and would only be able to be handled at the General Plan, community plan or specific plan level. Potential measures to reduce vehicle miles traveled identified in the OPR guidelines can be grouped into several broad Travel Demand Management (TDM) categories:

Commute Trip Reductions: The commute trip reduction category includes required commute trip reduction programs, vans, vanpools or ride-share. Employer-sponsored vanpools or shuttles can connect employees to a project site by providing new opportunities for access, through more direct routes at lower costs. Ride share programs increase vehicle occupancy by providing ride-matching services. These types of strategies replace single-occupancy vehicle trips with multiple riders in one vehicle. Other options include providing telework options, providing on-site amenities at places of work, such as priority parking for carpools and vanpools, secure bike parking, showers and locker rooms and a guaranteed ride home service to users of non-auto modes.

Shared Mobility: The shared mobility category includes car share, bike share, and school carpool programs. Car share programs allow people to have on-demand access to a vehicle, as needed, which can serve as a supportive strategy that enhances other TDM strategies, such as parking unbundling. Bike share programs allow people to have on-demand access to a bicycle, as needed, to improve access and connectivity. School carpool programs encourage ride-sharing for students.

Bicycle Infrastructure: The bicycle infrastructure category includes implementing or improving on-street bicycle facilities, bike parking, and showers/changing rooms. These measures can support safe and comfortable bicycle travel through improvements in infrastructure, parking, and supportive facilities.

Parking Measures: The parking measures category includes reducing parking, unbundling parking, and pricing parking. Unbundling parking can allow for a separation of parking cost from property cost, allowing those who wish to purchase parking spaces that option. Similarly, parking cash out requires employers to offer employees a "cash-out" option for the monthly value of the free or subsidized parking space.

Transit Improvements: The transit improvements category includes improving access to transit, a reduction in transit headways, neighborhood shuttles and transit subsidies. A reduction in transit headways can make transit service more appealing by reducing overall transit trip time, encouraging transit improvements and encouraging drivers to switch from driving to transit use. Implementation of neighborhood shuttles involves project-operated or sponsored shuttles that can provide new opportunities for access, connections to jobs or activity centers, and transit. Transit subsidies involve the subsidization of transit fare for residents and employees of a project site and can include the provision of transit passes to employees by employers.

Education and Encouragement: The education and encouragement category includes voluntary travel behavior change programs and promotions and marketing. Voluntary travel behavior change programs can utilize two-way mass communication campaigns and travel feedback programs that actively engage participants making travel choices through a program coordinator. Promotions and marketing involves the use of marketing and promotional tools to educate and inform travelers about site specific transportation options and effects of travel choices.

Neighborhood Enhancements: The neighborhood enhancements category includes traffic calming and pedestrian network improvements. Implementation of traffic calming measures throughout and around a project site can encourage people to walk, bike, or take transit through better connections and elimination of barriers. Some of

these TDM mitigation measures may not be appropriate for the City of Irvine, which is currently relatively underserved by transit and contains several relatively low land use density areas. An individual developer or even the City of Irvine has limited influence on OCTA to provide mitigation measures such as increased transit service for a site-specific development.

Several industry efforts have been made to quantify the effectiveness of TDM measures, including the California Air Pollution Control Officers Association's (CAPCOA) 2010 report *Quantifying Greenhouse Gas Mitigation Measures,* which have been used for Climate Action Plans (CAPs). A conservative estimate of the overall effect of a comprehensive TDM program is on the order of a 5 percent VMT reduction, although some estimates are significantly higher. The implementation of feasible and effective mitigations will require a proven nexus to proposed project. Under the current CEQA transportation analysis, the nexus was between site trips and their impact on the operations of the transportation system. This was concentrated nearer the project, so it was relatively simple to develop mitigation measures that directly mitigated the impact in terms of the nexus to the project's activity and the location. Under SB 743, the significant impact would be more intense the farther away a vehicle traveled from the project site.

City of Irvine Recommendation: The City will accept the following two potential mitigation measures for future projects:

1. Onsite connectivity reduction of 2.5 percent VMT rate for on-site connectivity improvements as part of the project design to promote bicycle activity (i.e. bike facilities) and pedestrian walkability (i.e., connected sidewalks from building entrances to public streets. The 2.5 percent is based on the ranges provided in CAPCOA and subsequent research [1]*Handy, S. et al. (2014). Impacts of Pedestrian Strategies on Passenger Vehicle Use and Greenhouse Gas Emissions - Policy Brief and Technical Background Document. California Air Resources Board. Retrieved from: https://arb.ca.gov/cc/sb375/policies/policies.htm.* .
2. Reduction of 5 percent if the project develops or is part of a Travel Demand Management (TDM) program. This reduction is consistent with CAPCOA and subsequent research[2] on trip reduction estimates and is supported by observed data from the annual Spectrumotion surveys submitted to the City. [2]*Boarnet, M. et al. (2014). Impacts of Employer-Based Trip Reduction Programs and Vanpools on Passenger Vehicle Use and Greenhouse Gas Emissions - Policy Brief and Technical Background Document. California Air Resources Board. Retrieved from: https://arb.ca.gov/cc/sb375/policies/policies.htm*

A developer, however, is not restricted to these improvements and could provide additional improvements along with supporting documentation substantiating the effectiveness of the mitigation. Staff has considered the possibility of a Citywide VMT fee program to fund VMT-reducing mitigation measures. A CEQA transportation mitigation fee program would differ from the current City fee programs in two ways. First, the improvements would be related to citywide non-single occupancy vehicle mobility. Second, not all development projects would be required to pay fees, only those that result in impacts and require a means for mitigating. There are challenges involved in the implementation of a VMT Mitigation Fee Program including concerns regarding overall costs and the cost-effectiveness of VMT reduction measures, as well as concerns about the economic impact of the fee on future development. As such, supplemental funding through City or OCTA sources may be required. Examples of mitigation included in such a program would be transit service funding or major infrastructure projects like pedestrian bridges over major arterials. The City could elect to prepare a nexus fee study to support a VMT Mitigation Fee Program.

Staff also reviewed the possibility of City contributions to regional VMT programs that might be administered by agencies such as SCAG or OCTA. Although the possibility of such regional fee programs has been widely discussed in public forums there were no specific regional VMT fee programs in place or being developed at the time of review. [3] *Analysis of Vehicle Miles Traveled Banking and Exchange Frameworks, October 2018 Ether Elkind, Ted Lamm and Eric Prather, UC Berkeley.*

A concern from the City's point of view about this type of program is that developments in Irvine could be paying fees for transportation projects located outside of the City that would not necessarily benefit Irvine residents. Staff will revisit the matter should a regional or countywide fee program be developed.

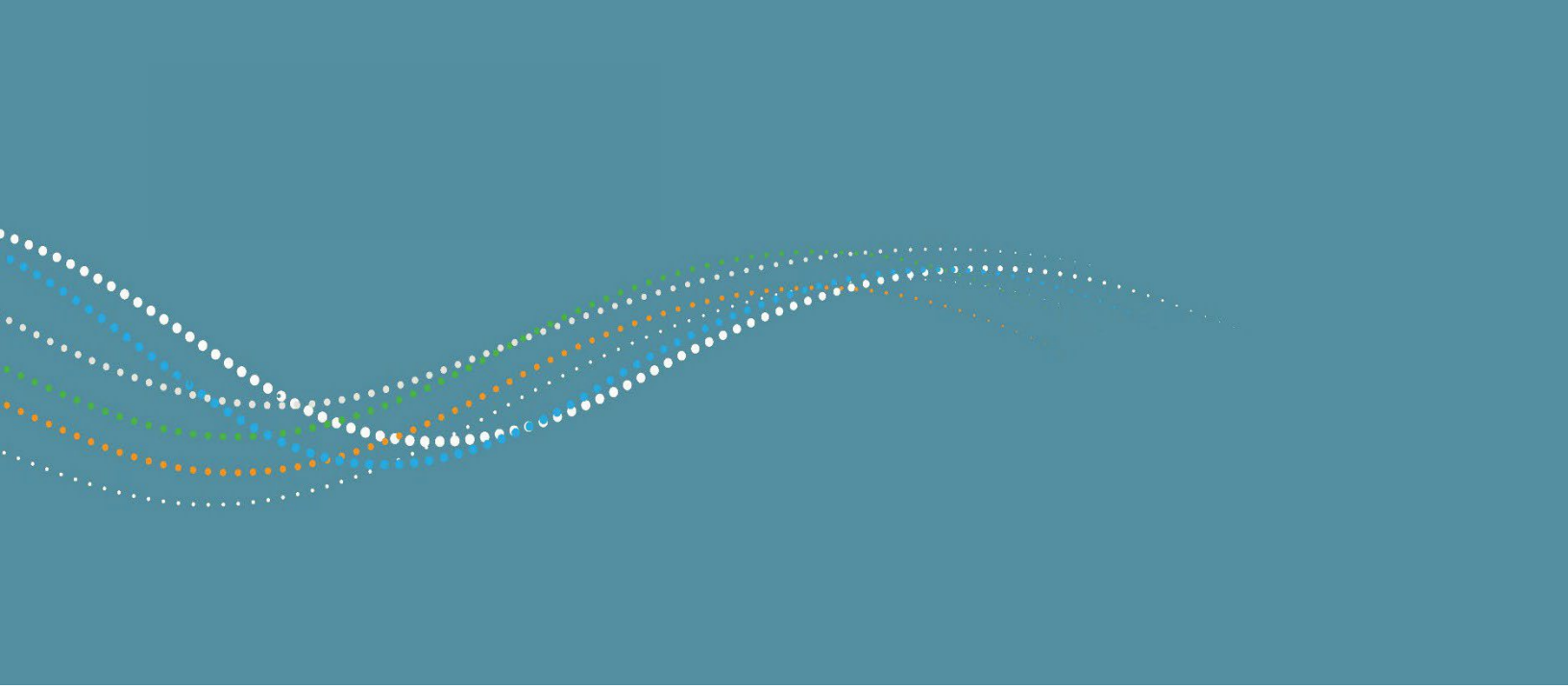


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Exhibit 9: Level of Service ‘E’ Policy

LOS “E” or better shall be considered acceptable within the Irvine Business Complex (PA 36, “IBC”), Irvine Spectrum Center (PA 33), and at the intersection of Bake Parkwayand the I-5 northbound off-ramp. In conjunction with individual subdivision map level traffic studies for development proposed in Planning Areas 5B, 6, 8A, 9, and 51, a LOS “E” standard would be considered acceptable for application to intersections impacted in Planning Areas 13, 31, 32, 34, 35, 39 and a portion of 51 as further described in the following.

LOS “E” would be considered acceptable as described above, subject to all three of the following conditions being met:

1. Preparation, submittal, processing and approval of a traffic study for the specific subdivision map.

2. Level of Service “E” will only be considered acceptable for an intersection that does not contain a residential quadrant unless residential development has a net density of 30 dwelling units to the acre or greater. No Level of Service “E” will be accepted along Sand Canyon, except at the Sand Canyon/I-5 Interchange ramps/intersections subject to these three conditions being met.

3. Participation/funding toward an upgraded traffic signal system as defined in the Traffic Management Systems Operations Study (TMSOS) which may be in place at the time of processing of the individual subdivision map traffic studies. The City, in conjunction with the specific subdivision map processing, shall determine the level of participation/funding using criteria and a process developed concurrent with submittal of subsequent subdivision maps.

LOS “D” or better shall be considered acceptable within all other areas.

Exhibit 10: City Council Ordinance 03-08 – Advanced Transportation Management Systems (ATMS)

CITY COUNCIL ORDINANCE NO. 03-08

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF IRVINE ADDING CHAPTER 10 TO DIVISION 11 OF TITLE 6 OF THE IRVINE MUNICIPAL CODE. ESTABLISHING AN ADVANCED TRANSPORTATION MANAGEMENT SYSTEM FEE

WHEREAS, in order to implement the goals and objectives of the Circulation Element of the City of Irvine's General Plan, and to help mitigate the traffic impacts caused by new development in the City of Irvine, certain public street improvements must be constructed or implemented; and

WHEREAS, it has been determined that an Advanced Transportation Management System fee is needed to help finance an Advanced Transportation Management System within the City of Irvine to reduce the impacts of traffic; and

WHEREAS, in establishing the Advanced Transportation Management System fee described in the following Sections, the City Council has found the fee to be consistent with its General Plan pursuant to Government Code Section 65913.2.

WHEREAS, the City Council of the City of Irvine did hold a public hearing to consider imposition of an Advanced Transportation Management System fee (ATMS fee), notice of which hearing was given in the manner referred by law; and

WHEREAS, an analysis of the cost for Advanced Transportation Management Systems facilities and improvements was conducted, and said study set forth the relationship between the needed facilities and the estimated costs of those improvements. The study, entitled" ADVANCED TRANSPORTATION MANAGEMENT SYSTEM'.', was prepared by the City of Irvine, and-is dated August 8, 2002; and

WHEREAS, this study was available for public inspection and review fourteen (14) days prior to the public hearing; and

WHEREAS, the City Council, after due consideration of all evidence, testimony and reports offered at the public hearing does find as follows:

A. The purpose of the transportation fee is to help finance the Advanced Transportation Management System facilities to help reduce the impacts of traffic where the Level of Service (LOS) has been shown to be deficient; and

B. The City Council of the City of Irvine, having received and considered appropriate facts and evidence, finds and declares that there is a reasonable relationship between the ATMS, the ATMS fee, and the traffic impacts caused by new development in the City of Irvine; and

C. The cost estimates set forth in the "ADVANCED TRANSPORTATION MANAGEMENT SYSTEM" study are reasonable cost estimates for constructing facilities, and the fees expected to be generated by new development will not exceed the total of these costs.

NOW, THEREFORE, the City Council of the City of Irvine DOES HEREBY ORDAIN as follows:

SECTION 1. Chapter 10 is added to Division 11 of Title 6 of the City Code of the City of Irvine to read as follows:

CHAPTER 10. AN ADVANCED TRANSPORTATION MANAGEMENT SYSTEM FEE

Sec. 6-11-1001. Adoption Of Advanced Transportation Management System Study

The study entitled "Advanced Transportation Management System Study" is hereby approved and incorporated herein. A copy of said study shall be kept for public reference in the office of the City Clerk.

Sec. 6-11-1002. Scope and Purpose

A. An Advanced Transportation Management System fee (the "ATMS fee") is hereby established in the City to help pay for an Advanced Transportation Management System. The City Council shall, by Council resolution, set forth the specific amount of the fee, describe the benefit and impact area on which the development fee is imposed, and list the specific public improvements to be financed. The "Advanced Transportation Management System Study" describes the estimated cost of these facilities, and the reasonable relationship between this fee and the various types of developments. As described in the fee resolution, the ATMS fee shall be paid by each owner or developer prior to issuance of a building permit.

B. The ATMS fee may be imposed only where all of the following conditions are met:

1. The Intersection Capacity Utilization (ICU) Level of Service is deficient; and
2. The physical improvements needed to mitigate the ICU value cannot be constructed because of physical or other constraints, which may preclude the construction of the required improvements; and
3. The ATMS fee will allow for a 0.05 mitigation credit to the ICU value of the existing signalized intersection; and
4. An ATMS credit has not been previously approved for the impacted intersection; and
5. The ATMS credit can only be applied to existing signalized intersections.

C. The ATMS fee is not at the option of the developer or property owner and may be imposed at the sole discretion of the Director of Public Works and Transportation.

D. The ATMS fee cannot be applied without the prior approval of the Director of Public Works and Transportation. Any appeal must be addressed to the City Council, which may override the Director's decision.

Sec. 6-11-1003. Review And Adjustment of Fee

On a bi-annual basis, or upon award of significant grants or developer improvements, the City Council shall review the ATMS fee to determine whether the fee is reasonably related to the impacts of developments and whether the described public facilities are still needed. The City Council may periodically, by resolution, adjust the amount of the ATMS fee established by this Chapter by using current construction cost index for the Los Angeles area published in the most recent Engineering News-Records Construction Cost Index, or by updating the Advanced Transportation Management Study to reflect changed conditions.

The study entitled "Advanced Transportation Management System Study," a copy of which is available in the office of the City Clerk, is approved and incorporated herein.

Sec. 6-11-1004. Exemptions

This Chapter shall not apply to the Irvine Business Complex, which currently has operational traffic mitigation programs in effect.

This Chapter shall not be applicable to new or proposed signalized intersections.

Sec. 6-11-1005. Limited Use Of Fees

The revenues raised by payment of the ATMS fee shall be placed in a separate and special account, and such revenues, along with any interest earnings on that account, shall be used solely to pay for the City's construction of Advance Transportation Management System Facilities or to reimburse the City for such facilities constructed by the City with funds advanced by the City from other sources.

Sec. 6-11-1006. Enforcement

The City Attorney is hereby authorized and directed to initiate such legal proceeding as may be necessary to enforce the provisions of this Chapter.

This Ordinance shall be effective thirty (30) days following this ordinance's passage by the City Council.

Sec. 6-11-1007. Severability

The City Council of the City of Irvine hereby declares that should any section, paragraph, sentence or word of this ordinance of the Code, hereby adopted, be declared for any reason to be invalid, it is the intent of the Council that it would have passed all other portions of this ordinance independent of the elimination herefrom of any such portions as may be declared invalid.

Sec. 6-11-1008. Savings Clause

Neither the adoption of this ordinance nor the repeal of any other ordinance of this City shall in any manner affect the prosecution for violations of ordinances, which violations were committed prior to the effective date hereof, nor be construed as a waiver of any license or penalty or the penal provisions applicable to any violation thereof. The provisions of this ordinance, insofar as they are substantially the same as ordinance provisions previously adopted by the City relating to the same subject matter, shall be construed as restatements and continuations, and not as new enactments.

PASSED AND ADOPTED by the City Council of the City of Irvine at a regularmeeting held on the 25th day of March, 2003.

MAYOR OF THE CITY OF IRVINE

ATTEST:

CITY CLERK OF THE CITY OF IRVINE

STATE OF CALIFORNIA)
COUNTY OF ORANGE) SS
CITY OF IRVINE)

I, JERI L. STATELY, City Clerk of the City of Irvine, HEREBY DO CERTIFY thatthe foregoing Ordinance was introduced for first reading on March 11, 2003, and duly adopted at a regular meeting of the City Council of the City of Irvine held on the 25th day of March, 2003, by the following vote:

AYES:	5	COUNCILMEMBERS:	Krom, Mears, Shea, Ward and Agran
NOES:	0	COUNCILMEMBERS:	None
ABSENT:	0	COUNCILMEMBERS:	None

CITY CLERK OF THE CITY OF IRVINE

AFFIDAVIT OF POSTING

STATE OF CALIFORNIA)
COUNTY OF ORANGE) ss
CITY OF IRVINE)

I, JERI L. STATELY, City Clerk of the City of Irvine, HEREBY DO CERTIFY that on the 3rd day of April, 2003, I caused to have posted the foregoing true and correct copy of Ordinance No. 03-08 of the City of Irvine in the following public places in the City:

1) Bulletin Board in Walnut Village Shopping Center, Culver and Walnut, Irvine.

2) Bulletin Board in University Park Shopping Center, Culver at Michelson, Irvine.

3) Bulletin Board in Northwood Shopping Center, Irvine Boulevard at Yale, Irvine.

IN WITNESS WHEREOF, I have hereunto set my hand .and affixed the official seal of the City Council of the City of Irvine, California, the 3rd day of April, 2003.

CITY CLERK OF THE CITY OF IRVINE