MEETING NOTICE AND AGENDA

CITIES/COUNTY TRANSPORTATION ADVISORY COMMITTEE (CTAC)

The CTAC may take action on any item appearing on this agenda.

Thursday, January 7, 2010

9:30 to 11 a.m.

SANDAG, Conference Room 7
401 B Street, Suite 800
San Diego, CA  92101-4231

Chair: Frank Rivera, City of Chula Vista
Vice Chair: Zoubir Ouadah, City of Poway

Staff Contact:  Dan Martin
(619) 699-6987
dma@sandag.org

AGENDA HIGHLIGHTS

• PROPOSED CHANGE TO BOARD POLICY NO. 031 REGARDING THE REGIONAL TRANSPORTATION CONGESTION IMPROVEMENT PROGRAM - CONVALESCENT CARE DEVELOPMENTS

• FAIR SHARE METHODOLOGY STUDY

• NOMINATION AND ELECTION OF NEW CTAC CHAIR

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<td>PROPOSED CHANGE TO BOARD POLICY NO. 031 REGARDING THE REGIONAL TRANSPORTATION CONGESTION IMPROVEMENT PROGRAM (RTCIP) – CONVALESCENT CARE DEVELOPMENTS (Charles &quot;Muggs&quot; Stoll, SANDAG)</td>
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<td>FAIR SHARE METHODOLOGY STUDY (Heather Werdick, SANDAG)</td>
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**RECOMMENDATION**

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The CTAC is asked to approve the summary for the joint December 3, 2009, meeting of the CTAC and the Regional Planning Technical Working Group (TWG). Please see attached summary.

Members of the public will have the opportunity to address the working group during this time.

An issue has been identified with regard to enforcement of the RTCIP provisions in the TransNet Ordinance as applied to an assisted living (convalescent care) development. It has been requested that SANDAG consider interpreting the ordinance such that the RTCIP would not apply to assisted living units. Staff has reviewed the issue and will provide the CTAC with an overview and proposed revisions to Board Policy No. 031 “TransNet Ordinance and Expenditure Plan Rules.” CTAC members are asked to review the proposed amendment and provide comments prior to submitting the amendment for approval to the Board of Directors.

In July 2008, SANDAG initiated a study to develop a consistent methodology to identify the likely impact of future growth on the regional transportation network due to proposed developments. The Fair Share Methodology Study identifies recommended methods for calculating regional fair share contributions for regional transportation projects. With input from an ad hoc working group, a recommended approach and preliminary draft report have been prepared. Dave Kaplan and Zoubir Ouadah represented the CTAC as members of the ad hoc working group. An overview of the study and recommended approach will be presented. CTAC members are asked to provide input and feedback on the approach and preliminary draft report.
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<td>NOMINATION AND ELECTION OF NEW CTAC CHAIR</td>
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<td>In accordance with the CTAC Charter, nominations will be accepted and an election will be held for the new two-year term for chair from January 2010 to December 2011.</td>
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<td>7.</td>
<td>CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS) UPDATES</td>
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<td>Caltrans will provide an update on various local programs, funding program deadlines, and announcements regarding upcoming conferences.</td>
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<td>8.</td>
<td>CTAC UTILITY UNDERGROUNDING AD HOC SUBCOMMITTEE UPDATE (Frank Rivera, SANDAG)</td>
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<td>An update will be provided on the CTAC Utility Undergrounding Ad Hoc Subcommittee meeting held on December 17, 2009.</td>
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<td>9.</td>
<td>ANNOUNCEMENTS</td>
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<td>CTAC members are encouraged to share items of interest.</td>
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<td>10.</td>
<td>ADJOURNMENT AND NEXT MEETING</td>
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<td>The next CTAC meeting will be held on Thursday, February 4, 2010, from 9:30 to 11 a.m. in Conference Room 7 of the SANDAG offices located at 401 B Street, Suite 800 in San Diego.</td>
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+ next to an item indicates an attachment
SUMMARY OF DECEMBER 3, 2009, MEETING

Agenda Item #1: Welcome and Introductions

The TWG Vice Chair Jon Bindle (Escondido) and the CTAC Chair Frank Rivera (Chula Vista) called the joint meeting of the TWG and the CTAC to order at 9 a.m. Self-introductions were conducted.

Agenda Item #2: Public Comments and Communications

Members of the public will have the opportunity to address the TWG and the CTAC on any issue within the jurisdiction of the working groups that is not on this agenda. Speakers are limited to three minutes each.

Oceanside resident Mike Bullock presented an argument in favor of parking cash-out programs, including unbundled parking, congestion pricing, and charging the full cost. He suggested a new ballot measure to allocate 100 percent of TransNet funding to public transportation.

Agenda Item #3: Approval of Meeting Minutes (Approve)

Meeting Summary of the October 29, 2009, Joint TWG/CTAC Meeting.

Action: Zoubir Ouadah (Poway) motioned and Vice Chair Brindle seconded to approve the minutes. The minutes were unanimously approved.

CONSENT ITEM

Agenda Item #4: Overview of the Sustainable Communities Strategy (SCS) (Information)

A presentation about the SCS was made at the TWG/CTAC joint meeting on October 29. Susan Baldwin (SANDAG) provided information regarding the SCS.
Action:  This item was presented for information only. Vice Chair Brindle inquired about coordination efforts with climate actions plans. Pat Murphy (Encinitas) recommended communicating with those jurisdictions that are in the process of a general plan update to incorporate concepts from the SCS. Mr. Murphy suggested using the planned public workshops as an educational tool for communities, especially for jurisdictions doing a general plan update.

REPORTS (5 through 10)

Agenda Item #5:  Urban Core Transit Strategy: Lessons Learned; Transit Mode Share Goals; Transit Network Evaluation Criteria; and Appointments (Discussion/Appointments)

In preparation for the development and evaluation of the transit network alternatives for the Urban Core Transit Strategy, Carolina Gregor (SANDAG) provided an overview of lessons learned from transit systems of peer regions and will request the working groups to discuss and provide input on the methodology for transit mode share goals and the criteria by which to evaluate the performance of the alternative networks once they are developed. Each group was requested to appoint a representative to participate in portions of the PB Consultant Team Workshop scheduled in mid-January.

Action:  Chair Rivera nominated himself and Greg Humora (La Mesa) as the CTAC representatives to the PB Consultant Workshop. Mr. Murphy nominated Bill Chopyk (La Mesa) and Nancy Bragado (City of San Diego) as the TWG representatives. All were confirmed unanimously.

Mr. Murphy inquired about the number of “smart growth hubs” in the peer regions and whether those regions attempted to limit the number of areas where intense development was taking place. Ms. Gregor used the example of Sydney, Australia, and how their transit development changed to fit land use development. Liz Young (PB Americas) discussed the growth patterns and policies of Seattle and Vancouver, British Columbia.

Ed Batchelder (Chula Vista) discussed the notion of feeder areas into the urban core. Ms. Gregor clarified that the Urban Core Transit Strategy is a regional transportation plan. Dave Schumacher (SANDAG) added that the strategy will incorporate origin/destination points and peak-period travel to understand travel market needs.

Ms. Bragado inquired about South American areas as peer regions. Ms. Gregor replied that peer regions were narrowed down to areas that were similar to San Diego and where there was a degree of realism for change in the long term.

Mo Sammak (Solana Beach) asked about locations of current congestion. Mr. Schumacher responded that those locations are indicators of travel markets and will be included in the analysis.
Mr. Murphy discussed the use of goal ranges. Brian Mooney (Del Mar) and Mr. Chopyk recommended looking at recreational and underserved origin and destination points such as inland communities’ travel to the beaches during summer, in particular, communities like Poway that are not served by the Trolley or other transit options. Mr. Chopyk also commented that multiple connections are a deterrent to transit ridership.

Mr. Ouadah and Mr. Murphy suggested taking a more in-depth look on policy issues, the future of the region, and how it relates to funding strategies. Gary Halbert (Chula Vista) suggested educating the public about the strategy. Rich Whipple (Solana Beach) discussed the possible shift to multimodal transportation to the airport and potential effects on the network. Mr. Schumacher provided an update on Destination Lindbergh.

Ms. Gregor responded to a recommendation by Ed Walton (Coronado) to compare investment strategies and policies of the peer regions. Greg Wade (Imperial Beach) made the point that investments in areas with high congestion should not come at the expense of areas with existing high transit ridership, which are typically low-income.

Mr. Murphy commented on the need to develop a cost of inaction (including transit, freeway expansion, etc.) for comparison of alternative networks. Din Daneshfar (National City) suggested expanding incentive programs for transit ridership. Tim Thiele (Del Mar) pointed out programs for low-income families to purchase bus passes and the use of employer-sponsored transit passes for large companies. Mr. Chopyk commented on the need for transit to accommodate riders going to the beaches with large items like surfboards and coolers.

**Agenda Item #6: Smart Growth Trip Generation Study Status Update (Information)**

The SANDAG Smart Growth Trip Generation Study will update the San Diego Traffic Generators manual with observed rates for smart growth developments and provide a tool for evaluating trip generation in smart growth settings. A working group comprised of San Diego Regional Traffic Engineers Council, CTAC, and TWG members have been advising on the study. Christine Eary (SANDAG) provided a brief status update on the study, due to be completed within the next few months.

**Action:** This item was presented for information only. Mr. Batchelder requested clarification on the six areas that were studied. Ms. Eary responded to an inquiry by John Connelly (Vista) about the methodology of the study. Mr. Mooney suggested addressing the concept of acceptable level of service through neighborhoods, as “acceptable” levels often do not occur in smart growth areas. Ms. Eary mentioned that the working group is soliciting ideas for further studies.

**Agenda Item #7: Update on the Transportation Project Evaluation Criteria Ad Hoc Working Group (Information)**

Scott Strelecki (SANDAG) provided a review on the status of the group’s work to date.

**Action:** This item was presented for information only.
Agenda Item #8: CTAC Utility Undergrounding Ad Hoc Subcommittee Update (Information)

Chair Rivera provided an update on the first meeting of the CTAC Utility Undergrounding Ad Hoc Subcommittee held on October 29, 2009.

Action: This item was presented for information only. Chair Rivera clarified that the next meeting will be December 17 and that the time will most likely be 10:30 a.m.

Agenda Item #9: Nomination and Election of New CTAC Vice Chair (Nomination/Election)

In accordance with the CTAC Charter, nominations were accepted and an election was held for the new two-year term for vice chair from January 2010 to December 2011. Nominations and elections will be held in January for the CTAC chair in light of the information that Robert Johnson (Carlsbad) will not be able to serve in that position.

Action: The CTAC nominated Mr. Ouadah to serve as vice chair. The nomination was unanimously approved. Chair Rivera will continue as chair through the January meeting.

Agenda Item #10: Adjournment and Next Meeting(s) (Information)

The next TWG meeting will be held on Thursday, December 10, 2009, from 1:15 to 3:15 p.m., with a special emphasis on the 2050 Regional Growth Forecast.

The next CTAC meeting will be held on Thursday, January 7, 2010, from 9:30 to 11 a.m.

Wei Xia (Caltrans) announced that the Bicycle Transportation Account applications were due December 1, 2009. Caltrans received ten applications. The Highway Safety Improvement Program has nearly $4 million allocated to the San Diego region. The program received 30 applications. Caltrans established the Local Agency Invoice review process, which requires that local agency project sponsors submit all progress invoices and support documentation directly to the District Local Assistance office for review and approval prior to payment. The district is encouraging project managers to send their progress invoices on a regular monthly basis.

Connery Cepeda (Caltrans) announced the new grant cycle for the transportation planning grant program. Three million dollars is available for environmental justice grants and another $3 million is available for community-based planning grants. The application deadline for environmental justice grants is March 1, 2010, and April 1, 2010, for community-based grants. Applications are available online. Mr. Cepeda is the contact for the region.

Mr. Chopyk announced the San Diego Planning Directors Association meeting that day.

Key Staff Contact: Dan Martin, (619) 699-6987, dma@sandag.org
PROPOSED CHANGE TO BOARD POLICY NO. 031
REGARDING THE REGIONAL TRANSPORTATION
CONGESTION IMPROVEMENT PROGRAM (RTCIP) –
CONVALESCENT CARE DEVELOPMENTS

Introduction

Last month an issue that has been pending for several months came to a critical decision point for National City with regard to enforcement of the RTCIP provisions in the TransNet Ordinance as applied to an assisted living (convalescent care) development. National City has requested that SANDAG consider interpreting the ordinance such that the RTCIP would not apply to assisted living units. The issue was presented to the SANDAG Executive Committee on December 4, 2009, and it was requested that the issue be presented to the CTAC and the Independent Taxpayer Oversight Committee (ITOC) before submitting it for approval to the Board of Directors.

Discussion

In response to National City’s request, staff has proposed revisions to Board Policy No. 031 – TransNet Ordinance and Expenditure Plan Rules, which are shown in Attachment 1.

The first issue to address is whether National City’s request would be in conflict with the purpose and intent of the RTCIP provisions in the ordinance. The relevant portion of the ordinance (Section 9) states:

Starting on July 1, 2008, each local agency in the San Diego region shall contribute $2,000 in exactions from the private sector for each newly constructed residential housing unit in that jurisdiction to the RTCIP. These exactions shall ensure future development contributes its proportional share of the funding needed to pay for the Regional Arterial System [RAS] and related regional transportation facility improvements, as defined in San Diego Association of Governments’ (SANDAG’s) most recent, adopted Regional Transportation Plan . . . . This action is predicated on the desire to establish a uniform mitigation program that will mitigate the regional transportation impacts of new development on the Arterial System.
The ordinance attachment regarding the RTCIP provides additional details regarding the RTCIP and contains a list of specified exemptions to the applicability of the exaction/fee. None of the exemptions clearly applies to assisted living units. The RTCIP attachment also states, “The purpose of each jurisdiction’s Funding Program is to provide additional revenue to fund those facility and service improvements on the ... [RAS] necessitated by development of newly constructed residences.”

Based on the language regarding purpose and intent in the ordinance, the RTCIP was intended to address the impact of residential units on regional arterials. If a particular type of unit causes a lower level of impact on regional arterials than a typical residence, it would not be inconsistent with the intent of the ordinance for the Board ultimately to decide the RTCIP was not intended to apply to this type of unit.

Should SANDAG decide this type of development should not be subject to the RTCIP exaction requirement imposed by the TransNet Ordinance, it could be made clear in an amendment to Board Policy No. 031. Language that could accomplish this is shown in tracked changes in Attachment 1, which is an excerpt from the policy. The proposed amendment to this Board policy will require review by the ITOC.

Even if the proposed amendment to Board Policy No. 031 were approved, a local agency would not be precluded from applying the RTCIP exaction to assisted living units or any other type of development, whether residential or commercial. It would just mean that the local agency would not be potentially jeopardizing its TransNet funding by not charging the exaction for these types of units. In other words, the ordinance and policy would still be the minimum standard the local agency would need to meet to maintain TransNet eligibility, and the local agency would have the flexibility to apply the fee to a broader spectrum of new development, including convalescent care facilities.

When this proposed revision to Board Policy No. 031 was presented to the Executive Committee in December, staff was asked to carry out several tasks. First, National City requested that the latest 2007 California Building Code Section 308 designating the new “institutional” use and occupancy classification be used to define developments as nonresidential. The “institutional” use provision referenced by National City is in the 2007 California Building Code. Building codes are intended to address construction standards, not standards based on how development of the unit will impact the transportation infrastructure. Staff believes the criteria proposed in Board Policy No. 031 are narrowly tailored to apply only to units outside the purpose and intent of the RTCIP. National City may conclude that some units that are granted an institutional building permit are exempt from the RTCIP and that other types of units encompassed within the building code definition of “institutional,” such as group homes and halfway houses, will have a greater impact on the RAS than a typical residence.

In addition, Councilmember Hall from the City of Carlsbad suggested the classification “Commercial Living Unit” as defined in the Carlsbad Municipal Code be investigated as a potential definition to distinguish such uses as nonresidential. Carlsbad’s definition (Municipal Code § 21.04.093) follows:

“Commercial living unit" means a unit that may be within but is not limited to a professional care facility, hotel, motel, time-share or bed and breakfast that provides the basic amenities for everyday living and may include but is not limited to a sleeping
area or bedroom(s), closet space, restroom, sitting/entertainment area and kitchen facilities. Commercial living units are distinguished from dwelling units due to the assistance/services provided in conjunction with the living unit and/or the use of the living unit for temporary lodging.

Staff believes this definition also would potentially be too broad because not every commercial living unit would meet the rest of the criteria that are proposed; specifically criteria related to how the unit will function in reality, not just in theory. Under the proposed criteria in Board Policy No. 031, Carlsbad could decide that commercial living units that meet all of the criteria in Board Policy No. 031 do not have to pay the RTCIP exaction. Therefore, Board Policy No. 031 would not be in conflict with Carlsbad’s Municipal Code.

Third, Supervisor Slater-Price inquired about whether some type of numerical threshold for the number of trips created should be used in the criteria. Staff was wary about including a specific number of trips as a threshold in the criteria because it could lead to conflicts in assessing traffic impacts for development projects to avoid the RTCIP. Instead, a new criterion is proposed that addresses impact to the regional arterials. The new criterion will allow each local agency some flexibility in determining whether the impact on regional arterials from a unit is lower than a typical residence. This would not be the defining criterion, however, because a local agency could only forego charging the exaction if all of the other criteria are met.

CHARLES “MUGGS” STOLL
Director of Land Use and Transportation Planning

Attachment: 1. SANDAG Board Policy No. 031, TransNet Ordinance and Expenditure Plan Rules (excerpt)

Key Staff Contact: Charles “Muggs” Stoll, (619) 699-6945, mst@sandag.org
**TransNet ORDINANCE AND EXPENDITURE PLAN RULES (EXCERPT)**

The following rules have been adopted and amended by the SANDAG Board of Directors in its role as the San Diego County Regional Transportation Commission (RTC). The purpose of these rules is to implement the provisions of the original TransNet Ordinance (87-1) and the TransNet Extension Ordinance (04-01) and amendments thereto.

**Rule #23: Application of TransNet Extension Ordinance Regional Transportation Congestion Improvement Program (RTCIP) Requirements**

**Adoption Date:** July 10, 2009; Amended January 22, 2010

A. Section 9 of Ordinance 04-01 provides that starting on July 1, 2008, each local agency in the San Diego region shall contribute $2,000 in exactions from the private sector, for each newly constructed residential housing unit in that jurisdiction to the RTCIP. Each agency is required to establish its own collection program, known as its RTCIP Funding Program. Each jurisdiction is required to either establish a new Fund for the RTCIP or to set up accounts specific to the RTCIP for tracking purposes.

B. Local agencies, SANDAG staff, hired auditors, and the Independent Taxpayers Oversight Committee (ITOC) are subject to the timelines set forth in Rule #17, Section I (Fiscal and Compliance Audit Procedures) in this Board Policy, Ordinance 04-01, and the attachment to Ordinance 04-01 entitled “REGIONAL TRANSPORTATION CONGESTION IMPROVEMENT PROGRAM” (RTCIP Attachment). Section 9 of Ordinance 04-01 states that any local agency that does not provide its “full” RTCIP contribution in a given fiscal year will not be eligible to receive funding for local streets and roads for the immediately following fiscal year. It further provides that any funding not allocated under 4(D)(1) as a result of this requirement shall be reallocated to the remaining local agencies that are in compliance with Section 9. This Rule #23 is intended to provide clarification regarding how this language will be implemented.

1. By June 30 of each year, which is the last day of SANDAG’s fiscal year, each local agency must record as revenue, the full amount of each RTCIP exaction due for any new residential unit subject to the RTCIP within its jurisdiction. This means that if the RTCIP exaction is not yet collected, the local agency should invoice, but does not need to collect all of the RTCIP exactions due in a given fiscal year by June 30. Each local agency may choose when the exaction is due, but in no event can the local agency allow a residential unit subject to the RTCIP to be occupied by a resident prior to receipt of the RTCIP...
exaction. The local agency must record the revenue in the fiscal year the exaction is due according to its Funding Program or when the revenue is received, whichever occurs first.

2. Section G(4) of the RTCIP Attachment states that each local agency shall have up to, but no more than seven years after receipt of the revenue to expend the revenues on Regional Arterial System or regional transportation infrastructure projects. To ensure consistency in implementation, this provision shall mean that the seven year term shall begin on the July 1 following the date on which the local agency recorded the exaction as revenue or received the revenue, whichever occurred first. If it is not spent within seven years it will be subject to the reallocation process in Section G(4) of the RTCIP Attachment.

3. Pursuant to Ordinance 09-01, which amended Ordinance 04-01, the audit reports for all RTCIP Funding Programs are to be completed by June of the fiscal year immediately following the end of the fiscal year being audited. If during the audit process it is determined that a local agency failed to collect the full amount of exactions due under its Funding Program, the local agency may cure the defect by recording the amount due as an account receivable for the fiscal year being audited and avoid losing its TransNet funding. If the local agency has already closed out its books for the fiscal year being audited by the time the RTCIP audit discloses the defect, the local agency may record the revenue and cure the defect in the current fiscal year in order to avoid losing its TransNet funding. The seven year period discussed in Section B(2) of this Rule will commence from the fiscal year in which the revenue is recorded if this latter situation occurs.

4. The following exceptions will be permitted to the requirement that each local agency record as revenue, the full amount of each RTCIP exaction due for any new residential unit subject to the RTCIP within its jurisdiction by the June 30 deadline. These exceptions are permissible because the purpose of the RTCIP exactions is to mitigate residential traffic impacts on the regional transportation infrastructure. If a new unit subject to the RTCIP is not occupied this impact does not occur.

a. If litigation, bankruptcy, or other similar situation occurs that delays occupation of a new residential unit pending resolution by the courts or another body assigned to resolve the dispute, and the local agency has invoiced, but been unable to collect amounts due under its Funding Program, the local agency may delay recording the account receivable until the outcome is known or the unit is occupied, whichever occurs first. The local agency shall provide documentation to the auditor establishing litigation,
bankruptcy, etc. has occurred that has precluded the local agency from collecting the exaction.

b. If a local agency records an RTCIP exaction as revenue and subsequently determines that the amount is uncollectible (i.e., the developer never completes the project or goes bankrupt), the local agency may write-off the RTCIP exaction until such time, if ever, the unit is occupied and subject to the RTCIP. The local agency shall provide documentation to the auditor establishing that the write-off was justified.

5. Due to the timeline for completion of RTCIP audits, it may be up to one year after the fiscal year being audited has ended before ITOC adopts a final report that includes a finding that a local agency failed to provide the full amount of RTCIP exactions due under its Funding Program. During this interim audit period, SANDAG will make the payments due to local agencies for local streets and roads pursuant to Section 4(D)(1) of Ordinance 04-01 in good faith by presuming that the audit will establish each local agency is in compliance. If, however, the audit establishes a local agency did not provide its full monetary contribution under the RTCIP and the local agency does not cure defects of which it was notified by the time the audit is finalized and adopted by the ITOC, then the local agency will have forfeited its Section 4(D)(1) contribution. Any amount paid to the local agency in the fiscal year following the year that was the subject of the audit will be retroactively owed to the Commission. SANDAG will deduct any such amount, with interest at the monthly Local Agency Investment Fund (LAIF) rate. This amount will be deducted from the local agency annual allocation during the next fiscal year in which the local agency is eligible for Section 4(D)(1) funding.

C. The purpose of the RTCIP’s requirement that each local agency have a Funding Program is “to provide additional revenue to fund those facility and service improvements on the Regional Arterial System necessitated by development of newly constructed residences.” If a new unit will have a lower impact on the Regional Arterial System (RAS) than a typical residential unit, then it is unlikely to necessitate facility and service improvements on the RAS. The Board has determined that a nursing home, home for the aged, assisted living facility, or similar institutional unit (“institutional unit”) is not the type of unit the RTCIP was intended to cover if this type of unit is unlikely to generate the same types of trips and impacts on the RAS. Local agencies are not required to charge for a new institutional unit for purposes of compliance with the Ordinance’s RTCIP Funding Program requirements when the local agency documents that it has made the following findings prior to issuance of a final certificate of occupancy:

1. The individual unit will not have both a bathroom and permanent built-in kitchen facilities equipped with a cooking range, refrigerator, and sink; and
2. The principal reason a person will live in the unit is because the person needs medical and/or nursing care;

3. The unit will cause a lower impact on the RAS than a typical residential unit in a similar location; and

4. The local agency has required that the developer agree that the unit in substance will be used as health care facility rather than as a residence.

Adopted: February, April, and May 1988; August 1989; March, July, and November 1990; October 1992; September and November 2005

Amended: June and December 1990; February 1991; November 2005; December 2006; December 2007; February 2008; March 2008; September 2008; July 2009; January 2010
FAIR SHARE METHODOLOGY STUDY

Introduction

In July 2008, SANDAG initiated a study to develop a consistent methodology to identify the likely impact of future growth on the regional transportation network due to proposed developments. The Fair Share Methodology Study identifies recommended methods for calculating regional fair share contributions for regional transportation projects. With input from an ad hoc working group, a recommended approach and preliminary draft report have been prepared. Dave Kaplan and Zoubir Ouadah represented the CTAC as members of the ad hoc working group. An overview of the study and recommended approach will be presented. CTAC members are asked to provide input and feedback on the approach and preliminary draft report.

Discussion

Background

The purpose of the Fair Share Methodology Study is to develop a methodology that regional transportation agencies in the San Diego region can use to comment on the transportation impact analysis included in environmental documents under the California Environmental Quality Act (CEQA). This study supplements current guidelines prepared by SANDAG and Caltrans for traffic impact analysis of development projects. It is the intent of SANDAG that lead agencies will use this study when conducting environmental review of development projects to determine fair share contributions to mitigation measures for regional transportation system impacts.

The current intergovernmental review (IGR) practice at SANDAG assesses regional transportation impacts of proposed developments on a project-by-project basis under the CEQA. This can be problematic and can lead to:

- Time-consuming negotiations
- Inconsistent mitigation requirements
- Poor coordination with other agencies
- Lack of adequate assessment of regional impacts
Willdan Financial Services (Willdan) was hired to conduct the study. The development of the study was assisted by ad hoc technical and stakeholders working groups that provided comments on the approach, preliminary findings, and recommendation. Attachment 1 shows the membership of the ad hoc working groups.

**Recommended Approach**

Willdan developed three program alternatives based on research of CEQA standards, current regional transportation plans, IGR comment letters, and practices in other regions in California. The alternatives included a Lead Agency Program, a Subregional Program, and a Regionwide Program. Willdan evaluated these three alternatives using evaluation criteria developed with input from the ad hoc working groups. Each alternative was evaluated using a ranking scale to represent the relative effectiveness of each alternative to meet each criterion.

Based on this evaluation, Willdan recommended that the best characteristics of the Subregional and Lead Agency Program alternatives be combined into a fourth alternative. The recommendation approach incorporates the benefits of the Subregional Program into the Lead Agency Program.

The key characteristics of the recommended approach are:

- Build on the traffic impact study guidelines already adopted by SANDAG
- Promote the use of subarea or corridor program environmental impact reports to streamline the CEQA process for development projects
- Conduct multimodal analysis of impacts for the project
- Provide a formula for calculating net unfunded mitigation measure costs
- Provide a formula for allocating mitigation measure costs to individual development projects

The Fair Share Methodology Study Preliminary Draft Report is included as Attachment 2.

**Next Steps**

Comments from the CTAC and the TWG will be incorporated into the draft report. The Transportation Committee will be asked to release the draft report for public review in February 2010. It is expected that the Fair Share Methodology Study will be finalized in March 2010.

Attachments: 1. Fair Share Methodology Study Ad Hoc Technical and Stakeholders Working Group Membership
               2. Fair Share Methodology Study Preliminary Draft Report

Key Staff Contact: Heather Werdick, (619) 699-6967, hwe@sandag.org
Fair Share Methodology Study Ad Hoc Technical and Stakeholders Working Group Membership

Ad Hoc Technical Advisory Group

- Building Industry Association (BIA)
- Caltrans
- City of San Diego
- Cities/County Transportation Advisory Committee (CTAC)
- County of San Diego
- Metropolitan Transit System (MTS)
- North County Transit District (NCTD)
- National Association of Industrial & Office Properties (NAIOP)
- Regional Planning Technical Working Group (TWG)

Ad Hoc Stakeholders Group

- Endangered Habitats League (EHL)
- Move San Diego
- San Diego County Regional Airport Authority
- San Diego Regional Chamber of Commerce
- San Diego Regional Economic Development Corporation
- Traffic Relief is Possible (TRIP)
- Unified Port of San Diego
- United States Department of Defense
- University of California, San Diego
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Acknowledgements

Ad Hoc Technical & Stakeholders Advisory Group

SANDAG established an Ad Hoc Technical and Stakeholders Advisory Group for this study. The Group provided comments on approach, preliminary findings, and recommendations, and was instrumental in supporting the successful completion of the Fair Share Methodology Study. The Group included representatives from the following organizations:

- Building Industry Association
- Caltrans
- Cities/County Transportation Advisory Committee (CTAC)
- City of San Diego
- County of San Diego
- Metropolitan Transit System
- Move San Diego
- National Association of Industrial & Office Properties
- North County Transit District
- Port of San Diego
- Regional Planning Technical Working Group (TWG)
- San Diego County Regional Airport Authority
- San Diego Regional Chamber of Commerce
- San Diego Regional Economic Development Corporation
- San Diego Regional Economic Development Corporation
- San Diego County Taxpayers Association
- Traffic Relief is Possible

San Diego Association of Governments

The following SANDAG staff provided valuable support throughout the study:

- Heather Werdick, Project Manager
- Elisa Arias
- Coleen Clementson
- Bob Leiter
- Scott Strelecki
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Executive Summary

The current intergovernmental review (IGR) practice at SANDAG assesses regional transportation impacts of proposed developments on a project-by-project basis under the California Environmental Quality Act (CEQA). This sometimes can be problematic and can lead to:

- Time-consuming negotiations;
- Inconsistent mitigation requirements;
- Poor coordination with other commenting agencies; and
- Lack of adequate assessment of regional impacts.

The current process can result in development projects with similar impacts being treated differently based on specific circumstances such as project location, project type, project funding sources, and local policies regarding traffic mitigation.

The purpose of this study is to develop a methodology for use with transportation impact analysis during the environmental review process under CEQA that:

- Lead agencies can follow when conducting environmental reviews; and
- Regional transportation agencies can use to comment on environmental documents.

This study supplements current guidelines prepared by SANDAG and Caltrans for traffic impact analysis of development projects. It is the intent of SANDAG that lead agencies will use this study when conducting environmental review of development projects to determine fair share contributions to mitigation measures for regional transportation system impacts.

SANDAG established an Ad Hoc Technical and Stakeholders Advisory Group for this study. The Group met six times during the course of the study, providing comments on approach, preliminary findings, and recommendations.

In discussions with the Ad Hoc Technical Advisory and Stakeholders Group and SANDAG staff, Willdan identified three primary objectives for this study:

- **Equity:** Promote more equitable treatment among development projects countywide with regards to mitigation of regional transportation system impacts.
- **Efficiency:** Streamline the intergovernmental review process of reviewing development project impacts on the regional transportation system.
- **Effectiveness:** Maintain conditions for economic investment.

Willdan developed three program alternatives based on research of CEQA standards, current regional transportation plans, IGR comment letters, and practices in other regions in California. The alternatives included a Lead Agency Program, a Subregional Program, and a Regionwide Program.
Willdan evaluated the alternatives using evaluation criteria developed with input from the Ad Hoc Technical and Stakeholders Advisory Group. Each alternative was evaluated using a ranking scale to represent the relative effectiveness of each alternative to meet each criterion.

The Subregional Program ranked highest primarily because the geographic scope is the most appropriate level for environmental analysis of impacts across all regional transportation facilities. A sub-area or corridor scope balances the need for a comprehensive analysis of regional impacts with the need for detailed analysis of individual development projects.

The major disadvantage of the Subregional Program is that it would require significant effort on the part of SANDAG, Caltrans, and cooperating jurisdictions to conduct subregional studies and maintain those studies as land use and transportation conditions change over time.

The Lead Agency Program ranked second among the three alternatives. This alternative was most effective at maintaining project economic feasibility because project-by-project analysis can best adapt to changing market conditions, balancing the potential cost of mitigation with the economic feasibility of the development project. The disadvantage of this approach is that the cumulative effort across multiple project-level studies is probably greater than a single sub-area analysis.

Based on this evaluation Willdan recommended that the best characteristics of the Subregional and Lead Agency Program alternatives be combined into a fourth alternative, the Local Agency Program. The Ad Hoc Technical and Stakeholders Advisory Group emphasized the need for sensitivity to economic feasibility particularly in the current economic environment, a key advantage of the Lead Agency Program alternative. So the recommendation revised the Lead Agency Program alternative to include benefits of the Subregional Program. As SANDAG completes sub-area and corridor studies (an ongoing effort under the Regional Transportation Plan), these studies may be able to supplant the Lead Agency Program.

The key characteristics new Local Agency Program are:

- Build on the traffic impact study guidelines already adopted by SANDAG;
- Promote the use of sub-area or corridor program environmental impact reports (EIRs) to streamline the CEQA process for development projects;
- Recommend a multimodal approach that explicitly includes a transit impact analysis if transit will have the capacity to accommodate more than a minimal share of trip demand.
- Provides formula for calculating net unfunded mitigation measure costs; and
- Provides a formula for allocating mitigation measure costs to individual development projects.
1. Introduction

SANDAG, Caltrans, and regional transit agencies are responsible for the regional transportation system in the San Diego region. Development projects generate new travel demand causing impacts on this system of highways, arterials, and transit facilities. The California Environmental Quality Act (CEQA) process provides the primary venue for regional transportation agencies to comment on these impacts. Comments are provided to the lead agency responsible for preparing the CEQA documents associated with a development project.

The purpose of this study is to develop a methodology that regional transportation agencies in the San Diego region can use to comment on the transportation impact analysis included in environmental documents under CEQA. This study supplements current guidelines prepared by SANDAG and Caltrans for traffic impact analysis of development projects. It is the intent of SANDAG that lead agencies will use Chapter 3 of this study when conducting environmental review of development projects to determine fair share contributions to mitigation measures for regional transportation system impacts.

The California Environmental Quality Act

The basic goal of CEQA\(^1\) is to develop and maintain a high-quality environment now and in the future by requiring public agencies to:

- Identify the significant environmental effects of their actions; and, either
- Avoid those significant environmental effects, where feasible; or
- Mitigate those significant environmental effects, where feasible.

CEQA applies to projects proposed to be undertaken or requiring approval by State or local government agencies. Projects are activities that have the potential to have a physical impact on the environment.

A lead agency is responsible for analyzing environmental impacts. The lead agency is the agency primarily responsible for approving or carrying out the project, such as a city approving a new subdivision or a community college district building a new campus. If the lead agency finds that the project has significant impacts then it must prepare an environmental impact report (EIR).

The purpose of an EIR is to provide State and local agencies and the general public with detailed information on:

- The potentially significant environmental effects that a proposed project is likely to have;
- Ways that the significant environmental effects may be minimized; and
- Alternatives to the project.

\(^1\) Pub. Res. Code §21000 et seq.
CEQA enables substantial opportunity for public comment on the environmental impacts of a project. The purpose is to better inform the lead agency as it considers approval of the project. CEQA requires that lead agencies consult with regional agencies responsible for transportation facilities that could be affected by the project.2

Regional transportation agencies such as SANDAG and Caltrans have developed an intergovernmental review (IGR) process to respond systematically to notifications from lead agencies about pending EIRs. These agencies have also developed guidelines for traffic impact analysis that they encourage lead agencies to use to evaluate impacts of the proposed project on the regional transportation system.

A development project often does not generate a significant regional transportation system impact by itself, but only in contributing to the cumulative impact of multiple projects. During the IGR process regional transportation agencies are most often concerned that each individual project provides its fair share of the measures needed to mitigate cumulative impacts. CEQA anticipates this situation, allowing a project to reduce its impact to a less than significant level if it provides its fair share of the mitigation measure needed to alleviate the cumulative impact.3

Problem Statement

The current IGR practice at SANDAG assesses regional transportation impacts of proposed developments on a project-by-project basis following the requirements of the California Environmental Quality Act (CEQA). This can be sometimes problematic and can lead to:

- Time-consuming negotiations;
- Inconsistent mitigation requirements;
- Inconsistent and time constrained coordination with other agencies; and
- Lack of adequate assessment of regional impacts.

The current process can result in development projects with similar impacts being treated differently based on specific circumstances such as project location, project type, project funding sources, and local policies regarding traffic mitigation.

A standardized and coordinated methodology would streamline the environmental review process for development projects by providing guidance for both:

- Lead agencies to follow in conducting environmental reviews; and
- Regional agencies to use when commenting on environmental documents.

This approach may also reduce congestion and/or improve mobility by increasing development project contributions to the mitigation of impacts on the regional transportation system. Finally, this approach could benefit development projects by reducing the time and cost associated with the transportation analysis required under CEQA. Advance

---

2 14 California Code of Regulations, §15086(a)(5).

3 Ibid., §15130(a)(3).
knowledge of accepted analytic processes and mitigation practices will reduce costs for the developer by not requiring significant negotiations and rework of studies.

Policy Basis

The Fair Share Methodology Study is consistent with adopted SANDAG policy documents. The “Implementation” chapter of the Regional Comprehensive Plan (RCP) includes actions to support a more effective transportation planning and development review process:

- Strengthen the connection between local and regional plans, particularly between land use and transportation, through subregional planning programs and private sector participation.4
- Develop and implement an improved IGR process where SANDAG and other public agencies assess proposed local development projects that have significant regional impacts, within the context of RCP goals and policy objectives.5
- Develop improved analytical tools, including a consistent measure of transportation level of service and enhanced transportation planning models.6

Public Participation

SANDAG established an Ad Hoc Technical and Stakeholders Advisory Group for this study. The Group met six times during the course of the study, providing comments on approach, preliminary findings, and recommendations.

Study objectives

In discussions with the Ad Hoc Technical and Stakeholders Advisory Group and SANDAG staff, Willdan identified three primary objectives for this study:

- **Equity**: Promote more equitable treatment among development projects countywide with regards to mitigation of regional transportation system impacts.
- **Efficiency**: Streamline the intergovernmental review process of reviewing development project impacts on the regional transportation system.
- **Effectiveness**: Maintain conditions for economic investment.

These objectives guided the evaluation of program alternatives described in the next chapter.

---

5 Ibid., p. 362.
6 Ibid., pp. 363-364.
2. Alternatives Analysis

To develop a recommended Fair Share Methodology, Willdan developed and evaluated alternative approaches using a standard analytical framework, shown in Figure 2.1. This chapter describes the core of the work effort, including determining evaluation criteria, conducting research, and developing and evaluating alternatives.

Figure 2.1: Alternatives Analysis

The Ad Hoc Technical and Stakeholders Advisory Group provided input at every step of the process shown in Figure 2.1 through the course of six meetings, resulting in substantive changes in the approach and recommendations.

Evaluation Criteria

The evaluation criteria are presented in Table 2.1. Weighting factors reflect alignment with the study’s major objectives discussed in Chapter 1: equity, efficiency, and effectiveness.
Table 2.1: Evaluation Criteria

<table>
<thead>
<tr>
<th>1. Equity</th>
<th>Weighting factor = 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective:</strong> Analyze development projects with similar impacts in a similar manner.</td>
<td></td>
</tr>
<tr>
<td>a. Estimate a similar fair share for development projects with similar regional transportation impacts in similar locations.</td>
<td></td>
</tr>
<tr>
<td>b. Estimate fair share in proportion to project impacts regardless of project size and accounting for existing deficiencies.</td>
<td></td>
</tr>
<tr>
<td>c. Adjust for other transportation mitigation measures imposed on projects to avoid double charging.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Applicability</th>
<th>Weighting factor = 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective:</strong> Expand traffic impact analysis to incorporate multiple modes.</td>
<td></td>
</tr>
<tr>
<td>a. Estimate fair share of impacts on multiple modes, specifically vehicles and transit.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Predictability</th>
<th>Weighting factor = 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective:</strong> Estimate fair share impacts in advance of project-level analysis.</td>
<td></td>
</tr>
<tr>
<td>a. Enable project applicant to make a rough estimate of fair share impacts prior to doing fair share analysis.</td>
<td></td>
</tr>
<tr>
<td>b. Enable regional agencies to forecast overall contributions from development projects.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. Efficiency</th>
<th>Weighting factor = 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective:</strong> Improve the efficiency of the CEQA process.</td>
<td></td>
</tr>
<tr>
<td>a. Minimize additional transportation impact analysis requirements for development projects during project-level CEQA review.</td>
<td></td>
</tr>
<tr>
<td>b. Minimize additional transportation impact analysis requirements for regional agencies when preparing corridor and sub-area transportation plans.</td>
<td></td>
</tr>
<tr>
<td>c. Maximize coordination and consistency of comments among regional agencies (SANDAG, Caltrans, MTS, and NCTD) and CEQA lead agency.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5. Transparency</th>
<th>Weighting factor = 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective:</strong> Avoid methodologies that are not clearly documented.</td>
<td></td>
</tr>
<tr>
<td>a. Ensure that assumptions and methods are clearly documented and accessible.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6. Effectiveness</th>
<th>Weighting factor = 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective:</strong> Support economic development.</td>
<td></td>
</tr>
<tr>
<td>a. Minimize disproportionate economic impacts among real estate industry sectors to support project feasibility.</td>
<td></td>
</tr>
<tr>
<td>b. Promote effective use of funds to mitigate impacts in a timely manner</td>
<td></td>
</tr>
</tbody>
</table>
The initial draft of the criteria was revised based on comments received from the Ad Hoc Technical and Stakeholders Advisory Group. Revisions included:

- Criteria 1(b) was expanded to include a reference to existing deficiencies.
- Criteria 2(a) was narrowed to exclude bicycle and pedestrian modes because these modes are more appropriately examined in the context of local rather than regional transportation impacts.
- Criteria 4(b) was added to capture the tradeoff among alternatives for additional analysis at the local versus regional level.
- Criteria 6(a) and 6(b) were added to reflect a key objective of the study.
- All criteria were weighted to emphasize those most closely aligned to the study’s objectives.

Background Research

Willdan conducted research to assist in the development of alternatives in concert with input from the Ad Hoc Technical Advisory Group. Key areas of investigation included:

- Research on the California Environmental Quality Act (CEQA) with a focus on:
  - Use of program environmental impact reports (EIRs) to streamline the CEQA process for development projects;
  - Definitions of thresholds of significance with specific emphasis on multimodal transportation impacts; and
  - Cumulative impacts and fair share mitigation.
- Analysis of comments on environmental documents for major development projects within San Diego County submitted by SANDAG and Caltrans to the lead agency as part of the intergovernmental review (IGR) process.
- Review of local and regional transportation plans and environmental documents within the San Diego region.
- Research on practices from other regions in California to mitigate the impacts of development on the regional transportation system.

Key findings and conclusions from this research include:

- CEQA:
  - Program EIRs that support fair share mitigation through implementation of a fee or similar requirement provide a reasonable approach to streamlining the CEQA process for development projects, potentially saving time and costs for developers.7

---

Fair share mitigation of cumulative impacts is expressly allowed by CEQA and subject to the same constitutional protections associated with any development exaction.\(^8\)

Comment letters on CEQA documents from SANDAG, Caltrans, and NCTD:

- Impacts on the regional transportation system included:
  - Inter-city transportation systems, not local roads and related intra-city systems;
  - Capital and operating impacts;
  - Transit systems; and
  - Both cumulative and direct impacts.

- Fair share mitigation was requested for regional transportation impacts when impacts were estimated or documented, though often a fair share mitigation methodology was not specified.

- When transportation impact analysis was insufficient and mitigations could not be specified, recommended fair share participation in sub-regional transportation impact study and fair share participation in recommended mitigations.

- SANDAG and Caltrans tended to focus more on cumulative regional transportation system impacts; NCTD focused more on direct local impacts on the regional transit system.

Transportation Impact Studies and Plans

- The Regional Transportation Plan (RTP) provides a foundation for all subregional and corridor-level transportation studies and plans.

- The transportation thresholds of significance for general plan EIRs focus primarily on vehicle, not multimodal, impacts.

- Caltrans studies (Transportation Concept Reports, Project Reports) can inform project-level CEQA analysis if current, e.g. consistent with adopted RTP.

- Sub-regional transportation studies (corridor studies and specific plans) provide the most useful level of analysis for determining project-level impacts on the regional transportation system.

Practices from Other Regions

- Regional transportation models are adapted for corridor and sub-area analyses, and made available to lead agencies for project-level environmental impact analysis.

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\(^8\) 14 California Code of Regulations, §15130(a)(2) and §15126.4(a)(4).
– Regional (countywide or sub-area) fair share mitigation programs are used primarily for vehicle impacts on the highway, interchange, and major arterial components of the regional transportation system.

– There was limited use of program EIRs to streamline the CEQA process for development projects.

Alternatives Development

Based on this research three alternatives were developed for evaluation. The alternatives included a Lead Agency Program, a Subregional Program, and a Regionwide Program. The alternatives were developed to reflect different levels of geographic analysis for traffic impact studies conducted pursuant to the Fair Share Methodology:

- The Regionwide Program anticipates a single regionwide analysis resulting in a fair share allocation of significant regional transportation system impacts to all applicable development projects within the region.

- The Subregional Program anticipates multiple analyses, one for each subarea in the region. Development projects within each subarea would use the fair share methodology articulated in the applicable subregional analysis.

- The Lead Agency Program largely represents a continuation of current practice in which the fair share analysis would be conducted individually on each applicable development project, though now with the use of a common methodology.

See Table 2.2 for a description of each alternative.

Evaluation of Alternatives

Willdan evaluated the alternatives using the evaluation criteria. Each alternative was evaluated using a ranking scale from one to three to represent the relative effectiveness of each alternative to meet each criterion. The results are shown in Table 2.3.

The evaluation was a qualitative process. Input from the Ad Hoc Technical and Stakeholders Advisory Group and SANDAG staff over the course of two meetings was used to refine the rankings. The scoring was ambiguous for several criteria that could be evaluated differently depending on the details of each alternative. As a result, the evaluation process provided useful guidance but not a definitive recommendation.

The Subregional Program ranked highest (see Table 2.3) primarily because the geographic scope is the most appropriate level for environmental analysis of impacts across all regional transportation facilities. A sub-area or corridor scope balances the need for a comprehensive analysis of regional impacts with the need for detailed analysis of individual development projects.
### Table 2.2: Alternatives

<table>
<thead>
<tr>
<th></th>
<th>Alternative 1 Lead Agency Program</th>
<th>Alternative 2 Subregional Program</th>
<th>Alternative 3 Regionwide Program</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Description</strong></td>
<td>Lead agency develops program on a project-by-project basis.</td>
<td>Regional agencies develop program based on corridor and other sub-area studies and related program EIRs.</td>
<td>Regional agencies develop countywide program based on RTP and related program EIR.</td>
</tr>
<tr>
<td><strong>Project Screen</strong></td>
<td>SANDAG TIS Guidelines¹</td>
<td>All projects subject to CEQA.</td>
<td>All projects subject to CEQA.</td>
</tr>
<tr>
<td><strong>Study Area</strong></td>
<td>SANDAG TIS Guidelines¹</td>
<td>Corridor or other sub-area, as appropriate.</td>
<td>Countywide.</td>
</tr>
<tr>
<td><strong>Affected Transportation Network</strong></td>
<td>SANDAG TIS Guidelines¹</td>
<td>RTP Reasonably Expected Revenue Scenario network including regional arterial system and local interchanges.</td>
<td>RTP Reasonably Expected Revenue Scenario network excluding regional arterial system and local interchanges.</td>
</tr>
<tr>
<td><strong>Program EIR</strong></td>
<td>To be determined by Lead Agency.</td>
<td>Sub-area program EIRs consistent with RTP Reasonably Expected Revenue Scenario.</td>
<td>RTP EIR.</td>
</tr>
<tr>
<td><strong>Transportation Modeling Tool</strong></td>
<td>To be determined by Lead Agency.</td>
<td>Refined RTP model based on SANDAG TransCAD model and/or sub-area simulation model.</td>
<td>Existing or refined SANDAG TransCAD model.</td>
</tr>
<tr>
<td><strong>Mitigation Threshold</strong></td>
<td>SANDAG TIS Guidelines¹, Caltrans TIS Guidelines¹, or Highway Capacity Manual.</td>
<td>To be determined by SANDAG and affected agencies and jurisdictions as part of sub-area program EIR.</td>
<td>Based on RTP performance measures.</td>
</tr>
<tr>
<td><strong>Mitigation Measures and Costs</strong></td>
<td>To be determined by Lead Agency.</td>
<td>To be determined by SANDAG and affected agencies and jurisdictions as part of sub-area program EIR.</td>
<td>Based on share of unfunded portion of RTP Reasonably Expected Revenue Scenario.</td>
</tr>
<tr>
<td><strong>Fair Share Allocation</strong></td>
<td>Project vehicle trip ends share of total vehicle trip ends, or Project vehicle and transit person trip ends share of total vehicle &amp; transit person trip ends.</td>
<td>Project vehicle trip ends share of total vehicle trip ends, or Project vehicle and transit person trip ends share of total vehicle &amp; transit person trip ends.</td>
<td>Project vehicle trip ends share of total vehicle trip ends, or Project vehicle and transit person trip ends share of total vehicle &amp; transit person trip ends.</td>
</tr>
</tbody>
</table>

¹ TIS Guidelines refer to traffic impact study guidelines prepared by SANDAG and Caltrans to guide the preparation of traffic impact analyses for development projects.
Table 2.3: Evaluation of Fair Share Methodology Alternatives

<table>
<thead>
<tr>
<th></th>
<th>Alternative 1</th>
<th>Alternative 2</th>
<th>Alternative 3</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Equity</strong></td>
<td></td>
<td></td>
<td></td>
<td>(1 = Least Effective / 3 = Most Effective)</td>
</tr>
<tr>
<td>Similar Projects</td>
<td>2.0</td>
<td>3.0</td>
<td>1.0</td>
<td>RP best likely to incorporate differences in impacts across region.</td>
</tr>
<tr>
<td>Similar Impacts</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
<td>All programs subject to same legal nexus requirements.</td>
</tr>
<tr>
<td><strong>Applicability</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluate Impacts</td>
<td>2.0</td>
<td>3.0</td>
<td>1.0</td>
<td>SP most effective because of geographic scope.</td>
</tr>
<tr>
<td>On All Modes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Predictability</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rough Estimate</td>
<td>1.0</td>
<td>3.0</td>
<td>2.0</td>
<td>SP most effective because of geographic scope.</td>
</tr>
<tr>
<td>By Project</td>
<td></td>
<td></td>
<td></td>
<td>High variability with LAP.</td>
</tr>
<tr>
<td>Forecast Total</td>
<td>1.0</td>
<td>3.0</td>
<td>2.0</td>
<td>SP most effective because of geographic scope.</td>
</tr>
<tr>
<td>Mitigation</td>
<td></td>
<td></td>
<td></td>
<td>High variability with LAP.</td>
</tr>
<tr>
<td><strong>Efficiency</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimize Project</td>
<td>1.0</td>
<td>3.0</td>
<td>2.0</td>
<td>SP most effective for CEQA streamlining because of geographic scope.</td>
</tr>
<tr>
<td>Level Analysis</td>
<td></td>
<td></td>
<td></td>
<td>SP requires multiple studies with periodic updates by regional agencies.</td>
</tr>
<tr>
<td>Minimize Regional</td>
<td>3.0</td>
<td>1.0</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>Agency Analysis</td>
<td></td>
<td></td>
<td></td>
<td>Regional agencies can pursue consistent methodology regardless of alternative.</td>
</tr>
<tr>
<td>Consistency</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>Among Regional</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agencies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average (weight = 2)</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
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</tr>
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<td>2.0</td>
<td>2.0</td>
<td>All programs have some potential to clearly document approach.</td>
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<tr>
<td>&amp; Methods</td>
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<td>1.0</td>
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<td>2.0</td>
<td>2.0</td>
<td>All alternatives have equal potential to ensure timely mitigation.</td>
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<tr>
<td><strong>Total Score</strong></td>
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<td>20.7</td>
<td>15.3</td>
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</table>

The benefits of a sub-area or corridor approach are recognized in the RTP:

This corridor approach considers multiple facilities, modes, jurisdictions, and land uses. The objective is to select the most effective mix of strategies to improve mobility within a specific corridor.9

The Subregional Program would more likely result in greater equity by determining the impact of all development within the sub-area in a comprehensive study. Other reasons that the Subregional Program ranked highest included:

- Impacts on multiple modes, particularly regional transit (bus and rail) needs, and the local feeder systems needed to serve regional routes.
- More predictable because a single transportation impact analysis would determine the mitigation requirements of development projects throughout the sub-area. A Regionwide Program is less likely to be as comprehensive an analysis of all components of the regional transportation system because of the broader geographic scale.10

The major disadvantage of the Subregional Program is that it would require significant effort on the part of SANDAG and cooperating jurisdictions to conduct subregional studies and maintain those studies as land use and transportation conditions change over time.

The Lead Agency Program ranked second among the three alternatives. This alternative was most effective at maintaining project economic feasibility because project-by-project analysis can best adapt to changing market conditions, balancing the potential cost of mitigation with the economic feasibility of the development project. The disadvantage of this approach is that the cumulative effort across multiple project-level studies is probably greater than a single sub-area analysis.

The Regionwide Program ranked last among the three alternatives primarily because the wide geographic scope of the analysis would result in a loss of detail regarding regional transportation system impacts. The Regionwide Program would miss some mitigation measures because the measures would be too small to be captured by regionwide analysis. As a result, the Program ranked behind the other two alternatives on the following evaluation criteria:

- Equity: Lead agencies would determine certain regional transportation system impacts on a project-by-project basis, causing inequities when different mitigation measures are identified for projects with similar impacts.
- Applicability: Not all mitigation measures by mode (vehicles, transit) would be addressed.
- Effectiveness: Impacts on economic feasibility on a project-by-project basis would be difficult to evaluate.

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10 For example, countywide transportation modeling typically cannot adequately evaluate interchange and intersection impacts.
Recommendation

Based on this evaluation Willdan recommended that the best characteristics of the Subregional and Lead Agency Program alternatives be combined into a fourth alternative. The Ad Hoc Technical and Stakeholders Advisory Group emphasized the need for sensitivity to economic feasibility particularly in the current economic environment, a key advantage of the Lead Agency Program alternative. So the recommendation revised the Lead Agency Program alternative to include benefits of the Subregional Program. This new alternative is called the Local Agency Program. This alternative encourages the use of sub-area and corridor studies as they are completed by SANDAG (an ongoing effort under the RTP) to supplant the Lead Agency Program (see discussion under Step 3: Study Area in the next chapter).
3. Fair Share Methodology

Introduction

SANDAG has invested significant resources developing tools for local agencies to use to improve mobility within the region. The Fair Share Methodology builds on these existing tools to provide guidelines for:

- Identifying measures needed to mitigate the impacts on the regional transportation system caused by multiple development projects (as opposed to mitigation measures associated with only a single project); and
- Determining a fair share approach to allocate responsibility for those mitigation measures across multiple development projects.

The Fair Share Methodology is an enhancement of existing guidelines for traffic impact analysis (TIS) of development projects on the regional transportation system. These guidelines and related resources include:

- San Diego Association of Governments, *Congestion Mitigation Strategies Research*, December 2003, specifically the following work products:
  - *Congestion Mitigation Strategies Toolbox* (CMS Toolbox);
  - *Trip Reduction Guidelines* (Trip Reduction Guidelines); and

The Lead Agency should consult the most recent edition of each of these documents for more guidance on specific steps of the Fair Share Methodology. The Fair Share Methodology relies primarily on SANDAG documents for specific methods and criteria. Differences with the current edition of the Caltrans TIS Guidelines are not significant.

Step 1: Project Screening

Traffic impact study guidelines typically screen out projects that are unlikely to generate a significant impact. Both the SANDAG and Caltrans TIS Guidelines contain project screening criteria. The Lead Agency should proceed with Step 2 if the auto vehicle trip generation of the Project exceeds one or more of the criteria listed below. The criteria are based on the SANDAG TIS Guidelines.

- Greater than 1,000 average daily or 100 peak-hour trip ends if:
Project conforms to land use and transportation elements of the applicable general plan, specific, or community plan; and

- The applicable general plan, specific, or community plan conforms to these guidelines for the analysis of regional transportation system impacts.

- Greater than 500 average daily or 50 peak-hour trip ends if Project does not conform to land use and transportation elements of the general plan or a specific plan.

- Equal to or greater than 20 peak-hour trips per day on an existing highway on- or off-ramp.

Project screening based on vehicle trip estimates requires assumptions of trip generation rates per unit of development. The SANDAG TIS Guidelines provide a detailed explanation of methods for estimating trip generation rates for development projects. First, the lead agency should consult the SANDAG TIS Guidelines to develop a preliminary estimate of trip generation based on rates from recognized local sources such as SANDAG’s (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, or national sources such as Trip Generation, by the Institute of Transportation Engineers. Second, the Lead Agency should use the Congestion Management Strategies (CMS) Toolbox and Trip Reduction Guidelines to reduce the preliminary estimate based on the characteristics of the Project that incorporate trip reduction measures such as transit-oriented design, transit-oriented locations, transportation demand management programs, and planned mitigation actions.

As part of the 2050 RTP adoption process in 2011, SANDAG should consider modifying the project screening criteria based on an evaluation of the share of total development comprised of projects that are too small to be subject to the Fair Share Methodology. If this share is significant (e.g. more than 20 percent of total new development) then SANDAG should consider adjusting these screening criteria to include more development projects.

Step 2: Tiered Environmental Analysis

The Project may be able to rely on an existing program-level EIR for analysis of regional transportation system impacts. Before proceeding with a TIS for the Project the Lead Agency should determine if the Project is consistent with an existing program-level EIR such as the EIR for a general plan, specific plan, corridor plan, or other sub-area EIR. To comply with CEQA and be consistent with the Fair Share Methodology the program-level EIR must at a minimum have:

- Analyzed a land use plan that encompassed the size and location of the Project;
- Examined reasonable alternatives to the adopted land use plan;
- Provided detailed information about the likely environmental impacts of development on the regional transportation system facilities with the Project study area (Step 3);
- Analyzed transit system impacts on the regional transportation system if appropriate (Step 4); and
- Identified measures to mitigate significant environmental impacts on the regional transportation system (Step 5).
If the program EIR does not identify the cost of mitigation measures (Step 6) and provide a methodology for allocating mitigation costs to the Project (Step 7) then the Lead Agency will need to conduct those steps as part of a project-level environmental analysis.

If the analysis of regional transportation system impacts is not going to tier off of an existing program-level EIR then the Lead Agency should proceed with a TIS for the Project as described in the following steps.

**Step 3: Study Area**

This step addresses (1) the regional transportation system facilities included in the Fair Share Methodology, and (2) the boundaries of the TIS study area.

**Regional Transportation System**

The RTP defines regional transportation investment priorities for the region. However, the RTP analysis focuses on overall corridor mobility and so lacks a detailed investment programs for the more fine-grained components of the network such as interchanges, intersections, arterials, and local transit service. To adequately identify environmental impacts on the regional transportation system the TIS should include evaluation of the following facilities:

1. Those segments of state highways to be improved under the RTP Reasonably Expected Revenue Scenario;
2. Interchanges along segments included in (1);
3. Transit systems to be improved under the RTP Reasonably Expected Revenue Scenario network;
4. Transit systems providing feeder service to (3); and
5. SANDAG regional arterial system.

**Boundaries of Study Area**

The TIS study area should be based on the area of influence of the Project on the regional transportation system. Based on the SANDAG TIS Guidelines that area is defined as:

- All regional transportation system segments and intersections where the proposed project will add 50 or more peak-hour trips in either direction to the existing roadway traffic.
- All freeway entrance and exit ramps where the proposed project will add a significant number of peak-hour trips to cause any traffic queues to exceed ramp storage capacities.

The Lead Agency could use the current SANDAG transportation forecasting model (currently TransCAD) to identify segments affected by the Project. The study area could be based on the extent of affected segments. More refined analysis of intersections and freeways ramps could follow as part of the transportation modeling developed specifically for the TIS (see Step 4).

Strict application of the SANDAG TIS Guidelines may result in a study area that is too limited for effective regional transportation system planning. Geographic analysis of regional
transportation system impacts at the sub-area or corridor level is preferred. The sub-area or corridor level of analysis typically provides the most reasonable balance between the identification of specific project impacts and the development of a comprehensive plan for mitigating the impacts of growth on the regional transportation system.

The RTP identifies areas for sub-area and corridor analysis. For the purposes of the current study the status of these analyses was compiled and is shown in Figure 3.1 and Table 3.1 on the following pages. The table also lists Caltrans reports that are useful inputs to corridor studies. Both the corridor and Caltrans studies focus on major highways within each corridor, major transit routes, and parallel roadway routes.

The completed corridor studies listed in Table 3.1 do not evaluate all regional transportation system facilities within the corridor. When completing future corridor studies SANDAG should consider approaches that would provide benefits for a Lead Agency conducting a project-level TIS. Therefore, when completing future corridor studies SANDAG should consider:

- Analyzing as many regional transportation facilities as feasible over a long term planning horizon within the corridor to promote effective regional transportation system planning; and
- Conducting a program EIR on the proposed mitigation projects, ideally, mitigating growth impacts to a less than significant level, to streamline the analysis of regional transportation system impacts (see Step 2).

**Step 4: Project Impacts**

Identifying impacts of the Project requires:

- Defining the transportation analysis scenarios;
- Determining how to address transit impacts;
- Conducting transportation impact analysis; and
- Determining thresholds of significance.

The Project may be too small to justify the burden of conducting a TIS for the entire study area and all affected regional transportation system facilities. If this is the case, the Lead Agency should:

- Conduct a TIS for a subset of affected regional transportation system facilities that represents a reasonable burden for the project approval process; and
- Identify the scope and estimated cost of a broader TIS and include the TIS as a mitigation measure for the Project in Step 5.

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11 SANDAG, 2030 RTP, p. 6-35.

12 Taking the additional step in a corridor study to develop a programmatic CEQA document to streamline environmental analysis of individual development projects could significantly increase the scope and budget for these studies.
Figure 3.1: San Diego Region Corridor Study Areas
Table 3.1: SANDAG Corridor Studies and Caltrans Reports

<table>
<thead>
<tr>
<th>Status / Title</th>
<th>Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Completed Corridor Studies</strong></td>
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</tr>
<tr>
<td>Rural Highway 94 Corridor Study</td>
<td>Jan. 2001</td>
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<tr>
<td>SR 67/125 Corridor Study</td>
<td>Jun. 2002</td>
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<td>I-5 Central Corridor Study</td>
<td>Jun. 2003</td>
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<td>I-805/I-5 Corridor Study</td>
<td>Jun. 2005</td>
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<tr>
<td><strong>Corridor Studies In Process</strong></td>
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<tr>
<td>I-5 South Corridor Study</td>
<td>Jan. 2010</td>
</tr>
<tr>
<td>I-805 Corridor System Management Plan</td>
<td>May 2010</td>
</tr>
<tr>
<td>I-5 North Coast Corridor System Management Plan</td>
<td>Jun. 2010</td>
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<td><strong>Future Corridor Studies</strong></td>
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<td><strong>Caltrans Reports</strong></td>
<td></td>
</tr>
<tr>
<td>I-5 South Project Study Report</td>
<td>May 2011</td>
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</tbody>
</table>

Source: SANDAG.

Transportation Analysis Scenarios

Both the SANDAG and Caltrans TIS guidelines contain fairly consistent definitions of the transportation analysis scenarios to be evaluated. With regards to the Fair Share Methodology, the focus is on cumulative scenarios because a longer horizon is more likely to capture all the regional transportation system mitigation measures needed within a corridor or sub-area. As stated in the SANDAG TIS Guidelines the horizon year for the cumulative scenario should have a horizon of at least 20 years, or build out, whichever is later.

In addition, for those regional transportation facilities to be improved with mitigation measures (see Step 5) level of service data (see Step 7) will be needed for the following three scenarios:

1. Existing conditions (near the time of approval of the Project);
2. Future conditions at the planning horizon with cumulative development but without the mitigation measure; and
3. Future conditions at the planning horizon with cumulative development and with the mitigation measure.

Transportation Impact Analysis

The SANDAG and Caltrans TIS Guidelines provide substantial direction with regards to transportation impact analysis including:
Trip generation;
- Traffic counts;
- Peak hour analysis;
- Transportation modeling; and
- Transportation impact methodologies.

The Lead Agency should consult the latest edition of these guidelines for direction.

For the Fair Share Methodology the Lead Agency should explicitly consider the role that transit services, both current and planned, will play in serving the Project. If transit will have the capacity to accommodate more than a minimal share of trip demand then the Lead Agency should explicitly evaluate the impact of the Project on the need for transit services. Simply identifying transit services as a mitigation measure without analyzing direct impacts on the need for expanded services is not adequate for a multimodal analysis. The Lead Agency should provide a rationale if transit impacts are not explicitly analyzed.

**Thresholds of Significance**

Selecting the appropriate thresholds to determine significant impacts on the regional transportation system is a critical step in any environmental analysis. The threshold determines whether the Lead Agency can demonstrate a reasonable relationship between the Project and the Project's impact on the transportation system.

Under CEQA the Lead Agency has substantial flexibility to select thresholds appropriate for its community. Thresholds of significance to be adopted for general use as part of the lead agency's environmental review process must be adopted by ordinance, resolution, rule, or regulation. In addition, they must be developed through a public review process and be supported by substantial evidence.\(^\text{13}\)

Historically lead agencies have focused on auto vehicle congestion metrics because of the high level of auto mode share in most areas. This focus is now expanding to other transportation system metrics, particularly in urban areas, as:

- Auto congestion has surpassed significance thresholds; and
- Economic and environmental constraints limit the expansion of highway and roadway systems.

The transportation planning profession is in the process of developing a broader palette of impact metrics to incorporate multimodal mobility. Multimodal mobility is the capacity of the transportation system to accommodate person trips across all modes: auto, transit, bicycle, and pedestrian. Proposed revisions to the State’s CEQA Guidelines reduce the current emphasis on measures of vehicle congestion.\(^\text{14}\) The upcoming 2010 Highway

\(^{13}\) See 14 California Code of Regulations, §15064.7(b).

\(^{14}\) California Resources Agency, *Proposed Guidelines Amendments*, revisions to California Code of Regulations, Title 14, Division 6, Chapter 3, Article 20, Appendix G (see new Section XVI(a) regarding transportation) (comment period closed November 10, 2009).
Capacity Manual is anticipated to include substantially more guidance on the analysis of impacts on transit and other modes.

The Lead Agency may follow adopted thresholds in applicable environmental documents (EIRs) for general or specific plans if those thresholds address regional transportation system impacts. Otherwise, the SANDAG TIS Guidelines provide direction with regards to thresholds for vehicle impacts on highways, roadways, intersections, and freeway ramps. However, the Guidelines provide little direction with regards to transit impacts. If the Lead Agency needs to analyze transit impacts (see Transportation Impact Analysis, above) and local EIRs provide insufficient direction, then the Agency should seek other sources such as the Caltrans TIS Guidelines and the Highway Capacity Manual.

**Step 5: Mitigation Measures**

The Lead Agency should require the Project to implement all feasible mitigation for significant impacts on the regional transportation system. The SANDAG TIS Guidelines includes a brief discussion of alternative approaches to mitigation. Sources for mitigation measures include:

- SANDAG Regional Transportation Plan, Regional Transportation Improvement Program, and Short Range Transit Plan;
- SANDAG Corridor Studies and Corridor System Management Plans (see Table 3.1);
- Caltrans Transportation Concept Reports and Project Study Reports (see Table 3.1);
- SANDAG CMS Toolbox and TRO Framework;
- General plan circulation elements, specific plans, and project-level CEQA documents;
- Additional mitigation measures developed specifically for the Project; and
- Alternative designs of the Project to avoid or reduce impacts.

Mitigation measures for regional transportation system impacts should be drawn from adopted local and regional transportation plans. Measures may also be reasonable extensions or phases of measures summarized in adopted plans. Measures should not represent new regional transportation system investments that have not been properly vetted through a prior regional transportation planning process.

**Step 6: Unfunded Cost**

If a regional transportation system mitigation measure for the Project will mitigate the impact of multiple development projects then the Lead Agency should estimate the unfunded cost of the measure (this step) and develop a method for allocating the unfunded cost to the Project (Step 7). Methods for estimating costs are typically not included in TIS guidelines. Neither the SANDAG nor Caltrans TIS Guidelines provide direction in this regard.

Unfunded cost is that portion of the total cost of a mitigation measure that is unfunded at the time of the Project’s approval based on reasonably expected funding. Unfunded cost is
defined by the equation in Figure 3.2. Terms used in the equation are defined in the following sections.

Figure 3.2: Unfunded Cost Equation

\[
\text{Unfunded Cost} = \text{Total Cost} - \text{Reasonably Expected Funding}
\]

Estimates of costs and funding for all mitigation measures should represent current dollars as of the date of the Project TIS. Clearly identifying the date of the cost estimate will facilitate updates for cost inflation if necessary following publication of the TIS.

**Unfunded Cost**

Unfunded Cost is that portion of the total cost of a mitigation measure at the time of the Project’s approval that is unfunded but for fair share contributions from unapproved development projects creating the impact that requires mitigation.

**Total Cost**

To estimate the Total Cost of the mitigation measure the Lead Agency should develop a description of the measure with sufficient detail to develop a conceptual-level cost estimate. A planning-level cost estimate is developed during the early phase of a project to compare costs of various technically feasible alternatives.\(^{15}\) Planning-level cost estimates should be based on preliminary understanding of the scope of the mitigation measure and typically include:

- Unit cost line items: Costs based on quantities representing the size of the mitigation measure. Quantities are multiplied by the estimated cost per unit to calculate the total line item cost. For example: (number of lane-miles x cost per lane mile = lane-mile costs). The cost per unit may be a lump sum cost representing a single cost estimate for a specific line item.

- Percent cost line items: Costs that are typically correlated with unit costs. Percent costs typically include “soft” costs such as design, engineering, environmental clearance, and project management. For example: (total unit costs x X% = design & engineering costs). Percent costs also include a contingency based on the degree of uncertainty in the overall cost estimate.

The Lead Agency should consult documents that may already have a cost estimate for the mitigation measure, including:

- SANDAG RTP and Regional Transportation Improvement Program (RTIP)\(^{16}\);
- Corridor plans, general plans, and other sub-area transportation plans; and

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\(^{16}\) The RTIP is prepared by SANDAG and is the region’s short-term five-year programming document for regional transportation projects. The RTIP must be consistent with the RTP.
Local agency capital improvement plans.

**Reasonably Expected Funding**

Reasonably Expected Funding is funding that can reasonably be expected within the planning horizon of the cumulative scenario excluding direct contributions from development projects. Regional and state transportation planning agencies such as SANDAG and Caltrans routinely estimate reasonably expected funding levels by revenue source to provide a rational basis for policy planning and project programming.

The Lead Agency should review adopted regional transportation plans such as the RTP and the RTIP, and work with SANDAG and Caltrans for guidance in developing estimates of Reasonably Expected Funding for the mitigation measure. If a mitigation measure is fully funded with Reasonably Expected Funding then it is likely that no fair share contribution by the Project is required.

**Step 7: Fair Share Allocation**

The fair share allocation of the Unfunded Cost for a mitigation measure should be roughly proportional to the impact of the Project. There are two alternative formulas for calculating the fair share allocation:

- **Alternative 1:** The Project’s fair share allocation is based on the Project’s share of the total *growth* in travel demand if the mitigation measure *would not* increase the existing level of service of the transportation facility at the planning horizon.

- **Alternative 2:** The Project’s fair share allocation is based on the Project’s share of total travel demand (*existing plus growth*) if the mitigation measure *would* increase the existing level of service of the transportation facility at the planning horizon.

The calculation of the Fair Share Allocation for the Project is shown below by the equation in Figures 3.3 and 3.4. Terms used in the equation are defined in the following sections. Step 8 addresses the issue of economic feasibility once the fair share allocation has been calculated.

**Figure 3.3**

\[
\text{No Increase in Level of Service} \quad \text{Project Fair Share Allocation} = \frac{\text{Project Trips}}{\text{Growth In Trips}} \times \text{Unfunded Cost} - \text{Development Fee Credit}
\]
Figure 3.4

\[
\text{Total Fair Share Allocation} = \frac{\text{Growth In Trips}}{\text{Total Trips}} \times \text{Total Cost} - \text{Development Share of Reasonably Expected Funding}
\]

\[
\text{Project Fair Share Allocation} = \frac{\text{Project Trips}}{\text{Growth In Trips}} \times \text{Total Fair Share Allocation} - \text{Development Fee Credit}
\]

Level of Service

Level of Service is a measure of the performance of the transportation facility impacted by the Project. Level of Service should be measured using the same methodology used to determine if the Project’s impact exceeds the threshold of significance (See Step 4). Whether or not a mitigation measure increases the Level of Service, i.e. whether Figure 3.3 or Figure 3.4 is the applicable formula, is indicated by comparing Level of Service under existing conditions with Level of Service following implementation of the mitigation measure and all other planned improvements at the TIS planning horizon including all cumulative development.

Project Fair Share Allocation

The Project Fair Share Allocation is that share of the Unfunded Cost of the mitigation measure represented by the impact of the Project.

Total Fair Share Allocation

The Total Fair Share Allocation is that share of the Total Cost of the mitigation measure needed to mitigate the impact of the Project plus all other development that would impact the need for the mitigation measure, excluding development that has already been approved but not constructed.

Project Trips

Project trips are the auto vehicle trips generated by the Project and estimated for Step 1, unless transit impacts are included in the transportation impact analysis (see Step 4). Use vehicle and transit person trips if transit impact analysis is included. The Lead Agency should consider using select link data from a travel demand model to isolate the estimated number of trips generated by the Project on the specific transportation facility to be improved with the mitigation measure. In calculating Project Trips, Growth In Trips, and Total Trips of trips the Lead Agency should be consistent in either using trips or trip ends throughout the analysis.

Growth In Trips

Growth in Trips is the total growth in trips generated by the Project plus all other development that would impact the need for the mitigation measure, excluding development that has already been approved but not constructed. Use the same trip generation methodology and rates used to calculate Project Trips.
Total Trips

Total Trips is the sum of the following three trip end estimates:


2. Trips from existing development, including development that has been approved but not constructed at the time of Project approval for the same geographic area used to calculate Growth in Trips.

3. Trips at the planning horizon that may benefit from the mitigation measure but that start and end outside the geographic area used to calculate Growth in Trips. These trips are commonly referred to as “external” trips.

For each estimate above use the same trip generation methodology and rates used to calculate Project Trips.

Total Cost

See Step 6 above for calculation of Total Cost.

Unfunded Cost

See Step 6 above for calculation of Unfunded Cost.

Development Share of Reasonably Expected Funding

If Level of Service is not increased by the mitigation measure then all Reasonably Expected Funding is allocated to reduce the Project Fair Share Allocation in Figure 3.3. See the definition of Unfunded Cost in Step 6. However, if the mitigation measure would increase Level of Service then the Lead Agency must make a policy decision to allocate Reasonably Expected Funding to new development in Figure 3.4. The policy decision needs to address the allocation of Reasonably Expected Funding between:

- The Total Fair Share Allocation (new development);
- Benefits to existing development from increased Level of Service; and
- Benefits to existing and new development outside the geographic area used to calculate Growth in Trips (external trips).

Development Fee Credit

The project should be given credit against its fair share allocation for contributions to existing development mitigation programs that would fund the mitigation measure. These programs include, for example, the Regional Transportation Congestion Improvement Plan (RTCIP) developer impact fee required by the TransNet sales tax extension approved by voters in 2004. The RTCIP fee is imposed on residential development to accommodate impacts on the regional arterial system. Development Fee Credit should also include that portion of local transportation impact fee programs that provide funding for the mitigation measure.
Step 8: Economic Feasibility

The Lead Agency should not adopt a Project Fair Share Allocation if it is not economically feasible. Economic feasibility is based on two conditions. Both conditions should be fulfilled for a mitigation measure to be considered economically feasible:

- The Project can reasonably be expected to fund the Project Fair Share Allocation.
- The mitigation measure will be fully funded based on Reasonably Expected Funding plus the Total Fair Share Allocation.

Conclusion

The Lead Agency has several options once the Fair Share Methodology is completed as part of the Project TIS:

- Require that the Project mitigate its impacts on the regional transportation system based on its fair share allocation;
- Do not require that the Project mitigate impacts, or require partial mitigation, if some or all of the fair share allocation is economically infeasible; or
- Do not require that the Project mitigate impacts, or require partial mitigation, and adopt findings of overriding consideration.

Lead Agency could rely on one of the following three approaches, or a combination of approaches, if it requires partial or full mitigation by Project:17

- **Upfront Mitigation.** The Project could provide its fair share allocation prior to EIR certification for the Lead Agency to hold in reserve until implementation of the mitigation measure.

- **Incremental Mitigation.** The Project could provide its fair share allocation incrementally over time for the Lead Agency to hold in reserve based on the estimated implementation date of the mitigation measure.

- **Trigger Point Mitigation.** The Project could provide the fair share allocation in a lump sum at the time the mitigation measure is implemented.

For the two approaches that defer the allocation (Incremental and Trigger Point) several additional considerations apply. First, the allocation should be adjusted annually based on a formula to reflect cost inflation. Second, the Lead Agency should use a credit instrument to secure the allocation. Private development projects could use a special assessment or special tax lien placed on the Project. Development projects by public agencies would require legislative authorization and therefore may have to rely on a memorandum of understanding or similar instrument.

Some development projects must implement a mitigation measure concurrent with development because the Project by itself causes a significant impact on the regional transportation system. If the mitigation measure will mitigate the impact of future development projects as well, then the Project should be reimbursed for any cost share that is greater than its fair share allocation.
4. Recommendations

This study represents the initial effort by SANDAG to develop a consistent methodology for determining the fair share of development project impacts on the regional transportation system. Consequently, this methodology may need to be adjusted as SANDAG, Caltrans, and local agencies gain experience with its implementation. The following recommendations should assist SANDAG in this effort.

- **Transit level of service:** Development impacts are likely to increase on transit systems as transit plays in increasing role in providing mobility in the region. The current SANDAG TIS Guidelines do not address transit level of service. The next update to the SANDAG TIS Guidelines should address transit level of service analysis to assist Lead Agencies in evaluating transit impacts.

- **Subregional studies:** This Fair Share Methodology Study determined that the subregional area of analysis is the most effective for determining development impacts on the regional transportation system. In addition, subregional studies have the potential to streamline the CEQA process and lower costs to development. Consequently, SANDAG should continue to conduct subregional transportation studies in cooperation with affected state and local agencies. SANDAG should, to the greatest extent feasible, conduct those studies in a manner so that they provide CEQA streamlining benefits to development projects.

- **Monitor implementation:** SANDAG should monitor implementation of the Fair Share Methodology through its existing IGR process. SANDAG should track the use of the methodology across multiple development projects to identify changes that would better meet the study objectives explained in the Introduction of equity, efficiency, and effectiveness.
Appendix A: Caltrans TIS Guidelines

The following report provides Caltrans guidelines for the preparation of traffic impact studies that was current at the time of this report’s production. Consult Caltrans for the most recent edition of these guidelines.
PREFACE

The California Department of Transportation (Caltrans) has developed this "Guide for the Preparation of Traffic Impact Studies" in response to a survey of cities and counties in California. The purpose of that survey was to improve the Caltrans local development review process (also known as the Intergovernmental Review/California Environmental Quality Act or IGR/CEQA process). The survey indicated that approximately 30 percent of the respondents were not aware of what Caltrans required in a traffic impact study (TIS).

In the early 1990s, the Caltrans District 6 office located in Fresno identified a need to provide better quality and consistency in the analysis of traffic impacts generated by local development and land use change proposals that effect State highway facilities. At that time, District 6 brought together both public and private sector expertise to develop a traffic impact study guide. The District 6 guide has proven to be successful at promoting consistency and uniformity in the identification and analysis of traffic impacts generated by local development and land use changes.

The guide developed in Fresno was adapted for statewide use by a team of Headquarters and district staff. The guide will provide consistent guidance for Caltrans staff who review local development and land use change proposals as well as inform local agencies of the information needed for Caltrans to analyze the traffic impacts to State highway facilities. The guide will also benefit local agencies and the development community by providing more expeditious review of local development proposals.

Even though sound planning and engineering practices were used to adapt the Fresno TIS guide, it is anticipated that changes will occur over time as new technologies and more efficient practices become available. To facilitate these changes, Caltrans encourages all those who use this guide to contact their nearest district office (i.e., IGR/CEQA Coordinator) to coordinate any changes with the development team.

ACKNOWLEDGEMENTS

The District 6 traffic impact study guide provided the impetus and a starting point for developing the statewide guide. Special thanks is given to Marc Birnbaum for recognizing the need for a TIS guide and for his valued experience and vast knowledge of land use planning to significantly enhance the effort to adapt the District 6 guide for statewide use. Randy Treece from District 6 provided many hours of coordination, research and development of the original guide and should be commended for his diligent efforts. Sharri Bender Ehler of District 6 provided much of the technical expertise in the adaptation of the District 6 guide and her efforts are greatly appreciated.

A special thanks is also given to all those Cities, Counties, Regional Agencies, Congestion Management Agencies, Consultants, and Caltrans Employees who reviewed the guide and provided input during the development of this Guide for the Preparation of Traffic Impact Studies.
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Appendix "A" Minimum Contents of Traffic Impact Study
Appendix "B" Methodology for Calculating Equitable Mitigation Measures
Appendix "C" Measures of Effectiveness by Facility Type
I. INTRODUCTION

Caltrans desires to provide a safe and efficient State transportation system for the citizens of California pursuant to various Sections of the California Streets and Highway Code. This is done in partnership with local and regional agencies through procedures established by the California Environmental Quality Act (CEQA) and other land use planning processes. The intent of this guide is to provide a starting point and a consistent basis in which Caltrans evaluates traffic impacts to State highway facilities. The applicability of this guide for local streets and roads (non-State highways) is at the discretion of the effected jurisdiction.

Caltrans reviews federal, State, and local agency development projects\(^1\), and land use change proposals for their potential impact to State highway facilities. The primary objectives of this guide is to provide:

- guidance in determining if and when a traffic impact study (TIS) is needed,
- consistency and uniformity in the identification of traffic impacts generated by local land use proposals,
- consistency and equity in the identification of measures to mitigate the traffic impacts generated by land use proposals,
- lead agency\(^2\) officials with the information necessary to make informed decisions regarding the existing and proposed transportation infrastructure (see Appendix A, Minimum Contents of a TIS)
- TIS requirements early in the planning phase of a project (i.e., initial study, notice of preparation, or earlier) to eliminate potential delays later,
- a quality TIS by agreeing to the assumptions, data requirements, study scenarios, and analysis methodologies prior to beginning the TIS, and
- early coordination during the planning phases of a project to reduce the time and cost of preparing a TIS.

II. WHEN A TRAFFIC IMPACT STUDY IS NEEDED

The level of service\(^3\) (LOS) for operating State highway facilities is based upon measures of effectiveness (MOEs). These MOEs (see Appendix “C-2”) describe the measures best suited for analyzing State highway facilities (i.e., freeway segments, signalized intersections, on- or off-ramps, etc.). Caltrans endeavors to maintain a target LOS at the transition between LOS “C” and LOS “D” (see Appendix “C-3”) on State highway facilities, however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing State highway facility is operating at less than the appropriate target LOS, the existing MOE should be maintained.

\(^1\) "Project" refers to activities directly undertaken by government, financed by government, or requiring a permit or other approval from government as defined in Section 21065 of the Public Resources Code and Section 15378 of the California Code of Regulations.

\(^2\) “Lead Agency” refers to the public agency that has the principal responsibility for carrying out or approving a project. Defined in Section 21165 of the Public Resources Code, the "California Environmental Quality Act, and Section 15367 of the California Code of Regulations.

A. Trip Generation Thresholds
The following criterion is a starting point in determining when a TIS is needed. When a project:

1. Generates over 100 peak hour trips assigned to a State highway facility
2. Generates 50 to 100 peak hour trips assigned to a State highway facility – and, affected State highway facilities are experiencing noticeable delay; approaching unstable traffic flow conditions (LOS “C” or “D”).
3. Generates 1 to 49 peak hour trips assigned to a State highway facility – the following are examples that may require a full TIS or some lesser analysis:
   a. Affected State highway facilities experiencing significant delay; unstable or forced traffic flow conditions (LOS “E” or “F”).
   b. The potential risk for a traffic incident is significantly increased (i.e., congestion related collisions, non-standard sight distance considerations, increase in traffic conflict points, etc.).
   c. Change in local circulation networks that impact a State highway facility (i.e., direct access to State highway facility, a non-standard highway geometric design, etc.).

Note: A traffic study may be as simple as providing a traffic count to as complex as a microscopic simulation. The appropriate level of study is determined by the particulars of a project, the prevailing highway conditions, and the forecasted traffic.

B. Exceptions
Exceptions require consultation between the lead agency, Caltrans, and those preparing the TIS. When a project’s traffic impact to a State highway facility can clearly be anticipated without a study and all the parties involved (lead agency, developer, and the Caltrans district office) are able to negotiate appropriate mitigation, a TIS may not be necessary.

C. Updating An Existing Traffic Impact Study
A TIS requires updating when the amount or character of traffic is significantly different from an earlier study. Generally a TIS requires updating every two years. A TIS may require updating sooner in rapidly developing areas and not as often in slower developing areas. In these cases, consultation with Caltrans is strongly recommended.

III. SCOPE OF TRAFFIC IMPACT STUDY
Consultation between the lead agency, Caltrans, and those preparing the TIS is recommended before commencing work on the study to establish the appropriate scope. At a minimum, the TIS should include the following:

A. Boundaries of the Traffic Impact Study
All State highway facilities impacted in accordance with the criteria in Section II should be studied. Traffic impacts to local streets and roads can impact intersections with State highway facilities. In these cases, the TIS should include an analysis of adjacent local facilities, upstream and downstream, of the intersection (i.e., driveways, intersections, and interchanges) with the State highway.

4 A “lesser analysis” may include obtaining traffic counts, preparing signal warrants, or a focused TIS, etc.
B. Traffic Analysis Scenarios

Caltrans is interested in the effects of general plan updates and amendments as well as the effects of specific project entitlements (i.e., site plans, conditional use permits, sub-divisions, rezoning, etc.) that have the potential to impact a State highway facility. The complexity or magnitude of the impacts of a project will normally dictate the scenarios necessary to analyze the project. Consultation between the lead agency, Caltrans, and those preparing the TIS is recommended to determine the appropriate scenarios for the analysis. The following scenarios should be addressed in the TIS when appropriate:

1. When only a general plan amendment or update is being sought, the following scenarios are required:
   a) Existing Conditions - Current year traffic volumes and peak hour LOS analysis of affected State highway facilities.
   b) Proposed Project Only with Select Zone\(^5\) Analysis - Trip generation and assignment for build-out of general plan.
   c) General Plan Build-out Only - Trip assignment and peak hour LOS analysis. Include current land uses and other pending general plan amendments.
   d) General Plan Build-out Plus Proposed Project - Trip assignment and peak hour LOS analysis. Include proposed project and other pending general plan amendments.

2. When a general plan amendment is not proposed and a proposed project is seeking specific entitlements (i.e., site plans, conditional use permits, sub-division, rezoning, etc.), the following scenarios must be analyzed in the TIS:
   a) Existing Conditions - Current year traffic volumes and peak hour LOS analysis of affected State highway facilities.
   b) Proposed Project Only - Trip generation, distribution, and assignment in the year the project is anticipated to complete construction.
   c) Cumulative Conditions (Existing Conditions Plus Other Approved and Pending Projects Without Proposed Project) - Trip assignment and peak hour LOS analysis in the year the project is anticipated to complete construction.
   d) Cumulative Conditions Plus Proposed Project (Existing Conditions Plus Other Approved and Pending Projects Plus Proposed Project) - Trip assignment and peak hour LOS analysis in the year the project is anticipated to complete construction.
   e) Cumulative Conditions Plus Proposed Phases (Interim Years) - Trip assignment and peak hour LOS analysis in the years the project phases are anticipated to complete construction.

3. In cases where the circulation element of the general plan is not consistent with the land use element or the general plan is outdated and not representative of current or future forecasted conditions, all scenarios from Sections III. B. 1. and 2. should be utilized with the exception of duplicating of item 2.a.

\(^5\) "Select zone" analysis represents a project only traffic model run, where the project's trips are distributed and assigned along a loaded highway network. This procedure isolates the specific impact on the State highway network.
IV. TRAFFIC DATA

Prior to any fieldwork, consultation between the lead agency, Caltrans, and those preparing the TIS is recommended to reach consensus on the data and assumptions necessary for the study. The following elements are a starting point in that consideration.

A. Trip Generation

The latest edition of the Institute of Transportation Engineers’ (ITE) TRIP GENERATION report should be used for trip generation forecasts. Local trip generation rates are also acceptable if appropriate validation is provided to support them.

1. **Trip Generation Rates** – When the land use has a limited number of studies to support the trip generation rates or when the Coefficient of Determination ($R^2$) is below 0.75, consultation between the lead agency, Caltrans and those preparing the TIS is recommended.

2. **Pass-by Trips** – Pass-by trips are only considered for retail oriented development. Reductions greater than 15% requires consultation and acceptance by Caltrans. The justification for exceeding a 15% reduction should be discussed in the TIS.

3. **Captured Trips** – Captured trip reductions greater than 5% requires consultation and acceptance by Caltrans. The justification for exceeding a 5% reduction should be discussed in the TIS.

4. **Transportation Demand Management (TDM)** – Consultation between the lead agency and Caltrans is essential before applying trip reduction for TDM strategies.

NOTE: Reasonable reductions to trip generation rates are considered when adjacent State highway volumes are sufficient (at least 5000 ADT) to support reductions for the land use.

B. Traffic Counts

Prior to field traffic counts, consultation between the lead agency, Caltrans and those preparing the TIS is recommended to determine the level of detail (e.g., location, signal timing, travel speeds, turning movements, etc.) required at each traffic count site. All State highway facilities within the boundaries of the TIS should be considered. Common rules for counting vehicular traffic include but are not limited to:

1. Vehicle counts should be conducted on Tuesdays, Wednesdays, or Thursdays during weeks not containing a holiday and conducted in favorable weather conditions.

2. Vehicle counts should be conducted during the appropriate peak hours (see peak hour discussion below).

3. Seasonal and weekend variations in traffic should also be considered where appropriate (i.e., recreational routes, tourist attractions, harvest season, etc.).

C. Peak Hours

To eliminate unnecessary analysis, consultation between the lead agency, Caltrans and those preparing the TIS is recommended during the early planning stages of a project. In general, the TIS should include a morning (a.m.) and an evening (p.m.) peak hour analyses. Other peak hours (e.g., 11:30 a.m. to 1:30 p.m., weekend, holidays, etc.) may also be required to determine the significance of the traffic impacts generated by a project.

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6 “Pass-by” trips are made as intermediate stops between an origin and a primary trip destination (i.e., home to work, home to shopping, etc.).

7 “Captured Trips” are trips that do not enter or leave the driveways of a project’s boundary within a mixed-use development.
D. Travel Forecasting (Transportation Modeling)
The local or regional traffic model should reflect the most current land use and planned improvements (i.e., where programming or funding is secured). When a general plan build-out model is not available, the closest forecast model year to build-out should be used. If a traffic model is not available, historical growth rates and current trends can be used to project future traffic volumes. The TIS should clearly describe any changes made in the model to accommodate the analysis of a proposed project.

V. TRAFFIC IMPACT ANALYSIS METHODOLOGIES
Typically, the traffic analysis methodologies for the facility types indicated below are used by Caltrans and will be accepted without prior consultation. When a State highway has saturated flows, the use of a micro-simulation model is encouraged for the analysis (please note however, the micro-simulation model must be calibrated and validated for reliable results). Other analysis methods may be accepted, however, consultation between the lead agency, Caltrans and those preparing the TIS is recommended to agree on the data necessary for the analysis.

A. Freeway Segments – Highway Capacity Manual (HCM)*, operational analysis
B. Weaving Areas – Caltrans Highway Design Manual (HDM)
C. Ramps and Ramp Juctions – HCM*, operational analysis or Caltrans HDM, Caltrans Ramp Metering Guidelines (most recent edition)
D. Multi-Lane Highways – HCM*, operational analysis
E. Two-lane Highways – HCM*, operational analysis
F. Signalized Intersections\(^8\) – HCM*, Highway Capacity Software**, operational analysis, TRAFFIX\(^{TM}\)**, Synchro**, see footnote 8
G. Unsignalized Intersections – HCM*, operational analysis, Caltrans Traffic Manual for signal warrants if a signal is being considered
H. Transit – HCM*, operational analysis
I. Pedestrians – HCM*
J. Bicycles – HCM*
K. Caltrans Criteria/Warrants – Caltrans Traffic Manual (stop signs, traffic signals, freeway lighting, conventional highway lighting, school crossings)
L. Channelization – Caltrans guidelines for Reconstruction of Intersections, August 1985, Ichiro Fukutome

*The most current edition of the Highway Capacity Manual, Transportation Research Board, National Research Council, should be used.

**NOTE**: Caltrans does not officially advocate the use of any special software. However, consistency with the HCM is advocated in most but not all cases. The Caltrans local development review units utilize the software mentioned above. If different software or analytical techniques are used for the TIS then consultation between the lead agency, Caltrans and those preparing the TIS is recommended. Results that are significantly different than those produced with the analytical techniques above should be challenged.

\(^8\) The procedures in the Highway Capacity Manual "do not explicitly address operations of closely spaced signalized intersections. Under such conditions, several unique characteristics must be considered, including spill-back potential from the downstream intersection to the upstream intersection, effects of downstream queues on upstream saturation flow rate, and unusual platoon dispersion or compression between intersections. An example of such closely spaced operations is signalized ramp terminals at urban interchanges. Queue interactions between closely spaced intersections may seriously distort the procedures in" the HCM.
VI. MITIGATION MEASURES

The TIS should provide the nexus [Nollan v. California Coastal Commission, 1987, 483 U.S. 825 (108 S.Ct. 314)] between a project and the traffic impacts to State highway facilities. The TIS should also establish the rough proportionality [Dolan v. City of Tigard, 1994, 512 U.S. 374 (114 S. Ct. 2309)] between the mitigation measures and the traffic impacts. One method for establishing the rough proportionality or a project proponent's equitable responsibility for a project's impacts is provided in Appendix "B." Consultation between the lead agency, Caltrans and those preparing the TIS is recommended to reach consensus on the mitigation measures and who will be responsible.

Mitigation measures must be included in the traffic impact analysis. This determines if a project's impacts can be eliminated or reduced to a level of insignificance. Eliminating or reducing impacts to a level of insignificance is the standard pursuant to CEQA and the National Environmental Policy Act (NEPA). The lead agency is responsible for administering the CEQA review process and has the principal authority for approving a local development proposal or land use change. Caltrans, as a responsible agency, is responsible for reviewing the TIS for errors and omissions that pertain to State highway facilities. However, the authority vested in the lead agency under CEQA does not take precedence over other authorities in law.

If the mitigation measures require work in the State highway right-of-way an encroachment permit from Caltrans will be required. This work will also be subject to Caltrans standards and specifications. Consultation between the lead agency, Caltrans and those preparing the TIS early in the planning process is strongly recommended to expedite the review of local development proposals and to reduce conflicts and misunderstandings in both the local agency CEQA review process as well as the Caltrans encroachment permit process.
APPENDIX “A”

MINIMUM CONTENTS

OF A

TRAFFIC IMPACT STUDY
MINIMUM CONTENTS OF TRAFFIC IMPACT STUDY REPORT

I. EXECUTIVE SUMMARY

II. TABLE OF CONTENTS
   A. List of Figures (Maps)
   B. List of Tables

III. INTRODUCTION
   A. Description of the proposed project
   B. Location of project
   C. Site plan including all access to State highways (site plan, map)
   D. Circulation network including all access to State highways (vicinity map)
   E. Land use and zoning
   F. Phasing plan including proposed dates of project (phase) completion
   G. Project sponsor and contact person(s)
   H. References to other traffic impact studies

IV. TRAFFIC ANALYSIS
   A. Clearly stated assumptions
   B. Existing and projected traffic volumes (including turning movements), facility geometry
      (including storage lengths), and traffic controls (including signal phasing and multi-
      signal progression where appropriate) (figure)
   C. Project trip generation including references (table)
   D. Project generated trip distribution and assignment (figure)
   E. LOS and warrant analyses - existing conditions, cumulative conditions, and full build of
      general plan conditions with and without project

V. CONCLUSIONS AND RECOMMENDATIONS
   A. LOS and appropriate MOE quantities of impacted facilities with and without mitigation
      measures
   B. Mitigation phasing plan including dates of proposed mitigation measures
   C. Define responsibilities for implementing mitigation measures
   D. Cost estimates for mitigation measures and financing plan

VI. APPENDICES
   A. Description of traffic data and how data was collected
   B. Description of methodologies and assumptions used in analyses
   C. Worksheets used in analyses (i.e., signal warrant, LOS, traffic count information, etc.)
APPENDIX “B”

METHODOLOGY FOR

CALCULATING EQUITABLE MITIGATION MEASURES
METHOD FOR CALCULATING EQUITABLE MITIGATION MEASURES

The methodology below is neither intended as, nor does it establish, a legal standard for determining equitable responsibility and cost of a project’s traffic impact, the intent is to provide:

1. A starting point for early discussions to address traffic mitigation equitably.
2. A means for calculating the equitable share for mitigating traffic impacts.

The formulas should be used when:
- A project has impacts that do not immediately warrant mitigation, but their cumulative effects are significant and will require mitigating in the future.
- A project has an immediate impact and the lead agency has assumed responsibility for addressing operational improvements

NOTE: This formula is not intended for circumstances where a project proponent will be receiving a substantial benefit from the identified mitigation measures. In these cases, (e.g., mid-block access and signalization to a shopping center) the project should take full responsibility to toward providing the necessary infrastructure.

EQUITABLE SHARE RESPONSIBILITY: Equation C-1

NOTE: $T_E < T_B$, see explanation for $T_B$ below.

$$P = \frac{T}{T_B - T_E}$$

Where:
- $P$ = The equitable share for the proposed project's traffic impact.
- $T$ = The vehicle trips generated by the project during the peak hour of adjacent State highway facility in vehicles per hour, vph.
- $T_B$ = The forecasted traffic volume on an impacted State highway facility at the time of general plan build-out (e.g., 20 year model or the furthest future model date feasible), vph.
- $T_E$ = The traffic volume existing on the impacted State highway facility plus other approved projects that will generate traffic that has yet to be constructed/opened, vph.

EQUITABLE COST: Equation C-2

$$C = P \left(C_T \right)$$

Where:
- $C$ = The equitable cost of traffic mitigation for the proposed project, ($). (Rounded to nearest one thousand dollars)
- $P$ = The equitable share for the project being considered.
- $C_T$ = The total cost estimate for improvements necessary to mitigate the forecasted traffic demand on the impacted State highway facility in question at general plan build-out, ($).

NOTES

1. Once the equitable share responsibility and equitable cost has been established on a per trip basis, these values can be utilized for all projects on that State highway facility until the forecasted general plan build-out model is revised.
2. Truck traffic should be converted to passenger car equivalents before utilizing these equations (see the Highway Capacity Manual for converting to passenger car equivalents).
3. If the per trip cost is not used for all subsequent projects, then the equation below will be necessary to determine the costs for individual project impact and will require some additional accounting.

**Equation C-2.A**

\[ C = P (C_T - C_C) \]

Where:
- \( C \) = Same as equation C-2.
- \( P \) = Same as equation C-2.
- \( C_T \) = Same as equation C-2.
- \( C_C \) = The combined dollar contributions paid and committed prior to current project’s contribution. This is necessary to provide the appropriate cost proportionality. Example: For the first project to impact the State highway facility in question since the total cost (\( C_T \)) estimate for improvements necessary to mitigate the forecasted traffic demand, \( C_C \) would be equal to zero. For the second project however, \( C \) would equal \( P_2(C_T - C_1) \) and for the third project to come along \( C \) would equal \( P_3[C_T - (C_1 + C_2)] \) and so on until build-out or the general plan build-out was recalculated.
APPENDIX “C”

MEASURES OF EFFECTIVENESS

BY

FACILITY TYPE
# Measures of Effectiveness by Facility Type

<table>
<thead>
<tr>
<th>Type of Facility</th>
<th>Measure of Effectiveness (MOE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Freeway Segments</td>
<td>Density (pc/mi/ln)</td>
</tr>
<tr>
<td>Ramps</td>
<td>Density (pc/mi/ln)</td>
</tr>
<tr>
<td>Ramp Terminals</td>
<td>Delay (sec/veh)</td>
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<tr>
<td>Multi-Lane Highways</td>
<td>Density (pc/mi/ln)</td>
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<td>Two-Lane Highways</td>
<td>Percent-Time-Following</td>
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<td></td>
<td>Average Travel Speed (mi/hr)</td>
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<tr>
<td>Signalized Intersections</td>
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<td>Unsignalized Intersections</td>
<td>Average Control Delay per Vehicle (sec/veh)</td>
</tr>
<tr>
<td>Urban Streets</td>
<td>Average Travel Speed (mi/hr)</td>
</tr>
</tbody>
</table>

Measures of effectiveness for level of service definitions located in the most recent version of the Highway Capacity Manual, Transportation Research Board, National Research Council.
Transition between LOS "C" and LOS "D" Criteria
(Reference Highway Capacity Manual)

**BASIC FREEWAY SEGMENTS @ 65 mi/hr**

<table>
<thead>
<tr>
<th>LOS</th>
<th>Maximum Density (pc/mi/ln)</th>
<th>Minimum Speed (mph)</th>
<th>Maximum v/c</th>
<th>Maximum Service Flow Rate (pc/hr/ln)</th>
</tr>
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<tbody>
<tr>
<td>A</td>
<td>11</td>
<td>65.0</td>
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<td>B</td>
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<td>C</td>
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**SIGNALIZED INTERSECTIONS and RAMP TERMINALS**

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<tr>
<th>LOS</th>
<th>Control Delay per Vehicle (sec/veh)</th>
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<tbody>
<tr>
<td>A</td>
<td>( \leq 10 )</td>
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<tr>
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<td>( &gt; 10 - 20 )</td>
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<tr>
<td>C</td>
<td>( &gt; 20 - 35 )</td>
</tr>
<tr>
<td>D</td>
<td>( &gt; 35 - 55 )</td>
</tr>
<tr>
<td>E</td>
<td>( &gt; 55 - 80 )</td>
</tr>
<tr>
<td>F</td>
<td>( &gt; 80 )</td>
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</table>

**MULTI-LANE HIGHWAYS @ 55 mi/hr**

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<thead>
<tr>
<th>LOS</th>
<th>Maximum Density (pc/mi/ln)</th>
<th>Minimum Speed (mph)</th>
<th>Maximum v/c</th>
<th>Maximum Service Flow Rate (pc/hr/ln)</th>
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<td>E</td>
<td>41</td>
<td>51.2</td>
<td>1.00</td>
<td>2100</td>
</tr>
</tbody>
</table>

Dotted line represents the transition between LOS "C" and LOS "D"
### TWO-LANE HIGHWAYS

<table>
<thead>
<tr>
<th>LOS</th>
<th>Percent Time-Spent-Following</th>
<th>Average Travel Speed (mi/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>≤ 35</td>
<td>&gt; 55</td>
</tr>
<tr>
<td>B</td>
<td>&gt; 35 - 50</td>
<td>&gt; 50 - 55</td>
</tr>
<tr>
<td>C</td>
<td>&gt; 50 - 65</td>
<td>&gt; 45 - 50</td>
</tr>
<tr>
<td>D</td>
<td>&gt; 65 - 80</td>
<td>&gt; 40 - 45</td>
</tr>
<tr>
<td>E</td>
<td>&gt; 80</td>
<td>≤ 40</td>
</tr>
</tbody>
</table>

### URBAN STREETS

<table>
<thead>
<tr>
<th>Urban Street Class</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range of FFS</td>
<td>55 to 45 mi/hr</td>
<td>45 to 35 mi/hr</td>
<td>35 to 30 mi/hr</td>
<td>35 to 25 mi/hr</td>
</tr>
<tr>
<td>Typical FFS</td>
<td>50 mi/hr</td>
<td>40 mi/hr</td>
<td>35 mi/hr</td>
<td>30 mi/hr</td>
</tr>
<tr>
<td>LOS</td>
<td>Average Travel Speed (mi/hr)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>&gt; 42</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>&gt; 34 - 42</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>&gt; 27 - 34</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>&gt; 21 - 27</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>&gt; 16 - 21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>≤ 16</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dotted line represents the transition between LOS "C" and LOS "D"
GRAY DAVIS
Governor

MARIA CONTRERAS-SWEET
Secretary
Business, Transportation and Housing Agency

JEFF MORALES
Director
California Department of Transportation

RANDELL H. IWASAKI  BRIAN J. SMITH
Deputy Director  Deputy Director
Maintenance and Operations  Planning and Modal Programs

JOHN A. (Jack) BODA  JOAN SOLLLENBERGER
Chief  Chief
Division of Traffic Operations  Division of Transportation Planning

Additional copies of these guidelines can be copied from the internet at,
http://www.dot.ca.gov/hq/traffops/developserv/operationalsystems/
Appendix B: SANDAG TIS Guidelines

The following report provides SANDAG guidelines for the preparation of traffic impact studies that was current at the time of this report’s production. The guidelines were last published as Appendix D of the 2008 Final Congestion Management Program Update. Consult SANDAG for the most recent edition of these guidelines.
APPENDIX D
TRAFFIC IMPACT STUDY GUIDELINES

Background

In September 1998, the San Diego Regional Traffic Standards Task Force gathered for the first time to promote “cooperation among the cities, Caltrans, and the County of San Diego to create a region-wide standard for determining traffic impacts in environmental reports.” Ultimately the San Diego Traffic Engineers’ Council (SANTEC) and the Institute of Transportation Engineers (ITE – California Border Section) were requested to prepare guidelines for traffic impact studies (TIS) that could be reviewed by the Task Force and other appropriate groups. The primary documents used to help prepare these guidelines were the SANDAG Congestion Management Program (CMP) and Traffic Generators manual, City of San Diego’s Traffic Impact Study Manual and Trip Generation Manual, and Caltrans’ Draft Guide for the Preparation of Traffic Impact Studies.

Purpose of Traffic Impact Studies

TIS forecast, describe, and analyze the traffic and transit effects a development will have on the existing and future circulation infrastructure. The purpose of the TIS is to assist engineers in both the development community and public agencies when making land use and other development decisions. TIS quantifies the changes in traffic levels and translates these changes into transportation system impacts in the vicinity of a project.

TIS requirements usually are outlined as part of any environmental (CEQA) project review process; and, in order to monitor effects by these requirements, Notices of Preparation must be submitted to all affected agencies. In addition, the Land Use Analysis Program of the CMP requires that an “enhanced CEQA review” be undertaken to evaluate the impacts of large projects on the regional transportation system. These guidelines are intended to provide guidance to local jurisdictions and/or project sponsors in meeting these CMP requirements.

Note: These guidelines are subject to continual update, as future technology and documentation become available. Local jurisdictions should be consulted regarding their preferred or applicable procedures.

Objectives of TIS Guidelines

The following guidelines were prepared to assist local agencies throughout the San Diego region in promoting consistency and uniformity in traffic impact studies. All Circulation/Community Element roadways, all state routes and freeways (including metered and unmetered ramps), and all transit facilities that are impacted should be included in each study.

In general, the region-wide goal for an acceptable Level of Service (LOS) on all freeways, roadway segments, and intersections is LOS D. For undeveloped or not densely developed locations, as determined by any local jurisdiction, the goal may be to achieve a LOS “C”. Individual local jurisdictions, as well as Caltrans, have slightly different LOS objectives. For example, the Regional
Growth Management Strategy for San Diego has an objective of LOS D; while the CMP has established a minimum standard of LOS E. In other words, if the existing LOS is “D or worse,” preservation of the existing LOS must be maintained or acceptable mitigation must be identified. Definitions of LOS currently used by Caltrans are provided in Table D.3.

These guidelines do not establish a legal standard for these functions, but are intended to supplement any individual TIS manuals or LOS objectives for the various jurisdictions. These guidelines attempt to consolidate regional efforts to identify when a TIS is needed, what professional procedures should be followed, and what constitutes a significant traffic impact.

The instructions outlined in these guidelines are subject to update as future conditions and experience become available. Special situations may call for variation from these guidelines. Caltrans and lead agencies should agree on the specific methods used in traffic impact studies involving any State Route facilities, including metered and unmetered freeway ramps.

**Need for a Study**

TIS should be prepared for all projects which generate traffic greater than 1,000 total average daily trips (ADT) or 100 peak-hour trips. If a proposed project is not in conformance with the land use and/or transportation element of the general or community plan, use threshold rates of 500 ADT or 50 peak-hour trips. Early consultation with any affected jurisdictions is strongly encouraged since a “focused” or “abbreviated” TIS may still be required – even if the above threshold rates are not met.

Currently, a CMP analysis is required for all large projects, which are defined as generating 2,400 or more average daily trips or 200 or more peak-hour trips. This size of study usually would include computerized long-range forecasts and select zone assignments. Please refer Figure D.1 for TIS requirements.

The geographic area examined in the TIS must include the following:

- All local roadway segments (including all State surface routes), intersections, and mainline freeway locations where the proposed project will add 50 or more peak-hour trips in either direction to the existing roadway traffic.

- All freeway entrance and exit ramps where the proposed project will add a significant number of peak-hour trips to cause any traffic queues to exceed ramp storage capacities (refer to Figure D.1). (Note: Care must be taken to include other ramps and intersections that may receive project traffic diverted as a result of already existing, or project causing congestion at freeway entrances and exits.)

The data used in the TIS generally should not be more than two years old, and should not reflect a temporary interruption (special events, construction detour, etc.) in the normal traffic patterns unless that is the nature of the project itself. If recent traffic data are not available, current counts must be made by the project applicant/consultant.
Figure D.1
Flow Chart for Traffic Impact Study Requirements

* Check with Caltrans for current ramp metering rates and ramp storage capacities. (See Table D.4 – Ramp Metering Analysis)

** However, for health and safety reasons, and/or local and residential street issues, an “abbreviated” or “focused” TIS may still be requested by a local agency. (For example, this may include traffic backed up beyond an off-ramp’s storage capacity, or may include diverted traffic through an existing neighborhood.)
**Project Coordination via Staff Consultation**

Early consultation between the development community, local and lead agencies, and Caltrans is strongly recommended to establish the base input parameters, assumptions, and analysis methodologies for the TIS.

It is critical that the TIS preparer discuss the project with the lead reviewing agency’s staff engineer/planner at an early stage in the planning process. An understanding of the level of detail and the assumptions required for the analysis should be reached. While a pre-submittal conference is highly encouraged, it may not be a requirement. For straightforward studies prepared by consultants familiar with these TIS procedures, a telephone call or e-mail, followed by a fax verifying key assumptions, may suffice. Always check with the local jurisdictions for their concerns.

**Scenarios to be Studied**

After documenting existing conditions, both near-term (within approximately the next five years) and long-term (usually for a 20-year planning horizon or build-out of the area), analyses are needed.

All of the following scenarios should be addressed in the TIS (unless there is concurrence with the lead agency or agencies that one or more of these scenarios may be omitted):

- Existing (roadway infrastructure)
- Existing + Near-term Cumulative Projects (approved and pending)
- Existing + Near-term Cumulative Projects + Proposed Project (each phase when applicable)
- Horizon Year (typically Year 2030 or twenty years in the future)
- Horizon Year + Proposed Project (if different from General/Community Plan)

Scenario definitions:

**Existing Conditions** – Document existing traffic volumes and peak-hour levels of service in the study area. The existing deficiencies and potential mitigation should be identified.

**Existing + Near-term** – Analyze the cumulative condition impacts from “other” approved and “reasonably foreseeable” pending projects (application on file or definitely in the pipeline) that are expected to influence the study area. This is the baseline against which project impacts are assessed. The lead agency should provide copies of the traffic studies for the “other” projects. If data are not available for near-term cumulative projects, an ambient growth factor should be used.

**Existing + Near-term + Proposed Project** – Analyze the impacts of the proposed project on top of existing conditions and near-term projects (along with their committed or funded mitigation measures, if any).

**Horizon Year** – Identify Year 2030 traffic forecasts or 20-year future conditions through the output of a SANDAG model forecast (currently TransCAD) or other computer model approved by the local agency. For the CMP analysis, the model must be approved by SANDAG. If the proposed project is consistent with the land uses represented in the model, the TIS may need only to use this condition.
Horizon Year + Proposed Project - If the project land uses are more traffic intense than what was assumed in the horizon year model forecasts, analyze the additional project traffic impacts to the horizon year condition. When justified, and particularly in the case of very large developments or new general/community plans, a transportation model should be run with, and without, the additional development to show the net impacts on all parts of the area’s transportation system.

In order to use LOS criteria to measure traffic impact significance, proposed model, or manual forecast adjustments must be made to address scenarios both with and without the project. Refer to Table D.1 for guidance on measuring significant project impacts and Table D.2 for guidance on LOS and Average Daily Traffic (ADT) parameters. Model data should be carefully verified to ensure accurate project and “other” cumulative project representation. In these cases, regional or subregional models conducted by SANDAG need to be reviewed for appropriateness.

Note: Project trips can be assigned and distributed either manually or by the computer model based upon review and approval of the local agency Traffic Engineer. The magnitude of the proposed project will usually determine which method is employed.

If the manual method is used, the trip distribution percentages should be derived from a computer generated “select zone assignment” or optionally (local agency approval) by professional judgment.

If the computer model is used, the centroid connectors should accurately represent project access to the street network. Preferably the project would be represented by its own traffic zone. Some adjustments to the output volumes may be needed (especially at intersections) to smooth out volumes, quantify peak volumes, adjust for pass-by and diverted trips, and correct illogical output.

Traffic Generation

Use of SANDAG (Traffic Generators Manual and (Not So) Brief Guide...) or City of San Diego (both of the City’s Traffic Impact Study Manual and Trip Generation Manual) rates should first be considered. Next, consider rates from the ITE latest Trip Generation Manual or ITE Journal articles. If local and sufficient national data do not exist, conduct trip generation studies at sites with characteristics similar to those of the proposed project. If this is not feasible due to the uniqueness of the land use, it may be acceptable to estimate defensible trip rates – only if appropriate documentation is provided.

Reasonable reductions to trip rates also may be considered: (a) with proper analysis of pass-by and diverted traffic on adjacent roadways, (b) for developments near transit stations and transit corridors, and (c) for mixed-use developments. (Note: Caltrans and local agencies may use different trip reduction rates. Early consultation with the reviewing agencies is strongly recommended.)

For potential reductions to trip rates for developments near transit stations and transit corridors and mixed-use developments, the Trip Reduction Guidelines (available from SANDAG) should be followed. The Guidelines provide standard methodologies for estimating the vehicle trip reductions associated with specific congestion mitigation strategies identified in the CMS Toolbox, including developments near transit stations and along transit corridors, and mixed-use developments.

Site traffic distribution, assignment, necessary model adjustments, and CMP concerns should all follow current SANDAG and local lead agency procedures.
Traffic Impact Study Analysis

TIS analysis shall determine the effect that a project will have for each of the previously outlined study scenarios. Peak-hour capacity analyses for freeways, roadway segments (ADTs may be used here to estimate volume to capacity (V/C) ratios), intersections, and freeway ramps must be conducted for both the near- and long-term conditions. The methodologies used in determining the traffic impact are not only critical to the validity of the analysis; they are pertinent to the credibility and confidence the decision-makers have in the resulting findings, conclusions, and recommendations.

The following methodologies for TIS analysis should be used (unless early consultation with the lead agency and Caltrans has established other methods), along with some suggested software packages and options:

1. Arterials, Multi-lane and Two-lane Highways, and all other Local Streets – Current Highway Capacity Manual (HCM): w/Highway Capacity Software (HCS)
2. Signalized Intersections – HCM: w/HCS, TRAFFIX, SigCinema, and SYNCHRO acceptable to Caltrans; and, HCS, TRAFFIX, SIGNAL 94, and NCAP acceptable to local jurisdictions.
3. Unsignalized Intersections – HCM
4. Freeway Segments – HCM or Caltrans District 11 freeway LOS definitions (see Attachment C): w/HCS
5. Freeway Weaving Areas – Caltrans Highway Design Manual (Chapter 500)
6. Freeway Ramps – Caltrans District 11 Ramp Metering Analysis (Attachment B), and Caltrans Ramp Meter Design Guidelines (August 1995), HCS (for ramp design only)
7. Freeway Interchanges – HCM: for diamond interchanges where the timing and phasing of the two signals must be coordinated to ensure queue clearances, consider Passer III-90
8. Transit, Pedestrians, and Bicycles – HCM
9. Warrants for Traffic Signals, Stop Signs, School Crossings, Freeway Lighting, etc. – Caltrans’ Traffic Manual

Note: Neither local jurisdictions nor Caltrans officially advocate the use of any special software packages; especially since new ones are being developed all the time. However, consistency with the HCM is advocated in most cases. The above-mentioned software packages have been utilized locally. Because it is so important to have consistent end results, always consult with all affected jurisdictions, including Caltrans, regarding the analytical techniques and software being considered (especially if they differ from above) for the TIS.

Significance of Traffic Impacts To Consider Mitigation

The following Table D.1 indicates when a project’s impact is significant and mitigation measures are to be identified. That is, if a project’s traffic impact causes the values in this table to be exceeded, it is determined to be a significant project impact. (Mitigation for all identified significant impacts should be provided for any project requiring CEQA analysis.)
Note: It is the responsibility of Caltrans, on Caltrans-initiated projects, to mitigate the effect of ramp metering, for initial as well as future operational impacts, on local streets that intersect and feed entrance ramps to the freeway. Developers and/or local agencies, however, should be required to mitigate any impact to existing ramp meter facilities, future ramp meter installations, or local streets, when those impacts are attributable to new development and/or local agency roadway improvement projects.

Table D.1
Measure of Significant Project Traffic Impacts

<table>
<thead>
<tr>
<th>Level of Service with Project*</th>
<th>Allowable Change due to Project Impact**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freeways</td>
<td>Roadway Segments</td>
</tr>
<tr>
<td>V/C Speed</td>
<td>V/C Speed</td>
</tr>
<tr>
<td>D, E, &amp; F (or ramp meter delays above 15 min.)</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Notes:

* All LOS measurements are based upon HCM procedures for peak-hour conditions. However, V/C ratios for Roadway Segments may be estimated on an ADT/24-hour traffic volume basis (using Table D.2 or a similar LOS chart for each jurisdiction). The acceptable LOS for freeways, roadways, and intersections is generally “D” (“C” for undeveloped or not densely developed locations per jurisdiction definitions). For metered freeway ramps, LOS does not apply. However, ramp meter delays above 15 minutes are considered excessive.

** If a proposed project’s traffic causes the values shown in the table to be exceeded, the impacts are determined to be significant. These impact changes may be measured from appropriate computer programs or expanded manual spreadsheets. The project applicant then shall identify feasible mitigation (within the Traffic Impact Study report) that will maintain the traffic facility at an acceptable LOS. If the LOS with the proposed project becomes unacceptable (see above * note), or if the project adds a significant amount of peak-hour trips to cause any traffic queues to exceed on- or off-ramp storage capacities, the project applicant shall be responsible for mitigating significant impact changes.

*** See Exhibit D-2 for ramp metering analysis.

KEY: V/C = Volume to Capacity ratio
      Speed = Speed measured in miles per hour
      Delay = Average stopped delay per vehicle measured in seconds for intersections, or minutes for ramp meters
      LOS = Level of Service
<table>
<thead>
<tr>
<th>Street Classification</th>
<th>Lanes</th>
<th>Cross Sections* (approx.)</th>
<th>LOS with ADT**</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Expressway</td>
<td>6 lanes</td>
<td>102-160/122-200</td>
<td>30,000</td>
</tr>
<tr>
<td>Prime Arterial</td>
<td>6 lanes</td>
<td>102-108/122-128</td>
<td>25,000</td>
</tr>
<tr>
<td>Major Arterial</td>
<td>6 lanes</td>
<td>102/122</td>
<td>20,000</td>
</tr>
<tr>
<td>Major Arterial</td>
<td>4 lanes</td>
<td>78-82/98-102</td>
<td>15,000</td>
</tr>
<tr>
<td>Secondary Arterial/Collector</td>
<td>4 lanes</td>
<td>64-72/84-92</td>
<td>10,000</td>
</tr>
<tr>
<td>Collector (no center lane)</td>
<td>4 lanes</td>
<td>64/84</td>
<td>5,000</td>
</tr>
<tr>
<td>Collector (continuous left-turn lane)</td>
<td>2 lanes</td>
<td>50/70</td>
<td></td>
</tr>
<tr>
<td>Collector (no fronting property)</td>
<td>2 lanes</td>
<td>40/60</td>
<td>4,000</td>
</tr>
<tr>
<td>Collector (commercial-industrial fronting)</td>
<td>2 lanes</td>
<td>50/70</td>
<td>2,500</td>
</tr>
<tr>
<td>Collector (multi-family)</td>
<td>2 lanes</td>
<td>40/60</td>
<td>2,500</td>
</tr>
<tr>
<td>Sub-Collector (single-family)</td>
<td>2 lanes</td>
<td>36/56</td>
<td>—</td>
</tr>
</tbody>
</table>

** LEGEND: **

* Curb-to-curb width (feet)/right of way width (feet): based upon the City of San Diego Street Design Manual and other jurisdictions within the San Diego region.

** Approximate recommended ADT based upon the City of San Diego Street Design Manual.

Notes:

1. The volumes and the average daily level of service listed above are only intended as a general planning guideline.

2. LOS are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. LOS normally apply to roads carrying through traffic between major trip generators and attractors.

Not all mitigation measures can feasibly be “hard” (new lanes or new capacity) improvements. A sample mitigation measure might include financing toward a regional ITS (Intelligent Transportation System) project, such as improved or “dynamic” ramp metering with real-time delay information available to motorists. The information can be accessed on either home or in-vehicle computers, or even by telephone (each ramp could have its own phone number with delay information) so the motorist can make a driving decision long before she or he arrives at a congested on-ramp. This sample mitigation would allow a project applicant (especially with a relatively small project) to meet mitigation by paying into a regional ramp meter fee, providing the fee can be established in the near future. In identifying potential mitigation measures, the CMP Toolbox of Mitigation Strategies and any adopted Deficiency Plans in the study area also should be consulted.

Other mitigation measures may include Transportation Demand Management (TDM) recommendations – transit facilities, bike facilities, walkability, telecommuting, traffic rideshare programs, flex-time, carpool incentives, parking cash-out, etc. Additional mitigation measures may become acceptable as future technologies and policies evolve.
To determine potential trip reductions associated with TDM mitigation measures, the Trip Reduction Guidelines (available from SANDAG) should be followed. The Guidelines provide standard methodology for estimating the vehicle trip reductions associated with specific congestion mitigation strategies as identified in the CMS Toolbox, including TDM strategies.

Screen Check

As part of the first draft of a TIS, the preparer must ensure that all required elements have been included. This screen check procedure will help reduce the number of submittals, and will encourage early dialogue between the reviewer and the preparer. The local agency reviewer will check the study for completeness, and strive to return all incomplete submittals within seven working days. A pre-submittal conference is encouraged to determine which elements are not required for the TIS.

Table D.5 contains the TIS Screen Check.

The concept of LOS is defined as a qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers. A LOS definition generally describes these conditions in terms of such factors as speed, travel time, freedom to maneuver, comfort and convenience, and safety. LOS definitions can generally be categorized as follows:

Table D.3

<table>
<thead>
<tr>
<th>LOS</th>
<th>D/C²</th>
<th>Congestion/Delay</th>
<th>Traffic Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>“A”</td>
<td>&lt;0.41</td>
<td>None</td>
<td>Free flow</td>
</tr>
<tr>
<td>“B”</td>
<td>0.42-0.62</td>
<td>None</td>
<td>Free to stable flow, light to moderate volumes.</td>
</tr>
<tr>
<td>“C”</td>
<td>0.63-0.79</td>
<td>None to minimal</td>
<td>Stable flow, moderate volumes, freedom to maneuver noticeably restricted</td>
</tr>
<tr>
<td>“D”</td>
<td>0.80-0.92</td>
<td>Minimal to substantial</td>
<td>Approaches unstable flow, heavy volumes, very limited freedom to maneuver</td>
</tr>
<tr>
<td>“E”</td>
<td>0.93-1.00</td>
<td>Significant</td>
<td>Extremely unstable flow, maneuverability, and psychological comfort extremely poor</td>
</tr>
</tbody>
</table>

(Used for freeways, expressways and conventional highways³)

| “F” | >1.00 | Considerable | Forced or breakdown. Delay measured in average flow, travel speed (MPH). Signalized segments experience delays >60.0 seconds/vehicle |

(Used for conventional highways)

| “F0” | 1.01-1.25 | Considerable 0-1 hour delay | Forced flow, heavy congestion, long queues form behind breakdown points, stop and go |

(Used for freeways and expressways)

| “F1” | 1.26-1.35 | Severe 1-2 hour delay | Very heavy congestion, very long queues |
| “F2” | 1.36-1.45 | Very severe 2-3 hour delay | Extremely heavy congestion, longer queues, more numerous breakdown points, longer stop periods |
| “F3” | >1.46 | Extremely severe 3+ hours of delay | Gridlock |

1 LOS generally can be calculated using “Table 3.1. LOS Criteria for Basic Freeway Sections” from the latest Highway Capacity Manual. However, contact Caltrans for more specific information on determining existing “free-flow” freeway speeds.

2 Demand/Capacity ratio used for forecasts (V/C ratio used for operational analysis, where V = volume)

3 Arterial LOS is based upon average “free-flow” travel speeds, and should refer to definitions in Table 11.1 in the HCM.
Ramp metering analysis should be performed for each horizon year scenario in which ramp metering is expected. The following table shows relevant information that should be included in the ramp meter analysis “Summary of Freeway Ramp Metering Impacts.”

Table D.4
Ramp Metering Analysis

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>DEMAND (veh/hr)</th>
<th>METER RATE (veh/hr)</th>
<th>EXCESS DEMAND (veh/hr)</th>
<th>DELAY (min)</th>
<th>QUEUE (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.M.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P.M.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTES:**
1. DEMAND is the peak hour demand expected to use the on-ramp.
2. METER RATE is the peak hour capacity expected to be processed through the ramp meter. This value should be obtained from Caltrans. Contact Carolyn Rumsey at (619) 467-3029.
3. EXCESS DEMAND = (DEMAND) – (METER RATE) or zero, whichever is greater.
4. DELAY = EXCESS DEMAND ÷ METER RATE X 60 MINUTES/HOUR
5. QUEUE = (EXCESS DEMAND) X 29 feet/vehicle

**Notes:** Delay will be less at the beginning of metering. However, since peaks almost will be more than one hour, delay will be greater after the first hour of metering. (See discussion on next page.)

**Summary of Freeway Ramp Metering Impacts**
*(Lengthen as necessary to include all impacted meter locations)*

<table>
<thead>
<tr>
<th>LOCATIONS</th>
<th>PEAK HOURS</th>
<th>PEAK HOUR DEMAND</th>
<th>FLOW (METER RATE)</th>
<th>EXCESS DEMAND</th>
<th>DELAY (minutes)</th>
<th>QUEUE Q (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.M.</td>
<td>P.M.</td>
<td>A.M.</td>
<td>P.M.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A. **CAUTION:** The ramp metering analysis shown in Attachment B may lead to grossly understated results for delay and queue length, since important aspects of queue growth are ignored. Also, the draft guidelines method derives average values instead of maximum values for delay and queue length. Utilizing average values instead of maximum values can lead to obscuring important effects, particularly in regard to queue length.

Predicting ramp meter delays and queues requires a storage-discharge type of analysis, where a pattern of arriving traffic at the meter is estimated by the analyst, and the discharge, or meter rate, is a somewhat fixed value set by Caltrans for each individual metered ramp.

Since a ramp meter queue continues to grow longer during all times that the arrival rate exceeds the discharge rate, the maximum queue length (and hence, the maximum delay) usually occurs after the end of the peak (or highest) one hour. This leads to the need for an analysis for the entire time period during which the arrival rate exceeds the meter rate, not just the peak hour. For a similar reason, the analysis needs to consider that a substantial queue may already have formed by the beginning of the “peak hour.” Traffic arriving during the peak hour then is stacked onto an existing queue, not just starting from zero as the draft analysis suggests.
Experience shows that the theoretical queue length derived by this analysis often does not materialize. Motorists, after a brief time of adjustment, seek alternate travel paths or alternate times of arrival at the meter. The effect is to approximately minimize total trip time by seeking out the best combinations of route and departure time at the beginning of the trip. This causes at least two important changes in the pattern or arriving traffic at ramp meters. First, the peak period is spread out, with some traffic arriving earlier and some traffic arriving later than predicted. Second, a significant proportion of the predicted arriving traffic will use another ramp, use another freeway, or stay on surface streets.

It is acceptable to make reasonable estimates of these temporal and spatial (time and occupying space) diversions as long as all assumptions are stated and that the unmodified, or theoretical, values are shown for comparison.

B. Additional areas for study include being able to define acceptable LOS and “significant” thresholds (e.g., a maximum ramp meter delay of 15 minutes) for metered freeway entrance ramps.

Currently there are no acceptable software programs for measuring project impacts on metered freeway ramps nor does the Highway Capacity Manual (HCM) adequately address this issue. Hopefully in the near future a region-wide study will be initiated to determine what metering rate (at each metered ramp) would be required in order to guarantee that traffic will flow (even at LOS “E”) on the entire freeway system during peak-hour conditions. From this, the ramp delays and resultant queue lengths might then be calculated. Overall, this is a very complex issue that needs considerable research and refinement in cooperation with Caltrans.
### Table D.5
Traffic Impact Study Screen Check

To be completed by Staff:

Date Received  
Reviewer  
Date Screen Check  

To be completed by consultant (including page no.):

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### Table of contents, list of figures, and list of tables

- **YES**
- **NO**
- **NOT REQUIRED**

### Executive summary

- **YES**
- **NO**
- **NOT REQUIRED**

### Map of the proposed project location

- **YES**
- **NO**
- **NOT REQUIRED**

### General project description and background information:

- **YES**
- **NO**
- **NOT REQUIRED**
  1. Proposed project description (acres, dwelling units….)
  2. Total trip generation of proposed project
  3. Community plan assumption for the proposed site
  4. Discuss how project affects the Congestion Management Program, if applicable

### Parking, transit, and on-site circulation discussions are included

- **YES**
- **NO**
- **NOT REQUIRED**

### Map of the Transportation Impact Study Area and specific intersections studied in the traffic report

- **YES**
- **NO**
- **NOT REQUIRED**

### Existing Transportation Conditions:

- **YES**
- **NO**
- **NOT REQUIRED**
  1. Figure identifying roadway conditions including raised medians, median openings, separate left and right turn lanes, roadway and intersection dimensions, bike lanes, parking, number of travel lanes, posted speed, intersection controls, turn restrictions and intersection lane configurations
  2. Figure indicating the daily (ADT) and peak-hour volumes
  3. Figure or table showing Level of Service (LOS) for intersections during peak hours and roadway sections within the study area (include analysis sheets in an appendix)

### Project Trip Generation: Table showing the calculated project generated daily (ADT) and peak hour volumes.

- **YES**
- **NO**
- **NOT REQUIRED**

### Project Trip Distribution using the current TransCAD Computer Traffic Model (provide a computer plot) or manual assignment if previously approved (Identify which method was used.)

- **YES**
- **NO**
- **NOT REQUIRED**

### Project Traffic Assignment:

- **YES**
- **NO**
- **NOT REQUIRED**
  1. Figure indicating the daily (ADT) and peak-hour volumes
  2. Figure showing pass-by-trip adjustments, and, if cumulative trip rates are used
  3. Appropriate documentation and justification provided for any additional trip reductions associated with strategies from the CMS Toolbox, as outlined in the Trip Reduction Guidelines (available from SANDAG)

### Existing Near-term Cumulative Conditions:

- **YES**
- **NO**
- **NOT REQUIRED**
  1. Figure indicating the daily (ADT) and peak-hour volumes
  2. Figure or table showing the projected LOS for intersections during peak hours and roadway sections within the study area (analysis sheets included in the appendix)

### Traffic signal warrant analysis (Caltrans Traffic Manual) for appropriate locations

- **YES**
- **NO**
- **NOT REQUIRED**

### Existing Near-term Cumulative Conditions + Proposed Project (each phase when applicable)

- **YES**
- **NO**
- **NOT REQUIRED**
  1. Figure or table showing the projected LOS for intersections during peak hours and roadway sections with the project (analysis sheets included in the appendix)
  2. Figure showing other projects that were included in the study, and the assignment of their site traffic
  3. Traffic signal warrant analysis for appropriate locations

### Horizon Year Transportation Conditions (if project conforms to the General/Community Plan):

- **YES**
- **NO**
- **NOT REQUIRED**
  1. Horizon Year ADT and street classification that reflect the Community Plan
Satisfactory Indicate page no. in report

pg. __________  b. Figure or table showing the horizon LOS for intersections during peak hours and roadway sections with and without the project (analysis sheets included in the appendix)

pg. __________  c. Horizon Year Transportation Conditions + Proposed Project (if project does not conform to the General/Community Plan):

   a. Horizon Year ADT and street classification as shown in the Community Plan

   b. Horizon Year ADT and street classification for two scenarios: with the proposed project and with the land use assumed in the Community Plan

   c. Figure or table showing the horizon LOS for intersections during peak hours and roadway sections for two scenarios: with and without the proposed project and with the land use assumed in the Community Plan (analysis sheets included in the appendix)

   d. Traffic signal warrant analysis at appropriate locations with the land use assumed in the General/Community Plan

pg. __________  15. A summary table showing the comparison of Existing, Existing + Near-term Cumulative, Existing + Near-term Cumulative + Proposed Project, Horizon Year, and Horizon Year + Proposed Project (if different from General/Community Plan), LOS on roadway sections and intersections during peak hours

pg. __________  16. A summary table showing the project’s “significant traffic impacts”

pg. __________  17. Transportation Mitigation Measures:

   a. Table identifying the mitigations required that are the responsibility of the developer and others. A phasing plan is required if mitigations are proposed in phases

   b. Figure showing all proposed mitigations that include: intersection lane configurations, lane widths, raised medians, median openings, roadway and intersection dimensions, right-of-way, offset, etc.

   c. Appropriate documentation and justification provided for any mitigation measures taken from the CMS Toolbox, as outlined in the Trip Reduction Guidelines (2002 CMP, Appendix J)

pg. __________  18. The Highway Capacity Manual Operation Method or other approved method is used at appropriate locations within the study area

pg. __________  19. Analysis complies with Congestion Management Program requirements

pg. __________  20. Appropriate freeway analysis is included

pg. __________  21. Appropriate freeway ramp metering analysis is included

pg. __________  22. The traffic study is signed by a California Registered Traffic Engineer

THE TRAFFIC STUDY SCREEN CHECK FOR THE SUBJECT PROJECT IS:

☐ Approved

☐ Not approved because the following items are missing: