Q&A: Caltrans Second Edition TAF and TAC
Final Release

September 2025

Overview

In 2020, when the Transportation Analysis Framework (TAF) and Transportation Analysis under CEQA (TAC) were first published, there was a high level of interest from Caltrans' transportation partners, climate and environmental advocates, and others. In response, Caltrans hosted a total of 130 meetings with stakeholders and provided a 60-day informal feedback period on the draft documents. Statewide outreach events included two external webinars attended by over 850 participants and three external technical roundtables attended by more than 150 participants. These Caltrans events were supplemented by the Governor's Office of Land Use and Climate Innovation's (formerly Office of Planning and Research) webinar and Office Hours outreach, which reached over 3,500 participants. Additionally, Caltrans met regularly through the guidance development process with several key stakeholders. Caltrans received feedback on the drafts from 37 agencies, including counties, cities, and metropolitan planning organizations (MPOs) as well as from consultants, advocates, coalitions, and other State agencies. A key milestone in the outreach process for the original documents was a launching webinar on October 6, 2020.

As a follow-up to the informal 60-day feedback period and the launching webinar, a 57-page Question and Answer (Q&A) document was produced whereby questions and responses were compiled based on input received. The feedback received was categorized into 24 topic areas covering technical comments specific to the TAF and TAC guidance documents, broader policy-related comments, and comments that related to both technical issues and policy.

The draft Second Edition TAC and Second Edition TAF were released for public review from October 31, 2024 through November 22, 2024. The questions and responses below were compiled based on input received during the public review of the draft second editions. The feedback received was categorized into 13 topic areas (Chapters A through M) covering comments specific to the TAF and TAC guidance documents. Each question is either a reprint of an individual comment or a summary of similar comments that addressed the topic area. Several comments received on the Draft Second Edition TAC and TAF from November 2024 were similar to comments and questions addressed in the 2020 Q&A document. Therefore, the responses to comments in this document focus primarily on those related to the proposed updates to the TAF & TAC, and the original responses to other issues contained in the documents are referenced from the 2020 Q&A. The 2020 Q&A is included at the end of this document as appendix I.

Related Documents

This 2025 Q&A document includes references to several related documents available on the Caltrans SB 743 website (https://dot.ca.gov/programs/sustainability/sb-743/resources)

- *Transportation Analysis Framework* (TAF), Second Edition, **SEPTEMBER 2025**
- *Transportation Analysis under CEQA* (TAC), Second Edition, **SEPTEMBER 2025**
- Transportation Impact Study Guide (TISG), July 1, 2020
- Expert Panel Final Report, September 2020
- Technical Advisory on Evaluating Transportation Impacts in CEQA, December 2018
- Caltrans Mitigation Playbook, July 2022
- California Air Pollution Control Officers Association (CAPCOA) Handbook, October 2024
- Executive Order N-2-24
- 2020 TAC & TAF Q&A (October 23, 2020, *revised September 2025*)

A. Implementation Process

A1. Are there metrics other than induced vehicle miles traveled (VMT) to evaluate transportation impacts consistent with the California Environmental Quality Act (CEQA)?

The TAC includes a direct citation from Section 15064.3 of the CEQA Guidelines which reads "For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements." Caltrans concurs with the use of induced travel, as measured in VMT, as a metric to determine transportation impacts for projects on the State Highway System (SHS).

A2. The CEQA process takes the viewpoint that VMT is an impact and is therefore mostly universally negative. Placing the VMT metric above all others, with exorbitant mitigation costs, will make it harder to deliver a balanced, multimodal transportation system that enables our residents and businesses to thrive.

In order to meet our climate goals to reduce greenhouse gas (GHG) emissions to 40% below 1990 levels by 2030 and to achieve carbon neutrality by 2045, a coordinated effort to reduce VMT is needed. Some transportation projects may have the potential to increase VMT, in which case, VMT-reducing mitigation strategies and/or programs will be required to reduce impacts. These mitigation strategies or programs will be integral to helping the state achieve climate targets. Multiple complementary efforts are intended to better align current and future transportation investments that integrate housing, land use, and active transportation, and transit networks to reduce reliance on driving. While VMT is an important consideration for evaluating transportation impacts, CEQA requires the public disclosure of all potentially significant environmental impacts whether related to transportation, air quality, biological resources, cultural resources, and others without prioritizing one over the other. The TAC and the TAF provide guidance for determining transportation impacts on the state highway system. . The CEQA Guidelines (Section 15002) notes that the basic purpose of CEQA is prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.

A3. Under what authority can Caltrans dictate an induced travel analysis when another entity acts as a lead agency?

Please refer to the 2020 Q&A, A3.

A4. Although lead agencies have the discretion to establish significance thresholds for individual projects, TAC Section 2.2 CEQA Guidelines should reference LCI's Technical Advisory, which identifies recommended significance thresholds that should be considered for residential projects.

As noted in the TAC Foreword, the TAF and TAC documents guide transportation impact analysis for projects on the State Highway System only. It is not the intent of these guidance documents to specifically address land use project analysis. The Caltrans Transportation Impact Study Guide (TISG) provides guidance on evaluating induced travel for a land use project or plan that impacts the SHS.

A5. CEQA analyses should recognize the broader transportation benefits provided by certain projects, such as emissions, safety improvements, travel time reliability, and multimodal integration. While SB 743 suggests the use of VMT as a proxy for environmental impacts, it doesn't require it as the only measure. A sole focus on VMT may obscure other significant project advantages.

Consistent with the language of Section 15064.3 of the CEQA Guidelines, Caltrans concurs that vehicle miles traveled is the most appropriate measure of transportation impacts under CEQA. While transportation projects on the SHS must use VMT as a metric for determining significance of environmental impacts, Caltrans acknowledges there may be other benefits to transportation projects.

A6. SB 743 implementation may undermine overall improvements to the SHS and voter trust, resulting in fewer resources available for other critical projects on the SHS. This may diminish overall safety and quality of surface transportation in the state.

Safety and surface transportation projects meant to rehabilitate and improve existing assets on the SHS are not affected by SB 743 implementation and are considered project types that are unlikely to induce travel, in addition to others listed in the TAC Section 5.1.1. ii).

A7. Should updates to SB 743 implementation in the TAF/TAC align with other state efforts such as SB 375 and Climate Action Plan for Transportation Infrastructure (CAPTI)?

The analysis of transportation impacts from proposed projects is a CEQA requirement, and the TAC notes that Caltrans concurs with the CEQA Guidelines (Section 15064.3) and the Governor's Office of Land Use and Climate Innovation (LCI, formerly Office of Planning & Research) Technical Advisory that VMT is generally the most appropriate measure of transportation impacts. The second edition updates the first edition by incorporating previously published guidance from Caltrans, and most of the core information has remained the same.

A8. Caltrans and CalSTA should sponsor an independent study of the likely economic impacts and potential unintended consequences of implementing the VMT mitigation guidelines, as well as potential barriers to the implementation of multimodal projects already in the RTP/SCS. This should include further clarification regarding the extent to which mitigation measures can be determined to be infeasible under CEQA, including reasons based on economics.

The CAPTI 2023 Annual Progress Report released by CalSTA conducted an economic impact analysis of implementation strategies and economic benefits of transportation investments. Caltrans will also submit a study proposal through the Division of Research, Innovation and System Information during the next call for research proposals in fall 2025. If selected for study, this would likely be a multi-year effort.

A9. References to "LD-IGR" should be updated.

Caltrans has updated all references of LD-IGR to IGR (i.e., formerly Local Development-Intergovernmental Review to Intergovernmental Review).

B. Scoping

B1. Is there an inconsistency with "expanding toll lane use" as a VMT-reducing alternative in Section 4. Project Scoping while Express Lanes/HOT lanes would be considered a VMT-inducing project type under the TAC?

The text has been revised to clarify that expansion of toll lane use or development of other pricing strategies could potentially be implemented for existing facilities as a VMT-reducing alternative. Express lanes/HOT lanes projects that add new lanes to a facility are considered VMT-inducing and are still subject to the same VMT analysis and mitigation requirements as outlined in the TAF and TAC.

B2. The proposed process would prematurely exclude some feasible alternatives before they can be properly evaluated. Screening out projects at the Project Initiation Document (PID) phase starts the "approval" process much earlier than the environmental decision-making process.

Caltrans does not preclude feasible alternatives that meet a project's purpose and need from being scoped and studied.

B3. VMT mitigation varies greatly among build alternatives, and it is not uncommon for project alternatives evaluated during the PID phase to be revised or replaced during the Project Approval & Environmental Document (PA&ED) phase. Since project costs do factor into the implementation of the project, there needs to be more guidance on how to appropriately account for a specific buffer of funding to account for VMT mitigation costs as each regional transportation agency attempts to find sufficient funding for the project through construction.

During the project initiation phase, projects on the SHS with one or more alternatives that are determined to be capacity-increasing are required to conduct an initial risk assessment to determine whether they would be likely to result in a measurable and substantial increase in VMT. It is recommended that project teams examine and take potential mitigation costs into consideration as early as possible.

B4. Will there be guidance for investment in multimodal transportation

infrastructure and expansion of toll lane use or pricing strategies? Would there be a statewide bank?

Please refer to 2025 Q&A, B1 above. The information provided in the TAC, Section 4 Project Scoping are intended to provide project teams recommendations to scope projects alternatives that minimize induced VMT or to consider mitigation options that can offset induced VMT. Investment in VMT-reducing measures could potentially be done through an established or an emerging VMT mitigation bank or on a project-by-project basis. See response E15 regarding efforts to develop a statewide mitigation bank or exchange program to deliver infill housing and other VMT-reducing projects as part of CAPTI 2.0 actions. More guidance on VMT-reducing measures can be found in the Caltrans Mitigation Playbook or the CAPCOA Handbook.

C. Screening

C1. What were the considerations of other project types to be added to Section 5.1.1 ii) Project Types Not Likely to Lead to a Measurable and Substantial Increase in Vehicle Travel?

The screening criteria was developed in cooperation with LCI and provides a general list of project types unlikely to result in a measurable and substantial increase in vehicle travel. TAC Section 5.1.1 further states that "While the above list is thorough, it is not necessarily comprehensive. There may be types of projects in addition to those listed that would not lead to a measurable and substantial increase in VMT. When concluding that a particular project may be screened out from further analysis, the practitioner should review and fully document the rationale supporting the conclusion that the particular project would not likely lead to a measurable and substantial increase in VMT."

C2. Although projects have been screened out as non-capacity increasing utilizing the TAC, there may still be challenges to the accuracy of this method from potential stakeholders and the public. How will regional transportation agencies be able to ensure that there is support from the State that each project that adequately determined to not increase capacity and has shown the work in an environmental document be sufficient to move forward without risk of not being implemented due to stakeholder and public pushback?

Projects listed in the TAC Section 5.1.1 are those that are generally unlikely to induce a measurable and substantial increase in VMT. This list was adapted from the LCI 2018 Technical Advisory. Project sponsors should coordinate with Caltrans to ensure that projects are appropriately screened.

C3. Under TAC, Section 5.1.1 ii) Project Types Not Likely to Lead to a Measurable and Substantial Increase in Vehicle Travel, Caltrans should reconsider exempting projects that would reduce the number of through lanes on a facility given that this type of project could actually result in increased VMT in certain contexts. Without

analyzing it, it is unknown what effects of re-routing and VMT impacts will result.

Reducing through lanes is generally a project type that is unlikely to result in a measurable and substantial increase in vehicle travel. It was originally proposed in the LCI Technical Advisory and has been carried forward in the TAC. An actual increase in induced travel would generally require an increase in roadway capacity as a connected action to the reduction of through lanes, which would require a VMT analysis.

C4. High Occupancy Vehicle (HOV) and High Occupancy Toll (HOT) lanes should not be included in Section 5.1.1.i) Projects Project Types Likely to Lead to a Measurable and Substantial Increase in Vehicle Travel. HOV or HOT lanes should not be subject to the same level of VMT "requirement" as general purpose lane additions.

HOV or HOT lane additions are assumed to have similar elasticities to adding general purpose (GP) lanes as evidenced through recent studies, including the July 2024 Research Report from the University of California, Los Angeles, Institute of Transportation Studies (*Induced Travel Estimation Revisited*, Michael Manville July 2024), and should be analyzed for their potential to induce vehicle travel. Any potential differences in induced travel between the three project types should be supported by substantial data and vetted on a case-by-case basis.

C5. The project type "lanes through grade-separated interchanges" are intended to conform to existing condition and should not be included in Section 5.1.1. i) Projects Project Types Likely to Lead to a Measurable and Substantial Increase in Vehicle Travel. Interchange improvements and their ancillary elements should not be subject to VMT implementation.

It should be noted that "lanes through grade separated interchanges ***without additional receiving lanes downstream***" are generally screened project types in Section 5.1.1 ii) and would assume to conform to existing conditions as part of an interchange improvement project. If a project adding lanes through grade separated interchanges involves more than conforming to existing lane configurations downstream, they should still be analyzed for the potential to induce travel.

C6. Auxiliary lanes should be removed from the TAC, Section 5.1.1 i) Project Types Likely to Lead to a Measurable and Substantial Increase in Vehicle Travel, as it is considered a screened type in Section 5.1.1 ii). Auxiliary lanes are operational in nature.

It should be noted that adding new auxiliary lanes over one mile in length should be analyzed for the potential to induce travel. Caltrans has now added this clarification to Section 5.1.1 i) Project Types Likely to Lead to a Measurable and Substantial Increase in Vehicle Travel.

Adding auxiliary lanes that are under a mile are generally screened per the TAC, Section 5.1.1 ii) Project Types Not Likely to Lead to a Measurable and Substantial Increase in Vehicle Travel.

C7. In the TAC, Section 5.1.1 ii) Project Types Not Likely to Lead to a Measurable and Substantial Increase in Vehicle Travel, why is there additional language regarding GP lane conversions to managed lane (ML) conversions related to change in managed lane occupancy. GP conversion to ML should not be considered capacity increasing, regardless of occupancy requirements.

Caltrans has removed reference to the "change in managed lane occupancy" and agrees that a general-purpose lane conversion to managed lanes are a project type that is unlikely to result in a measurable and substantial increase in vehicle travel.

C8. Caltrans should consider expanding TAC, Section 5.1.1 i) Project Types Likely to Lead to a Measurable and Substantial Increase in Vehicle Travel to include toll lanes and/or other managed lanes. Would new interchanges fall under this category?

The existing criteria includes "other projects adding capacity to the State Highway System" as types that are likely to lead to a measurable and substantial increase in vehicle travel, which could include new toll lanes or managed lanes, and new interchanges.

C9. Do conversion projects such as signalizing an existing stop-controlled intersection come under project types not likely to increase vehicle travel?

Signalizing a stop-controlled intersection would be considered a project that is unlikely to lead to a measurable and substantial increase in vehicle travel. This would most closely relate to existing criteria within Section 5.1.1 ii) of the TAC: "installation, removal, or reconfiguration of traffic control devices, including Transit Signal Priority (TSP) features."

C10. Are there changes in screening criteria language that are different from what was listed in the 2018 LCI Technical Advisory?

Caltrans has adapted the list of project types that are and are not likely to induce a measurable and substantial increase in vehicle travel from the original 2018 Technical Advisory. This has been noted and clarified in the Second Edition TAC.

D. Thresholds and Significance Determination

D1. For the purposes of CEQA requirements, does analysis of future conditions include the VMT created by increased population and economic growth?

Assessing the future build condition and the future no build condition will generally include VMT that would occur as a result of increased population and economic growth if following the guidance from the TAC, Section 5.2 Baseline Determination. As stated in Section 2.1 of the TAF, the transportation impact of a roadway project is the overall increase in VMT that is attributable to the project, distinct from any background changes in VMT due to other factors such as population or economic growth. The transportation impact is the difference in VMT with the project and without the project.

D2. Clarify the criteria for selecting a baseline, particularly the distinction between existing conditions and future no-build scenarios. Specifically, Caltrans has at times indicated that the baseline must assume all VMT-reducing projects in the Regional Transportation Plan (RTP) are included, meaning project teams would need to demonstrate VMT reduction beyond what the RTP would already achieve. Many of these projects are not funded, approved, or built, and may never materialize. Given that they are not part of the existing physical environment, should they really be treated as part of the baseline?

Within MPO areas (including RTPAs within MPOs), the future build alternative should be compared to the future no-build conditions (i.e., the conditions expected to exist in the future absent the project) to determine the amount of VMT attributable to a project. Caltrans does not preclude discussion with project proponents of baseline considerations or even the potential for tiering from a Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) Environmental Impact Report (EIR) as appropriate on a case-by-case basis.

D3. What is considered as a significant increase in VMT?

Within MPO areas (including RTPAs within MPOs), a project that results in an increase in induced travel (as measured in VMT) when comparing a future build alternative to a future no-build alternative will generally be considered significant. For projects within the rural, non-MPO counties, significance should be addressed on a case-by-case basis, taking into account context and environmental setting.

D4. What does it mean to fully mitigate a project? Project sponsors may be able to offset 100% of the induced VMT, but only for a certain duration of time due to reasons such as lack of funding and implementation issues.

Caltrans has adjusted the language from “fully mitigated” to “less than significant” in the TAC Section 5.9 and clarified this elsewhere within the TAC and TAF. When a project results in impacts that are determined significant due to induced vehicle travel, Caltrans seeks to reduce its impacts to less than significant. Mitigation that is “capable of being achieved in a successful manner within a reasonable amount of time, taking into account economic, environmental, legal, social, and technological factors” is considered feasible. However, there may be times when conditions make mitigation measures infeasible. The determination of feasibility may include consideration of funding on an ongoing basis for a measure that requires ongoing operational support. However, such considerations will be made on case-by-case basis and be dependent on the analysis and feasibility of measures.

D5. What does Caltrans consider sufficient to justify a Statement of Overriding Considerations (SOC)? Could the guidance list benefits that would be considered in determining whether an SOC may be warranted?

See Appendix A-1 and 1-2 for considerations for Statements of Overriding Considerations. CEQA Guidelines require a lead agency to adopt a statement of overriding considerations when it approves a project that will result in the occurrence of significant effects that are identified in a final EIR but are not avoided or substantially lessened (CEQA Guidelines Section 15093).

D6. How can decision-making bodies effectively evaluate feasible mitigations and their relative value to other project benefits when adopting an SOC, given the ambiguity and lack of a clear threshold, especially considering that the burden of proof lies with them and the current TAF/TAC introduces uncertainty and legal risk?

Caltrans has not established a threshold for determining significance. As defined in Public Resources Code (PRC) Section 21061.1, "feasible" means that something is "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors." Assuming substantial evidence supports the conclusion, there is flexibility for lead agencies to determine what is feasible in terms of mitigation.

D7. Should a clearer standard for capacity projects that claim their primary purpose is to provide evacuation routes, allowing them to be presumed non-VMT inducing?

Appendix A-2 of the Draft 2nd Edition TAC was based on the previously posted hot topic "When are VMT Impacts from a Project Acceptable?" The list was originally included in the hot topic to illustrate potential project types that could move forward with induced VMT that is not mitigated to a less-than-significant level. Evacuation routes are not listed as project types that are unlikely to induce VMT, per the TAC Section 5.1.1 ii).

E. Mitigation

E1. Please refer to Executive Order (EO) N-2-24 in the guidance.

Caltrans has now included reference to EO N-2-24 on infill housing in the new subsection "Housing and VMT."

E2. Is VMT mitigation project specific (not general), and will it vary from project to project?

In general, VMT mitigation measures are project specific and vary from project to project, though different projects may use similar measures Examples of VMT mitigation can be found in the Caltrans Mitigation Playbook and the CAPCOA Handbook.

E3. Table 2 of the TAC lists "incorporate complete streets elements" as a potential VMT mitigation measure. Is it realistic to do this on the State Highway System with respect to wildfire safety and evacuation?

Features added to a project in a wildfire-prone area would need to be evaluated for their compatibility with safety, evacuation planning, and other considerations by project development teams and project sponsors.

E4. Should a measure for multimodal mobility hubs be added as a VMT mitigation option in Table 2 of the TAC, along with a methodology to determine their required spacing on the state highway system (e.g., every 2, 5, or 10 miles)?

Mobility hubs may encompass a range of individual or combined multimodal features, many of which are included in Table 2 of the TAC. The CAPCOA Handbook and the Caltrans Mitigation Playbook do not specifically identify mobility hubs as a VMT mitigation measure, but other likely improvements that are part of mobility hubs are identified and quantified. These elements added together can inform a total estimated VMT reduction. Caltrans will evaluate whether mobility hubs should be added in the next update to the Mitigation Playbook, but we will not be including it into Table 2 at this time.

E5. Should a policy be implemented that prevents a project from moving forward if mitigation costs exceed a certain threshold, or should a firm upper limit be placed on costs?

Caltrans does not place a firm upper limit on VMT mitigation costs. Caltrans makes decisions to move projects forward in alignment with CEQA Guidelines, which state that "CEQA requires the decision-making agency to balance, as applicable, the economic, legal, social, technological, or other benefits, including region-wide or statewide environmental benefits, of a proposed project against its unavoidable environmental risks when determining whether to approve the project" (CCR Section 15093). Refer to F1 in the 2020 Q&A for more information.

E6. Funding affordable housing as a VMT mitigation measure should be reevaluated. How can it be verified that units built with mitigation funding would not be built otherwise?

It is important to note that for housing to be an applicable mitigation measure, it should demonstrate that it would reduce VMT, either through increased density or affordability. CAPCOA and the Caltrans Mitigation Playbook assume that in order to qualify as a VMT-reducing measure, the housing development should be at least 9.1 units per dwelling acre. Increasing density of housing is expected to result in shorter and fewer vehicle trips as people drive less to get to destinations. Integrating affordable housing as mitigation can also provide more opportunities for lower income individuals to live closer to destinations, whereas they may have needed to commute farther because of high housing costs. Section 5.7.1 of the TAC (Mitigation Off the SHS) describes housing as a mitigation measure and notes project teams should detail the "but for" contribution proposed in order to develop a housing project and claim credit for mitigation.

E7. Should stronger requirements be implemented for project development teams to meaningfully consider affordable housing infill projects as VMT mitigation, including collaborating with the Department of Housing and Community Development and the Strategic Growth Council? Should Caltrans consider developing a checklist for identifying housing as a mitigation option?

Project development teams must explain how housing may not be feasible as a mitigation measure and steps taken that resulted in that conclusion. Caltrans is currently working with partners including the Department of Housing and Community Development, Strategic Growth Council, and others to develop processes to implement EO N-2-24. Caltrans may consider creating a checklist in either a future hot topic or bulletin.

E8. Should projects or programs listed in RTPs be considered additional and qualify as VMT mitigation strategies if they are not fully funded?

A project in an approved programming document that is fully funded is generally not considered eligible as mitigation. However, if a capacity-increasing project is able to contribute funding to a VMT-reducing project or program listed in an RTP that does not have full funding, then it could be eligible as a mitigation strategy.

E9. Clarify if there are options other than fully funding housing projects to claim VMT reduction credits, considering fully funding has relatively low VMT reduction efficiency due to high costs.

Providing the total cost of a VMT-reducing housing project is not necessarily required so long as an argument can be made that "but for" the mitigation funding contribution, the housing project would not move forward or otherwise would be constructed substantially later. Coordination with housing partners is required to determine if this may be the case, and for agreement between relevant parties to take the VMT reduction credit for a capacity-increasing project. This has been clarified further in the last paragraph of Section 5.7.1, page 31.

E10. If projects in the RTP may not be appropriate to be used as mitigation, would this cause lower priority projects outside of the RTP to be identified and implemented instead?

A project in an approved programming document that is fully funded is generally not considered eligible as mitigation. However, if a capacity-increasing project can contribute funding to a VMT-reducing project or program that does not have full funding, then it could be eligible as a mitigation strategy. There is also a possible exception: a programmed project without dedicated full funding could be eligible to count towards mitigation, but this would require substantial justification. For the programmed project to be credited towards mitigation as a VMT-reducing measure, evidence should be provided to explain why it would not be able to move forward, "but for" the investment provided by the VMT-inducing project. Other mitigation measures outside of the RTP could potentially be needed.

E11. Regarding new text on HOT lanes including a strategy for making up any shortfall in revenue projections: making up "any shortfall" is an unmanageable risk to the operator, e.g., with Caltrans as owner of the SHS and the ability to cause lanes to be operated as GP at length during rehab or maintenance projects. Other revenue risks might also reduce VMT (e.g., pandemic)—in which case there should not be a need to maintain the same level of VMT mitigation.

If some shortfall is projected related to a reduction in induced demand resulting in lower toll revenues, then this possibility should be included as part of the toll facility's financial planning. It is recommended that an early Traffic & Revenue study is conducted to estimate how much excess toll revenue is expected to be generated from the facility to potentially fund VMT-reducing mitigation projects or programs. The language referring to "any shortfall" has been revised.

E12. A commitment to toll adjustments to ensure VMT reduction seems problematic. After the project is operating, how would differences in VMT be measured and attributed to the project versus any other external factors/projects?

When implementing a toll adjustment policy to ensure VMT reduction, the pricing strategy must be shown to be effective. A mitigation monitoring program should include performance measures that verify whether toll adjustments are reducing VMT, and if not, a strategy should be employed to adjust pricing accordingly. Any pricing structure used to offset an increase in VMT should be discussed and communicated with Caltrans, and a cooperative agreement between partner agencies may be necessary. It should be noted that enforcement of the HOT lanes should be considered to reduce toll payment violations and to minimize potential increases in VMT.

E13. Projects already built should be reviewed on a case-by-case basis to determine if they can contribute to VMT mitigation.

Projects already built in most cases cannot be used as mitigation because they would not be able to contribute to a new VMT reduction benefit. The only possibility could be if there is some type of expansion or improvement to it that otherwise would not have happened without new funding contributing to it. For example, if an existing commuter rail service can now provide higher frequency service as a result of mitigation funding, then the VMT reduction could be quantified and credited towards the capacity-increasing project.

E14. If a project sponsor adopted a policy or program to allow transit-oriented development (TOD) to be built on their agency's rail station, could that qualify as VMT mitigation?

Simply adopting a policy or program to allow transit-oriented development to be built on the project sponsor's land would not be sufficient to make sure the housing would be constructed - there should be assurance the housing will be built. In order to take credit for VMT reduction from new, affordable infill housing developments, a project sponsor should be able to demonstrate that but for their contribution (in this case through land) to facilitate TOD, the development would not be constructed. This would also require agreement with housing agencies involved to take credit for VMT reduction, as well as to ensure it would not be double counted for other purposes.

E15. Should Caltrans develop or participate in a VMT bank or exchange system to invest in the production of VMT-efficient housing developments?

LCI has assembled a taskforce of state agencies, including Caltrans and CalSTA representatives, to develop a statewide mitigation bank or exchange program to deliver infill housing and other VMT-reducing projects as part of CAPTI 2.0 actions.

E16. Caltrans should consider specifying a minimum dwelling units per acre that goes above the CAPCOA minimum of 9.1 dwelling units/acre to qualify as a potential VMT reducing housing development. Specifically, Caltrans should adopt the Affordable Housing & Sustainable Communities Program threshold of minimum densities.

Caltrans has chosen to use the CAPCOA minimum density of 9.1 dwelling units/acre when quantifying estimates of VMT reduction for applicable housing developments. However, Caltrans is open to considering other minimum densities tailored to specific place types, or higher densities, in the future.

E17. Housing as a potential VMT mitigation measure raises concerns about feasibility, particularly for projects outside Caltrans' direct control.

Housing is a potential mitigation strategy consistent with EO N-2-24. Caltrans is suggesting there may be ways to contribute to housing development, e.g., providing funding in some cases. Close collaboration with housing partners is required to determine the level of support needed to implement housing as mitigation.

E18. Advanced mitigation strategies like mitigation banks, exchanges, and tiering should be explored to provide more flexibility and reduce reliance on statements of overriding considerations. This would streamline the mitigation process and provide scalable solutions while maximizing effectiveness of mitigation investments.

Caltrans is open to and works with partners to explore development of mitigation banks and exchanges. The "Implementing SB 743: Design Considerations for Vehicle Miles Traveled Mitigation Bank and

Exchange Programs" is a 2022 report produced by the UC Berkeley Center for Law, Energy, and the Environment that provides some guidance on the mitigation banks and exchanges located here: https://www.law.berkeley.edu/wp-content/uploads/2022/09/Implementing-SB-743-August-2022.pdf. Information on tiering a project-level analysis from a previous EIR is also outlined in the TAC, Section 5.1.2.

E19. Any establishment of VMT mitigation banks and exchanges at the state level should not conflict with the mitigation measures and credits that other local and regional entities are attempting to implement. Caltrans should not dictate or favor specific VMT mitigation measures and programs over the ones developed by local entities, as these should be based on local context and community support.

Caltrans is supportive of the establishment of VMT mitigation banks and has worked with partners, including regionally, in various stages of conceptualizing and implementing them. The Caltrans SB 743 Program Mitigation Playbook provides information on the efficacy and ease of implementation of over a dozen VMT mitigation measures. The Playbook and other Caltrans guidance does not preclude the development and implementation of additional VMT mitigation measures. The Playbook (page 4) states it is important to acknowledge that the Playbook is not comprehensive and that the field and practice of VMT quantification and mitigation is rapidly evolving. Caltrans recommends that if additional measures are developed, the sponsoring agency include analysis and evidence to quantify VMT reductions.

E20. Is there a way to give bike/pedestrian improvements more VMT reduction "credits", more than what is quantitively computed and analyzed? Completing a bike network, for example, is a commendable effort to advance climate goals, and provide future opportunities to induce VMT reduction.

If there is data and evidence to support a higher level of VMT reduction for a specific measure than otherwise quantified through the CAPCOA Handbook or the Caltrans Mitigation Playbook, that may be considered.

E21. There should be more guidance for ongoing VMT mitigation monitoring.

VMT mitigation monitoring should be conducted similarly to other environmental resource mitigation monitoring. Under CEQA, this is usually conducted through the Mitigation Monitoring and Reporting Program (MMRP) and is included as part of the final environmental document. Caltrans also maintains an Environmental Commitments Record to record project environmental mitigation and commitments, specify how each will be met, and document the completion of mitigation and environmental commitments.

F. Regional Transportation Plans

F1. SCS Targets "would contribute to achieving the overall statewide GHG emissions reduction target of 40 percent below 1990 levels by 2030 (SB 32), as well as support achievement of our statewide public health and air quality objectives." (SB 375 GHG Reduction Target Staff Report). While it is possible that some RTP/SCS projects do not imply consistency with state climate goals, project analysis should be able to draw the line between supporting state climate and goals and consistency with the RTP/SCS. This means that regions should emphasize projects in the RTP/SCS that do not induce VMT.

Caltrans is supportive of regions prioritizing projects in the RTP/SCS that do not induce VMT.

G. Program EIRs

G1. The TAF/TAC should allow programmatic evaluation of all projects in RTP/SCS to properly understand true VMT impacts while maintaining the ability to meet other critical state and federal requirements. The RTP/SCS planning process offers the best approach to assessing and planning for VMT mitigation.

Caltrans does not preclude programmatic approaches to VMT analysis and mitigation. As stated in the TAC Section 2.2 CEQA Guidelines, "A lead agency may in some cases tier its transportation impact analysis, as appropriate, from the EIR prepared for RTP/SCS. See the discussion in section 5.1.2. of this document to assess whether transportation impacts have been adequately analyzed at the programmatic level and whether tiering from an RTP/SCS EIR or other analysis may be appropriate." Please refer also to the 2020 Q&A, H1 and I1.

H. Induced Travel

H1. The guidance doesn't take into account benefits to transit that HOV or HOT lanes offer when factoring into induced travel estimates.

Caltrans acknowledges there may be potential benefits to transit offered by new HOV and HOT lanes that could be factored into initial induced travel estimates. Section 5.6.2 states that "There are instances in which an element of a project or a project feature may reduce adverse transportation impacts and should be taken into account prior to the initial significance determination." Within the TAC Section 5.3.1 Hot Lanes and VMT, a discussion is provided about how HOT lanes in particular may present opportunities to offset induced travel depending on strategies that may be employed, such as providing transit priority that does not currently exist. However, evidence is required to claim that a new managed lane (either HOV or HOT) results in induced travel benefits. It should be noted enforcement of managed lanes is integral to realizing any benefits as well.

H2. On a base level, should Caltrans push back on the assumption that increasing vehicular capacity increases VMT? People are not traveling to/from the roadway - they are going to/from destinations. The way that CEQA is implemented currently, land use projects are already required to analyze and mitigate VMT from their land use projects. Would this cause double analyzing and double mitigating for VMT under this current system, and approach to analyzing VMT?

While land use projects may affect vehicle trips due to the availability of new destinations, transportation projects can also affect vehicle trips in that roadway improvements may make it cheaper and more efficient to drive. Transportation projects may have an added effect of facilitating development further from destinations because they make travel by vehicle easier, which can increase VMT.

H3. The guidance should differentiate managed lanes from general purpose lanes for VMT analysis.

We acknowledge that the TAC and TAF treat managed lanes similarly to general purpose lanes in terms of their potential to induce additional vehicle travel. Within the TAC Section 5.3.1 HOT Lanes and VMT, we provide some caveats about how HOT lanes in particular may present opportunities to offset induced travel. This depends on strategies that may be employed, such as allocating excess toll revenue to other VMT-reducing projects or pricing in a way that ensures a reduction in VMT. However, it should be noted that evidence is required to claim that a managed lane may offset some induced travel. Appropriate enforcement of managed lanes is integral to realizing any VMT-reducing benefits they may have.

Caltrans has now included an updated reference to the July 2024 UCLA Institute of Transportation Studies *Induced Travel Estimation Revisited* research report (Manville 2024), which concluded that it is likely appropriate for HOT lanes to have similar elasticities to general purpose lanes. The report can be found at this link: https://escholarship.org/content/qt8m98c8j1/qt8m98c8j1.pdf?t=shhply&v=lg. Caltrans continues to fund and is interested in additional studies related to elasticities for managed lanes.

H4. There are some project types listed in the TAC, Section 5.1.1 ii) that would reduce congestion and in turn induce travel.

Project types listed in Section 5.1.1 ii) were adapted from the LCI Technical Advisory and determined not likely to result in a measurable and substantial increase in vehicle travel. Some types may have the potential to reduce congestion and improve operations of a facility, but they are generally not required to conduct an induced travel analysis.

H5. What is a short-term VMT impact versus long-term VMT impact?

Please refer to Q&A 2020, R19 and response to comment H4.

H6. How would you determine whether a series of auxiliary lanes would increase VMT prior to conducting analysis?

Caltrans recommends identifying whether auxiliary lanes are operating independently and are addressing localized issues. Otherwise, an induced travel analysis may be needed to identify whether a series of auxiliary lanes will induce VMT.

H7. How do tolling strategies have the potential to provide VMT reduction as HOT lane conversions are thought to be considered VMT neutral? Are there examples where adjusting tolls have been able to achieve volumes consistent with negative or neutral VMT?

Conversions to HOT lanes are generally considered a project type unlikely to induce substantial and measurable VMT. However, tolling strategies also may be able to provide substantial VMT reduction if they are implemented in a way that can be reasonably expected to change travel behavior. This has been clarified in the TAC, Section 5.3.1 Hot Lanes and VMT (p. 19). There are some examples around the US where adjusting tolls have demonstrated negative or neutral VMT. The Port Authority of New York/New Jersey, which operates several toll bridges around NYC, has adjusted tolls over time to ensure continued VMT reduction (from $1.50 in 1975 to $15.38 today or double the rate of inflation). It has also made revenue available for VMT reducing strategies that directly subsidize PATH trains and transit priority lanes on the Lincoln Tunnel. In Seattle, the SR 520 bridge, which was originally free, was converted to a fully tolled facility with time variable tolls in 2011. USDOT measured VMT on SR 520 and parallel free routes pre/post and found a net reduction in VMT.

H8. How does the GP to HOT conversion + HOT lane addition together (reference to a new section in 5.3.1 on HOT Lanes and VMT) provide VMT reduction?

This has been updated to clarify that a GP lane to HOT lane conversion while also adding a new HOT lane can be one way to minimize increases in VMT. The new HOT lane will still induce VMT and should analyzed for its potential effect, but a conversion is a project type that is unlikely to induce a measurable and substantial increase in vehicle travel.

H9. There needs to be a clearer definition and guidance on how to assess VMT impacts in a wider trip-making area. There needs to be more direction on the appropriate radius/buffer associated with analyzing these induced VMT increases.

Please refer to 2020 Q&A, B1.

H10. What are the sources of data that informed the induced travel definition in the TAF, Section 2.2?

Please refer to the 2020 Expert Panel report: https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-09-21-sb-743-expert-panel-rpt-fnl-a11y.pdf.

H11. The new subsection in Section 2.2, "Use of Percentages in Assessing Induced VMT," states to look at absolute value of the increase but fails to provide justification for this statement or any calculation to validate it. Please provide the back up to support this statement.

The new subsection under Section 2.2 "Use of Percentages in Assessing Induced VMT" was initially created as a hot topic to isolate the effects of the potential induced VMT attributed to the transportation project. By comparing what the induced VMT of a project is to existing total VMT in a project area and representing it in a percentage change format, the assessment would be conflating what the actual induced VMT is from the project. Caltrans policy is to mitigate for any significant impacts, which is assumed to be any increase in VMT from a transportation project. The absolute value of the increase in VMT is the most critical to determine what mitigation strategies (including their associated quantified VMT reductions) may be needed to offset the impacts.

H12. According to the reference to Duranton and Turner in the TAF Section 3.2.2, it appears building transit / train service will not mitigate or stop induced travel. But based on mitigation strategies proposed transit and rail are supposed to be the options that will compensate for the induce travel. There seems to be a conflict with these statements; please clarify.

The discussion in Section 3.2.2 refers to the NCST Calculator's sensitivity to project context and the use of transit service data for the Calculator. It does not infer that transit services do not reduce VMT.

I. Empirical Method (NCST Calculator)

I1. Should the NCST calculator be reconsidered for use in calculating elasticity given concerns that it often yields overly conservative results, lacks context-specific adjustments, and does not account for different lane types such as auxiliary lanes or HOT lanes? Should more dependable and accurate tools be developed for state transportation projects?

The TAF and TAC Table 1 Selection Matrix for Preferred Induced Travel Assessment Methods provides options available depending on the facility, project type, and location. Project teams should assess which methods are the most appropriate to use. Caltrans continues to actively engage in discussions with partner agencies regarding alternative methodologies to assess VMT. In regard to managed lanes, the July 2024 UCLA Institute of Transportation Studies *Induced Travel Estimation Revisited* research report (Manville 2024) concluded that it is likely appropriate for HOT lanes to have similar elasticities to general purpose lanes.

I2. There were noted concerns about a change to allow the 29% discount for truck VMT on freeways (or 22% on class 2 or 3 routes) in the elasticity calculation for induced demand. While it was recognized that SB 743 was focused on automobile travel, the law was not explicit that truck travel should be discounted as an impact, so Caltrans has discretion to decide whether to include the truck VMT induced by the project. If an agency elects to use the elasticity discount of 29% based on an assumption that up to that percent of the fleet mix on their project corridor is trucks, that project sponsor should be required to reflect the same percent (up to 29%) of the fleet mix as trucks when assessing air quality impacts for the project. The TAF should include direction to mirror the truck percentage used for the induced demand elasticity discount when performing the air quality assessment.

Lead agencies have discretion in preparing environmental documents subject to CEQA. Caltrans' decision to allow for a truck adjustment is in accordance with Section 15064.3 subdivision (a) of the CEQA Guidelines, which clarifies that VMT refers to automobile travel attributable to a project. LCI clarified in the 2018 Technical Advisory that "automobile" refers to on-road passenger vehicles only. Therefore, it is reasonable for a truck reduction to be applied to the induced travel calculation. Note that a 29% reduction is only applicable for transportation projects on Class I facilities (Interstate

Freeways) and a 22% reduction is only applicable for those on Class II (Other Freeway or Expressway) and III facilities (Other Principal Arterial). The elasticity discount for trucks is only assumed for the purposes of calculating induced VMT estimates.

I3. While it is understood SB 743 requires VMT analysis to only include traffic impacts from light-duty vehicles and not heavy- and medium-duty, the truck adjustment currently sets the elasticity value too low as it is rare for projects to report annual daily truck travel as 29% when reporting the air quality impacts of proposed highway expansion projects.

The elasticity reduction of 0.29 for Class I facilities and 0.22 for Class II/III facilities are only for the purposes of estimating induced travel from the addition of roadway capacity using the NCST Calculator, as the tool does not exclude heavy-duty trucks from its elasticity estimates. It should be clarified that these reduction values are not a direct comparison to the percentage mix of heavy-duty trucks on a given facility. The reduction values represent a range of how much trucks contribute to an increase in VMT caused by an increase in lane miles. The source of these values was derived from Duranton and Turner's "The Fundamental Law of Road Congestion: Evidence from US Cities" (2011), which estimated that trucks represent between 19 and 29 percent of the total increase in VMT that results from an increase in lane miles. Caltrans recommended the higher end of this range (0.29) for Class I Interstate facilities; 0.22 was recommended for Class II/III facilities as a proportional value based on the standard elasticity contained in the NCST Calculator.

I4. Support was noted for the new provisions in the TAF that require use of the same elasticity for induced demand generated by new HOT and HOV lanes as for general purpose lane additions.

This was a global update for both the TAF and TAC, specifically in Table 1. Selection Matrix for Preferred Induced Travel Assessment Method for of Projects on the SHS.

I5. Can the truck adjustment be incorporated into the NCST calculator? Can additional adjustments be made if data can be shown to be less than observed truck volumes in a project area?

The NCST Calculator is maintained by UC Davis. Caltrans can inquire if it would be possible to incorporate the truck adjustment into the NCST Calculator in future updates of the tool. If substantial evidence and data of observed truck volumes in the project area are provided to warrant changes to the default reductions originally set by Caltrans, there may be a potential to consider additional adjustments on a case-by-case basis.

I6. Hymel (2019), Graham (2014), and Melo (2012) studies referenced were prior to very many HOT lanes being open. More current studies should be used, or new ones conducted for consideration and inclusion.

Caltrans has now included an updated reference to the July 2024 UCLA Institute of Transportation Studies *Induced Travel Estimation Revisited* research report (Manville 2024), which concluded that is likely appropriate for HOT lanes to have similar elasticities to general purpose lanes. The report can be found at this link: https://escholarship.org/content/qt8m98c8j1/qt8m98c8j1.pdf?t=shhply&v=lg. Caltrans continues to fund and is interested in additional studies related to elasticities for managed lanes.

I7. There needs to be clear direction on how to calculate elasticity rates based on the facility type and county or MSA specific data that will be easily accepted by Caltrans. There should be guidelines on the appropriate buffer to use to calculate impacts by types of projects. Otherwise, determinations can become inconsistent between similar types of transportation projects.

The NCST Calculator uses elasticities to estimate induced travel associated with the addition of new GP, HOV, and HOT lanes on the State Highway System. Calculating induced VMT with the Calculator does not require the use of an elasticity rate or buffer.

I8. Why does the calculator still use 2019 data? Is there a plan to change to more recent data?

Caltrans may coordinate with UC Davis to assess the feasibility of incorporating newer data into future updates to the tool, including post-pandemic data.

I9. The NCST calculator does not provide a progression in induced VMT increase (opening Year to Design Year). It assumes that the average daily VMT will occur from Day 1 of the project opening, which is not true. How can that be resolved?

Please refer to the 2020 Q&A, K21.

I10. Are there any plans for improvements to the NCST calculator to make it more sensitive to project context (i.e., location in built-out vs. green field areas, gap closure vs. expansion, within urban limit lines, etc.)?

The NCST Calculator is maintained by UC Davis and Caltrans is not aware of future improvements. However, there may be post-processing tools sensitive to project context.

I11. Can the appendices include a list of improvements that have been made to TDMs that would remedy deficiencies and meet the Checklist criteria?

Caltrans may provide a future hot topic on improvements to TDMs that were used for project induced VMT analysis. Caltrans also continues to work with partners on a project-by-project basis to use models in concert with the NCST Calculator.

I12. Could the NCST Calculator be revised to make a distinction between adding general purpose lanes, HOV lanes, express lanes, or other managed lanes?

HOV and HOT lanes are assumed to have similar elasticities to GP lanes as evidenced through recent studies (Manville, 2024). Therefore, revisions to the Calculator to differentiate between types of lane additions may not be necessary. Any potential differences in induced travel between the three project types should be supported by substantial data and vetted on a case-by-case basis.

I13. Has the NCST calculator been validated with real world results that show the estimated induced travel has occurred on a project that was developed? Please provide the case studies as references to show the validation of the calculator.

The NCST calculator's elasticities were informed by empirical data from studies that controlled for population, income, geography, and fuel cost. More information on the calculator can be found at the following link: https://travelcalculator.ncst.ucdavis.edu/about.html and https://travelcalculator.ncst.ucdavis.edu/faq.html. None of the Caltrans transportation projects in which the NCST Calculator was used to estimate induced VMT are built yet.

I14. It was noted the NCST Calculator cannot estimate induced travel from lane conversion projects. How would you estimate induced VMT for projects that include lane-type conversions, such as a project that would add a HOT lane and convert the adjacent, existing GP lane to a HOT lane?

The conversion of a GP to HOT lane is generally a screened project type under TAC Section 5.1.1 ii). However, the portion of the project that includes the addition of a new HOT lane would require an induced travel analysis. If the NCST Calculator is the preferred method, then input the appropriate facility type, project location, and length in miles of the new HOT lane to estimate the annual induced VMT. Otherwise, refer to the TAC Table 1. Selection Matrix for other available methods.

J. Travel Demand Model

J1. Are the guidelines for demand models different at the RTP level compared to project level?

The TAF checklist for model adequacy should be referenced to determine whether a TDM is appropriate for calculating induced demand attributable to a transportation project, which is different from the analysis done for an RTP.

J2. The modeling checklist should be re-evaluated for reasonableness.

Caltrans is currently working with a consultant to investigate modeling questions that could affect the criteria of the modeling checklist. Most models do not pass the iterative land use check, which is integral to capturing the full effects of induced VMT attributable to a transportation project. The 2020 Expert Panel developed the checklist based on best available knowledge and the report can be accessed in the following location: https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-09-21-sb-743-expert-panel-rpt-fnl-a11y.pdf

J3. TAF Check 1 footnote (related to determining model adequacy) states that “any TDM used to assess induced travel must be paired, or iterated, with an approach for predicting changes in land use caused by the project." The TAF also states that induced travel is the "increase in VMT that is attributable to the project, distinct from any background changes in VMT due to other factors such as population or economic growth." If the VMT is to be distinct from background changes, how should land use be a factor?

The latter quote from the TAF refers to background land use changes that would occur regardless of a proposed transportation project, such as from a General Plan. The text in the footnote refers to land use changes that could occur taking into account the reduced “cost” of driving (e.g., improved reliability, lower price of driving, etc.) after a new project is constructed. In that context, land use is not a background change as changes can occur as a result of a new transportation project, which leads to changes in associated travel behavior (i.e., inducing travel). A TDM should be evaluated to assess whether it can predict how land use could alter because of the new transportation project. In this way, the "with project" and "without project" scenarios can be compared and an estimate of the induced travel attributable to the project can be obtained.

K. NCST vs. Model

K1. What is the basis behind the +/- 20% range for benchmarking the TDM results to the NCST Calculator results?

The 20% range relates to elasticity estimates in peer-reviewed scholarly literature. It is discussed on page 24 of the 2020 Expert Panel report at the following link: https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-09-21-sb-743-expert-panel-rpt-fnl-a11y.pdf

K2. The TAF, Section 3.3 appears to state that Traffic Demand Models are not accurate and that the only calculation that should be used is the NCST Calculator. Please clarify.

Project teams should assess which methods are the most appropriate to use by referencing the TAC Table 1 Selection Matrix for Preferred Induced Travel Assessment Methods, which provides options available depending on the facility, project type, and location. Travel Demand Models could be an appropriate tool if the guidance in the TAF, Section 4.4 is followed.

K3. Even when a travel demand model is enhanced to meet the rigorous requirements outlined in Table 4 of the TAF, its results must still fall within 20 percent of NCST calculator outcomes. This benchmarking requirement appears arbitrary and effectively mandates the use of the NCST calculator for all projects, undermining the role of enhanced, locally calibrated models. Given the limitations of the NCST calculator, locally calibrated travel demand models should be encouraged as the primary analytical tool, not the fallback option. The TAF does allow results from travel demand models to deviate from the 20 percent benchmark if supported by "specific quantitative evidence," such as a quality academic study. However, this requirement is highly subjective and lacks practical guidance. The expectation of finding an academic paper tailored to explain why a specific project differs from average conditions is unrealistic.

Updates to the Second Edition TAF in Section 4.4 provide more clarification and flexibility for using TDMs that are not within 20% of the NCST Calculator results. As illustrated in multiple scenarios within the TAF Figure 5, a methodology should first and foremost disclose whether there are deficiencies in a TDM before use. Any difference in results between the TDM and the NCST Calculator should be discussed, but Caltrans is not precluding use of a TDM. Caltrans is open to discussing methodologies on a case-by-case basis.

K4. Based on the TAF, it seems that most TDMs are not capable of estimating induced VMT. However, it seems incongruous to have an estimate of induced VMT from the NCST and future year traffic volumes from a TDM that does not estimate induced VMT. Please consider including guidance/recommendations to estimate future year traffic volumes for operations analysis.

Estimating induced VMT is different from estimating traffic volumes. Future year traffic volumes for operational analysis are generally estimated by a TDM, but the TAF and TAC are focused on providing guidance for the purposes of analyzing VMT under CEQA, not operations. Table 1 of the TAF provides details on preferred induced travel assessment methods based on project type and location. Figure 5 in the TAF provides the high-level guidance in a method selection flow chart. It is not the intent of the guidance to provide methods for estimating future year traffic volumes for operations analysis.

L. Projects in Rural Areas

L1. The guidance should provide more accurate and context-sensitive VMT analysis and mitigation options that address rural areas, in addition to rural areas within metropolitan statistical areas (MSAs).

CAPTI 2.0 includes the action "Improve VMT analysis and mitigation guidance for rural projects to better account for the low VMT impact of many rural projects in consultation with rural stakeholders." Caltrans guidance currently provides flexibility in selecting analysis methods for projects located in the 21 rural counties as identified in Table 3 of the TAF. However, Caltrans is interested in developing further guidance for rural areas and is convening a subgroup of the SB 743 Implementation Working Group to collaborate on these efforts.

L2. Is there flexibility for determining significance in rural areas of an MSA county?

Please refer to 2020 Q&A, O2.

M. Analysis (Other)

M1. What would be a robust and acceptable qualitative analysis?

CEQA requires substantial evidence for support of qualitative analyses. As detailed in CCR Section 15384 "these guidelines means enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached" and "substantial evidence shall include facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts." A qualitative discussion should discuss the unique circumstances that support the significance determination of the project.

M2. The TAC mentions qualitative analysis, but the TAF did not list qualitative analysis as an approved process to determine induced VMT.

Figure 5 of the TAF shows a method selection flow chart that indicates when the use of qualitative assessments would be appropriate. The TAF also includes guidance on the use of a qualitative analysis under Section 4.4, Application of Travel Demand Models, and Section 4.6, Qualitative Assessment Approach.

M3. Caltrans should consider adopting a simplified approach to induced travel analysis for minor capacity-increasing projects, such as auxiliary lanes or intersection improvements, which may have limited potential to increase VMT. In particular, transportation projects that do not substantially affect travel demand (e.g., small operational improvements) should not be required to undergo full VMT analysis. Caltrans could use the VMT TA screening criteria to reduce the compliance burden for low-impact projects, helping regional agencies focus on more substantial impact assessments.

Section 5.1.1 of the TAC notes project types unlikely to lead to measurable and substantial increases in VMT. Such projects may be screened out from having to conduct VMT analysis. They may not substantially affect travel demand.

M4. If a project is considered screened out and would not induce VMT, there could still be construction related impacts that could be significant depending on the project. Project construction is considered temporary and changes in VMT during construction (without clear direction of how long is too long for significant VMT impacts to occur) would not be consistent in how traffic cumulative

impacts are normally evaluated within CEQA documentation. How is there justification if a temporary VMT change for the duration of 6 months of construction would be much more than a project that would generate VMT changes during 12 months of construction?

Please refer to 2020 Q&A, R1.

M5. If a project is considered screened out and would not induce VMT, there could still be construction related impacts that could be significant depending on the project. Project construction is considered temporary and changes in VMT during construction (without clear direction of how long is too long for significant VMT impacts to occur) would not be consistent in how traffic cumulative impacts are normally evaluated within CEQA documentation. How can it be justified if a temporary VMT change for the duration of 6 months of construction would be much more than a project that would generate VMT changes during 12 months of construction?

Please refer to 2020 Q&A, R1.

M6. Why should projects that add a series of auxiliary lanes in the same corridor evaluate the potential for cumulative impacts if they could fall under a screened project type?

Although the addition of an auxiliary lanes of one mile or less is considered a project type that is screened as unlikely to induce a substantial and measurable increase in VMT, there is an important distinction to be made about connecting multiple auxiliary lanes that result in a length of over one mile. In reality, the new connected auxiliary lanes could end up operating very similarly to a long through lane. Under the second edition guidance, the latter should be examined for potential cumulative impacts. Auxiliary lanes may be cumulatively considerable and significant when considered with past, present, or future probable projects within a corridor.

M7. It is unclear how to convert annual average daily traffic (AADT) to VMT and what unit of measurement is used (annual vs total, etc.) for CEQA transportation impact analysis. Traffic analyses have historically reported information in AADT, which then needed to be converted to VMT for air quality and GHG analysis.

VMT for an SB 743 CEQA analysis should be reported using annual numbers. The explanation regarding why VMT is now the standard metric for analyzing transportation impacts under CEQA is included in the TAC under Section 1, Introduction/Background, and Section 2.2, CEQA Guidelines. Rather than a conversion of AADT to VMT, the methodologies for calculating induced VMT in the TAF include use of a regional travel demand models or elasticity-based tools (NCST calculator). These are outlined in TAF Section 3, Tools for Estimating Induced Travel.

M8. Regarding the new subsection in Section 2.2. "Use of Percentages in Assessing Induced VMT," doesn't the elasticity method rely on a percentage value to estimate the change in Vehicle Miles Traveled (VMT) with and without the project?

Yes, the elasticity method relies on using a percent increase in VMT associated with a given percent increase in roadway lane miles. However, the new subsection under Section 2.2 "Use of Percentages in Assessing Induced VMT" was initially created as a hot topic in order to isolate the effects of the potential induced VMT attributed to the transportation project. By comparing what the induced VMT of a project is to existing total VMT in a project area and representing it in a percentage change format, the assessment would be conflating what the actual induced VMT is from the project. The absolute value of the increase in VMT is critical to determine what mitigation strategies (including their associated quantified VMT reductions) may be needed to offset impacts determined to be significant.

N. Glossary of Acronyms and Terms

Acronym/Term	Explanation
CalSTA	California State Transportation Agency
CAPCOA	California Air Pollution Control Officers Association
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
EIR	Environmental Impact Report (state)
GHG	Greenhouse gas
GP	General Purpose
HOV	High Occupancy Vehicle
HOT	High Occupancy Toll
LCI	Governor's Office of Land Use and Climate Innovation
LDR	Local Development Review
LOS	Level of Service
MMRP	Mitigation Monitoring and Reporting Program
MSA	Metropolitan Statistical Area
NCST	National Center for Sustainable Transportation
PID	Project Initiation Document
PA&ED	Project Approval & Environmental Document
PRC	Public Resources Code (state)
RTP	Regional Transportation Plan
RTPA	Regional Transportation Planning Agency
SB	Senate Bill
SCS	Sustainable Communities Strategy
SHS	State Highway System
TAF	Caltrans Transportation Analysis Framework
TAC	Caltrans Transportation Analysis Under CEQA
TISG	Transportation Impact Study Guide
VMT	Vehicle Miles Traveled

Acronym/Term	Explanation
Capacity	The Sixth Edition of the Highway Capacity Manual defines capacity as: The maximum sustainable hourly flow rate at which persons or vehicles reasonably can be expected to traverse a point or a uniform section of a lane or roadway during a given time period under prevailing roadway, environmental, traffic, and control conditions.
Elasticity	Elasticity is a measure of a variable's sensitivity to a change in another variable. In economics, elasticity is the measurement of the percentage change of one economic variable in response to a change in another. In transportation forecasting, an example is elasticity of travel demand, which can be expressed as the percent change in regional VMT divided by the percent change in regional lane-miles of state highways.
Induced Travel (VMT)	Induced travel (or the VMT attributable to a transportation capacity increase) is the increased amount of vehicle travel on the transportation network that is caused by travel behavior changes associated with decreased cost of travel due to improved travel times, improved reliability, or reduced price of travel. Over the short run, travel behavior changes including longer trips, more trips, mode shift, and route shift all tend to occur as a result of a highway capacity increase. Over the long run, these effects intensify (e.g. as people shift job or residential location to benefit from the infrastructure), and also land use development may become more dispersed, adding additional vehicle travel; for these reasons, long run induced travel is generally greater than short run induced travel.
Network	The connectivity of a transportation system. Changes in connectivity may change travel time and cost. Travel demand models will usually represent network connectivity within modes and across modes through a set of links connecting nodes.

Acronym/Term	Explanation
Travel Demand Model	A travel demand model is any relatively complex computerized set of procedures for predicting future trip making as a function of land use, demographics, travel costs, the road system, and the transit system. These models often cover an entire metropolitan area or the entire State, but may also focus on a single city or county.
Transit	Transit generally includes all forms of shared common carrier passenger ground transportation in moderate to high capacity vehicles ranging from dial-a-ride vans to buses, trolleys, light rail, commuter rail, and intercity rail transportation.
Trucks	Trucks are a subtype of the heavy vehicles category which includes trucks, intercity buses, and recreational vehicles. This Framework follows the Highway Capacity Manual definition of what constitutes a heavy vehicle: "A vehicle with more than four wheels touching the pavement during normal operation." This is consistent with the Caltrans Traffic Census definition of a truck: "The two-axle (truck) class includes 1-1/2-ton trucks with dual rear tires and excludes pickups and vans with only four tires."
Vehicle Miles Traveled (VMT)	The number of miles traveled by motor vehicles on roadways in a given area over a given time period. VMT may be subdivided for reporting and analysis purposes into single occupant passenger vehicles (SOVs), high occupancy vehicles (HOV's), buses, trains, light duty trucks, and heavy-duty trucks. For example, an air quality analysis may require daily VMT by vehicle class and average speed or vehicle operating mode (idle, acceleration, cruise, deceleration, etc.). For a CEQA compliant transportation impact analysis, automobile VMT (cars and light trucks) may be evaluated.
VMT Attributable to a Project.	In the context of a CEQA analysis, the VMT attributable to a transportation project, or induced travel, is the difference in passenger VMT between the with project and without project alternatives. VMT attributable to a project is equivalent to induced travel in this context.

Appendix I (2020 Q & A: Caltrans TAF and TAC)

Q&A: Caltrans TAF and TAC
Final Release

October 16, 2020, *revised September 2025*

Overview

The questions and responses below were compiled based on input received during the informal review of the draft Caltrans *Transportation Analysis Framework* (TAF) and *Transportation Analysis under CEQA* (TAC between April 3, 2020 and June 19, 2020, which are the guidance documents to support the implementation of SB 743.

Caltrans received feedback on the draft TAF and TAC guidance documents from over 50 different agencies and organizations representing state, regional, and local agencies as well as advocacy groups, consultants, and general public. Over 1,000 separate comments were received either via Caltrans' on-line comment portal or in correspondence. **Due to the comprehensive nature of the feedback received, this document was released in two installments to provide responses to the broad range of topics included (First Release on September 10, 2020 and the Final Release on October 16, 2020).**

To compile this document, the feedback received was first categorized into 24 topic areas. These covered technical comments specific to the TAF and TAC guidance documents, broader policy-related comments, and comments that related to both technical issues and policy. In order to prepare responses, similar comments and questions were grouped by theme. Of the 24 topic areas, those themes that are most relevant to the draft TAF and TAC guidance documents have been included in this Q&A document.

It is important to note that all responses to the draft TAF and TAC contained in this Q&A document relate to SB 743 implementation on transportation projects on the State Highway System (SHS) and not to land use projects, which are addressed by the *Transportation Impact Study Guide* (TISG) released in July 2020 and available at the Caltrans SB 743 website.

Project-specific questions are not included in this Q&A document. Questions and comments on documents that were more editorial in nature, such as format and organization, are also not included. Several questions and comments received relate to topics that have not yet been fully evaluated and may be addressed as part of future discussion and/or guidance, as SB 743 implementation continues to evolve beyond this First Edition of the guidance documents, posted on September 10, 2020.

Related Documents

This Q&A document includes references to several related documents available on the Caltrans SB 743 website (https://dot.ca.gov/programs/sustainability/sb-743/resources):

- *Transportation Analysis Framework* (TAF), First Edition, September 10, 2020
- *Transportation Analysis under CEQA* (TAC), First Edition, September 10, 2020
- Transportation Impact Study Guide (TISG), July 1, 2020
- Interim Guidance for LD-IGR Safety Analysis
- Expert Panel Final Report
- OPR Technical Advisory on Evaluating Transportation Impacts in CEQA (December 2018)

Contents

A. Implementation Process

A1. Local agencies can choose other parameters besides VMT. What happens if it is an oversight project or part of the project is on the SHS?

Projects on the SHS will require VMT-based significance determinations when Caltrans is the lead agency or when Caltrans designates another entity as lead agency.

A2. How does this apply, if at all, to local capacity-increasing projects that require a Caltrans encroachment permit (only) for work within a mainline facility right-of-way?

For Caltrans to issue the encroachment permit and fulfill their role as the CEQA Responsible Agency, the portion of work subject to the encroachment review may require a VMT-based approach if the project may have an induced travel impact. The size and scope of encroachment permits varies widely, so application of VMT analysis will be a case-by-case decision.

A3. The determination of significance of VMT impact will be required for capacity-increasing transportation projects on the SHS when Caltrans is lead agency or when Caltrans designates another entity as lead agency. What is the basis for Caltrans requiring another agency, designated as the lead agency, to use a prescribed methodology/metric?

Caltrans is the responsible agency under CEQA and is the owner of the SHS. Since the project is being built on the SHS, it must meet Caltrans requirements in order to proceed.

A4. When does this go into effect? How about projects that are in development already?

The September 10, 2020 Memorandum from Caltrans Chief Engineer Mike Keever and Caltrans Deputy Director of Sustainability Ellen Greenberg detail the requirements for VMT analysis. An updated version of the Implementation Timing Memo initially released April 13, 2020 accompanies the September 10, 2020 memo. The Memos are available on the Caltrans SB 743 website.

Projects that began environmental studies between December 28, 2018, and September 15, 2020, will be evaluated by the Department in consultation with project sponsors on a case-by-case basis to determine if the use of a VMT-based transportation impact significance determination in the draft environmental document is warranted. Many projects that began environmental studies between those dates and all projects that begin environmental studies on or after September 15, 2020 will be required to be screened to determine whether to prepare VMT based-significance determinations.

[Note: For recent updates to implementation timing for capacity increasing projects with a begin environmental date before December 28, 2018, and any projects considered on a case-by-case basis on or after December 28, 2018, that reached begin environmental prior to September 15, 2020, reach out to your Caltrans District. Capacity-increasing projects that have yet to circulate a DED by October 1, 2026, must conduct VMT analysis in accordance with Caltrans published guidance.]

A5. How are projects treated that must recirculate their draft EIR or previously approved EIR and the original environmental document did not evaluate induced travel effects and/or VMT significance?

For capacity-increasing projects, in general, if there is a substantial change in the transportation analysis requiring a new traffic study, then the induced travel analysis should be conducted, and a VMT-based significance determination should be included. Please see Section 2.3 of the Implementation Timing Memo on subsequent, supplemental, later tier, or other later CEQA documents since this will depend upon when the traffic study is re-initiated and whether the study is expected to result in a substantial change to the earlier results.

A6. Who served on the expert panel? How were panelists selected?

UC Berkeley's Tech Transfer Program organized the expert panel in response to a request from Caltrans for technical assistance. Led by UC Berkeley Professor Betty Deakin, the panel included panelists Fred Dock, Gordon Garry, Susan Handy, Michael McNally, Elizabeth Sall, Alex Skabardonis, and Joan Walker. Caltrans and its partner agencies selected the panel by mutual agreement. See TAF Appendix B for Panelists' biographies.

A7. What will determine whether Caltrans does the VMT analysis or the local agency?

For projects on the State Highway System, Caltrans follows existing procedures to determine who does the studies. The determination of who conducts the VMT analysis will vary by project. Caltrans enters into cooperative agreements with local agencies to ensure there is a clear understanding of roles and responsibilities.

A8. Would the VMT analysis be required for an improvement on the State Highway System that was listed as a mitigation measure for a planned development that was approved some time ago and is in the process of buildout with money just now becoming available?

If the improvement project was evaluated in the original environmental document and no supplemental analysis/recirculation is required, then a VMT-based determination is not required. If the improvement was evaluated, but a supplemental analysis/re-circulation is required, then please refer to the Timing Implementation Memo for further guidance regarding subsequent, later tier, and other later CEQA documents. If the improvement was not evaluated in the original environmental document, then a VMT-based analysis will be required.

A9. Per the Implementation Timing Memo, if current projects reach Caltrans' Milestone 020 ("Begin Environmental") before September 15, 2020, they would not require a SB 743/VMT analysis. We request that this be codified in the final guidance and in any related Caltrans documents.

The Implementation Timing Memo is appended to the September 10, 2020 Memorandum, "Caltrans Policy on Transportation Impact Analysis and CEQA Significance Determinations for Projects on the State Highway System."

This policy is contained in the memorandums posted on the SB 743 website.

[Note: For recent updates to implementation timing for capacity increasing projects with a begin environmental date before December 28, 2018, and any projects considered on a case-by-case basis on or after December 28, 2018, that reached begin environmental prior to September 15, 2020, reach out to your Caltrans District. Capacity-increasing projects that have yet to circulate a DED by October 1, 2026, must conduct VMT analysis in accordance with Caltrans published guidance.]

A10. How will Caltrans help ensure current project schedules will stay on track while the guidance is under development and the need for additional reviews at the District and Headquarters? Is Caltrans committing additional resources to help keep current projects on schedule?

The guidance is now available. Caltrans will work with partners to minimize the impact of the new procedures on delivery commitments.

A11. As guidance comes out there will be some differences in interpretation from Caltrans District staff, local agencies, and consultants. How will Caltrans ensure that guidance is being applied consistently across the state and ensure that project schedules will not be impacted by implementation of this guidance?

The guidance documents are intended to support a consistent process. Training, outreach, and supplemental materials to support implementation will further support this aim. (See S. Training below.) Caltrans will work with partners to minimize the impact of the new procedures on delivery commitments.

B. Scoping

B1. Study Area. Explain how to define and justify the study area to fully account for VMT impacts attributable to the project.

According to the TAF, the transportation analysis must consider the "VMT attributable to the project," regardless of jurisdictional and model boundaries. The geographic area to be analyzed depends on the project and the selected methodology. The selected study boundary can be verified by examining the regional model output from iterative model runs to assess the likelihood that any substantial amount of VMT attributable to the project would spill outside of the study boundaries. Project study area limits can also be set at travel sheds if origin/destination data is available. Project Development Teams (PDTs) can make the determinations on a case-by-case basis while working with stakeholders. The TAF provides general guidance on selecting the study area boundaries but relies on the analyst to use professional judgement. Supplemental guidance may be provided as Caltrans gains more experience with VMT analysis. In the meantime, analysts will use their professional judgement in setting and confirming the appropriate study area boundaries for VMT analysis. The analyst should be particularly cautious that VMT impacts are not cut off at a jurisdictional or travel demand model boundary.

B2. Purpose and Need. How would the Purpose and Need (P&N) statements be revised or constructed to be more consistent with changes associated with SB 743, specifically regarding reducing congestion and delay?

The shift in P&N statements to a reduced focus on long-term congestion relief are part of change in progress at Caltrans, of which the TAF/TAC guidance are only a part. Caltrans will work with transportation agency partners in the development of P&N statements to confirm federal, state, and local objectives are being met in a manner that is consistent with the intent of SB 743.

B3. The guidance needs to recognize that LOS is still being used in determining the need for and designing of a highway project.

Use of LOS in planning and design activities separate from the CEQA process is outside the scope of these guidance documents. The TAF and TAC focus on using induced travel analysis to analyze transportation impacts under CEQA.

B4. What role do alternative modes of travel play in deciding what build alternatives to carry forward from the PID phase into PA&ED? Recognizing that Caltrans' typical projects of the past have been capacity-increasing, the draft TAC scoping section (p. 8) should have had a far more expansive discussion of alternatives to vehicular capacity increases.

In the future it is anticipated that more projects will be initiated under a pre-PID, comprehensive multimodal corridor planning approach. This comprehensive multimodal approach starts with the regional plan and considers all travel modes during early project planning. The TAC is not intended to provide specific guidance for the transportation planning phase.

B5. It was presented that a lower environmental document may be considered if the VMT increase is considered nominal. How do you scope and define nominal? What does Caltrans envision to be appropriate "substantial evidence" to support a finding of less-than-significant?

The TAC indicates that within the MPO areas, a project that leads to an increase in induced travel will generally be considered to be significant under CEQA. If the PDT determines that another finding is appropriate, this should be supported by substantial evidence in the project record. Substantial evidence is defined in CEQA Guidelines Section 15384. It means that there is enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion.

C. Screening

C1. How do we decide whether an induced travel analysis is necessary or not? Will Caltrans be refining, adding additional project types, or clarifying various parts of the screened project list? What about situations where a specific project type is not on the screened list or slightly deviates from the list?

The TAC includes a screening section to help practitioners determine which projects require an induced travel analysis and which may be screened out of the induced travel analysis. The project types listed include all of those listed in the OPR Technical Advisory as well as six project types added to the list as a result of recent discussions between Caltrans and OPR staff.

Section 5.1 of the TAC indicates that not all situations may be covered in the screening list. When concluding that a particular project may be screened out from further analysis, the practitioner should review and fully document the rationale supporting the conclusion that the particular project would not likely lead to a measurable and substantial increase in VMT. The type and level of documentation will vary depending on the unique circumstances of the project. In cases where projects lack supporting documentation, then an induced travel analysis will be necessary.

C2. If a project includes features from the "screened-out" list, but adds in other features that are not on the list to help with operational issues, will only that part of the project require a induced travel analysis or will it be the whole project?

The entire project should be analyzed for the potential to induce VMT.

C3. If an alternative is dropped early on in PA&ED and/or before PA&ED begins, would it need to be analyzed for VMT comparison?

Provided that the alternative was appropriately eliminated, a VMT analysis would not be required.

C4. For roadway improvement projects that are not screened from a VMT analysis, is there a minimum project size (expressed in travel time reduction, ADT, or project cost) below which the VMT increase would be considered to be less than significant?

Project size is not a basis for determining that the VMT increase would be considered to be less than significant.

C5. Has the State considered developing some sort of estimating or screening tool to identify if a VMT-inducing project could result in impacts that would likely not be able to be fully mitigated and which would trigger the need for an EIR?

Caltrans has not contemplated development of such a tool. The NCST calculator, which is described in TAF Section 3, is an easy-to-use tool for assessing induced travel, on applicable project types in MSA counties.

C6. Can the guidance provide examples of what constitutes "unusual circumstances" that might be found during screening and could lead to induced travel?

The screening list refers to project types that generally do not lead to VMT increases, however, there are some exceptions. Some examples of project types that may lead to a VMT increase are:

- Addition of a Class I bicycle path along a river that becomes a visitor/regional attractor could induce vehicle trips and VMT to and from the facility.
- A conversion from a general-purpose lane to a transit lane could redistribute vehicular traffic to a more circuitous path leading to measurable increases in VMT.
- Removal or relocation of off-street or on-street parking spaces could lead to increases in vehicles circling the block to find parking.

C7. Would the screening step be done during the Project Initiation Document (PID) phase?

The PID phase would be an appropriate time to determine traffic study scope and methodology. If not completed during the PID phase the screening step should be completed during PA&ED.

C8. The list states that the screened projects would not likely lead to "a measurable or substantial increase in vehicle travel." That is, it would seem reasonable to conclude that any project that does not lead to a substantial increase in VMT could be screened.

As indicated in the TAC, "While the screened project list is thorough, it is not necessarily comprehensive. There may be types of projects in addition to those listed that would not lead to a measurable and substantial increase in VMT. When concluding that a particular project may be screened out from further analysis, the practitioner should review and fully document the rationale supporting the conclusion that the particular project would not likely lead to a measurable and substantial increase in VMT."

C9. How would you assess induced travel impacts when you are converting existing GP lanes into HOT and/or HOV lanes?

Conversion of a GP lane to a HOT or HOV lane is likely to reduce capacity. As such they are included under the following statement on the list of screened project types, "conversion of existing general-purpose lanes (including ramps) to managed lanes or transit lanes, or changing lane management in a manner that would not substantially increase vehicle travel," so VMT analysis will generally not be required for this project type. When concluding that a particular project may be screened out from further analysis, the practitioner should review and fully document the rationale supporting the conclusion that the particular project would not likely lead to a measurable and substantial increase in VMT. See Section 5.1 of the TAC.

C10. Toll Lanes are included in the list of projects, with toll revenues able to mitigate the VMT increase. Fixing the tolling rates for a managed lane is not typically determined this early in the project. Could it be revenues collected in the corridor will be re-invested in VMT-reducing projects and strategies in the corridor?

This category was included in the draft TAC for consistency with the OPR Technical Advisory. After considering its lack of potential applicability, a decision was made to eliminate the screened project category, "Addition of tolled lanes, where tolls are sufficient to mitigate VMT increase," from the OPR Technical Advisory and the TAC.

Where a toll lane is added, it is possible that the revenues from tolls could be utilized to fund VMT-reducing projects and strategies at a level sufficient to mitigate for increased VMT. The impacts of the project and the mitigation measures would be part of the analysis for the project pursuant to the guidance provided in the TAF and TAC.

C11. How should auxiliary lanes be handled for screening? How about multiple auxiliary lanes, each one less than 1 mile?

Per the OPR Technical Advisory, the "addition of an auxiliary lane of less than one mile in length designed to improve roadway safety," is not likely to lead to a measurable and substantial increase in VMT and an induced travel analysis would not be required. For auxiliary lanes that are greater than 1 mile in length and/or not designed to improve roadway safety, an induced travel analysis will be necessary. For the situation of multiple auxiliary lanes, the determination of whether the project requires analysis would be based on whether the additive lane length of the multiple auxiliary lane segments is greater than 1 mile.

[Note: Section 5.4 of the 2nd Edition of the TAC has been updated to provide additional guidance on Auxiliary Lanes and how to evaluate the potential for cumulative impacts for a series of auxiliary lanes along the same corridor."]

C12. For an auxiliary lane, how is the 1-mile distance determined? Is it actual project length or lane length?

The lane length would be most appropriate. The key is whether the new capacity would result in induced travel.

C13. When including aux lanes in the list of project types likely to lead to an increase in vehicle travel, should this be clarified to be "aux lanes longer than 1 mile", since aux lanes of less than 1 mile are included on the screened projects list?

Auxiliary lanes in general are included in the OPR Technical Advisory among the types of projects likely to lead to a measurable and substantial increase in vehicle travel. However, as noted, auxiliary lanes less than one mile are included on the screening list. If a project is on the list of project types that generally would not increase VMT, what is the Caltrans process to document that it meets the list criteria? For example, for projects that have auxiliary lanes that are less than 1 mile, does TASAS data have to demonstrate that it's for safety or that it has a purpose statement for safety? Explain what would trigger VMT analysis for one of those projects.

When concluding that a particular project may be screened out from further analysis, the practitioner should review and fully document the rationale supporting this conclusion. The type and level of documentation will vary depending on the situation and project type. For the example given, TASAS data is a potential source of data to document the rationale in that particular situation. In cases where projects lack supporting documentation, then an induced travel analysis will be necessary. See TAC section 5.1 for more details.

C14. Would adding a turning lane be considered capacity increasing if the project is an intersection improvement?

Turning lanes are among the project types that could be screened but the determination should be made based on the specific context and full project scope. See Section 5.1 of the TAC.

C15. What should the VMT analysis be if the project scope includes removing the on and off ramps at an existing interchange?

Project types not identified on the screening list in the OPR Technical Advisory will need to be evaluated on a case-by-case basis to determine if an induced travel analysis is necessary.

C16. Would traffic signals or roundabouts require induced travel analysis?

Traffic signals and roundabouts are among the project types that can be identified as not leading to measurable and substantial VMT increases. See Section 5.1 of the TAC.

C17. Operational improvements (including ITS features) could lead to increases in VMT. How should these be handled?

It is possible that some operational projects could result in induced travel. However, operational improvements are on the screening list of project types that are not likely to lead to a measurable and substantial increase in VMT, and therefore generally should not require an induced travel analysis.

C18. Would brand new interchanges require an induced travel analysis? What recommendations are there for analyzing interchange projects?

If new interchanges improve accessibility to the SHS, they will require an induced travel analysis depending upon the lanes through grade-separated interchanges and additional receiving lanes downstream. (See Section 5.1.a of the TAC.) According to its technical documentation, the NCST tool is not an appropriate tool for evaluating interchange improvements. The analysis could include travel demand models, other quantitative analysis, or qualitative assessment methods.

D. Consistency

D1. Consistency with Local Plans and Policies. How do local agencies evaluate cumulative traffic impacts when Caltrans procedures differ from that of local agencies? What is the expectation for Local Assistance projects? Will Caltrans require an induced travel analysis?

The guidance in the TAC and TAF are applicable only to projects on the SHS. For off-system projects, local agencies will follow their own CEQA procedures.

D2. Consistency with other CEQA topics/EIR sections. How does the elimination of delay change the environmental justice analysis? What if a low-income neighborhood has higher levels of delay than a nearby high-income neighborhood?

VMT is the required metric for transportation impacts under CEQA. If the environmental analysis reveals the potential for disproportionate impacts to EJ communities due to traffic delay this should be addressed in the EJ section of the environmental document.

D3. Consistency with State Scoping Plan. If a project induces travel is it inconsistent with state GHG and climate goals? What justification and analysis are needed to support statewide versus regional GHG metrics and targets?

The Scoping Plan is the state's primary document for the articulation of the state's GHG-reduction goals as mandated by the California Global Warming Solutions Act of 2006 (AB 32). As always, CEQA determinations must be supported by substantial evidence. As directed by the TAC, a project that results in an increase in VMT will likely be found to be inconsistent with the Scoping Plan. (See Section 5.5 of the TAC.)

D4. CEQA vs. NEPA. Per the TAF, wouldn't the travel demand model always be recommended in order to be consistent with other studies? Since this is not applicable to NEPA, will we have two sets of numbers, one for CEQA and one for NEPA? Will there be two traffic studies, one for NEPA and one for CEQA or will CEQA suffice for NEPA and if so, will an EIR trigger an EIS?

The recommended tool for assessing transportation impacts under CEQA (VMT induced by the project) varies by situation and guidance for identification of the appropriate tool is provided in the TAF. In some cases, the travel demand model (TDM) will not be the recommended tool for assessing CEQA impacts. In those situations, multiple tools (e.g. TDM and NCST), will be necessary to obtain the information necessary to inform project alternative analysis, design considerations, CEQA, NEPA, and related environmental studies. The output of the NCST is applicable to one metric within the traffic study (induced VMT) and does not provide input for other relevant metrics such as total VMT. Where TDM is the only tool used, multiple traffic studies would not necessarily be needed to convey this information.

There have been no changes to NEPA requirements. Modeling requirements for air quality and/or noise impact analyses also have not changed.

A significance determination under CEQA has no bearing on the level of document prepared under NEPA.

E. Thresholds and Significance Determination

E1. VMT-Related Significance Threshold. Multiple comments focused on what vehicle miles travelled (VMT) threshold Caltrans considers appropriate for projects on the State Highway System. Many comments sought clarity on whether Caltrans has adopted a threshold of significance to identify potentially significant impacts.

Caltrans has not adopted a VMT-based CEQA significance threshold, consistent with the Department's CEQA practice generally. Caltrans will follow established CEQA practice by identifying and analyzing significant transportation impacts, and evaluating transportation impacts as discussed in the TAF and TAC.

F. Mitigation

F1. Mitigating Potentially Significant Impacts. Many comments sought clarity on what types of mitigation Caltrans considers appropriate for projects on the State Highway System. Other comments focused on the proper geographic scale of mitigation, including whether it should take place at a regional or local level, and at a plan or project level. Some comments suggested that Caltrans quantify potential mitigation in its guidance documents and consider the cost of certain measures.

CEQA requires mitigation of significant environmental impacts, to the extent such mitigation is feasible. Many potential mitigation options exist and the determination of whether any particular measure is feasible in connection with a specific project is ultimately made by the lead agency based on established CEQA standards. Appendix C in the TAC presents some of the strategies that may be appropriate, with citation to supporting literature and resources, in addition to information on the Caltrans SB 743 Implementation website.[1] Tables 1 and 2 further list mitigation strategies that Caltrans may consider when serving in a supporting role or when leading implementation of a strategy, and other quantifiable strategies with respect to VMT and GHG emissions.

[1] Caltrans, SB743 Implementation. Available at: https://dot.ca.gov/programs/sustainability/sb-743/resources

G. Air Quality/GHG/Conformity

G1. Federal Conformity and the California Environmental Quality Act. Comments suggested various links between federal transportation conformity (transportation conformity or conformity) requirements and CEQA.

Federally-required transportation conformity and CEQA both include analysis of a project's emissions of criteria pollutants, but federal conformity and CEQA contain differing standards and analytical requirements and each serves its own purposes. Federal conformity analyses can be relevant to addressing impacts analysis in CEQA, and a lead agency (including Caltrans) may disclose and consider a project's federal conformity analysis during its CEQA review and may also be considered in the CEQA context of overall compliance with adopted plans. However, CEQA law and guidance do not contain any authority to substitute conformity analysis for the required analysis under CEQA. One important distinction is that conformity analyses focus on compliance with ambient air quality standards that are regionally assessed for compliance; projects may have *local* impacts or "hot spots" even if they do not affect regional compliance. This may be of particular importance in disadvantaged communities, as the Governor's Office of Planning and Research has noted in its recent guidelines on incorporating environmental justice considerations into general plans.[2] Relatedly, these federal standards do not cover all relevant air pollutants – and, in particular, do not address toxic air contaminants – which may be of considerable relevance to projects. In light of these and other considerations, the TAF and TAC appropriately do not link the determination of significance under CEQA to compliance with federal conformity requirements.

[2] OPR, General Plan Guidelines Chapter 4 (July 2020), at 17 ("Note that even if a jurisdiction attains state and federal air quality standards generally, individual communities within the jurisdiction may still have significant air quality problems. Thus, attainment status does not, alone, guarantee equitable exposures.").

H. Regional Transportation Plans (RTP)

H1. RTP/SCS and Tiering. Many comments suggested regional transportation plans and sustainable communities strategies (RTP/SCS) could be used for tiering purposes. Separately, several other comments questioned whether any RTP/SCS can meet CEQA requirements for tiering.

The comments raise substantive issues beyond the scope of the TAF and TAC.

The State Legislature has clearly stated its preference that lead agencies tier environmental documents wherever feasible. (Pub. Resources Code, Sect. 21093(b).) Tiering is governed by section 15152 of the CEQA Guidelines, cumulative impacts are generally addressed in section 15130. In fact, the Legislature has created several tiering and streamlining methods that can reduce analytical duplication.

As discussed in the TAC, a lead agency may in some cases tier its transportation impact analysis from a programmatic level EIR, such as one prepared for an RTP/SCS. The three considerations outlined in TAC Section 5.1.b apply to analysis of projects on the State Highway System, ensuring that transportation impacts are adequately evaluated and mitigated at the programmatic level. First, the RTP/SCS EIR must adequately evaluate the phenomenon of induced travel. Second, the RTP/SCS EIR must demonstrate consistency with the State's planning relating to climate goals. Lastly, all feasible mitigation normally considered at a project-level must be identified at the plan level.

Caltrans reiterates the general concepts and mechanisms described in 15152 of the State CEQA Guidelines. Tiering from an earlier, broader environmental document that covers the general impacts of a program or larger-scale project can enable a lead agency preparing subsequent environmental documents for a related individual project to narrow and focus its analysis on unique or unanalyzed environmental issues. The concept applies to a host of long-range planning documents including an RTP/SCS.

I.Program EIRs

I1. Tiering/Program EIRs: Can you develop a tiered approach for a corridor where there are multiple ongoing active projects? For program/tiered projects, how is induced travel proposed to be evaluated?

Starting new programmatic documents focusing on a tiering strategy is encouraged. Tiering from the EIR prepared for the MTP/RTP or other planning document is also encouraged when that EIR meets the conditions outlined in Section 5.1.b of the TAC and noted above. The determination of whether or not a later tiered environmental document would require an induced travel analysis would be governed by existing CEQA practices.

I2. Mitigation: If a project is identified in a comprehensive multimodal corridor plan (as required for SB 1 solutions for congested corridors funding) with other projects that are planned for implementation (not necessarily at the same time as), would it be possible for a project to take credit for those other projects as potential VMT minimization and mitigation measures.

Yes, if there is an enforceable commitment to fund and implement those VMT reducing projects.

J. Induced Travel

J1. What is the definition of induced travel?

Induced travel (or induced VMT) is the increase in vehicle travel associated with an increase in roadway capacity. It is distinct from background increases in VMT that may be caused by other factors such as population growth, economic growth, declining gas prices, etc.

J2. What are the factors that contribute to induced travel?

Adding roadway capacity generally stimulate changes in driver behavior in response to reduced travel time and/or improved reliability. This generally leads to some combination of the following effects, each of which can contribute to induced travel:

- <u>Longer trips.</u> The ability to travel a long distance in a shorter time increases the attractiveness of destinations that are farther away, increasing trip length and vehicle travel.
- <u>Changes in mode choice.</u> When transportation investments are devoted to reducing automobile travel time, travelers tend to shift toward automobile use from other modes, which increases vehicle travel.
- <u>Route changes.</u> Faster travel times on a route attract more drivers to that route from other routes, which can increase or decrease vehicle travel depending on whether it shortens or lengthens trips.
- <u>Newly generated trips.</u> Increasing travel speeds can induce additional trips, which increases vehicle travel. For example, an individual who previously telecommuted or purchased goods on the internet might choose to accomplish those tasks via automobile trips as a result of increased speeds.
- <u>Land Use Changes.</u> Faster travel times along a corridor lead to land development farther along that corridor; that new development generates and attracts longer trips, which increases vehicle travel. Over several years, this induced growth component of induced vehicle travel can be substantial, making it critical to include in analyses.

J3. How do we know the induced travel effect is real, and how do we know its magnitude?

The expert panel cites multiple robust, peer-reviewed studies that have assessed the magnitude of the induced travel effect. (See References and Appendix A of the TAF.) Because the effect varies by the amount of existing traffic, induced travel studies express the magnitude of that effect as an elasticity:

Elasticity = %Change in VMT/%Change in Lane Miles

Because they are sensitive to the VMT per lane mile, i.e. the amount of traffic, the studies provide for variation in the strength of the effect among regions. For example, a region that has twice the existing traffic per lane mile would expect to see twice the amount of induced travel.

The amount of vehicle travel in a region is influenced by various other factors (e.g. population growth, economic growth, changes in gas prices). Induced travel studies apply various econometric approaches to distinguish the effect of roadway capacity projects--the induced travel effect--from these other effects. Studies have been published in top academic journals in multiple fields, and those examining the overall effect of capacity investments come to approximately the same conclusion as to the magnitude of its effect.

J4. Over what timescale does induced travel occur?

Many studies quantify both "short run" and "long run" induced travel elasticities. Generally, "short run" elasticities measure induced travel that occurs in the first year or two, while "long run" elasticities measure induced travel that occurs in 5-10 years. The long-run induced travel effect is the full effect of the project.

J5. Don't highway capacity projects just redistribute the same vehicle travel?

Research has shown that capacity increases generally result in net increases in vehicle travel. There may also be redistributive effects. Most induced travel studies, including those applied by the NCST Induced Travel Calculator, focus on the whole area over which travel is affected, rather than just on the corridor. So, they account for redistribution of trips (which may increase or decrease VMT) as well as the other induced travel effects and examine the overall change in VMT. They show that overall VMT is generally increased. The Panel Report provides additional discussion of this issue.

J6. Where there is no congestion, wouldn't there also be no induced travel?

Induced travel occurs when it becomes easier to get somewhere by car. This phenomenon may occur whether or not there is existing congestion, as shown in the TAF Figure 2.

J7. Why don't we study induced travel along particular corridors to develop corridor-specific induced travel effect magnitudes?

The induced travel effect is not limited to the improved facility. A roadway capacity project generally changes travel patterns well beyond the immediate project area. Therefore, the geographic scale of analysis must go well beyond the corridor to capture the full effect of those changes.

J8. How well does VMT capture environmental impacts such as GHGs?

Generally, VMT correlates closely with GHG emissions and fairly well (at a minimum directionally) with an array of other environmental impacts (see Fang et al. (2017) *Cutting Greenhouse Gas Emissions Is Only the Beginning: A Literature Review of the Co-Benefits of Reducing Vehicle Miles Traveled*.)

J9. Will Cal B/C's approach on induced travel be updated?

At this point, the Cal B/C model is not proposed to be modified as a result of the TAF guidance document.

J10. Does SB 743 add a new requirement to study induced travel under CEQA?

Neither SB 743 nor the related CEQA Guideline section 15064.3 specifically identify induced travel. The Guidelines do state that "vehicle miles traveled" refers to the amount and distance of automobile travel attributable to a project, which is synonymous with induced travel. Accurate assessments of VMT require the consideration of induced travel. See the OPR Technical Advisory on Evaluating Transportation Impacts in CEQA and the TAF for further information on induced travel.

J11. Must effects on land use be factored in?

CEQA requires assessment of the full effects of the project, including the effects that result from changes in land use associated with the project.

J12. How should land use effects of the project be taken into account?

The easiest way to incorporate a capacity increasing project's land use effects is to apply the NCST Calculator where applicable, since it incorporates elasticities that reflect long-term changes associated with land use effects. As indicated in the TAF, an assessment using a travel demand model should ensure that the project's effect on land use is considered, i.e. the land use without the project should differ appropriately from the land use with the project. The best way to confirm appropriate land use changes in the travel demand model is to verify using the empirical approach provided data are available to substantiate selection of an elasticity (OPR VMT Technical Advisory p. 34).

J13. Land use changes that result from a highway capacity project are speculative. Ignoring land use effects would provide a better analysis.

If there is valid data regarding land use changes anticipated from new transportation infrastructure investment, it should be considered.

J14. What VMT should be attributed to a capacity-increasing project on the State Highway System?

The VMT attributable to a capacity-increasing project is the area-wide VMT due to induced travel associated with the project. The TAF provides additional information.

K. Empirical Method (NCST Calculator)

K1. What is the accuracy of NCST tool for various lane types (GP, HOV, HOT)? What are the NCST tool inputs?

The research underlying the NSCT tool covered general purpose and HOV lanes, and so it may be applied to those lanes in Metropolitan Statistical Areas. The NCST calculator is not applicable to toll lanes. The NCST tool is based on best available research and data, including multiple studies on induced travel and Caltrans VMT and lane mile data. The user inputs to the tool are lane miles and county/MSA location.

[Note: The 2nd Edition of the TAF Section 3.2.1 supersedes this previous guidance. HOV and HOT lanes are assumed to have similar elasticities (Manville, 2024). For an updated response, refer to 2025 Q&A, I12.]

K2. Will the NCST tool be updated?

Yes, Caltrans is providing support to NCST to update the Calculator.

[Note: Caltrans may work with UC Davis on future updates to the NCST calculator. For an updated response, refer to 2025 Q&A, I8.]

K3. The NCST tool shouldn't be applied for improvements that are not lane mile additions.

The commenter is correct that the NCST tool is not applicable for projects that do not add lane mile capacity.

K4. How does the NCST tool account for context?

The NCST Calculator accounts for context in several ways. Most importantly, the Calculator is not applicable in areas for which empirical data representative of the context is not available. Secondarily, the Calculator reflects context through the use of two different elasticity levels. Lastly, context-specific VMT data is input to the Calculator.

K5. How does the NCST tool prevent confounding with other effects?

The NCST tool is based on academic studies that avoid confounding with other affects through the use of various econometric approaches to exclude effects such as population growth, economic growth, changes in fuel prices, and simultaneity bias.

K6. Does the NCST tool overestimate induced travel?

The NCST tool on average provides an accurate estimate of "long run" induced travel capturing the full effect on VMT. The Panel Report discusses the accuracy of the estimates, concluding that:

- The elasticities of VMT with respect to capacity increases in the NCST calculator are extracted from the best available peer-reviewed papers on the topic, and other recent high quality studies have reported similar elasticities. The cited studies control for other factors that could confound the estimates. The use of these elasticities in the estimation of induced travel is therefore reasonable.
- Because the elasticities used in the NCST calculator are long term average elasticities for the specific highway types and contexts studied and some project to project variation (higher or lower elasticity) is to be expected, there may be cases where the NCST elasticities do not apply. If analysts believe the elasticities are inappropriate for a particular location or project, evidence-based justifications should be given for a different elasticity or model-based analysis approach. (Evidence could include high quality peer- reviewed research that indicates a different level of response for the project or location type, under study for example.)

K7. How does the formula presented in OPR's VMT Technical Advisory ([% increase in lane miles] x [existing VMT] x [elasticity] = [VMT resulting from the project]) relate to the NCST tool?

The NCST tool applies this formula using Caltrans VMT and lane mile data and elasticities from the academic research on the magnitude of the induced travel effect.

K8. Isn't the NCST calculator based on old data, before key policies were in effect?

While the NCST tool is based directly on studies including those published in 2003 and 2011 and volume data from 2016, studies as recent as 2019 have corroborated the elasticities provided by those earlier studies. On balance, evidence does not indicate that the evolving policy landscape has changed that effect magnitude.

K9. Does the NCST tool assume an absence of land use controls?

The NCST tool is based on studies that use observed data, and those observations occurred in the context of then-existing land use controls.

K10. Does the NCST study apply in rural counties?

No. The data underlying the studies used by the NCST tool is from urbanized areas.

K11. Where can I learn more about how the NCST tool works?

The tool includes an "About" tab that provides the formula it uses and describes the research it is based on. For further information we recommend contacting the tool's developers. See About the Induced Travel Calculator | California Induced Travel Calculator.

K12. To which types of lanes does the NCST tool apply?

The data upon which the elasticities were developed for the NCST tool included both General Purpose and HOV lanes. So, the tool can be applied to either type of lane but does not distinguish between the two.

[Note: The 2nd Edition of the TAF Section 3.2.1 supersedes this previous guidance. The NCST calculator can apply to General Purpose, HOV and HOT lanes because they are assumed to have similar elasticities (Manville, 2024). It should not be used for additions of pure toll lanes. For an updated response, refer to 2025 Q&A, I12.]

K13. Is the NCST tool sufficiently robust for CEQA analysis?

CEQA requires making a good faith effort and applying the best available information and tools to assess an environmental impact, and accounting for the entire effect to the extent possible ("rule of reason"). Some travel demand models exclude large portions of the induced travel effect (see responses L2 and L3 regarding travel demand model limitations). A panel of experts commissioned by Caltrans in conjunction with CARB and OPR to review recommended approaches confirmed that the NCST tool's approach, when applicable, provides an appropriate available assessment of induced travel for CEQA purposes. The panel report will be posted to the Caltrans SB 743 web page by mid-September.

K14. Instead of specifying the NCST tool, the TAF and TAC should describe the NCST tool's approach, and offer the tool as operationalizing that approach.

The TAF describes preferred approaches for various facility types and locations. Where applicable, the NCST Calculator is to be used either exclusively or to benchmark transportation demand model results, at the discretion of the analyst or project development team.

K15. Draft TAF P. 3 claims that the NCST tool won't work for Santa Clara county, when in fact it will work.

The commenter is correct. The information has been corrected in the September 2020 first edition.

K16. Can the NCST tool be used for horizon year induced VMT?

Yes. The NCST tool applies long-run elasticities, which incorporate the full induced travel effect that is the basis for the CEQA significance determination.

Appendix C of the TAF states, "The NCST calculator predicts only those changes in regional annual VMT that are due to capacity improvements. In order to isolate those effects, it purposefully excludes changes in VMT due to land use changes, population, employment, income, tolls, price of gasoline, or other travel cost changes"

K17. Project sponsors should choose the method for studying induced travel; Caltrans should provide guidance on which method to use for assessing induced travel.

Under CEQA, the lead agency is responsible for selecting the method and make a good faith effort to forecast using the best available information. Caltrans has fulfilled these responsibilities in the development of the TAF and TAC, consultation with stakeholders, and accepting the recommendations of the expert panel.

K18. Is use of the NCST tool aligned with OPR's technical advisory recommendation on studying induced travel?

Yes, OPR recommends use of the NCST tool for most roadway capacity increasing projects.

K19. HOV lanes pull cars off GP lanes, thereby offsetting or even reducing VMT.

HOV lanes may draw HOVs out of general purpose (GP) lanes. That in turn opens capacity in those in GP lanes, which can induce additional vehicle travel in those lanes. The research underlying the NCST tool included both GP and HOV lanes.

K20. Does use of the empirical approach (e.g. the NCST calculator) allow an "apples to apples" comparison with mitigation options?

OPR recommends that, for land use projects, VMT assessments, significance threshold, and mitigation be "apples to apples", i.e. focus on the same travel (for example home-based trips or home-based tours, but not mixing the two). The empirical approach simply assesses the total amount of VMT induced, so any mitigation measure for which VMT reduction is assessed with reasonable accuracy would be "apples to apples".

K21. How can the NCST tool be used to assess year by year VMT?

The calculator produces long-run estimates of induced VMT, the additional annual VMT that could be expected 5 to 10 years after facility installation. It would therefore be reasonable to use a straight-line interpolation between opening year and out year in year 10.

L. Travel Demand Model

L1. How can induced travel be assessed in absence of a county travel demand model?

If in a rural county, the county data from the California Statewide Travel Demand Model (CSTDM) may be extracted and used in a project level analysis.

L2. Does a travel demand model account for induced travel? What are Caltrans' recommendations for refining and validating travel demand models before using them to assess induced travel? (multiple)

From expert panel Final Report: *Many improvements have been made to travel models over the last two decades, but there remains considerable variation in the level of detail and the sophistication of the models in use in California (and elsewhere). Depending on the specifics of model specification, estimation, and application, travel models may provide a reasonable estimate of induced travel, or they may be underestimating induced travel.*

Caltrans recommendations for use of travel demand models to assess induced travel are provided in TAF Section 4.

L3. The development and maintenance of a land use model requires significant resources. Many typical Lead Agencies do not have access to run a land use model, in parallel with a travel demand model. In the San Francisco Bay Area, for example, ABAG/MTC runs UrbanSim as part of the development of scenarios for the RTP/SCS. However, CTAs and CMAs, who most often partner with Caltrans on project development and environmental review for transportation capital projects, do not have direct access to run UrbanSim themselves.

If the NCST Calculator is applicable, it is easy to use, incorporates land use effects, and sidesteps the other issues discussed previously with using travel demand models to assess induced travel. If using a travel demand model, off-model approaches can be used to assess land use changes. There are grant programs available for funding to support modeling improvement.

L4. There are extensive requirements placed on travel forecasting models in this section.

The work of the Expert Panel resulted in the inclusion in the First Edition of the TAF of a "pathway" for use of TDMs that may not have all desired functionality   What is meant by "halo zones"?

Halo Zones are simply TAZs outside the model boundary. They offer one way of accounting for trips that travel outside the model boundaries. The empirical approach does not rely on a model with boundaries, and so does not truncate the induced VMT analysis.

L5. TAF should clarify that a travel demand modeling approach would focus on short-term induced travel effects, unless evidence is presented that the longer-term effects are captured in the project land use forecast in combination with the travel demand model.

Longer-term effects are generally associated with land use change. The TDM checklist in the TAF Table 4 addresses how to assess the capabilities of a model regarding the land use forecast used in its development.

M. NCST vs Model

M1. Are there examples of induced travel analysis (with details) of urban projects where both NCST elasticity calculator method and a travel demand model were applied?

A comparison of use of the Calculator and travel demand models was recently reported in Volker, J., A. Lee, and S. Handy (2020). Induced vehicle travel in the environmental review process. Transporation Research Record, Vol 2674, Issue 7, 2020. National Research Council, Washington D.C.. DOI: https://doi.org/10.1177/0361198120923365.

M2. The NCST tool provides the same results for a GP or HOV lane addition – shouldn't they be different?

The research underlying the NCST tool included GP and HOV lane additions. Also, the magnitude of the induced travel effect is determined by the effective capacity of the new lanes, and HOV lanes frequently have similar capacity as GP lanes.

M3. Which is the better forecast of induced travel, the empirical approach such as used in the NCST Induced Travel Calculator, or the travel demand models?

See response to K6.

M4. The project sponsor should choose which method to use to study induced travel.

Caltrans is the lead agency under CEQA for projects on the SHS and therefore has the responsibility for determining the best approach under CEQA's requirements. CEQA requires the best available information and tools be used. Please see Section 4 in the TAF.

N. Reconciliation

N1. Request guidance on "reconciliation." Having two results would be problematic.

We agree that presenting a single set of results is desirable and therefore the First Edition of the TAF advises either use of the NCST Calculator exclusively or use of Calculator as a benchmark for TDM results (when calculator is applicable). The concept of "reconciliation" has been eliminated.

N2. A "qualifying" RTP/SCS travel model used with a growth forecast that also includes long-term induced travel should obviate the need for elasticity-based calculation.

See TAF Section 4 for guidance on using the Calculator as a benchmark when it is applicable and there is also "qualifying" travel demand model available.

O. Projects in Rural Areas

[Note: Caltrans has formed a subcommittee of the SB 743 Implementation Working Group to implement Key Action S2.2 of the Climate Action Plan for Transportation Infrastructure (CAPTI) 2.0. Key Action S2.2 is "Improve VMT analysis and mitigation guidance for rural projects to better account for the low VMT impact of many rural projects in consultation with rural stakeholders." Further guidance on rural VMT analysis will be developed by July 1, 2026. Future guidance may supersede responses below.]

O1. Rural areas within MPO boundaries ought to be treated like rural counties for VMT analysis screening.

All areas within MPOs are part of metropolitan statistical areas. The boundaries of MSAs are based on the interconnectedness between communities--for work, life and travel. Even if there is a rural area between communities, travel to and from communities takes place in such rural areas. Therefore, rural areas are susceptible to induced travel if adding capacity. Induced travel is a regional phenomenon. Caltrans held several meetings with rural agencies before and during the informal comment period for the guidance documents. However, this issue was discussed during coordination meetings and the agencies were encouraged to provide appropriate quantitative data to support the rural setting of their projects to aid in the VMT analysis, including evidence that trips generated are out of commute distance to job centers. Rural areas have limited opportunities for VMT mitigation.

O2. Although VMT mitigation options may be more limited in rural areas than in urban settings, the mitigation resources in the guidance documents and on the Caltrans and OPR websites do include a number of options that are applicable in rural regions of the state. VMT analysis for rural areas should be conducted differently, taking the geographic, physical and traffic context into account.

Project sponsors are encouraged to include the unique circumstances in their project descriptions to assist in determining the need and extent of any possible VMT analysis in rural areas. The travel demand models used in rural regions should reflect these characteristics. Project sponsors working with Caltrans Project Development Teams will select methods for VMT analysis when Travel Demand Models with appropriate capabilities are not available.

O3. Rural areas have limited resources for modeling.

The guidance documents include information on a number of resources to use in the development of VMT analyses, should they be required in rural areas. Caltrans understands that modeling tools around the state vary and will work with rural project sponsors to access the best information to guide any required VMT analysis, including the potential use of the California Statewide Travel Demand Model.

O4. Is there a need to make seasonal adjustments to traffic for VMT analysis?

This topic requires more thorough review before guidance is offered. Bringing forward a specific project where a VMT analysis is determined to be needed and seasonal traffic is involved will create an opportunity for consideration of this issue. There may be the potential to use an annual weighted average or other similar method to assess seasonal variation as well.

O5. Would Caltrans support a statewide VMT mitigation bank or exchange due to large areas covered by rural projects?

There is much interest in the concept of a VMT mitigation bank or exchange, Caltrans is initiating a research project to consider issues related to VMT mitigation banking, building on past sponsored research.

O6. How will Caltrans work with rural areas to develop a nuanced quantitative method for induced VMT analysis?

Given the current tools available for VMT analysis, the guidance documents do allow for some rural projects to use a qualitative approach. Caltrans will continue to monitor and support the development of modeling and analysis tools and should a reliable quantitative method become available for these unique projects, supplemental guidance can reference that method.

P. Truck/Freight

[Note: The responses in this section have been superseded by the 2nd Edition of the TAF. Refer to TAF Section 3.2 for the NCST Calculator Truck Adjustment for relevant guidance on consideration of truck traffic in induced travel for CEQA analysis.]

P1. Are trucks included in induced travel calculations and is mitigation required for truck VMT?

This should be treated on a case-by-case basis. Per SB 743 CEQA Guidelines, the VMT analysis focuses on passenger vehicles and light-duty trucks. Truck VMT may be included in analysis results at the discretion of the PDT or as a result of the analysis method used.

P2. Are truck climbing lanes capacity-increasing and do they result in increased VMT?

To the extent that there are issues other than congestion, such as safety, that are being impacted by truck traffic that can be alleviated by a truck climbing lane, then a VMT analysis may not be required. If, however, the project might induce passenger travel, an analysis would be required. See the example project of a truck climbing lane in the TAC.

P3. Would shifting freight from highway to rail transport as a means of reducing truck VMT (Hwy 101) be a possible VMT mitigation measure?

To the extent that freight can be efficiently added to the rail system, this strategy would be encouraged in many areas of the state. The shifting of freight from truck to rail might be used as VMT mitigation as long as an appropriate analysis is performed and commitments to the shift are substantiated.

P4. Some freeway projects in the Central Valley (I-5 and SR 99) are primarily for movement of freight. How does that impact VMT analysis?

A case-by-case analysis of a highway improvement project would need to assess the project impact on passenger vehicle and light duty truck VMT, regardless of project purpose.

Q. Priced Facilities

Q1. How do you fully mitigate VMT by use of tolls for Managed Lanes?

The reference suggesting that tolls can fully mitigate VMT increases has been stricken from the guidance documents. However, pricing is recognized as a tool to help mitigate VMT impacts on projects and on a system in the long term.

Q2. How is social and economic equity considered when determining priced-based *mitigation strategies used to reduce VMT?*

Any projects considering the use of pricing/tolls will perform a study to assess the socioeconomic impacts of the pricing structure. Congestion pricing programs can be carefully crafted to minimize impacts and bring benefits to communities if designed with considerations for people's ability to pay and their ability to access alternative modes. Transportation modeling can identify which communities can be helped with expanded mode choice supported in part by toll revenues and where approaches such as toll discounts for certain groups may be appropriate. The OPR website has related resources: Article - Roadway congestion can be solved through pricing mechanisms (Access Magazine, Spring 2017, 4p); Traffic Congestion Is Counter-Intuitive, and Fixable - Academic Study: Assessment of roadway pricing v. sales tax funding (Transportation November 2008, Volume 35, Issue 6): Just pricing: the distributional effects of congestion pricing and sales taxes (infographic)Transform's Report: https://www.transformca.org/transform-report/pricing-roads-advancing-equity

Q3. Should new priced facility projects be screened out?

New priced lanes will generally have the potential to induce travel. Because priced lanes likely cannot fully mitigate VMT increases, a VMT analysis is required to determine differences in VMT levels and the ability of pricing to mitigate VMT impacts.

[Note: Refer to 2025 Q&A, I14. The conversion of a GP to HOT lane is generally a screened project type under TAC Section 5.1.1 ii). However, the portion of the project that includes the addition of a new HOT lane would require an induced travel analysis.]

Q4. VMT analysis for projects that result in lower GHG due to high % of HOVs.

Many projects warrant case-by-case analysis. For projects that have evidence of high HOV %, the GHG benefit should be quantified <u>separately</u> and used in the VMT mitigation development. This is similar to the inclusion of alternative mode features as part of a highway project.

Q5. Conversion of HOV Lane to Express Lanes would allow more vehicles to use the lane during peak hours. Would this project be considered a VMT increasing project?

An analysis of the project should be conducted to determine whether the conversion of HOV lanes to express (tolled) lanes would result in more vehicles miles traveled or less. The results will be highly dependent upon the specific context of each project.

R. Analysis (Other)

R1. Construction Impacts. How are short-term construction activities addressed under SB 743? What would Caltrans require for a methodology? This section is not clear and should be expanded to provide clarification.

Section 5.3.c of the TAC has been updated with additional information on construction impact analysis. CEQA documents generally address direct, indirect, permanent, temporary, and cumulative impacts. In most cases, additional VMT arising from the construction of a project (i.e., workers traveling to the job site, travelers detouring around a construction area) would be unlikely to result in a significant impact because the effects are temporary. A qualitative discussion should be sufficient in most cases. As always, CEQA analysis should be commensurate with the anticipated impact. The Caltrans annotated outlines for environmental documents, which are required for projects on the SHS, address construction impacts.

R2. Is the induced travel analysis included in the Traffic Operations Analysis Report (TOAR) or can it be a stand-alone report when PDPM updates are still pending?

Whether the induced travel analysis will be documented in the TOAR or as a stand-alone report will vary by District. Future guidance may provide further direction regarding the format and placement of the induced travel analysis in the TOAR.

R3. How is this incorporated into the CEQA checklist?

The CEQA Guidelines which were updated effective December 28, 2018 included a revised version of the CEQA checklist that addressed the requirements of SB 743.

R4. Cumulative and Indirect Impacts. Clarify how and when to assess cumulative and indirect impacts for induced VMT through the SB-743 lens. Explain the difference between cumulative for SB-743 v. general cumulative generally for CEQA.

Cumulative and indirect impact analysis should be conducted according to CEQA requirements and existing Caltrans guidance.

The TAC is not intended to be a comprehensive guide on CEQA. Existing guidance on cumulative and indirect impacts can be found on the Caltrans Standard Environmental Reference under "Other Guidance." https://dot.ca.gov/programs/environmental-analysis/standard-environmental-reference-ser/other-guidance

R5. COVID-19 will result in permanent changes to transportation system. Does the data incorporate the growing Work-From-Home practices that many organizations are going to adopt as a result of COVID and beyond?

The COVID-19 pandemic has had a profound impact on the transportation system. However, it is not certain what the lasting effects of this ongoing health emergency will be. The goals of SB 743 and the need to assess the transportation impacts of projects in a fundamentally different way will remain. Helping to create vibrant communities, providing transportation choices and alternatives to driving alone and long commutes will still help to provide vital transportation services while addressing our environmental and climate commitments.

It would be speculative to revise the current guidance based on what may occur in the future or on the current situation. Future updates to the guidance documents may be warranted depending on trends that emerge.

R6. What statewide direction can be provided on how to approach significant and unavoidable determinations and when mitigation should be included?

Determinations regarding significance, mitigation, and the use of statements of overriding consideration should follow the guidance provided in the TAC and the CEQA Statute and Guidelines. Note that any project that will have a significant impact under CEQA will require mitigation.

R7. Clarify the use of "less than significant" for projects that reduce VMT or have no impact on VMT.

In order to fulfill the legislative intent of SB 743, and as further elaborated on in the TAC, projects on the SHS that increase VMT in an MPO area shall generally be considered to have significant impacts under CEQA, and those that reduce VMT shall generally be considered to have less-than-significant impacts under CEQA.

R8. Case studies. Will Caltrans be providing additional case studies, specifically examples for non-urban settings and qualitative assessments?

Caltrans provided two example projects and plans to add more as our practice deepens.

Caltrans has added an example project for a transportation project in a rural setting which demonstrates how a qualitative assessment could be conducted. Additional example projects or case studies may be added in the future.

[Note: Caltrans has formed a CAPTI 2.0 rural action subcommittee to the SB 743 Implementation Working Group to implement CAPTI 2.0 Key Action S2.2. Further guidance on rural VMT analysis will be developed by July 1, 2026. Future guidance may supersede response to R8.]

R9. Protocol to resolve clarity issues when applying TAF/TAC. The TAF should state how lead agencies should resolve any questions or lack of clarify in the TAF when preparing CEQA documents. We recommend the following: "In situations where the application of the TAF is unclear, the lead agency should consult with their local Caltrans District representative to determine the appropriate analysis that should be used for the project, and to document the approach in the CEQA document/related transportation reports."

TAF/TAC are new guidance documents, and they may bring up new issues in the project development process. These issues should be resolved through the well-established existing protocols in the project development process.

R10. Applicability of TAF. When should the TAF be applied?

The guidance in the Transportation Analysis Framework is intended for projects on the State Highway System determined through the screening process to require VMT analysis. See Figure 1.

R11. Intent of the TAF. Is the intent of the TAF to provide detailed instruction on performing VMT analysis? The TAF should provide additional detail and specific instructions on the VMT analysis, especially when practitioners are using tools other than the NCST calculator, and specifically for travel demand forecasting models.

The purpose of the TAF is to assist Caltrans district staff and others responsible for assessing likely transportation impacts as part of environmental review of proposed projects on the SHS by providing guidance on the preferred approach for analyzing the VMT attributable to proposed projects (induced travel) in various project settings. The TAF provides detailed guidance on methodology selection and model adequacy evaluation. See Sections 1 and 4 of the TAF.

R12. How will new access improvements (interchanges) be handled? Without access, development of an area may not occur or occur at a reduced level. In low-producing VMT areas, reducing the development results in spreading unaccommodated jobs or housing into higher-VMT production areas and/or greenfield areas. By focusing solely on "VMT that is attributable to the project" may result in not seeing the forest for the trees. Overall, a more regional comparison is needed to offer a full VMT impact-comparison of the project.

The induced travel analysis is conducted at the county or region scale, as described in Sec. 3 of the TAF.

R13. Does Caltrans support the use of tolling on managed lanes to support VMT reduction?

New guidance (and an update of Caltrans Deputy Directive DD-43) on the calculation of induced travel effects of Managed Lanes is being developed. The use of pricing is recognized as a potential mitigation for VMT impacts.

[Note: The 2nd Edition of the TAC section 5.3.1 for Hot Lanes and VMT and section 5.7.2 for Availability of Toll Revenue for VMT-Reducing Strategies expand on this topic. New HOT lanes have the potential to offset induced VMT with strategies such as using toll revenue for VMT mitigation or adjusting tolls to achieve volumes consistent with negative or neutral VMT.]

R14. Baseline: Clarify the use of future no project conditions as CEQA baseline rather than existing conditions. Please confirm what should be assumed in the Without Project scenario.

The TAC does not prohibit the use of existing conditions to inform the CEQA significance determination. Existing conditions must still be included, but using existing conditions alone to determine the significance of the transportation project would not accurately distinguish the induced travel directly attributable to the project from VMT increase resulting from land use change associated with the project, population increases, economic conditions, etc. The updates to the CEQA Guidelines published in 2018 contemplated this and clarified that there are many situations in which an "alternative" baseline is more accurate. The use of an alternative baseline for VMT does not mandate the use of an alternative baseline for any other analysis.

R15. Qualitative Analysis. Please provide examples and guidance on when and how to do a qualitative analysis.

Table 1, Figure 5 and Section 4.6 in the TAF address qualitative analysis. A qualitative discussion should discuss the unique circumstances that support the significance determination of the project. This is one of the topics expected to be addressed in supplemental guidance.

[Note: Caltrans has formed a CAPTI 2.0 rural action subcommittee to the SB 743 Implementation Working Group to implement CAPTI 2.0 Key Action S2.2. Further guidance on rural VMT analysis will be developed by July 1, 2026. Future guidance may supersede response to R15.]

R16. If a project qualifies for a CEQA Categorical Exemption or Statutory Exemption, does it still have to be screened for a potential increase in VMT? Please elaborate on how this may change the determination that some projects are exempt from CEQA.

The normal process should be followed for utilizing categorical and statutory exemptions under CEQA, including the consideration of Guidelines section 15300.2. for Categorical Exemptions.

Projects qualifying for Statutory Exemptions as described in Guidelines Article 18 (sections 15260-15285, inclusive) often do not require the preparation of CEQA analysis. In those instances, and since the VMT screening step is part of the CEQA analysis, it would not be required. Care should be taken, however, to confirm the level of exemption provided. (See, Guidelines section 15260.).

R17. Tiering. Guidance needs to be provided relative to MTP/SCS in the case that the MTP EIR is not available as a tiering document. Tiering should also consider a prior EIR by a local agency, such as for a Specific Plan, which contemplated SHS improvements.

At this time, it is anticipated that many of the current EIRs prepared for the RTP/SCSs will not meet the requirements for tiering as outlined in the TAC. The TAC section 5.1.2. addresses incorporation of information by reference.

R18. Is there an example of 'Other Potentially VMT Inducing Projects on a State Route'? I see in footnote ** examples include ramp, minor arterial, and collector-distributor road capacity projects, though this could be more clear in the diagram.

The selection matrix of preferred induced travel assessment methods, Table 1 in the TAF, references General Purpose and HOV lane addition projects as well as "other VMT inducing projects and alternatives." One example of another project type that presumably would need an induced travel assessment would be a truck-only lane [distinct from a truck climbing or a truck braking lane]. Both State Highway facilities and the type of project proposed must be considered to determine the need for an induced travel assessment.

R19. Short-term. The TAC talks about trip duration reduction and the increase travel speed benefits from project can be short term. Can you clarify what is considered "short term"?

As discussed in the TAF (page 9), the timeframe is variable. At this point there is no agreed-upon demarcation line between short-term and long-term induced travel. However, long-term induced travel is generally considered to be induced travel associated with land use change.

S. Training

S1. Existing training efforts

A webinar will be scheduled in Fall 2020 shortly after the final documents are released. Training materials for each of the guidance documents will also be released in e-module formats.

[Note: Caltrans will schedule future training and webinar opportunities after release of the 2^{nd} Editions of the TAC/TAF, and as future guidance develops.]

T. Land Use

T1. Integrating Land Use Planning. The commenter supports induced land use and social/economic impacts to be analyzed as part of a project's DIRECT transportation impacts. However, the land use expert panel is not standardized. Critical to future transportation planning at the local, regional, and state levels is the full integration of land use planning into the process.

To the extent that social/economic are appropriately analyzed under CEQA, land use panel consistency is encouraged.

T2. Land use context. The guidance does not provide sufficient emphasis on the land use context in which a transportation project is proposed. The project impact area, defined as the geographic area in which the majority of person trips likely to use the proposed project begins or ends, should be identified as part of the analysis of a transportation project. The existing and future land use, VMT per capita or commute VMT per worker, demographic, and other characteristics (e.g., prevalence of transit, bicycle, walk, micro-mobility, and other transportation services) within the project impact area should also be assessed as part of the VMT analysis. Once the parameters and characteristics of an impact area have been identified, generally the impact of the transportation project on VMT in the project impact area should be analyzed.

To the extent that there is supportable information on future land use, it should be considered in the analysis. This comment describes a comprehensive approach. Properly identifying the project setting has always been a requirement of the CEQA process. The guidance for assessing VMT impacts contained in the TAC and TAF addresses land use context, to the extent practicable.

The assumptions in the local General Plan and the RTP/SCS – such as RHNA (Regional Housing Needs Allocations) numbers, etc. may be considered with the context of the overall transportation network, as well as in the Community Impact Assessment. The land use contexts across California are diverse, and it is not feasible to account for specific types of circumstances in the guidance documents and keep them relevant for statewide audiences.

U. Safety

U1. Can you explain how safety needs on the SHS will be addressed and analyzed within SB 743? Is safety analysis part of TISG for land use project? Will there be other guidance documents that address other transportation-related measures for CEQA analysis, like safety? How will these be developed and when will these be released?

Caltrans review of land use projects now focuses on that project's VMT. Caltrans identifies a streamlined new process to assess safety in the Interim Guidance for LD-IGR Safety Analysis. As owner and operator of the State Highway System, Caltrans will continue to prioritize the safety of all users in State Highway System projects and will consider the need for supplemental guidance to address other transportation-related impacts as we gain implementation experience.

[Note: The final Guidance for Local Development review (LDR) was approved in February 2024 and can also be accessed here: dot.ca.gov/-/media/dot-media/programs/safety-programs/documents/202402-ldr-safety-review-practitioners-guidance-a11y.pdf.]

V. Policy (Other)

V1. Caltrans should perform an economic analysis on the effects of SB 743 implementation.

Caltrans is implementing the law that was passed in 2013 and there is no requirement to perform such an analysis for the implementation of VMT analysis for either land development projects or transportation projects.

V2. SB 743 implementation will have a disproportionate impact on low income communities and communities of color.

Comments generally assert that implementation of SB 743 will have adverse effects on housing production and cost, as well as transportation costs in California in a way that disproportionately harms low-income communities and communities of color. SB 743 directs lead agencies to consider stronger investments in modes of transportation that promote accessibility and alternatives to driving alone. Many California communities, including low-income communities and communities of color, rely on transit and other modes of active transportation (walking and biking). SB 743 is expected to result in more multi-modal transportation options and investments.

Fundamentally, CEQA-related costs and potential litigation do not appear to be primary determinants of housing costs or availability in California[3]. Instead, a growing body of research strongly suggests that other factors dominate housing construction decisions. Moreover, CEQA implementation is ultimately a highly fact-dependent and case-by-case matter (including decisions to issue statements of override that may limit mitigation needs, or decisions on which mitigation is feasible), meaning that forecasting precise project-level impacts is difficult at a programmatic level, such that changes in impact analysis are unlikely to have clear and

[3] *See generally* O'Neill et al., *Examining California Land Use Entitlements* (collecting studies on many California cities), available at https://www.law.berkeley.edu/research/clee/research/land-use/getting-it-right/. *See also* BAE Urban Economics, *CEQA in the 21st Century* (2016) (concluding that CEQA does not have a strong impact on housing availability), available at: https://rosefdn.org/wp-content/uploads/2016/08/CEQA-in-the-21st-Century.pdf; Smith-Heimer et al., *CEQA and Housing Production* (2018) (collecting consistent evidence), available at: https://senv.senate.ca.gov/sites/senv.senate.ca.gov/files/ceqa_and_housing_production_report.pdf.

foreseeable effects in one uniform direction, or be large in magnitude. Accordingly, Caltrans does not believe it to be reasonably foreseeable that changes in CEQA implementation from SB 743 will substantially affect housing costs statewide. To the degree there are effects, available information suggests that costs will not be systematically raised and may be lowered in some circumstances.

V3. How will Caltrans address impact of SB 743 implementation on capacity increasing projects contained in regional Measure programs?

Caltrans will work with partners to implement Department policy and guidance for evaluation of VMT impacts of projects on the State Highway System, including those that may be contained in regional Measure programs.

V4. How will ZEVs affect the induced travel analysis?

Vehicle type (ZEV, Internal Combustion Engine, etc.) will not have a direct impact on the VMT analysis. The State of California is very supportive of the transition to zero-emission vehicles. There are numerous programs focused on encouraging and incentivizing ZEV purchases and the installation of charging equipment. The overall climate strategy for the state includes investment in clean vehicles, clean fuels AND the reduction of driving (VMT reduction). This comprehensive strategy has many co-benefits related to health and livability.

V5. VMT analysis calls into question the viability of any widening projects in the future since research concludes that roadway capacity expansions often fail to reduce congestion. How will this change Caltrans policy to mitigate traffic congestion?

Caltrans is moving away from traditional capacity-increasing projects to better align with its updated mission, vision, & goals, including multimodal system performance that supports a vibrant economy. Our executive management team is currently identifying a path to updating our policies and planning processes to reflect this shift.

V6. CARB should use new DOF population estimates for VMT analysis.

We recognize that population estimates may be changing, but the reduction of VMT remains imperative to achieve our climate change goals. According to CARB's analysis, an approximately 15% reduction in statewide average per capita VMT compared to existing levels (defined as average VMT/capita across the time period from 2015-2018) would be necessary to achieve the State's climate goals. These data are based on CARB's most recent available comprehensive scenario modeling in support of the latest Scoping Plan and may be superseded when subsequent analysis is completed in support of future updates to the Scoping Plan.

Appendix A. Glossary of Acronyms and Terms

Acronym	Explanation
AB	Assembly Bill
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
CTF	Cleaner Technologies and Fuels Scenario
EIR	Environmental Impact Report (state)
FHWA	Federal Highway Administration
GHG	Greenhouse gas
HCM	Highway Capacity Manual
HOV	High Occupancy Vehicle
HOT	High Occupancy Toll
HSM	Highway Safety Manual
IS	Initial Study (state)
LD-IGR	Local Development-Intergovernmental Review
LOS	Level of Service
MND	Mitigated Negative Declaration (state)
MPO	Metropolitan Planning Organization
MTP	Metropolitan Transportation Plan
NCST	National Center for Sustainable Transportation
ND	Negative Declaration (state)
NEPA	National Environmental Policy Act
OPR	Governor's Office of Planning and Research
PDT	Project Development Team
PRC	Public Resources Code (state)
RTP	Regional Transportation Plan
RTPA	Regional Transportation Planning Agency
SB	Senate Bill
SCS	Sustainable Communities Strategy
SHS	State Highway System
TAF	Caltrans Transportation Analysis Framework
TISG	Transportation Impact Study Guide
VMT	Vehicle Miles Traveled

Acronym	Explanation
Capacity	The Sixth Edition of the Highway Capacity Manual defines capacity as: The maximum sustainable hourly flow rate at which persons or vehicles reasonably can be expected to traverse a point or a uniform section of a lane or roadway during a given time period under prevailing roadway, environmental, traffic, and control conditions.
Elasticity	Elasticity is a measure of a variable's sensitivity to a change in another variable. In economics, elasticity is the measurement of the percentage change of one economic variable in response to a change in another. In transportation forecasting, an example is elasticity of travel demand, which can be expressed as the percent change in regional VMT divided by the percent change in regional lane-miles of state highways.
Induced Travel (VMT)	Induced travel (or the VMT attributable to a transportation capacity increase) is the increased amount of vehicle travel on the transportation network that is caused by travel behavior changes associated with decreased cost of travel due to improved travel times, improved reliability, or reduced price of travel. Over the short run, travel behavior changes including longer trips, more trips, mode shift, and route shift all tend to occur as a result of a highway capacity increase. Over the long run, these effects intensify (e.g. as people shift job or residential location to benefit from the infrastructure), and also land use development may become more dispersed, adding additional vehicle travel; for these reasons, long run induced travel is generally greater than short run induced travel.
Network	The connectivity of a transportation system. Changes in connectivity may change travel time and cost. Travel demand models will usually represent network connectivity within modes and across modes through a set of links connecting nodes.

Acronym	Explanation
Travel Demand Model	A travel demand model is any relatively complex computerized set of procedures for predicting future trip making as a function of land use, demographics, travel costs, the road system, and the transit system. These models often cover an entire metropolitan area or the entire State, but may also focus on a single city or county.
Transit	Transit generally includes all forms of shared common carrier passenger ground transportation in moderate to high capacity vehicles ranging from dial-a-ride vans to buses, trolleys, light rail, commuter rail, and intercity rail transportation.
Trucks	Trucks are a subtype of the heavy vehicles category which includes trucks, intercity buses, and recreational vehicles. This Framework follows the Highway Capacity Manual definition of what constitutes a heavy vehicle: "A vehicle with more than four wheels touching the pavement during normal operation." This is consistent with the Caltrans Traffic Census definition of a truck: "The two-axle (truck) class includes 1-1/2-ton trucks with dual rear tires and excludes pickups and vans with only four tires."
Vehicle Miles Traveled (VMT)	The number of miles traveled by motor vehicles on roadways in a given area over a given time period. VMT may be subdivided for reporting and analysis purposes into single occupant passenger vehicles (SOVs), high occupancy vehicles (HOV's), buses, trains, light duty trucks, and heavy-duty trucks. For example, an air quality analysis may require daily VMT by vehicle class and average speed or vehicle operating mode (idle, acceleration, cruise, deceleration, etc.). For a CEQA compliant transportation impact analysis, automobile VMT (cars and light trucks) may be evaluated.
VMT Attributable to a Project.	In the context of a CEQA analysis, the VMT attributable to a transportation project, or induced travel, is the difference in passenger VMT between the with project and without project alternatives. VMT attributable to a project is equivalent to induced travel in this context.