DRISI

CALTRANS DIVISION OF RESEARCH, INNOVATION AND SYSTEM INFORMATION

TRANSFORMING IDEAS INTO SOLUTIONS

Research Notes

Methodology Assessing the Vehicle Miles Traveled (VMT) impacts of transportation projects

Investigating Ability to Assess VMT Impacts of Rural Capacity-Enhancing Projects.

Traffic Operations

November 2025

Project Title:

Methodology Assessing the Vehicle Miles Travelled (VMT) Impacts of Transportation Projects

Task Number: 3867

Start Date: June 1, 2023

Completion Date: June, 30, 2026

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WHAT IS THE NEED?

Transportation projects have traditionally been evaluated based on how they affect the level of service (LOS) provided by a facility. This has historically resulted in using vehicle delay and other similar metrics to evaluate projects, and in evaluations focusing on how projects would affect drivers, but not necessarily on how they would impact travel demand and vehicle emissions. To improve environmental considerations, California Senate Bill 743 changed the focus from measuring the impacts to drivers to measuring impacts on travel. This had led to increased attention on reducing vehicle miles traveled (VMT) and mandating that jurisdictions can no longer use vehicle delay to assess transportation projects under the California Environmental Quality Act.

While VMT can be evaluated relatively easily along well-instrumented freeways, this may not be the case elsewhere. On urban freeways, the high density of traffic sensors and the captive nature of traffic allow to track with reasonable accuracy vehicles entering and exiting a facility. However, this becomes difficult on scantly instrumented freeways and local arterials due to the presence of multiple unmonitored entry/exit points between sensors.

Evaluating projects primarily against changes in VMT may also not allow all desirable projects to be positively evaluated. For instance, projects aiming to better use existing infrastructure by implementing efficient detours around incidents or unusual congestion, such as Integrated Corridor Management systems, may naturally lead to an increase in VMT while reducing travel times and greenhouse emissions. Despite their positive impacts on traffic, such projects may not be viewed favorably simply because they may cause some slight increase in VMT.

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WHAT ARE WE DOING?

The research team at the University of California at Berkeley (UCB) will perform research that will attempt to identify:

- Evaluate how changes in VMT can relate to changes in delay and greenhouse emissions.
- Assess the need to compile mode-specific VMT for projects involving walking, biking, e-scooters, and transit in addition to private vehicles.
- Determine how VMT can be reliably measured in various situations.
- Determine the type and quantity of data that may need to be collected for adequately measuring VMT.
- Assess when additional metrics besides VMT should be considered to properly evaluate the full impacts of transportation projects.

Project results will be implemented through the publication of a guidance document describing when to use VMT as an evaluation criterion and how to estimate VMT in various circumstances.

WHAT IS OUR GOAL?

The primary goal is to provide guidance on when and how to use VMT as an evaluation criterion for transportation projects. A secondary goal is to provide methodologies for estimating VMT for off-freeway projects and projects involving multiple modes of transportation.

WHAT IS THE BENEFIT?

The development of a guidance document on how to use and estimate VMT is expected to provide the following benefits:

- Provide a consistent methodology for assessing VMT for facilities with limited continuous data collection instrumentation.
- Provide a clear, systematic method for evaluating VMT for projects having potential impacts across various transportation modes.
- Allow preliminary evaluations of VMT impacts to closer match what may be achieved in reality.
- Allow decision-makers to determine when the use of metrics other than VMT may be warranted for evaluating the truly desired impacts of specific transportation projects.

WHAT IS THE PROGRESS TO DATE?

- Task 1: Project Management
  - No Cost Extension agreement was executed on July 8, 2025, allowing work on the project to resume with a new project end date on June 30, 2026.
- Task 3: Data collection
  - Continue efforts to obtain county-based lane-mile data from the Caltrans Office of Data Services and Technology.
  - Was able to retrieve county-based lane-miles for 2001 to 2008 from a USDOT data
- Task 4: Empirical analysis of identified projects
  - Completed a first set of exploratory county-based regression analyses using the collected data.
  - Met with Eric Sundquist and Henry Mckay on August 27 to discuss data gaps, preliminary findings, and items to consider for possible next steps.
- Task 5: Trend Assessment
  - Started to analyze regression results to identify overarching trends.