

Traffic Operations

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Project Title: Methodology Assessing the Vehicle Miles Traveled (VMT) Impacts of Transportation Projects

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

Investigating ability to assess VMT impacts of rural capacity-enhancing projects.

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 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 scantily 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.



DRISI provides solutions and knowledge that improves California's transportation system.

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
 - Continue managing the project for on-time delivery.
- Task 3: Data collection
 - Attempted to obtain 2024 county-based lane miles data for the State Highway Network and the entire road network from the Caltrans Highway Performance Monitoring System (HPMS) Division. After being redirected to submit a public data request, no data had been received.
- Task 4: Empirical analysis of identified projects
 - Conducted new regression analyses with a data set grouping counties belonging to a Metropolitan Statistical Area (MSA) into single units.
 - Performed comparative analyses between previous regressions using individual counties and the new regressions with some counties grouped into MSA units.
- Task 5: Trend assessment
 - Reviewed all analyses to highlight identifiable general trends.
- Task 6: Final Report and Presentation
 - Started working on the writing of the final project report. A draft, work-in-progress version was submitted for review to the project's panel in late March.
 - Prepared a first draft of a PowerPoint presentation summarizing key project activities and findings.