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## Using Vehicle Miles Traveled Instead of Level of Service as a Metric of Environmental Impact for Land Development Projects: Progress in California

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### Issue

Senate Bill (SB) 743 (2013) and its related regulations eliminated automobile level of service (LOS), a measure of automobile delay, and replaced it with vehicle miles traveled (VMT) as the primary transportation impact metric for land development projects under the California Environmental Quality Act (CEQA). Actual implementation of the LOS-to-VMT shift was left up to lead agencies, primarily local governments, with a requirement to start using VMT-based metrics by July 1, 2020. Previous research suggests that VMT could be a more appropriate and effective metric than LOS for achieving sustainability goals, such as reduced greenhouse gas emissions, improved public health and safety, and streamlined infill development. However, the LOS-to-VMT shift was also expected to create many challenges for transportation analysts, given the often-limited resources of local governments, the entrenched use of LOS, and the perceived lack of established practice regarding VMT estimation, mitigation, and monitoring.

With those concerns in mind, researchers at the University of California, Davis investigated how local governments have been implementing the LOS-to-VMT shift for land development projects. First, the researchers explored whether and how local governments considered VMT impacts in CEQA analyses prior to the mandated shift. Second, they used document review, direct outreach, and expert interviews to catalogue how California's cities and counties have responded to SB 743, obtaining information for 274 of the state's 539 jurisdictions. Third, the researchers explored whether and how local governments

monitor the actual VMT impacts from completed land use developments.

### Key Research Findings

**Prior to the mandated shift from LOS to VMT, VMT was already frequently estimated in CEQA documents.** Nearly two-thirds (64%) of the 249 environmental impact reports (EIRs) reviewed contained VMT estimates, mostly produced with first-generation sketch models like CalEEMod and URBEMIS. However, those estimates were almost solely used to inform analyses of impacts on local air quality and/or greenhouse gas emissions, and the EIRs rarely included VMT-specific mitigation measures.

**All 274 responding jurisdictions acknowledged SB 743 and the mandatory switch from LOS to VMT in CEQA analyses, but actual implementation varied.** Approximately 81% of jurisdictions had adopted or were in the process of adopting VMT-based thresholds of significance, while 66% (181) had specific thresholds in place.

**Thresholds of VMT impact significance hewed closely to the recommendations provided by the Governor's Office of Planning and Research in its 2018 technical advisory.** Most of the 181 jurisdictions with specific thresholds used both screening criteria (to quickly excuse certain projects from in-depth VMT impact analysis) and numeric thresholds (for non-screened projects). For numeric thresholds, most jurisdictions used thresholds close to 15% below the baseline average for residential and office projects and a threshold of no-net-increase in total area-wide VMT for retail projects. Less stringent thresholds—less than 15% below baseline for office and

residential projects—were more common in jurisdictions with higher baseline VMT.

**VMT estimation relied heavily on travel demand models.** Most of the 166 jurisdictions that provided guidance on VMT estimation relied on travel demand models to estimate baseline VMT and used either travel demand models or related outputs to estimate project-level VMT impacts. Only a few jurisdictions used big data for estimation purposes.

**Guidance on VMT mitigation was more limited than on VMT estimation.** A total of 145 jurisdictions provided at least some form of guidance on VMT mitigation, but only 104 of them provided guidance on estimating the efficacy of mitigation measures. The California Air Pollution Control Officers Association’s (CAPCOA) Handbook was the primary resource used for estimating mitigation effectiveness.

**Monitoring the implementation and efficacy of VMT mitigation measures received minimal attention.** Only 38% of jurisdictions even mentioned a requirement for VMT mitigation monitoring, and most of those provided almost no substantive guidance on how to monitor. The researchers also explored methods for monitoring the actual VMT from land use developments, not just the efficacy of particular mitigation measures. They identified four primary approaches to monitoring project-level VMT generation: vehicle trip counts, travel surveys, big data, and odometer data. Trip counts are the simplest and provide the most consistent data over time, while odometer data is likely the least useful in California, though no one method provides a panacea.

**LOS was still widely used outside of CEQA.** All of the 171 jurisdictions with information on their use of LOS continued to use LOS for planning and project-level review outside of CEQA. However, LOS impact analyses done outside of CEQA are not necessarily as comprehensive and expensive

as they would have been for CEQA purposes. Partly as a result, the consensus amongst interviewed experts was that swapping LOS for VMT could streamline development in urban areas, though not in more suburban or rural locations.

**Challenges to implementing SB 743 remain.** Difficulties were more pronounced for smaller and more rural jurisdictions. They included a lack of staff and resources, limited technical support, higher baseline VMT levels, and having fewer feasible mitigation measures. In addition, the public and decision-makers in rural jurisdictions were reportedly less familiar with VMT as a metric, and more likely to perceive it as complex and complicated. One way that jurisdictions have been able to tackle these challenges is through coordinated regional SB 743 implementation efforts. Including VMT standards and analysis in higher-level plans or programs, such as general plans and climate action plans, can also help.

## More Information

This policy brief is drawn from “SB 743 Implementation by Local Governments for Land Use Projects,” a report from the National Center for Sustainable Transportation authored by Jamey Volker, Rey Hosseinzade, and Susan Handy of the University of California, Davis. The full report can be found on the NCST website at: <https://ncst.ucdavis.edu/project/monitoring-vehicle-miles-traveled-reduction-claims-local-development-review>.

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