

Informing Transportation Planning: Selected Resources

Key Briefs, Reports, Studies, and Tools

This resource page will be updated as new resources become available. Address comments to chris.ganson@opr.ca.gov. **Last Update on April 18, 2017**

Problems with LOS and Other Auto Delay Metrics, and Role of Accessibility Metrics, in Planning

- Institute of Transportation Engineers Journal article describing inherent biases in the LOS metric (ITE Journal, Aug 2014, 5p): [Decision, Values, and Data: Understanding Bias in Transportation Performance Measures](#)
- Institute of Transportation Engineers Journal article describing how LOS-based transportation impact studies inhibit sustainable transportation (ITE Journal May 2014, 5p) [Changing the Paradigm of Traffic Impact Studies: How Typical Traffic Studies Inhibit Sustainable Transportation](#)
- Primer on the difference between accessibility and mobility (Susan Handy, Access Journal, 5p): [Highway Blues: Nothing a Little Accessibility Can't Cure](#)
- Study demonstrating proximity, rather than mobility, to be the main driver of accessibility and economic activity in Southern California (UCLA Lewis Center and UCLA Institute of Transportation Studies, 12p Executive Summary, 80p academic study): [Congested Development: A Study of Traffic Delays, Access, and Economic Activity in Metropolitan Los Angeles](#)
- Study demonstrating proximity, rather than mobility, to be the main driver of accessibility and economic activity in Northern California (UCLA Lewis Center and UCLA Institute of Transportation Studies, 10p Executive Summary, 99p academic study) [Not So Fast: A Study of Traffic Delays, Access, and Economic Activity in the San Francisco Bay Area](#)
- Report describing problems with reliance on LOS and discussing updated metrics (American Planning Association, 12p): [Smart Transportation Metrics for Smart Growth](#)
- Report demonstrating problems with reliance on metrics of auto mobility and delay (Joe Cortright, Impresa and CEOs for Cities)
 - [Executive summary \(17p\): A Critique of Mobility Measures and a Synthesis: How sprawl is lengthening our commutes and why misleading mobility measures are making things worse](#)
 - [Full Report \(71p\): Measuring Urban Transportation Performance: A critique of mobility measures and a synthesis](#)
- Report on the potential to reduce petroleum reliance through updating LOS metric (Summary 1p, report 9p): [Unraveling Petroleum: Use of Performance Measures that Prioritize Automobiles over Other Modes in Congested Areas](#)

Impacts of VMT and High VMT Development, Benefits of VMT Reduction (Environmental, Health, Fiscal)

- Literature review - VMT effect on environment, human health, and finances (NCST White Paper, 21p): [Cutting Greenhouse Gas Emissions Is Only the Beginning: A Literature Review of the Co-Benefits of Reducing Vehicle Miles Traveled](#)
- Report quantifying and monetizing health benefits of reduced VMT and increased active transportation and transit use (California Department of Public Health, 1p Executive Summary, 1p Technical Abstract, 20p study): [Increasing Walking, Cycling, and Transit: Improving Californians' Health, Saving Costs, and Reducing Greenhouse Gases](#)
- Assessment of the relationship between VMT and fiscal/financial outcomes ([Short Summary](#), 4p; Executive Summary 10p, Report 79p): [Growing Wealthier: Smart Growth, Climate Change, and Prosperity](#)
- Report on benefits of physical activity and the role of the built environment and air pollution (California Air Resources Board, 63p): [Physical Activity: Health Benefits, the Role of the Built Environment and Impacts of Air Pollution](#)
- Report cataloging pavement maintenance backlog in California (Ron Milam, Fehr and Peers, 3p): [Protecting Our Transportation Investment](#)

VMT Reduction Strategies

- VMT reduction potential from previously-researched strategies in California (Susan Handy and Marlon Boarnet, Prepared for the California Strategic Growth Council, 2p Executive Summary, 39 p. study): [A Framework for Projecting the Potential Statewide VMT Reduction from State-Level Strategies in California](#)
- Manual operationalizing research on VMT and GHG reduction from various strategies (research and methods underlying the CalEEMod tool - California Air Pollution Control Officers' Association (CAPCOA), see pp 155-331): [Quantifying Greenhouse Gas Mitigation Measures \(A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures\)](#)
- Review of existing research on the relationship between urban development, VMT, and transportation CO₂; and also evidence of the need for VMT reduction and on the efficacy of compact development for achieving GHG targets. (Executive Summary 11p, Report 135p) [Growing Cooler: The Evidence on Urban Development and Climate Change](#)
- Transportation strategies for VMT and GHG reduction (Urban Land Institute and Cambridge Systematics, 160 p): [Moving Cooler: An Analysis of Transportation strategies for reducing greenhouse gas emissions \(Executive Summary, 9p\)](#)
- Study on VMT changes in response to land use and transport system characteristics (Institute of Transportation Studies, Executive Summary 2p, academic study 99p): [Quantifying the effect of local government actions on VMT](#)

Research on Induced VMT from Highway Capacity

- Two page policy brief summarizing research on the effects of adding new roadway capacity (Caltrans/National Center for Sustainable Transportation, 2p): [Increasing Highway Capacity Unlikely to Relieve Traffic Congestion](#)

- Ten page policy brief summarizing research on the effects of adding new roadway capacity (CA Air Resources Board, 10p): [Impact of Highway Capacity and Induced Travel on Passenger Vehicle Use and Greenhouse Gas Emissions Policy Brief](#)
- Technical Background document on research on the effects of adding new roadway capacity (CA Air Resources Board, 10p): [Impact of Highway Capacity and Induced Travel on Passenger Vehicle Use and Greenhouse Gas Emissions Technical Background Document](#)
- Academic article tracing failure of transportation engineering and planning disciplines to account for induced VMT (The Planning Review, 8p) : [“You Can’t Build Your Way Out of Congestion.” - Or Can you?](#)
- Most recent major study on induced travel in the United States (American Economic Review, October 2011): [The Fundamental Law of Road Congestion: Evidence from US Cities](#)

Automated Vehicles and VMT

- A review of the likely effects of automated vehicles on VMT and GHGs, and a review of frequently recommended policy needs (UC Davis Institute of Transportation Studies, 4p). Automated Vehicles, VMT and GHGs

Tools to measure VMT and Access to Destinations

- CalEEMod -- model used to assess VMT (also assesses GHG and other emissions)
 - Model website and download: [California Emissions Estimator Model \(CalEEMod\)](#)
 - OPR recommendations for using CalEEMod for VMT assessment ([Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA](#), case study pp. 47-52)
 - California Statewide Travel Demand Model VMT and trip length data: [Caltrans SB 743 VMT Impact Assessment webpage](#)
- Data sources for VMT (Federal Highway Administration pp. 54-92): [Handbook for Estimating Transportation Greenhouse Gases for Integration into the Planning Process](#)
- Tool for assessing accessibility (i.e. access to destinations, connectivity): [Citilabs Sugar Access](#)

Housing Affordability and VMT

- Index of transportation + housing cost affordability (Center for Neighborhood Technology): [Housing and Transportation Affordability Index](#)

VMT Reduction in Rural Areas

- Strategies for maintaining open space, helping towns thrive, and creating great new places in rural areas (32p): [Putting Smart Growth to Work in Rural Communities](#)
- [Transportation Research Board paper on VMT reduction in rural areas \(Miller et. al., 9p\): Mitigating Vehicle-Miles Traveled in Rural Development](#)

Roadway Pricing and Equity

- Academic study assessing equity 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](#)
- Literature review on roadway pricing and equity (RAND, summary 4p, study 39p): [Equity and Congestion Pricing A Review of the Evidence](#)