



Shifting Gears in Transportation Analysis



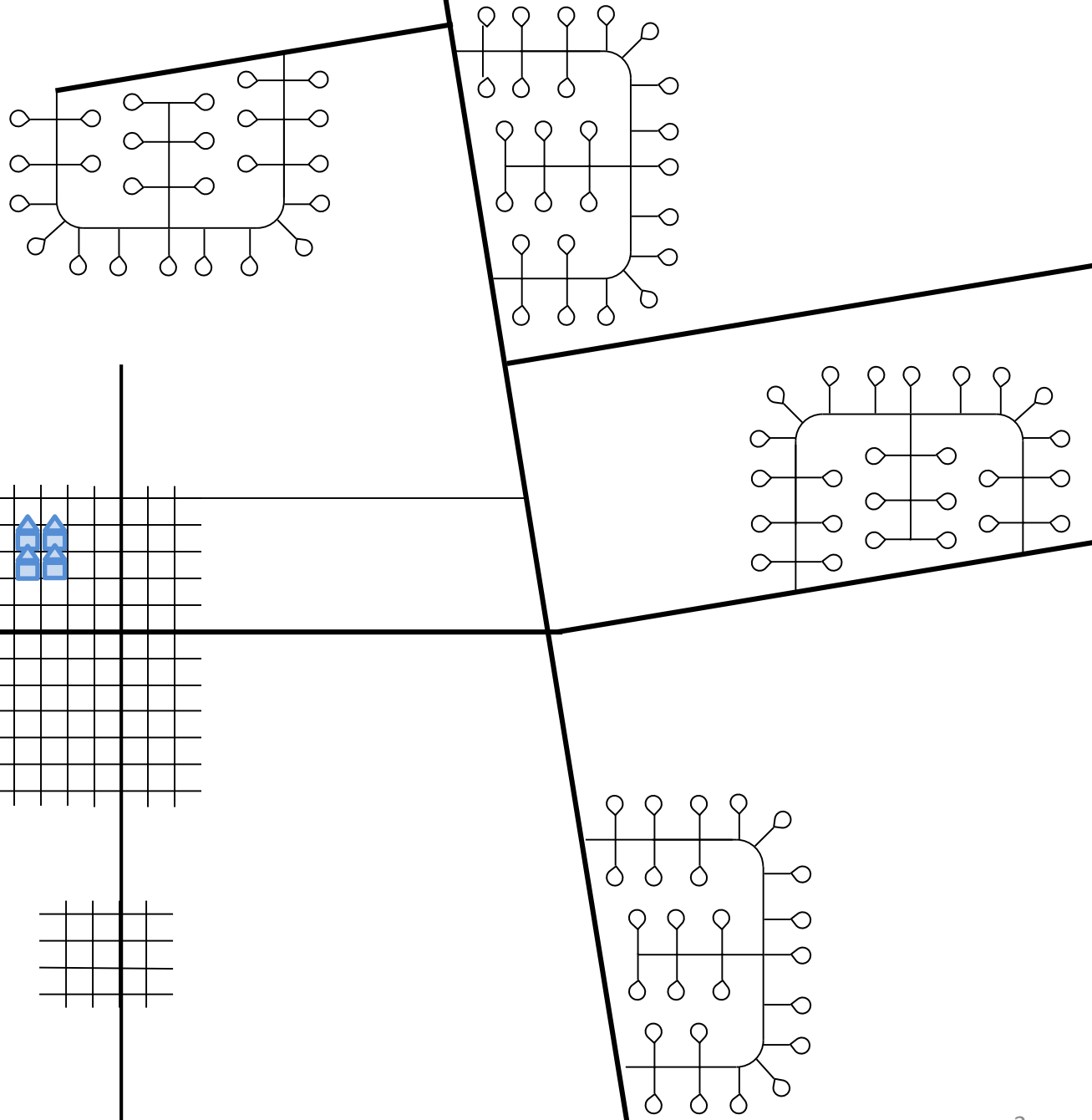
*Revised CEQA Guidelines Proposal
Implementing SB 743*

CEQA Guidelines and Technical Advisory

Agenda

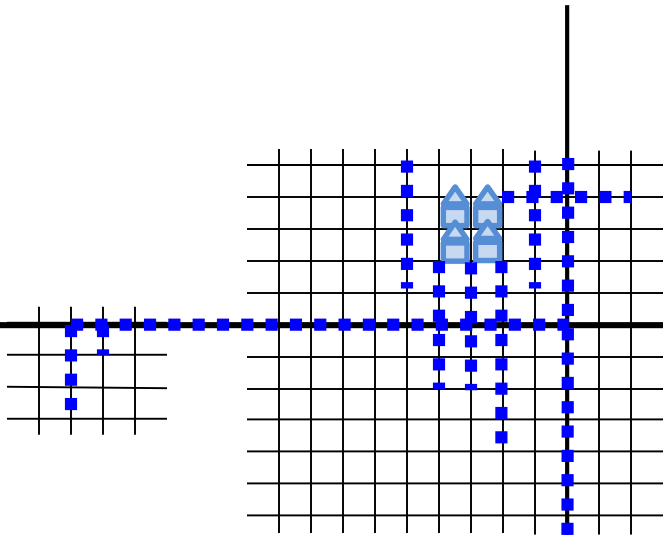
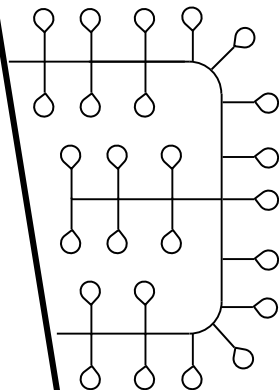
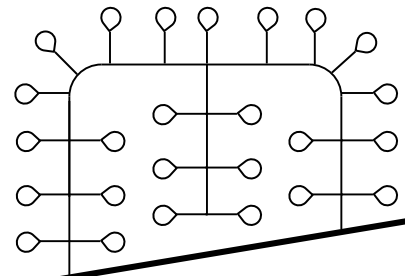
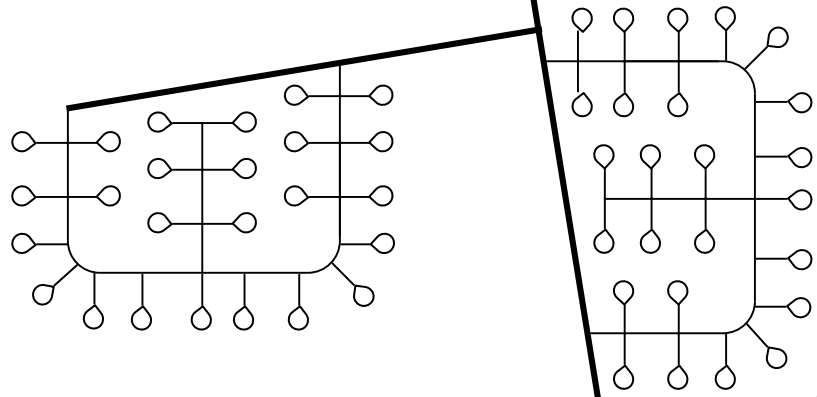
1. Background
2. Current draft materials
3. Frequently asked questions
4. What cities can do to prepare

Analysis of **infill** development using LOS



Analysis of infill development using LOS

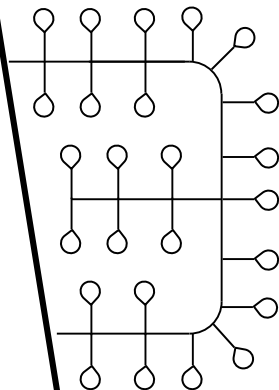
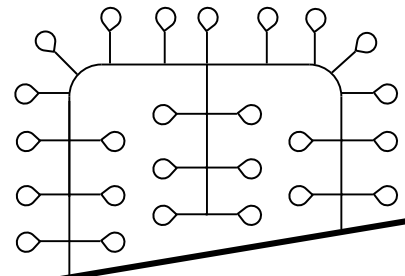
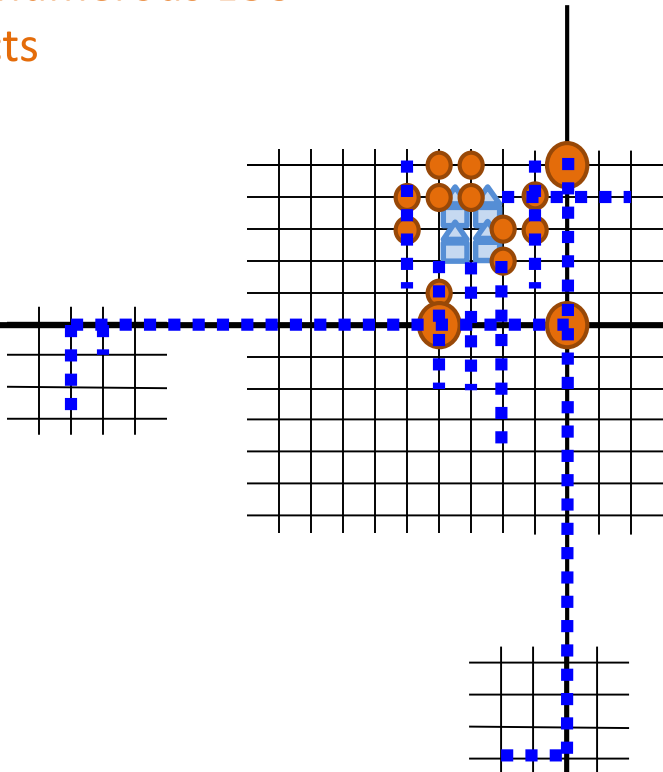
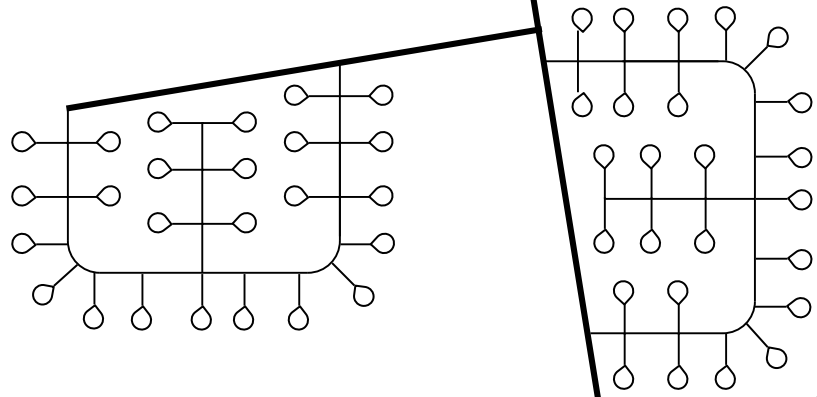
Relatively little vehicle travel loaded onto the network



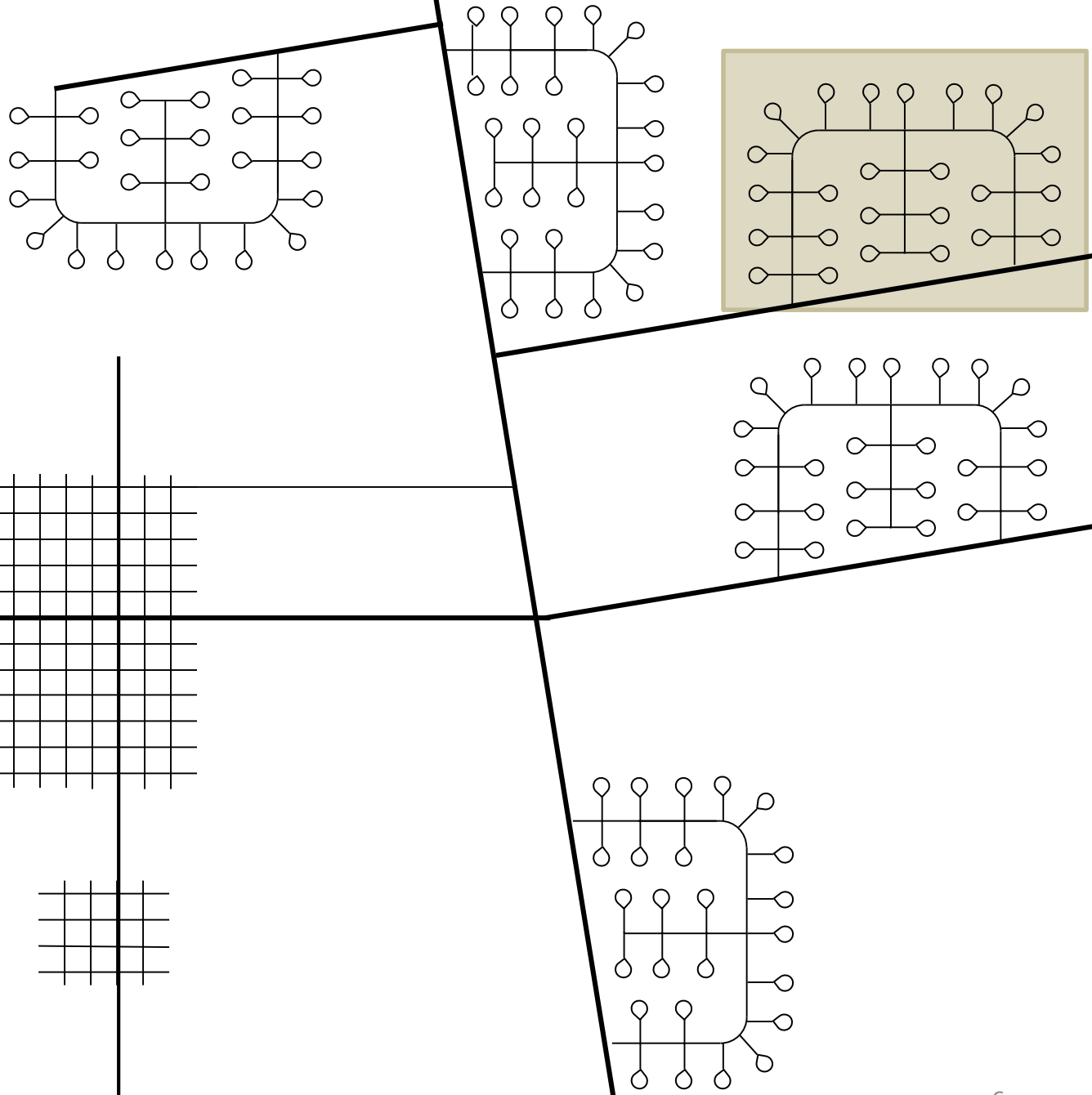
Analysis of infill development using LOS

Relatively little vehicle travel loaded onto the network

...but numerous LOS impacts

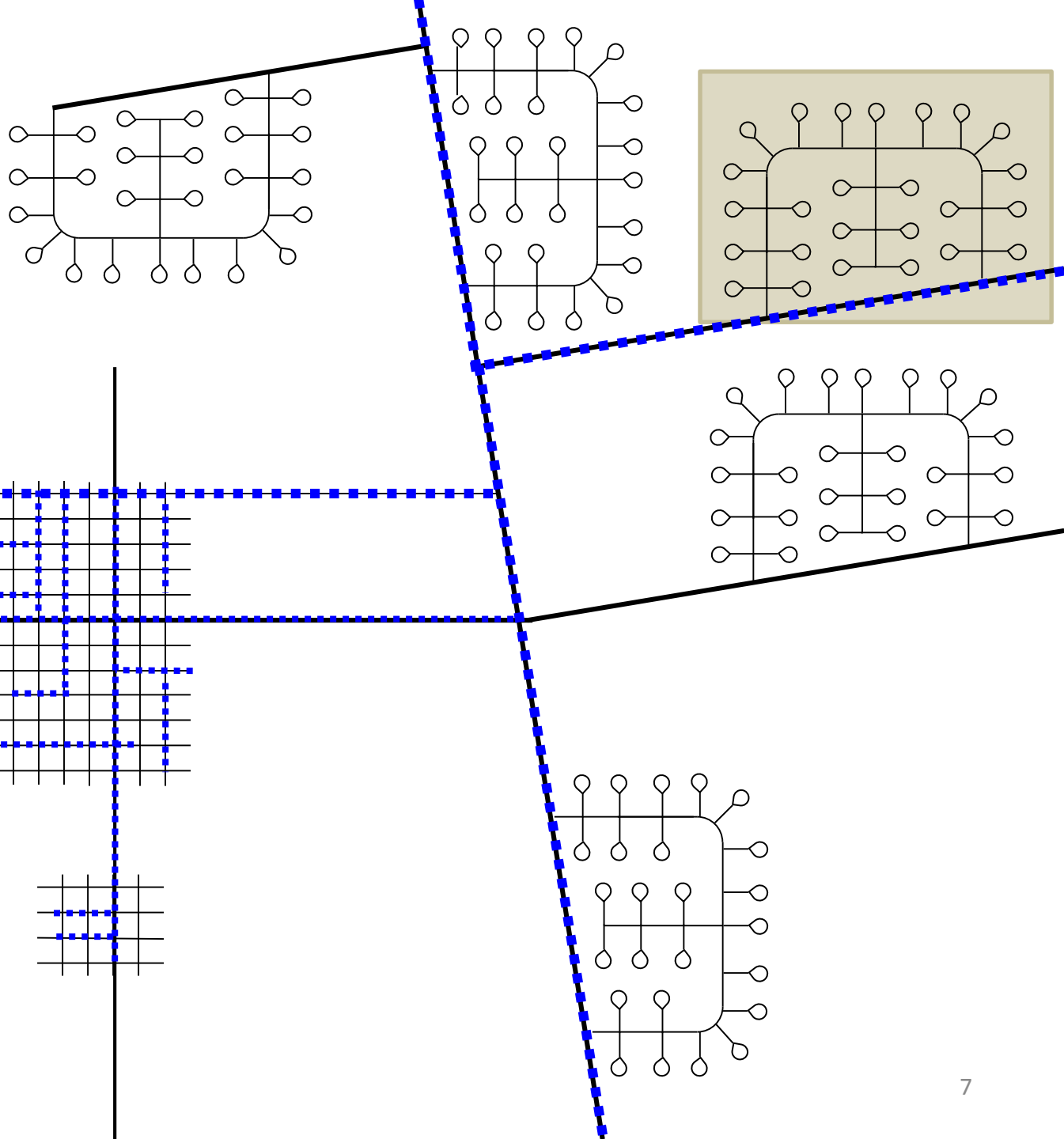


Analysis of greenfield development using LOS



Analysis of greenfield development using LOS

Typically three to four times the vehicle travel loaded onto the network relative to infill development

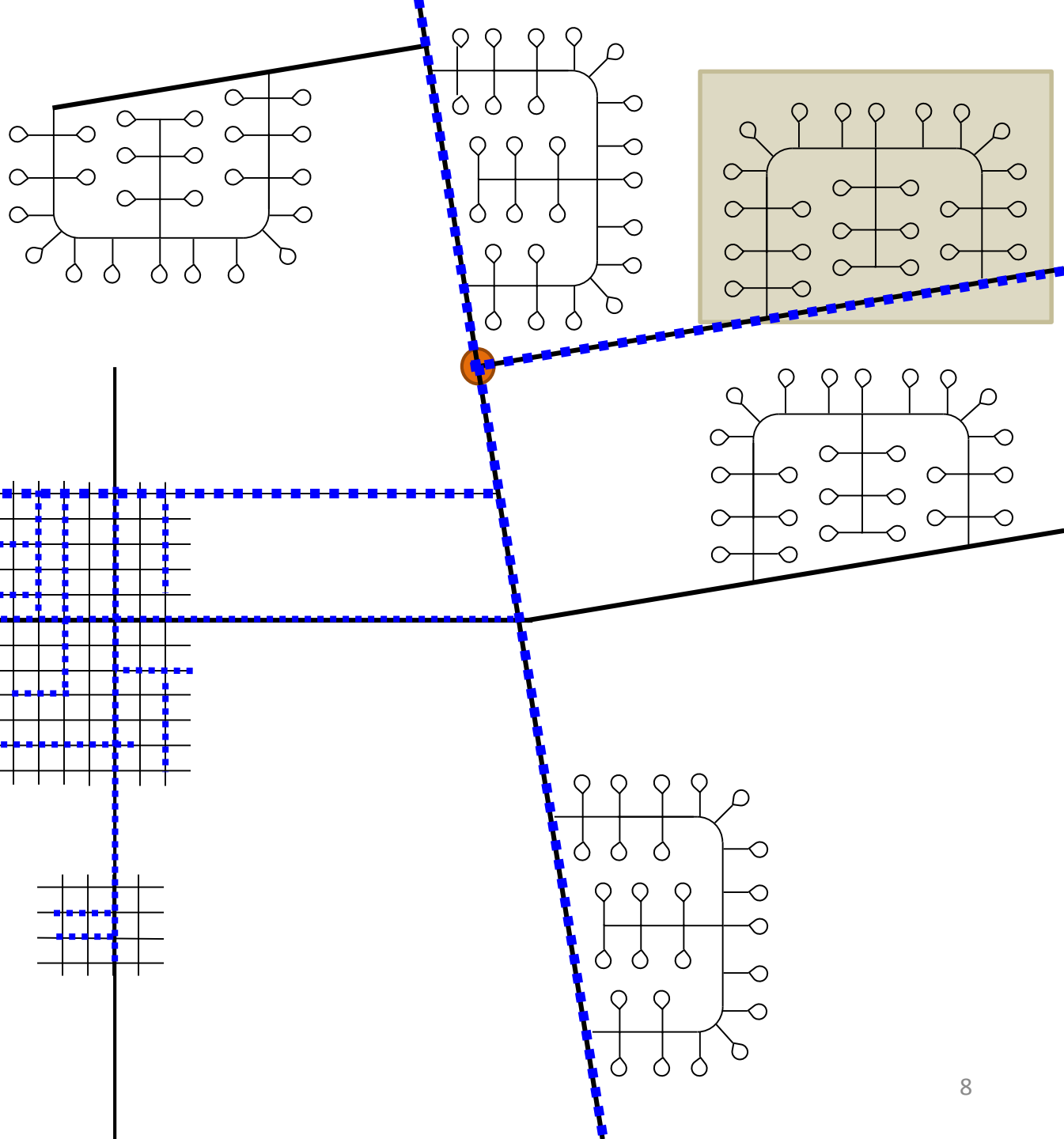


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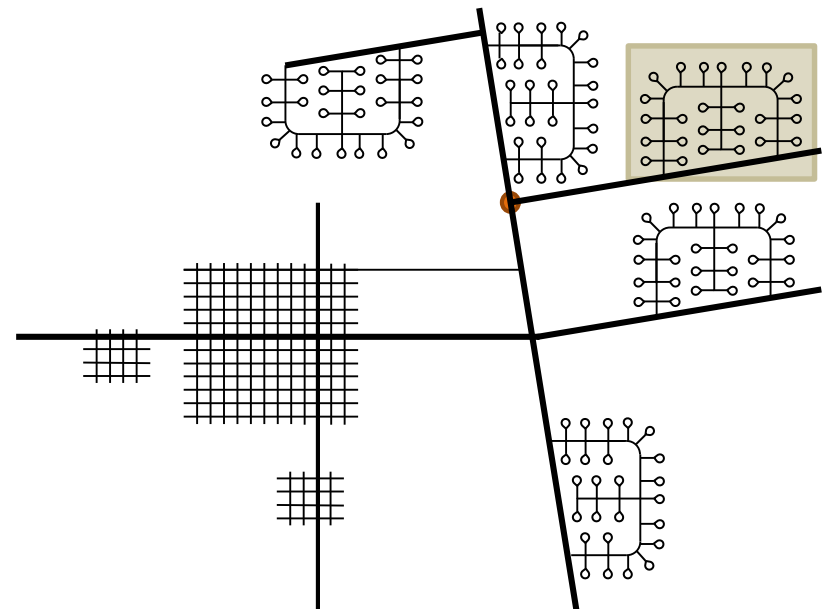
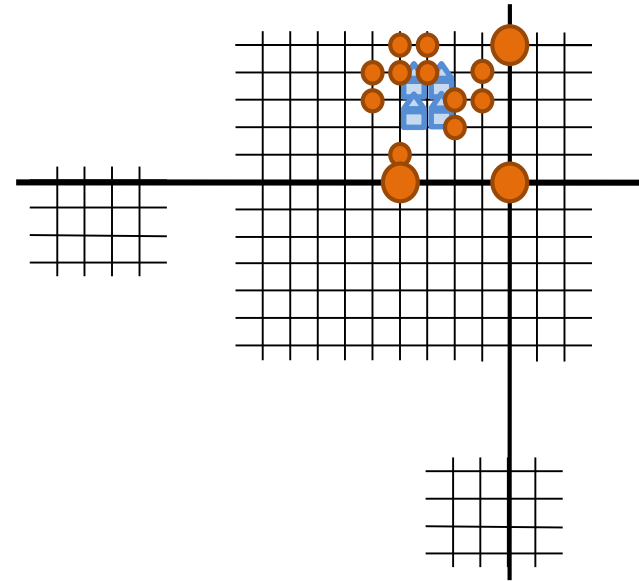
...but relatively few LOS impacts

Traffic generated by the project is disperse enough by the time it reaches congested areas that it doesn't trigger LOS thresholds, even though it contributes broadly to regional congestion



Problems with LOS as a Measure of Transportation Impact

1. Stunts infill development
2. Exacerbates regional congestion
3. Inhibits transit
4. Inhibits active transport
5. Judges success in transportation incorrectly
6. Judges success in auto-mobility incorrectly
7. Forces more road construction than we can afford to maintain
8. Hard to calculate and inaccurate



Problems with LOS as a Measure of Transportation Impact

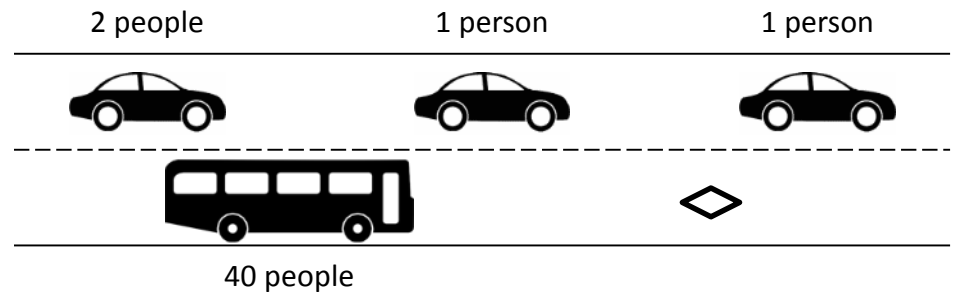
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David Paul Morris / SFC

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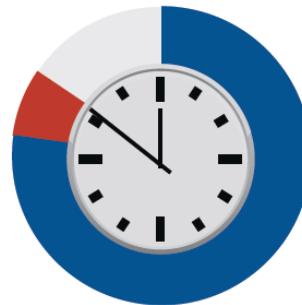
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Denver 1982

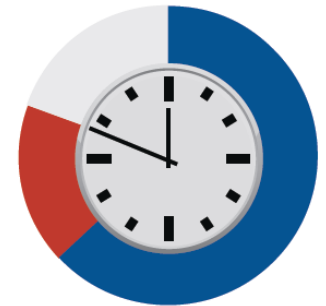
1.09
50.6 minutes
46.4 mins
4.2 mins

Travel Time Index
Average travel time
Travel time without traffic
Extra rush hour delay



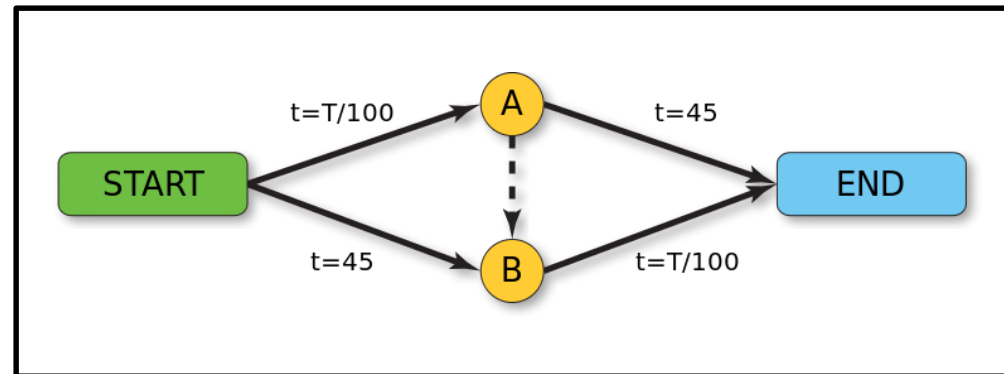
Denver 2007

1.31
49.6 minutes
37.9 minutes
11.7 minutes



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Braess's Paradox

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Table V.M-13
Intersection Critical Movement Analysis (CMA) and Level of Service (LOS) Summary
Existing (2001) and Future (2005) Conditions

No.	Intersection	Peak Hour	Existing		Without Project		With Project			With Project + Mitigation		
			CMA	LOS	CMA	LOS	CMA	LOS	Impact	CMA	LOS	Impact
1.	Sunset Boulevard & Beverly Glen Boulevard (E.)	AM	0.894	D	1.038	F	1.037	F	-0.001	1.036	F	-0.002
		PM	1.023	F	1.225	F	1.216	F	-0.009	1.215	F	-0.010
2.	Sunset Boulevard & Beverly Glen Boulevard (W.)	AM	1.189	F	1.385	F	1.388	F	0.003	1.385	F	0.000
		PM	1.062	F	1.264	F	1.251	F	-0.013	1.249	F	-0.015
3.	Wilshire Boulevard & Beverly Glen Boulevard	AM	0.868	D	1.030	F	1.030	F	0.000	1.029	F	-0.001
		PM	0.864	D	1.140	F	1.133	F	-0.007	1.133	F	-0.007
4.	Santa Monica Boulevard (N.) & Overland Avenue	AM	0.861	D	1.076	F	1.080	F	0.004	1.078	F	0.002
		PM	0.814	D	1.082	F	1.054	F	-0.028	1.054	F	-0.028
5.	Santa Monica Boulevard (S.) & Overland Avenue	AM	0.478	A	0.358	A	0.358	A	0.000	0.358	A	0.000
		PM	0.428	A	0.485	A	0.465	A	0.000	0.465	A	0.000
6.	Santa Monica Boulevard (N.) & Beverly Glen Boulevard	AM	0.849	D	1.099	F	1.107	F	0.008	1.104	F	0.005
		PM	0.823	D	1.139	F	1.130	F	-0.009	1.128	F	-0.011
7.	Santa Monica Boulevard (S.) & Beverly Glen Boulevard	AM	0.849	D	0.464	A	0.464	A	0.000	0.464	A	0.000
		PM	0.884	D	0.575	A	0.575	A	0.000	0.575	A	0.000
8.	Santa Monica Boulevard (S.) & Century Park West	AM	0.325	A	1.006	F	1.007	F	0.001	1.005	F	-0.001
		PM	0.397	A	0.984	E	0.969	E	-0.015	0.960	E	-0.018
9.	Santa Monica Boulevard (N.) & Club View Drive	AM	0.613	B	0.213	A	0.213	A	0.000	0.213	A	0.000
		PM	0.707	C	0.408	A	0.408	A	0.000	0.408	A	0.000
10.	Santa Monica Boulevard (N.) & Avenue Of The Stars	AM	0.825	D	1.191	F	1.205	F	0.014	1.199	F	0.008
		PM	0.755	C	0.967	E	0.956	E	-0.011	0.955	E	-0.012
11.	Santa Monica Boulevard (S.) & Avenue Of The Stars	AM	0.508	A	NA		NA			NA		
		PM	0.544	A	NA		NA			NA		
12.	Santa Monica Boulevard (N.) & Century Park East	AM	0.759	C	0.950	E	0.955	E	0.005	0.953	E	0.003
		PM	0.666	B	0.846	D	0.805	D	-0.041	0.804	D	-0.042
13.	Santa Monica Boulevard (S.) & Century Park East	AM	0.771	C	NA		NA			NA		
		PM	0.648	B	NA		NA			NA		
14.	Santa Monica Boulevard (N.) & Wilshire Boulevard	AM	1.095	F	1.261	F	1.263	F	0.002	1.263	F	0.002
		PM	1.046	F	1.294	F	1.288	F	-0.006	1.287	F	-0.007



Level of Service A

May 2016



Level of Service F

May 2016

Opportunities and benefits in shifting from LOS to VMT

1. Remove a key barrier to infill, TOD
2. Streamline transit and active transportation projects
3. VMT is easier to model
4. VMT is already modeled
5. Lower road maintenance costs
6. Attack regional congestion more effectively
7. Health benefits (active transport & transit trips)
8. GHG reduction

Impacts of High VMT Development

Environment

- Emissions
 - GHG
 - Regional pollutants
- Energy use
 - Transportation energy
 - Building energy
- Water
 - Water use
 - Runoff – flooding
 - Runoff – pollution
- Consumption of open space
 - Sensitive habitat
 - Agricultural land

Health

- Collisions
- Physical activity
- Emissions
 - GHGs
 - Regional pollutants
- Mental health

Cost

- Increased costs to state and local government
 - Roads
 - Other infrastructure
 - Schools
 - Services
- Increased private transportation cost
- Increased building costs (due to parking costs)
- Reduced productivity per acre due to parking
- Housing supply/demand mismatch → future blight

Picturing A Low VMT Future



Image Credits- Urban Advantage, Roma Design Group, City of Dana Point

Picturing A Low VMT Future



Image Credits- Urban Advantage, Roma Design Group, City of Dana Point



Preliminary Evaluation of Alternative Methods of Transportation

December 30, 2013

As required by statute, the Governor's Office of Planning and Research develops and measures environmental impacts related to transportation. This is an opportunity associated with environmental review, and, importantly, to achieve better fiscal, environmental outcomes. We need your help in this effort.

I. Introduction

On September 27, 2013, Governor Brown signed [Senate Bill 743](#) (Steinberg, 2013). SB 743 creates a process to change analysis of transportation impacts under the CEQA Environmental Quality Act (Public Resources Code section 21000 and following) (CEQA). The environmental review of transportation impacts focuses on the delay that vehicle intersections and on roadway segments. That delay is measured using a metric known as "level of service," or LOS. Mitigation for increased delay often involves increasing capacity of roadway or size of an intersection, which may increase auto use and emissions as an alternative form of transportation. Under SB 743, the focus of transportation analysis is on driver delay to reduction of greenhouse gas emissions, creation of multimodal networks, and a mix of land uses.

Specifically, SB 743 requires the Governor's Office of Planning and Research (OPR) to update the Guidelines (Title 14 of the California Code of Regulations sections and following) to alternative to LOS for evaluating transportation impacts. Particularly within areas those alternative criteria must "promote the reduction of greenhouse gas emissions of multimodal transportation networks, and a diversity of land uses." (New Public Resources Code Section 21099(b)(1).) Measurements of transportation impacts may include "vehicle miles traveled per capita, automobile trip generation rates, or automobile emissions." (ibid.) OPR also has discretion to develop alternative criteria for areas that are not appropriate. (Id. at subd. (c).)

Though a draft of the Guidelines revisions is not required until July 1, 2014, OPR is providing input into its direction. This document provides background information on CEQA transportation analysis, and a summary of SB 743's requirements. Most important is OPR's preliminary evaluation of LOS and different alternatives to LOS. It ends with

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044
(916) 322-2318 FAX (916) 324-9936 www.opr.ca.gov

Updating Transportation Impacts Analysis the CEQA Guidelines

*Preliminary Discussion Draft of Updates to the CEQA Guidelines in
Senate Bill 743 (Steinberg, 2013)*

Governor's Office of Planning and Research
8/6/2014



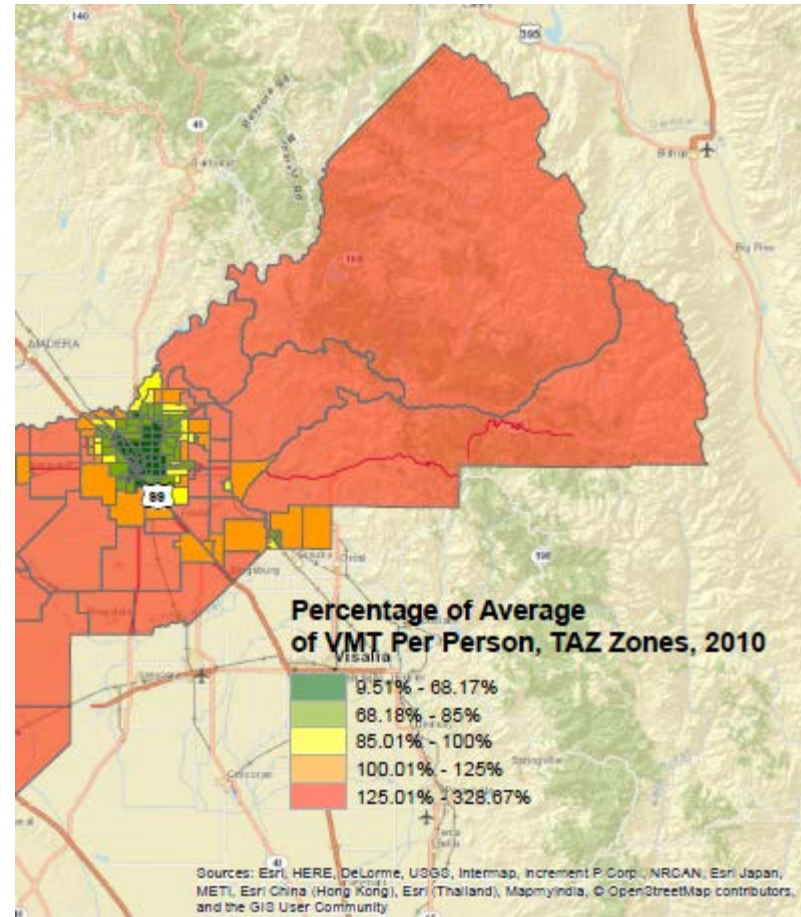
Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA

Implementing Senate Bill
743 (Steinberg, 2013)

January 20, 2016

Shortcuts and Streamlining

- Transit & active transportation projects
- Residential, commercial, office projects near transit
- Development in existing low-VMT areas using screening maps
- VMT studies save 80-90% of the effort of LOS studies



VMT Map of Fresno COG, generated by the California Statewide Travel Demand Model

CEQA Guidelines and Technical Advisory

Residential project threshold recommendation:

15 percent below regional or city VMT/cap

Office project threshold recommendation:

15 percent below regional VMT/empl

CEQA Guidelines and Technical Advisory

Why 15 percent?

General alignment with state policy, including GHG reduction

- Caltrans Strategic Plan: Reduce VMT/cap 15% by 2020
- SB 375 targets \approx 15% collectively statewide
- AB 32 Scoping plan recommends local governments set GHG reduction targets at 15% below existing by 2020
- Research shows 15% VMT mitigation is generally achievable (see CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures*)

CEQA Guidelines and Technical Advisory

Retail project recommendations:

- Assess retail with “Net VMT” approach
- *Retail which increases VMT compared to previous shopping patterns may be considered significant*
- Local-serving retail presumed less than significant

CEQA Guidelines and Technical Advisory

Transportation Project recommendations:

- Presume transit and active transportation projects lead to less than significant VMT
- Projects which increase roadway capacity may induce VMT

Inconvenient Truth #2: Induced VMT

October 2015



National Center
for Sustainable
Transportation

Increasing Highway Capacity Unlikely to Relieve Traffic Congestion

Susan Handy
Department of Environmental Science and Policy
University of California, Davis

Contact Information:
shandy@ucdavis.edu

BRIEF

Issue

Reducing traffic congestion is often proposed as a solution for improving fuel efficiency and reducing greenhouse gas (GHG) emissions. Traffic congestion has traditionally been addressed by adding additional roadway capacity via constructing entirely new roadways, adding additional lanes to existing roadways, or upgrading existing highways to controlled-access freeways. Numerous studies have examined the effectiveness of this approach and consistently show that adding capacity to roadways fails to alleviate congestion for long because it actually increases vehicle miles traveled (VMT).

An increase in VMT attributable to increases in roadway capacity where congestion is present is called “induced travel”. The basic economic principles of supply and demand explain this phenomenon: adding capacity decreases travel time, in effect

Increased roadway capacity induces additional VMT in the short-run and even more VMT in the long-run. A capacity expansion of 10% is likely to increase VMT by 3% to 6% in the short-run and 6% to 10% in the long-run. Increased capacity can lead to increased VMT in the short-run in several ways: if people shift from other modes to driving, if drivers make longer trips (by choosing longer routes and/or more distant destinations), or if drivers make more frequent trips.^{3,4,5} Longer-term effects may also occur if households and businesses move to more distant locations or if development patterns become more dispersed in response to the capacity increase. One study concludes that the full impact of capacity expansion on VMT materializes within five years⁶ and another concludes that the full effect takes as long as 10 years.⁷

Inconvenient Truth #2: Induced VMT

- Adding highway capacity induces VMT
- For each 1% increase in lane miles, VMT goes up by 0.6 to 1.0%
- The added VMT is truly new, not shifted from elsewhere
- The new VMT increases GHGs
- The new highway capacity does not increase overall employment or economic activity
- Resources:

Caltrans brief: http://www.dot.ca.gov/newtech/researchreports/reports/2015/10-12-2015-NCST_Brief_InducedTravel_CS6_v3.pdf

ARB brief: http://www.arb.ca.gov/cc/sb375/policies/hwycapacity/highway_capacity_brief.pdf

ARB Technical Background: http://www.arb.ca.gov/cc/sb375/policies/hwycapacity/highway_capacity_bkgd.pdf

Caltrans White Paper: <https://caltranstag-public.pbworks.com/w/file/103925443/Induced%20Travel%20Technical%20Investigation%20TASK%203%20FINAL.docx>

CEQA Guidelines and Technical Advisory

Transportation Project recommendations:

- Many types of small roadway projects are unlikely to induce measurable/substantial VMT
- Threshold considers VMT allowable to achieve 2030 GHG reduction target
- Option to use simple method using researched elasticities:

$$[\% \uparrow \text{ in lane miles}] \times [\text{existing VMT}] \times [\text{elasticity}] = [\text{VMT resulting from the project}]$$

CEQA Guidelines and Technical Advisory

Land Use Plan recommendations:

- Specific plans: *Same methods and thresholds as land use projects*
- General plans: *Consistency with SCS (aggregate across jurisdiction)*

RTP-SCSs recommendations:

- *Sufficient VMT reductions to achieve ARB-specified GHG target*

CEQA Guidelines and Technical Advisory

Other recommendations:

- **Rural projects** choose thresholds on a case-by-case basis
- **Small projects** screening threshold – 100 vehicle trips per day
- Addition of **transit** riders not an impact; blocking stations or routes may be an impact

CEQA Guidelines and Technical Advisory

Safety

- Neither SB 743 statute nor OPR Technical Advisory recommend additional safety analysis
- Provides broad recommendations regarding approach on any traffic safety analysis that might be undertaken under CEQA

Q: Will the use of VMT as measure of impact cause more litigation?

A: Unlikely.

- There are many lawsuits today over LOS traffic analysis
- VMT calculation is simpler, more transparent
- Presumptions of less than significant impact
 - Transit areas
 - Low VMT areas
 - Locally-serving retail
 - Transit and active transportation projects
- Gives cover to lead agencies: may choose the most appropriate methodology and apply professional judgement in doing so

Q: Is the technical advisory binding on lead agencies?

A: No.

- The technical Advisory is purely advisory
- Lead agencies have discretion on methodologies and thresholds, given conclusions on significance are supported by substantial evidence
- Technical advisory provides one pathway, and substantial evidence

Q: Does the proposal create conflicts with existing plans that call for additional roadway capacity?

A: No

- Plans include policies of all kinds which may have environmental impacts.
 - Example: Housing elements must plan for a certain amount of housing, but a housing project may require study for environmental impact.

Q: Will the change force lead agencies to revise their general plans or fee programs?

A: No.

- SB 743 makes changes only to CEQA.
- Local Government continue to hold the same “Police Powers,” use them to address auto-mobility.
- There is, however, the opportunity to craft fee programs which streamline CEQA and reinforce the benefits of SB 743

General Plans and Impact Fees

Bad

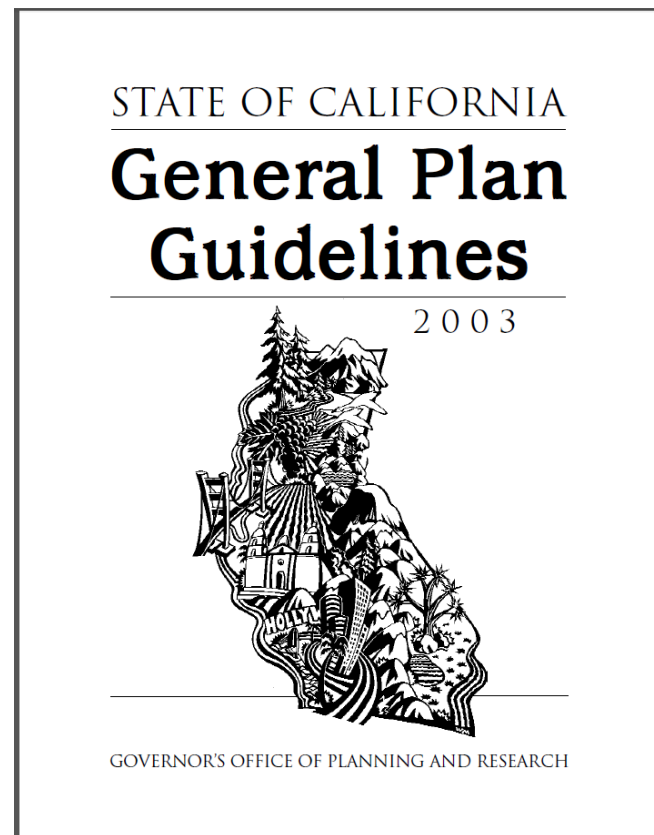
Use Ad-hoc, LOS-triggered mitigation
(highly problematic)

Use LOS to help plan roadway capacity;
use number of units or square footage to
estimate project impact (not ideal)

Use LOS to help plan roadway capacity;
use VMT to estimate project impact (okay)

Good

Use accessibility metric to plan network;
use VMT to estimate project impact
(ideal)



Balance auto mobility with other interests, e.g. cost, neighborhood vibrancy, air quality, GHGs, human health, etc.

Where we are in the process

- Currently finalizing draft proposal
- Next: formal rulemaking process
- Effective late 2016 or early 2017
- 2 year opt-in period
- VMT required statewide late 2018 or early 2019
- Two cities have already implemented!
- Several other cities are currently preparing to implement

Caltrans updates pursuant to SB 743

Transportation Analysis Guidelines and Transportation Impact Study Guidelines (TAG-TISG)

- Caltrans is developing
 - New methods for analyzing the effects of transportation projects (TAG)
 - New approaches to characterize land use project impact on the state highway system (TISG)
- Will benefit from broad stakeholder involvement

What Jurisdictions Can Do To Prepare

1. Adopt/update **transportation impact fee program**
 - a. Participation in a fee program is one way to streamline CEQA process
2. **Update CEQA procedures** to clarify that delay is not a CEQA impact (it may still be considered in planning)
3. **If updating general plan, address VMT** in the general plan EIR to allow streamlined review of future development
4. Work with MPOs to **develop VMT and TPA maps**, identify streamlined areas
5. Take advantage of streamlining for **transit and active transportation projects**—facilitates forthcoming low VMT land use development
6. **Develop standard conditions of approval** so that developers know up front what improvements they are expected to fund
7. Connect the shift to VMT to **community values**, e.g. walkability, neighborhood vibrancy, accessibility, complete streets

Thanks!

Chris Ganson: chris.ganson@opr.ca.gov