ASSESSING VMT-REDUCING POLICIES OF LOCAL GOVERNMENTS IN CALIFORNIA

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This presentation draws from the following:

My own research:

• *Tensions and trade-offs in planning and policymaking for transit-oriented development, transit, and active transport in California Cities*, by Elisa Barbour, Janet Jin, Emma Goldsmith, Salvador Grover, Jacqueline Martinez, and Susan Handy, a National Center for Sustainable Transportation Research Report, for Caltrans, July, 2021

• Current in-progress research on MPOs and SB 375, as part of multi-campus project for SGC to inform AB 285 report

Other research:

• Boarnet, Marlon, and Susan Handy, *A framework for projecting the potential statewide vehicle miles traveled (VMT) reduction from state-level strategies in California*, a White Paper from the National Center for Sustainable Transportation, March, 2017

• Brown, Austin, Daniel Sperling, and Bernadette Austin, *Driving California’s transportation emissions to zero*, a Research Report of the University of California Institute of Transportation Studies, April, 2021

• Caltrans, *California Transportation Plan 2050*, February, 2021

• Stevens, Mark, Does compact development make people drive less? *Journal of the American Planning Association*, 83(1), 7-18, 2017


The suite of primary VMT-reducing policies

- Research on VMT-reduction potential of built environment policies in California tends to focus on the following suite of policies:
  - Land use changes
  - Pricing (e.g. for roadways, parking)
  - Investments to support transit, active transport, micromobility
  - Transportation demand management (e.g. carpooling, employer trip reduction programs)

- Which of these elements do local governments control?
  - They can influence all four...
  - ...but land use authority is the one most closely associated with local control
5 D’s = density, diversity (land use mix), design (intersections and bike/ped access), distance to transit, destination accessibility

**Key take-away:**
Among the classic “5 D’s” land use characteristics most commonly studied for influence on VMT, *job accessibility* has been found to exert the strongest influence.

<table>
<thead>
<tr>
<th>Built-environment measure</th>
<th># of studies with controls for self-selection/ Total number of studies</th>
<th>Weighted average elasticity of VMT*</th>
<th># of studies with controls for self-selection/ Total number of studies</th>
<th>Weighted average elasticity of VMT**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance to downtown</td>
<td>3/14</td>
<td>−0.63/−0.34</td>
<td>1/3</td>
<td>−0.22</td>
</tr>
<tr>
<td>Household/population density</td>
<td>5/19</td>
<td>−0.22/−0.10</td>
<td>1/9</td>
<td>−0.04</td>
</tr>
<tr>
<td>Job accessibility by auto</td>
<td>0/10</td>
<td>−0.20</td>
<td>0/5</td>
<td>−0.20</td>
</tr>
<tr>
<td>Intersection/street density</td>
<td>1/15</td>
<td>−0.14</td>
<td>0/6</td>
<td>−0.12</td>
</tr>
<tr>
<td>Land use mix</td>
<td>2/15</td>
<td>0.11/−0.03</td>
<td>0/10</td>
<td>−0.09</td>
</tr>
<tr>
<td>Job density</td>
<td>2/11</td>
<td>−0.07/−0.01</td>
<td>1/6</td>
<td>0.00</td>
</tr>
<tr>
<td>% four-way intersections</td>
<td>1/4</td>
<td>−0.06</td>
<td>1/3</td>
<td>−0.12</td>
</tr>
<tr>
<td>Distance to nearest transit stop</td>
<td>5/12</td>
<td>−0.05</td>
<td>1/6</td>
<td>−0.05</td>
</tr>
<tr>
<td>Job accessibility by transit</td>
<td>0/3</td>
<td>0.00***</td>
<td>1/3</td>
<td>−0.05</td>
</tr>
<tr>
<td>Jobs–housing balance</td>
<td>0/8</td>
<td>0.00***</td>
<td>0/4</td>
<td>−0.02</td>
</tr>
</tbody>
</table>

* The first value shown is for studies that controlled for self-selection, the second for studies that did not. Elasticities are weighted to correct for effects of sampling error using the inverse of the elasticities’ standard errors, thus placing more weight on elasticities that were measured with greater precision.

** Elasticities are weighted using study sample size. *** Statistically insignificant.
Which of the 5 D’s do local governments control?

• **Density, diversity** (land use mix), and **design** (intersection density, ped/bike access) are most directly under local control
  - Make transit station areas good **places** to live and work
  - Research shows that residents of compact, mixed-use, ped- and bike-friendly neighborhoods, with good transit access drive less

• But for **distance to transit** access and **destination accessibility** (distance to jobs), localities tend to have less direct control
  - Enhance role of transit station areas as **nodes** in regional transport networks
  - Many/most cities don’t manage their own transit agencies
  - Distance to jobs tends to mainly be a function of the wider economy

• Research (e.g. Cervero) shows that urban areas that have increased transit use, decreased VMT, support station areas as **both nodes and places**
  - Elements of success include
    - Concerted, long-term policy support for coordinated T & LU strategies
    - Corridor-scale planning for balanced land uses near transit (jobs, homes, and shops as O’s & D’s)
    - Underscores the need for wider-than-local T & LU policy coordination
Which pricing strategies do localities control?

Table 1: Effect Sizes for Pricing Policies

<table>
<thead>
<tr>
<th>Pricing Policy</th>
<th>Elasticity (unless otherwise noted)</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Link and Cordon Tolls</td>
<td>-0.1 to -0.45</td>
<td>ARB policy brief on road user pricing</td>
</tr>
<tr>
<td>VMT fees</td>
<td>-11% to -14.6% reduction from shifting gas tax to VMT fee</td>
<td>ARB brief on road user pricing, from Oregon VMT fee experiment</td>
</tr>
<tr>
<td>Fuel prices</td>
<td>-0.026 to -0.1 (short-run) -0.131 to -0.762 (long-run)</td>
<td>ARB brief on gas price</td>
</tr>
<tr>
<td>Parking pricing</td>
<td>-0.3 for demand for parking spaces</td>
<td>ARB parking pricing and parking management brief</td>
</tr>
</tbody>
</table>

Source: ARB policy briefs, at [https://arb.ca.gov/cc/sb375/policies/policies.htm](https://arb.ca.gov/cc/sb375/policies/policies.htm)

From Boarnet and Handy, 2017
Research has modeled VMT reduction potential from this policy suite

- The Cal ITS study (Brown et al., 2021) modeled VMT effects from the following strategies, to achieve 15% per capita VMT reduction by 2045 from 2019 baseline
  - Built Environment
    - Transit-Oriented Development/Densification
    - Active transportation
    - Public transit investments and expansion
  - Transportation Pricing
    - Gasoline/diesel taxes
    - VMT based road fees
    - Dense urban area cordon zones
    - Other road pricing such as high-occupancy toll (HOT) lanes for congested corridors
    - Parking pricing
  - Transportation Demand Management (TDM)
    - Telework
    - Carpooling
  - Shared Micromobility/Pooling
    - Shared micromobility
    - TNC pooling incentives
Pricing, land use, PT/AT investments, and telework strategies are most effective for reducing VMT

From Brown et al., 2021
Key take-away: We need a synergistic “push-pull” policy package

The Cal ITS study concludes:

• “We find that to achieve the defined target of at least 15% per capita VMT reduction by 2045 relative to the BAU, an integrated policy strategy is required, combining all of the main elements examined here”

• “Changes to the built environment may make it possible to drive less, but these measures will reach their full potential only if people have viable alternatives to driving. To make these alternatives attractive, it is typically necessary to discourage driving by increasing its generalized cost, i.e., by implementing pricing policies that target vehicle miles traveled and parking in core urban centers. Similarly, pricing policies will have more impact if combined with changes to the built environment that enhance viable alternatives to driving.”
Similar results were found in CTP 2050 modeling of strategies to reduce transportation sector GHGs to 80 percent below 1990 levels by 2050.

From CTP 2050 technical appendix.
Telework, road pricing, and land use made the most difference

From CTP 2050 technical appendix
**Key take-away:** Pricing and land use effects on VMT are synergistic (combined, they achieve more than the sum of their parts)

**Figure 34** Scenario Analysis Results (2050 MPO Forecasts)

Source: Accessibility measures are from the CSF2TDM, emissions measures are from the Vision model, and economic measures are from TREDIS.

Note: All results are shown as the percent change from the 2050 Baseline, while the non-auto mode share is shown as the increase in percentage points from the 2050 Baseline to each scenario.
Evaluating MPOs under SB 375

• SB 375 has been California’s main policy tool to reduce VMT/GHGs from coordinated transportation and land use strategies

• Research shows that MPOs have been transitioning to sustainability incrementally under SB 375
  • Similar to history of AQ attainment...not fast enough

• Increase in stakeholder engagement has been positive

• Performance constraint has induced institutional innovations
  • e.g. in SFBA
    • OBAG program ties receipt of local roadway funds to RHNA compliance, housing production
    • MTC’s project performance assessment procedure now imposes objective C?B and equity criteria for evaluating projects for inclusion in the plan
CARB’s SB 150 report showed we are “not on track” to achieve SB 375 goals.

Source: CARB data in SB 150 report

Actual trend line
State mandated reduction targets

Per capita SB 375 GHG emissions

-20% -18% -16% -14% -12% -10% -8% -6% -4% -2% 0%
CARB vs. MPO conflicts have emerged

- CARB updated its Scoping Plan in 2017, and revised MPO GHG reduction targets
  - Determined that 25% per capita GHG reductions are needed from 4 big MPOs by 2035
- MPOs bargained with CARB on the targets in 2017-18
  - Big 4 MPOs proposed 18% per capita reduction target for 2035; CARB adopted 19% target
  - To address the gap, MPOs call for state policies to:
    - Impose VMT user fee
    - Direct more funds for transit, AT, ridesharing
    - Provide “direct support” for SCS implementation through incentives for infill, TOD

  *Same synergistic push-pull policy combination*
The MPO catch-22

• RTP/SCSs model and demonstrate how regions could achieve their GHG targets
  • Using the synergistic push-pull policy combination

• But the plans are only “what-if” scenarios
  • They can succeed if, and only, if the modeled strategies are actually implemented on the ground

• RTP/SCSs include a “what-if” gap
  • Land use assumptions veer away from adopted General Plans
  • Sometimes aggressive pricing and funding strategies that MPOs do not control

• MPOs have little implementation capacity
  • They have no land use authority and little control over generating transport funds and projects
  • Means that SB 375 has a built-in “implementation deficit”

• In recent evaluations of RTP/SCSs, CARB has criticized some MPOs for depending on:
  • Unsecured and uncertain revenue sources which MPOs do not control, and which require state, federal, and/or local action (e.g. VMT fees)
  • Local policy adoption which may be hard to secure on the ground (e.g. upzoning, parking pricing, value capture strategies)

• However, MPOs have no choice but to depend on more ambitious action from the state and local levels to achieve their more ambitious new SB 375 targets
  • MPOs lack the authority to implement the needed strategies on their own
Current controversies reflect an important, overdue conversation

• How to address the SB 375 built-in “implementation deficit”
  • Inadequate implementation has been SB 375’s Achilles heel from the start

• How to assign inter-governmental roles and responsibilities
  • MPO plans and negotiations with CARB underscore the need for action at multiple levels

• How to secure the multi-level policy package that is needed

• **Key take-away:** What a locality can accomplish on its own to reduce VMT depends upon policy action from others
  • The extent to which local land use policy can reduce VMT is *contingent* upon actions taken at the state level on pricing, and vice versa (they’re synergistic)
  • What one locality can achieve depends on action by neighboring localities
  • The state level is key for land use policy – the state sets the framework of incentives and constraints, the fiscal, planning, and regulatory authority, of localities, which conditions their land use choices

• Rather than complain about overly-ambitious MPO implementation strategies, we can view them instead as placing before policymakers and all Californians the question...
  • Do we want to achieve our state’s climate and sustainable development goals, or continue to watch them falter? Will we do what needs to be done?
My survey research and case studies on TOD policymaking

• Surveyed city planning directors in California’s four largest metro areas in Spring/Summer of 2019
  • 44% response rate
  • Respondent cities roughly representative of all cities on key characteristics
    o Regional location
    o Share of city land within 1/4 mile of high-quality transit (HQT) access
    o Activity density (population plus workers per square mi)
    o Housing growth rate
    o City population size
    o Racial/ethnic make-up
    o Median income
    o Political leanings (voting patterns)

• Conducted case study research for eleven California cities in 2020
  • Six central cities in the state’s four largest metro areas
  • Strategic sample of five smaller cities
  • Conducted document analysis and 22 interviews with 30+ city planners and others
Key findings

• 66% of respondent cities had adopted policies, programs, and plans for TOD
• Few city characteristics were simple or consistent factors in distinguishing policymaking patterns
• Some connection between liberal political leanings and TOD propensity
  • Higher overall motivation for TOD policymaking (# of motivations considered “very important” to each survey respondent across multiple TOD motivations asked about) was associated with lower perception of obstacles (# of obstacles considered “major” to each survey respondent among multiple obstacles asked about) and also with city Democratic voter share, in regression analysis testing all city characteristics noted above
  • City Democratic voter share was a significant predictor, after controlling for all factors tested, in predicting higher propensity for city leaders to consider mobility/accessibility, housing growth, affordable housing, and environmental benefits as very important motivations for TOD policymaking
Motivations for adopting TOD policies

Survey question: Please indicate the importance to your city's elected leaders of the following motivations and objectives for adopting TOD policies and programs.

- Community revitalization/livability
- Mobility/accessibility improvements
- Provide affordable housing/RHNA target
- Housing growth
- Fiscal/budget impacts
- Environmental benefits
- Job growth
Survey question: What do you think are the major barriers/obstacles to achieving development in areas near transit in your city?
Popular TOD policies, and rated importance

Policies/strategies adopted by half or more of respondent California cities with policies and programs to promote TOD, and share of respondents that rated the policy/strategy as “very important” for achieving their city’s TOD goals.

- Density bonus for affordable housing
- Mixed use zoning (e.g. form based code)
- Specific Plans for TOD zones
- Reduced parking requirements
- Upzoning
- CEQA tiering from Specific Plans
- Other CEQA streamlining, for infill

![Chart showing adoption and importance of TOD policies.](chart_image)
The popular local TOD policy nexus

- **Key finding**: California cities are combining regulation, permit streamlining, and planning:
  - Density bonus programs
  - (De)regulatory inducements (upzoning, mixed use zoning, parking de-regulation)
  - CEQA streamlining (e.g. “by-right” development)
  - Development of Specific Plans

- e.g. in designing density bonus programs, many cities offer upzoning and parking de-regulation, and CEQA streamlining through “by-right development,” as incentives for developers to provide affordable TOD units

- Specific Plans help make the package work
  - Facilitates easing of private development while also addressing and incorporating neighborhood resident input
  - Examples of effective programs include LA’s TOC Program, El Cerrito’s San Pablo Avenue Specific Plan
  - The plan process can be critical for addressing neighborhood concerns
    - All NIMBYs are not rich white homeowners

- The state government could more directly support this winning approach
Local perceptions of trade-offs, and how the state can help

• We heard from planners that
  • They do not object to state performance mandates (e.g. for RHNA) but they do object to one-size-fits-all state intervention, e.g. for zoning
  • They rely on neighborhood planning to manage controversial concerns, e.g. upzoning, and want to be able to tailor policies
  • They want rewards for meeting state performance standards (e.g. RHNA), such as planning funds
  • They find affordable housing policy to be difficult to design effectively
    • Aggressive inclusionary requirements can mean housing doesn’t pencil out
    • Density bonus programs can produce very different outcomes
  • They value the ability to bargain with developers
    • e.g. to provide parking reduction in exchange for building affordable units
  • They perceive some unfortunate conflicts between AH and T, e.g. in increasing impact fees for housing versus transport facilities
    • They don’t want their “stack” of fees to get so high that development doesn’t pencil out
    • But insufficient transportation impact fees can backfire, since a primary objection to new density is traffic impacts
Policy recommendations

• Direct state dollars only for VMT-reducing projects
• Work with MPOs and localities to facilitate pricing strategies, and to support transit and AT (e.g. to facilitate bus-priority lanes, signalization)
• Reward localities that perform on land use
  • Tie local transportation dollars and other funds (e.g. for planning) to LU performance (e.g. RHNA, and RTP/SCS conformity)
• Improve RTP/SCS performance
  • Require more explicit, systematic, consistent reporting of budget allocations by mode and purpose
  • Require that MPOs more explicitly depict how adopted LU scenarios diverge form BAU, and identify localities whose LU policies do not accommodate the growth as projected in the RTP/SCS
  • Track plan performance along the trajectory and impose consequences for getting off-track