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Mitigating Climate Change Through Transportation and Land Use Policy

Alejandro E. Camacho, Melissa L. Kelly, Nicholas J. Marantz, and Gabriel Weil

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Summary

A number of U.S. state and local governments have adopted strategies for reducing greenhouse gas (GHG) emissions from transportation and land development. Although some have made significant progress in reducing GHG emissions from the power sector, transportation emissions in most states continue to rise. This Article details the range of existing and proposed state interventions to reduce transportation-sector GHG emissions, analyzes the trade offs of these strategies, and offers recommendations to improve and supplement such initiatives, including strategic use of planning mandates and funding and technical assistance. Additionally, regulating land use, shifting transportation spending, removing barriers to implementing road pricing policies, and altering standards for environmental impact analysis can more effectively reduce transportation-sector GHG emissions and mitigate climate change.

A number of state and local governments in the United States have adopted strategies for reducing greenhouse gas (GHG) emissions from the transportation sector.¹ Although some states have made significant progress in reducing these emissions from the power sector, transportation emissions continue to rise in most states. Nationwide, transportation accounts for 27% of GHG emissions, and this share is likely to rise as coal-fired power plants are phased out.² In California, Massachusetts, New Jersey, New York, Oregon, and Washington, transportation now accounts for over two times as many GHG emissions as energy generation.³ States' policies have succeeded in steadily reducing GHG emissions per vehicle mile, but have been counterbalanced by increased vehicle miles traveled (VMT).⁴

1. The first major state government action in this domain was California's Sustainable Communities and Climate Protection Act of 2008, commonly known as S.B. 375. S.B. 375, 2007 Leg., Reg. Sess. (Cal. 2008). Washington and Oregon have established GHG emissions or vehicle miles traveled (VMT) targets, and eight state members of the Transportation and Climate Initiative in the Northeast and Mid-Atlantic regions are currently participating in listening sessions seeking public input on strategies to reduce GHG emissions from the transportation sector. Transportation and Climate Initiative, *Northeast and Mid-Atlantic States Seek Public Input as They Move Toward a Cleaner Transportation Future*, <http://www.transportationandclimate.org/northeast-and-mid-atlantic-states-seek-public-input-they-move-toward-cleaner-transportation-future> (last visited Mar. 12, 2019).
2. U.S. Environmental Protection Agency (EPA), *Sources of Greenhouse Gas Emissions*, <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions> (last updated Oct. 9, 2018).
3. Benjamin Storrow, *Cars Threaten Climate Goals in Blue States*, CLIMATEWIRE, Apr. 17, 2018, <https://www.eenews.net/climatewire/stories/1060079199>. In New York State, power-sector emissions fell 52% between 1990 and 2014, but most of those gains were offset by a 23% increase in transportation emissions, limiting the state's overall emissions reduction to 8%, well short of its reduction targets of 40% by 2030 and 80% by 2050. NEW YORK STATE ENERGY RESEARCH AND DEVELOPMENT AUTHORITY, NEW YORK STATE GREENHOUSE GAS INVENTORY: 1990-2014, at 21 (2017), available at https://www.eenews.net/assets/2018/04/16/document_pm_03.pdf. Oregon and Washington saw their overall GHG emissions rise 10% and 8%, respectively, between 1990 and 2015, despite falling power-sector emissions. OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY, OREGON'S GREENHOUSE GAS EMISSIONS THROUGH 2015 (2018), available at <https://www.oregon.gov/deq/FilterDocs/OregonGHGreport.pdf>; WASHINGTON STATE DEPARTMENT OF ECOLOGY, WASHINGTON STATE GREENHOUSE GAS EMISSIONS INVENTORY: 1990-2015 (2018), available at <https://fortress.wa.gov/ecy/publications/documents/1802043.pdf>. California has shown greater progress, with aggregate emissions falling 10% from their peak in 2004 and per capita emissions falling 19% from their peak in 2001. CALIFORNIA AIR RESOURCES BOARD (CARB), CALIFORNIA GREENHOUSE GAS EMISSIONS FOR 2000 TO 2016: TRENDS OF EMISSIONS AND OTHER INDICATORS 2 (2018), available at https://www.arb.ca.gov/cc/inventory/pubs/reports/2000_2016/ghg_inventory_trends_00-16.pdf. Transportation emissions reductions have lagged, with emissions reaching a steady plateau from 2002 through 2007, then falling 13% from 2007 to 2013 during the economic recession and bouncing back 3% by 2015 as the economic recovery strengthened. *Id.* at 2. Transportation accounted for 37% of California's 2015 GHG emissions, a share that is likely to rise over time as the state continues to decarbonize its electricity grid. *Id.* at 3.
4. California's efforts include vehicle fuel economy standards, a low-carbon fuel standard, and promotion of electric cars and buses. Robinson Meyer, *The Coming Clean-Air War Between Trump and California*, ATLANTIC, Mar. 6, 2017. See, e.g., CARB, 2018 PROGRESS REPORT: CALIFORNIA'S SUSTAIN-

Further advances in cleaner vehicles (including electric vehicles) and fuels have an important role to play, but reductions in VMT will also be needed to meet states' GHG emissions goals.⁵

Reforming land use regulation might mitigate rising transportation-sector GHG emissions.⁶ Many people who would like to live closer to their jobs, spend less money on gasoline, and spend less time commuting are prevented from doing so by the limited quantity and high cost of housing in many of America's most productive coastal cities.⁷ Local zoning rules, parking requirements, minimum lot sizes, height restrictions, historic preservation rules, and other land use policies can limit the supply of housing, driving up its cost.⁸

Housing shortages force many people to relocate to less productive parts of the country with lower housing costs, or to endure long commutes to access high-wage jobs.⁹ Those longer commutes, typically from neighborhoods that are not transit-accessible, increase GHG emissions and conventional air pollution, waste time, and may have significant negative effects on health and well-being.¹⁰ In short, allowing denser development has the potential to make housing more affordable, reduce GHG emissions, enable more cost-effective investment in mass transit, and increase economic productivity.

State and local governments could help to enhance environmental quality and economic productivity through policies facilitating housing development in desirable, transit-accessible neighborhoods. However, the delegation of significant regulatory authority to local governments often

empowers local landowners and residents to block infill development.¹¹ Land use regulation is an area of traditional local responsibility, and local opposition to relatively dense residential development has proven formidable.

This Article details the range of existing and proposed state interventions to reduce transportation-sector GHG emissions, analyzes the trade offs of these various strategies, and offers recommendations both for states already active in this domain and for those just beginning to consider addressing this challenge. It was prepared in conjunction with a workshop roundtable hosted by the University of California Irvine School of Law's Center for Land, Environment, and Natural Resources (CLEANR). The roundtable brought together policymakers, academics, and advocates to discuss transportation and land use policy reforms to reduce GHG emissions and VMT.¹²

The Article reflects the workshop roundtable discussion, as well as interviews conducted with participants and other stakeholders before and after the group dialogue. Increasing urban density and altering the pricing of scarce road and parking space can reduce VMT and GHG emissions, but there are substantial institutional and political obstacles to implementing these measures. The roundtable was convened in an effort to identify effective and equitable policies in light of such institutional and political constraints.

As validated by roundtable participants, a decade into the first enactment of states' experimental efforts to mitigate climate change through transportation and land use policies, a cross-jurisdictional survey of these efforts is particularly ripe and desirable. Indeed, the California Air Resources Board (CARB) recently released a report assessing the progress of its efforts to date, finding that California is not on track to achieve its transportation-sector GHG emissions reduction goals and surveying a number of significant reforms to address the challenges encountered to date.¹³

ABLE COMMUNITIES AND CLIMATE PROTECTION ACT 22-24 (2018) [hereinafter CARB 2018 PROGRESS REPORT], available at https://ww2.arb.ca.gov/sites/default/files/2018-11/Final2018Report_SB150_112618_02_Report.pdf.

5. See CARB 2018 PROGRESS REPORT, *supra* note 4, at 100. "California's Zero Emission Vehicle (ZEV) mandate calls for only about 8% of new vehicle purchases to be ZEVs by 2025 . . . [and t]he average car sold today will be on the road for at least 11 years, locking in a decade plus of GHG emissions for every non-ZEV sold." Meredith Hankins, *We're Never Going to Meet Our GHG Transportation Goals Unless We Radically Rethink Our Cities*, LEGALPLANET, Dec. 5, 2018, <http://legal-planet.org/2018/12/05/were-never-going-to-meet-our-ghg-transportation-goals-until-we-radically-rethink-our-cities/>.
6. Economywide policies like carbon pricing are widely viewed as the most effective mechanisms of GHG emissions reduction, but even if such policies are adopted, they may only be effective over long time horizons because vehicles are durable goods and most people cannot easily change their transportation needs. CRAIG RABORN, DUKE UNIVERSITY CLIMATE CHANGE POLICY PARTNERSHIP, TRANSPORTATION EMISSIONS RESPONSE TO CARBON PRICING PROGRAMS 17-23 (2009), available at <https://nicholasinstitute.duke.edu/sites/default/files/publications/transportation-emissions-response-to-carbon-pricing-programs-paper.pdf>.
7. Jonathan Levine & Lawrence D. Frank, *Transportation and Land-Use Preferences and Residents' Neighborhood Choices: The Sufficiency of Compact Development in the Atlanta Region*, 34 TRANSP. 255 (2007).
8. Edward L. Glaeser & Joseph Gyourko, *The Impact of Building Restrictions on Housing Affordability*, 9 ECON. POL'Y REV. 21, 35 (2003); CARB 2018 PROGRESS REPORT, *supra* note 4, at 64.
9. See Edward L. Glaeser et al., *Urban Growth and Housing Supply* 13-14 (National Bureau of Economic Research, Working Paper No. 11097, 2005), available at <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.407.2146&rep=rep1&type=pdf>.
10. Alois Stutzer & Bruno S. Frey, *Stress That Doesn't Pay: The Commuting Paradox*, 110 SCANDINAVIAN J. ECON. 339 (2008), available at <https://onlinelibrary.wiley.com/doi/full/10.1111/j.1467-9442.2008.00542.x>.

11. See GIAN-CLAUDIA SCIARA & SARAH STRAND, NATIONAL CENTER FOR SUSTAINABLE TRANSPORTATION, WHEN DO LOCAL GOVERNMENTS REGULATE LAND USE TO SERVE REGIONAL GOALS? RESULTS OF A SURVEY TRACKING LAND USE CHANGES THAT SUPPORT SUSTAINABLE MOBILITY 1, 3-4 (2017), available at https://ncst.ucdavis.edu/wp-content/uploads/2015/10/NCST-TO-025-Sciara-Tracking-Land-Use-Changes_FINAL-August-2017-1.pdf.

12. Participants included Marlon Boarnet (University of Southern California Sol Price School of Public Policy), Alejandro Camacho (University of California, Irvine (UCI) Law CLEANR), Ping Chang (Southern California Association of Governments), John Davies (Federal Highway Administration), Joel Espino (Greenlining Institute), Melissa Kelly (UCI Law CLEANR), Leslie Kimura (CARB), Gerrit Knaap (University of Maryland), Karin Landsberg (Washington State Department of Transportation), Rebecca Lewis (University of Oregon School of Planning, Public Policy, and Management), Marie Liu (Office of California State Assembly Speaker Anthony Rendon), Nicholas Marantz (UCI School of Social Ecology), Gabriel Pacyniak (University of New Mexico School of Law), Chris Schmidt (California Department of Transportation), Krute Singa (Metropolitan Transportation Commission), Eric Sundquist (State Smart Transportation Initiative), Gabriel Weil (UCI Law CLEANR), Emily Wier (Greenlots), and Steve Winkelman (Green Resilience Strategies).

13. CARB 2018 PROGRESS REPORT, *supra* note 4, at 8-15. According to the report:
The MAP for Healthy Communities should identify (a) responsible parties at the state, regional, and local levels; (b) timelines for work on state policy, investment strategy, data and information collec-

The discussion proceeds as follows. Part I describes seven categories of strategies adopted in California, Maryland, New York, Oregon, and Washington, the states that have been the most active in this domain, and the trade offs associated with such policies. Part II evaluates options for improving policy in this domain, both within existing policy regimes and through new models. Part III concludes by offering recommendations and lessons learned from California, Maryland, New York, Oregon, and Washington for other states that do not yet have such policies in place.

Though leading states have made modest progress in mitigating climate change through transportation and land use policies, many opportunities remain for states to meaningfully improve existing strategies and implement additional policy tools. These include strategic use of planning mandates, along with funding and technical assistance, for entities with authority to implement land use and transportation decisions that will reduce GHG emissions and VMT. Additionally, regulating land use, shifting transportation spending toward active transit, removing barriers to implementing pricing policies, and altering standards for environmental impact analysis can more effectively reduce transportation-sector GHG emissions and mitigate climate change.

I. Existing Policy Strategies for Reducing GHG Emissions and VMT

This part explores seven different state policy strategies that have been adopted for reducing GHG emissions and VMT in the United States and their advantages and disadvantages. These include mechanisms implemented in California, Maryland, New York, Oregon, and Washington. The policy strategies explored include:

1. Setting targets for GHG emissions and VMT
2. Conducting state-level planning and imposing planning mandates on local and regional governments

3. Regulating land use
4. Providing funding and technical assistance associated with planning mandates
5. Reallocating transportation spending
6. Imposing pricing policies
7. Altering standards for environmental impact analysis

Our analysis indicates that some states' practices might serve as models for other states, but that all existing state approaches to mitigating transportation-sector GHG emissions have significant shortcomings. For example:

- Maryland and Oregon have long-standing regulatory systems for planning and infrastructure finance that are potentially well-suited to facilitate mitigation of transportation-sector GHG emissions, but these systems have not been significantly updated to address such emissions.
- In comparison with Maryland and Oregon, Washington has a somewhat less centralized planning regime that could also be adapted to better address GHG emissions.
- The highly decentralized systems of land use planning and infrastructure finance in California and New York are relatively poorly suited to mitigating transportation-sector GHG emissions. California has taken significant steps to remedy the shortcomings of its systems, but to date, this action principally supplements existing allocations of authority rather than supplanting them. New York has done little to modify planning, land use regulation, or infrastructure finance, instead relying primarily on informational guidance and voluntary certification programs.

In the remainder of this part, we describe in more detail how California, Maryland, New York, Oregon, and Washington have engaged in the seven strategies listed above.

A. Setting Targets for Reducing GHG Emissions and VMT

Though the particular goal may vary, virtually all states addressing VMT or GHG emissions have announced targets for mitigating transportation-sector GHG emissions and reducing VMT. Leadership by a state government can be critical, because local communities may lack sufficient internal motivation to prioritize such goals. Local communities do, however, frequently prioritize potentially related goals, such as increasing housing supply and affordability, minimizing congestion, and improving access to jobs. Integrating such goals into climate change mitigation policy can therefore be important for reducing GHG emissions, as discussed in Part II.

The states that are most actively working to reduce transportation-sector GHG emissions and VMT have identified metrics and numerical targets for achieving such

tion and distribution; and (c) recommended improvements to state law, including, but not limited to any possible revisions needed to SB 375.

Id. at 8. The report identifies eight priority challenges and opportunities for the interagency body to address: (1) aligning state transportation, housing, and climate-incentives funding decisions with health, equity, economic, and environmental priorities; (2) improving incentives and providing legal certainty for projects that provide affordable housing choices near jobs and transit; (3) developing a state vision for increasing travel choices, economic development, access to jobs and other opportunities, and affordable housing for underserved communities; (4) pilot testing innovative ideas to speed the adoption of clean, efficient transportation solutions; (5) developing fiscally sustainable and equitable methods of funding a transportation system that increases low-carbon travel choices for everyone; (6) complementing deployment of new mobility options and technologies with policies supporting state environmental and equity priorities; (7) improving access to data to assist with planning and monitoring success of state policies in meeting transportation, housing, health, and environmental goals; and (8) updating and strengthening S.B. 375 to better connect state climate, transportation, health, equity, and conservation goals with regional and local planning, and to improve implementation. *Id.* at 9-15.

Table 1. State Standards for Reducing GHG Emissions and VMT						
State	Metric	Scale	Set By	Baseline Year	Voluntary/ Mandatory	Quantitative Targets
California*	Per capita GHG	Per capita GHG	CARB (including metric selection)	2005	Quasi-mandatory	Varies by MPO: 2020: 3%-15% reduction 2035: 4%-19% reduction
Oregon	Per capita GHG	MPO	Legislated	2005	Voluntary except for Portland	035: 17%-21% reduction
Washington	Per capita VMT	State	Legislated	2020 projection	Voluntary	2020: 18% below baseline 2035: 30% below baseline 2050: 50% below baseline
Maryland	Economywide aggregate GHG	State	Legislated	2006	Voluntary	2020: 25% reduction 2035: 40% reduction 2050: 90% reduction
New York	Economywide aggregate GHG	State	Executive Order	1990	Voluntary	2030: 40% reduction

* CARB, SB 375 REGIONAL GREENHOUSE GAS EMISSIONS REDUCTION TARGETS (the figures in the table are the targets as of the March 2018 revision), <https://www.arb.ca.gov/cc/sb375/finaltargets2018.pdf>.

reductions. The variations between these metrics are summarized in Table 1 above. Maryland and New York have general economywide GHG emissions reduction targets that are set through direct state policy. California, Oregon, and Washington, on the other hand, have specific transportation-sector GHG emissions or VMT targets and use per capita metrics.¹⁴ California and Oregon target GHG emissions, while Washington targets VMT.

In Washington, the legislature established the VMT targets. Oregon delegates quantitative target-setting to the Land Conservation and Development Commission (LCDC), an agency with statewide jurisdiction, which sets per capita GHG emissions targets from light-duty vehicles for the Portland Metropolitan Planning Organization (MPO) and Oregon's other five MPOs.¹⁵ In both Oregon and Washington, the legislatures have established the relevant metric (i.e., per capita GHG emissions or per capita VMT).¹⁶

In California, CARB selected the per capita GHG emissions metric¹⁷ and sets the quantitative targets with substantial input from MPOs through the recommendations of the Regional Targets Advisory Council.¹⁸ California is the only state where targets significantly constrain the activities of all MPOs. However, the effect of the targets on GHG emissions reductions is ambiguous, leading us to label California's targets as "quasi-mandatory."

Standard-setting raises a number of policy considerations and trade offs with regard to substantive goals, metric design, and the ambitiousness of the target. First and foremost, roundtable participants emphasized that state policy needs to clearly indicate the GHG emissions or VMT reduction outcomes it seeks to achieve, irrespective of the particular target. Such clarity requires identifying an overall goal as well as selecting a metric and a level of stringency.

14. REBECCA LEWIS & ROBERT ZAKO, NATIONAL INSTITUTE FOR TRANSPORTATION AND COMMUNITIES, ASSESSING STATE EFFORTS TO INTEGRATE TRANSPORTATION, LAND USE, AND CLIMATE CHANGE 2-3, 33 (2016) (NITC-RR-789).

15. *Id.*

16. LEWIS & ZAKO, *supra* note 14, at 34.

17. William Fulton, *Will Climate Change Save Growth Management in California?*, in PLANNING FOR STATES AND NATION-STATES IN THE U.S. AND EUROPE 111 (Gerrit-Jan Knaap et al. eds., Lincoln Institute of Land Policy 2015).

18. *Id.* at 110-12.

There are trade offs between selecting VMT or GHG emissions as the target. A VMT target, such as Washington's, has the advantage of isolating the role of land use policy from vehicle fuel economy, carbon content of fuels, and electric vehicle market share, in addition to being a better measure of vehicle wear and tear on public roads. On the other hand, a VMT target will fail to account for either excess GHG emissions due to congestion, or for GHG emissions resulting from drivers opting for smaller, more fuel-efficient cars. A GHG emissions target also has the advantage of fitting more directly into an economywide emissions target, such as that of Maryland or New York.

Selecting a *per capita metric* for the reduction of VMT and transportation-sector GHG emissions may be more desirable for states in which households and individuals are likely to have a relatively low carbon footprint, and an *aggregate metric* may be more appropriate for states in which households have high carbon footprints. Emissions from households' transportation, electricity usage, and home heating are generally lowest in California, in comparison to the rest of the United States.¹⁹

Successful implementation of an aggregate target could entail limiting additional population growth, because adding to the population may increase aggregate statewide emissions even if per capita emissions decline. But if a statewide limit on aggregate emissions results from households moving to (or remaining in) states in which larger carbon footprints are the norm, then it would actually increase aggregate emissions at the national and global levels. Thus, per capita metrics may be more appropriate for states such as California, whereas aggregate transportation-sector emissions targets might be more desirable as a means of climate change mitigation in states with relatively high household carbon footprints.

Another challenge states face in target-setting is determining *target ambition*. More ambitious targets, if achieved, would move aggregate emissions closer in alignment with science-based emissions pathways and compliance with international emissions pledges. However, ambitious targets may be dismissed as politically or practically infeasible.²⁰

California, Maryland, New York, Oregon, and Washington provide examples of different combinations of substantive goals, metric design, and target ambition. Part II discusses how to address the trade offs of these various choices involved in target-setting.

B. Planning

At least six forms of planning are relevant to transportation-sector GHG emissions-reduction strategies:

- Local general plans (also known as comprehensive plans) guide infrastructure investments and zoning. They may be required to be consistent with state policy goals or coordinated with neighboring local governments.²¹ States may also require that local zoning ordinances be consistent with the local general plan.²²
- State and regional transportation plans are required in order to receive federal transportation funds.
- Long-range transportation plans have a 20-plus-year horizon and identify broad funding priorities and policy goals.²³
- Transportation improvement programs have a four-year horizon and specify individual projects to be financed with federal transportation funds.²⁴
- Climate action plans can cover a wide range of policy domains, unified only by the goals of reducing GHG emissions and adapting to the effects of climate change.
- Scenario plans use predictive modeling to structure policy in light of specified outcomes and/or to explore policy options for addressing foreseeable contingencies.²⁵ They may be undertaken as part of one of the above planning processes, or independently.

Planning can be done directly by states, or states can impose planning mandates on regional or local governments.

I. State-Level Planning

State-level planning, including climate action plans and statewide transportation plans, can guide direct state implementation of land use regulations, infrastructure investments, and road pricing policies in order to reduce transportation-sector GHG emissions and VMT. It can also lay the groundwork for states to adopt mandates and incentives to bring local policy in line with state policy goals. The main advantage of state-level planning is that the state can ensure that planning adheres closely to the state's policy goals. A secondary advantage is that the state may benefit from economies of scale in developing planning expertise, which may be difficult for smaller jurisdic-

19. See Edward L. Glaeser & Matthew E. Kahn, *The Greenness of Cities: Carbon Dioxide Emissions and Urban Development*, 67 J. URB. ECON. 404 (2010).

20. Telephone Interviews with Leslie Kimura, Manager, Sustainable Communities Policy and Planning Section, CARB (Feb. 21, 2018 & Apr. 6, 2018); Telephone Interview with Karin Landsberg, Air & Energy Program Manager, Washington Department of Transportation (Apr. 25, 2018).

21. RAYMOND J. BURBY ET AL., *MAKING GOVERNMENTS PLAN* 8 (1997).

22. *Id.* at 9.

23. Federal Transit Administration, *Long-Range Statewide Transportation Plan*, <https://www.transit.dot.gov/regulations-and-guidance/transportation-planning/long-range-statewide-transportation-plan> (last visited Mar. 12, 2019); Federal Transit Administration, *Metropolitan Transportation Plan (MTP)*, <https://www.transit.dot.gov/regulations-and-guidance/transportation-planning/metropolitan-transportation-plan-mtp> (last visited Mar. 12, 2019).

24. Federal Transit Administration, *Statewide Transportation Improvement Program (STIP)*, <https://www.transit.dot.gov/regulations-and-guidance/transportation-planning/statewide-transportation-improvement-program-stip> (last visited Mar. 12, 2019); Federal Transit Administration, *Transportation Improvement Program (TIP)*, <https://www.transit.dot.gov/regulations-and-guidance/transportation-planning/transportation-improvement-program-tip> (last visited Mar. 12, 2019).

25. American Planning Association, *Scenario Planning*, <https://www.planning.org/knowledgebase/scenarioplanning/> (last visited Mar. 12, 2019).

tions.²⁶ The disadvantages of state planning are that state officials may lack sufficient knowledge or incentive to adequately account for local concerns, and the state may be reluctant to deploy the policy tools required to implement state-generated plans.

While 34 states now have climate action plans, the substantive focus of these plans varies widely.²⁷ In many states, the connection between transportation, land use, and climate change mitigation is not directly addressed. Few states have engaged in state-level planning to mitigate transportation-sector GHG emissions, although California is a noteworthy exception.

California has attempted to address GHG emissions, in part, through statewide transportation planning. Legislation adopted in 2009 directed the California Department of Transportation (Caltrans) to update the statewide, long-range transportation plan every five years to address how the state will achieve maximum feasible emissions reductions consistent with the state's GHG emissions reduction goals.²⁸ The legislation called for Caltrans to "conduct scenario planning on how the agency will meet the transportation-sector GHG [emissions] reduction goal of 80% below 1990 levels by 2050."²⁹ However, the reach of statewide transportation planning in California may be limited by the state's relatively decentralized approach to transportation funding, discussed below.

Maryland has a widely admired "smart growth" regime, discussed below, involving geographical restrictions on state-funded infrastructure.³⁰ But Maryland's smart growth requirements do not address GHG emissions, and they are not linked to the state's climate action plans.³¹ Indeed, the state's climate action plans have generally assumed that transportation-sector GHG emissions reductions would primarily result from improved emission control technologies.³²

The opportunities for California and Maryland to improve their existing state-level planning strategies, as well as the potential accommodation of the trade offs associated with state-level planning, are discussed in Part II.

2. State-Imposed Planning Mandates

□ *Regional agencies.* MPOs play a crucial role in the transportation planning process, and it is also possible for states to empower regional governments with authority over planning *and* land use regulation. States can require regional entities' planning processes to address transportation-sector GHG emissions. Standing alone, such planning mandates can focus attention on transportation-sector GHG emissions reductions, but they may have a limited impact on emissions outcomes.

California's S.B. 375 pioneered the use of target-based mandates to compel regional entities to consider GHG emissions in the planning process. S.B. 375 assigns significant responsibility to CARB, which has a permanent staff, a large budget, and clearly defined legal authority.³³ CARB, in consultation with MPOs, sets regional targets for per capita GHG emissions reductions from on-road passenger vehicle use.³⁴ S.B. 375 requires MPOs to prepare a sustainable communities strategy (SCS) that, if fully adopted, would achieve these emissions reduction targets.³⁵ Each MPO must incorporate its SCS into its regional transportation plan (RTP), which is linked to federal transportation funding. Under federal law, the RTP must be amenable to implementation under reasonable budget projections.³⁶

Oregon also has strong regional planning requirements, and its system is widely viewed as a model for minimizing sprawl,³⁷ but, unlike California, Oregon has not significantly adapted its system to address transportation-sector GHG emissions. The primary purpose of Oregon's

26. Comment by Chris Schmidt, Division of Transportation Planning Chief, California Department of Transportation, at CLEANR Workshop Roundtable (Oct. 19, 2018).

27. See Center for Climate and Energy Solutions, *U.S. State Climate Action Plans*, <https://www.c2es.org/document/climate-action-plans/> (last visited Mar. 12, 2019).

28. S.B. 391, Act of Oct. 11, 2009, ch. 585, 2009 Cal. Stat. (codified at CAL. GOV'T CODE §§65071-73 (West 2019)).

29. LEWIS & ZAKO, *supra* note 14, at 35.

30. National Center for Smart Growth, *Home Page*, <http://www.umdsmartgrowth.org/> (last visited Mar. 12, 2019).

31. LEWIS & ZAKO, *supra* note 14, at 36.

32. Land use programs, including "Reducing Emissions Through Smart Growth and Land Use/Location Efficiency" and "Priority Funding Area (Growth Boundary) Related Benefits," are listed separately and account for 0.54 million metric tons (MMt) of carbon dioxide equivalent (CO₂e) of initial reductions and 1.14 MMt CO₂e of enhanced reductions. MARYLAND DEPARTMENT OF THE ENVIRONMENT, MARYLAND'S GREENHOUSE GAS REDUCTION ACT PLAN 70 (2013), available at <https://mde.maryland.gov/programs/Air/ClimateChange/MCCC/Publications/GGRAPlan2012.pdf>. The plan calls for a total of 38.87 MMt CO₂e of initial reductions and 55.47 MMt CO₂e of enhanced reductions economywide. *Id.* Maryland's 2013 climate action plan proposed new measures, such as public transportation investments and pricing initiatives, in order to achieve the state's climate goals, but the legislature did not provide the requisite authorization. *Id.* The state's 2015 climate action plan dispensed with the measures added by the 2013 plan new measures, and it proposed less ambitious emissions targets. MARYLAND DEPARTMENT OF THE ENVIRONMENT, 2015 GREENHOUSE

GAS EMISSIONS REDUCTION ACT PLAN UPDATE 77 (2015) [hereinafter MARYLAND 2015 PLAN], available at http://climatechange.maryland.gov/wp-content/uploads/sites/16/2014/11/GGRA_Report_Final_11-2-15.pdf. The contribution of public transportation somewhat reduced to 1.85 MMt CO₂e, whereas the contribution of pricing initiatives remains close to the 2013 enhancement level, accounting for 1.99 MMt CO₂e. *Id.* at 81.

33. Telephone Interview with Rebecca Lewis, Assistant Professor of Planning, Public Policy, and Management, University of Oregon (Mar. 30, 2018).

34. CAL. GOV'T CODE §65080(b)(2)(A)(i). In 2010, CARB set initial targets for 2020 and 2035; the 2035 targets were updated in March 2018. CARB, *Regional Plan Targets*, <https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/regional-plan-targets> (last visited Mar. 12, 2019).

35. CAL. GOV'T CODE §65080(b)(2)(B).

36. *Id.* §65080(b); CALIFORNIA TRANSPORTATION COMMISSION, 2017 REGIONAL TRANSPORTATION PLAN GUIDELINES FOR METROPOLITAN PLANNING ORGANIZATIONS 107-08 (2017), available at <http://www.dot.ca.gov/hq/tpp/offices/orip/rtp/docs/2017RTPGuidelinesforMPOs.pdf>. If CARB concludes that the combination of measures in an MPO's SCS are insufficient to achieve its emissions target, the MPO must prepare a separate alternative planning strategy (APS). *Id.* at 158. The APS is not part of the RTP and thus not subject to the federal law imposing fiscal constraints on RTPs. *Id.* To date, every California MPO has succeeded in getting their SCS approved by CARB, so no APS has been necessary. See CARB 2018 PROGRESS REPORT, *supra* note 4, at 22.

37. Edward J. Sullivan & Jessica Yeh, *Smart Growth: State Strategies in Managing Sprawl*, 45 URB. LAW. 349, 378-81 (2013).

growth management regime continues to be protecting farmland from development,³⁸ and it relies extensively on the authority of Metro, which is a regional government in the Portland area, to determine the extent of an urban growth boundary (UGB).³⁹ The state has made modest use of target-based mandates, requiring the Portland MPO to develop and adopt scenario plans to meet the per capita GHG emissions target set by the LCDC.

The authorizing legislation “anticipated that” the state’s other five MPOs would engage in scenario planning, but did not require it.⁴⁰ The Portland MPO has adopted a scenario plan for meeting its 2035 GHG emissions target for light-duty vehicles.⁴¹ The Eugene-Springfield MPO developed scenarios, but did not adopt a plan,⁴² and some smaller MPOs conducted voluntary “strategic assessments,” a limited form of scenario planning.⁴³ Implementing the Portland scenario plan would require new funding to support investments in transit, bicycling, and walking, but the Oregon Legislature has not authorized the requisite funding.⁴⁴

Roundtable participants noted that, out of the five states analyzed here, California has made the greatest effort to enhance coordination between MPOs and local governments. There is widespread agreement that S.B. 375 has increased attention to transportation-sector GHG emissions in regional planning processes, and fostered coordination between local governments and MPOs in this context.⁴⁵ However, as CARB has acknowledged, this planning and coordination has not yielded meaningful reductions in transportation-sector GHG emissions relative to the state’s goals.⁴⁶ This may be due to the fact that implementation of local land use reform under S.B. 375 has not involved local planning mandates (discussed in this section) or requirements that local land use regulation

be consistent with regional targets (discussed in Part II).⁴⁷ Instead, it has relied on exhortation and the provision of certain incentives, discussed in Section I.D.

The regional planning regimes of California and Oregon thus differ in important ways, and these differences highlight the strengths and shortcomings of each approach. California requires regional planning bodies to address transportation-sector GHG emissions, but there is a disconnect between these regional entities, the municipalities with the authority to implement land use decisions, and the county transportation commissions, which have authority over many transportation funding decisions. Oregon’s regional planning bodies, on the other hand, do have implementation authority; however, Oregon does not integrate transportation-sector GHG emissions reductions into its planning requirements. The shortcomings of each approach are discussed further below.

□ *Local governments.* Just as states can require regional agencies’ planning processes to address transportation-sector GHG emissions and VMT, states can also require local governments’ planning processes to address transportation-sector GHG emissions and VMT. To the extent that local regulations must be consistent with local plans, local planning mandates could be an important mechanism for transportation-sector GHG emissions reduction. Some states require this form of consistency, but they have not directly mandated a link between local planning and state GHG emissions and VMT targets.

Although states have not imposed relevant planning mandates on local governments, many local governments have nevertheless adopted plans addressing climate

38. Comment by Rebecca Lewis, Assistant Professor of Planning, Public Policy, and Management, University of Oregon, at CLEANR Workshop Roundtable (Oct. 19, 2018).

39. See Metro, *Urban Growth Boundary*, <https://www.oregonmetro.gov/urban-growth-boundary> (last visited Mar. 12, 2019).

40. *Id.* As in California, these targets only count reductions beyond those from expected vehicle fuel efficiency improvements and reductions in the carbon content of fuels. OREGON DEPARTMENT OF TRANSPORTATION & OREGON DEPARTMENT OF LAND CONSERVATION AND DEVELOPMENT, OREGON SCENARIO PLANNING GUIDELINES 15 (2017), available at <https://www.oregon.gov/ODOT/Planning/Documents/Oregon-Scenario-Planning-Guidelines.pdf>.

41. METRO, CLIMATE SMART STRATEGY FOR THE PORTLAND METROPOLITAN REGION (2014), available at <https://www.oregonmetro.gov/sites/default/files/2015/05/29/ClimateSmartStrategy-FinalVersion-2014.PDF>. The LCDC approved the Portland scenario plan in May 2015. Metro, *Climate Smart Strategy*, <https://www.oregonmetro.gov/climate-smart-strategy> (last visited Mar. 12, 2019).

42. See Oregon Department of Land Conservation and Development, *Land Use and Transportation Planning for Climate Change*, <https://www.oregon.gov/lcd/CL/Pages/Land-Use.aspx> (last visited Mar. 12, 2019).

43. *Id.*

44. LEWIS & ZAKO, *supra* note 14, at 37.

45. Interview with Steve Ritchie, Director, & Craig Ross Rindt, Assistant Director, Institute for Transportation Studies, UCI, in Irvine, Cal. (May 7, 2018).

46. CARB 2018 PROGRESS REPORT, *supra* note 4, at 24. Telephone Interview with Steve Winkleman, Founder, Green Resilience Strategies (Apr. 17, 2018).

47. One potential exception to this generalization involves the state’s regional housing needs assessment (RHNA) process. The RHNA process requires the California Department of Housing and Community Development to generate a regional housing needs determination in consultation with each regional council of governments. CAL. GOV’T CODE §65584(b). The regional councils of governments then must apportion the needed units among the constituent municipalities and counties. *Id.* As a result of S.B. 375, RHNA allocations are to be based on the same population forecasts as the SCS, and the RHNA process shifted to an eight-year cycle in order to sync with alternate four-year RTP cycles. *Id.* §§65584.01, 65588(e). Local governments, in turn, have 18 months to update their general plans’ housing elements to be consistent with their RHNA allocations and three years to rezone parcels in conformity with the housing element. SARAH MAWHORTER ET AL., TERNER CENTER, CALIFORNIA’S SB 375 AND THE PURSUIT OF SUSTAINABLE AND AFFORDABLE DEVELOPMENT 9 (2018), available at http://ternercenter.berkeley.edu/uploads/SB375_July_2018_Final.pdf. Because the RHNA requirements tend to entail denser development than local governments would otherwise permit, enforcement of these requirements could reduce per capita VMT and vehicle GHG emissions. Any interested person can bring an action to compel a local government to make its zoning consistent with the housing element of its general plan. CAL. GOV’T CODE §65587. Moreover, state laws place significant restrictions on jurisdictions that fail to complete the required rezoning. Specifically, jurisdictions must approve any housing development project on a site that the city was required by state law to rezone, so long as the developer commits to set aside at least one-half of the units for income-restricted housing, and the project would not have a “specific, adverse effect” on public health or safety for which “[t] here is no feasible method to satisfactorily mitigate or avoid.” *Id.* §65583(g). Many cities have yet to complete their required housing element updates and rezone accordingly, and few legal challenges have been brought to force compliance, suggesting that the integration of RHNA with the SCS process has had a limited impact. CARB 2018 PROGRESS REPORT, *supra* note 4, at 7.

change mitigation. For example, many local governments in California address climate change mitigation in their general plans or by adopting a climate action plan.⁴⁸ These actions may be undertaken in order to comply with California's environmental impact assessment statute, discussed below in Section I.G.

The efficacy of such plans may depend on their consistency with regional or state-level plans, as well as whether local regulations must be consistent with local plans. Notably, climate action plans or even general plans adopted by California local governments need not be consistent with the SCS adopted by an MPO, and this has led to substantial challenges in S.B. 375 implementation. MPOs must make assumptions about land use patterns in their SCS, but they lack the authority to change land use regulations to allow those patterns to occur. Local plans may allow leapfrog development into natural or agricultural areas and fail to allow enough development in areas that are walkable and accessible to transit.⁴⁹ Roundtable participants agreed that because states have not imposed mandates on local governments to integrate reduction of GHG emissions and VMT into local planning, states' efforts to reduce transportation-sector GHG emissions and VMT have been limited.

Some participants noted that even if local governments were required to plan for GHG emissions reductions, the impact of such requirements might vary, depending on state requirements for consistency between local land use regulation and local plans. There is considerable interstate variation concerning such requirements. For example, in Oregon, local land use regulation must be consistent with the comprehensive plans,⁵⁰ and this requirement is enforceable through a private right-of-action.⁵¹ In California, by contrast, state law does not impose a consistency requirement on charter cities with populations under two million.⁵² California does require counties, cities with populations of more than two million, and cities without a city charter to maintain consistency between their zoning ordinance and their general plan.⁵³

C. Regulate Land Use

Local authority to regulate land use derives from a state's police power, and states can intrude upon traditional local prerogatives in order to promote the general welfare. One way states can intervene in land use regulation to mitigate climate change through the transportation sector is by directly overriding regional or local land use regulation

to permit development projects that would reduce GHG emissions. States can also require regional or local land use regulation to be consistent with GHG emissions and VMT targets identified through state, regional, and/or local planning. Finally, states can set minimum standards for regional or local land use regulation that promote denser development, which can in turn reduce GHG emissions and VMT.

Although roundtable participants were not aware of any state that has explicitly pursued an emissions-reduction strategy by bypassing regional or local permitting authority, one participant noted that New York has long had a statute on the books that would permit such action.⁵⁴ Since the late 1960s, the New York State Urban Development Corporation (UDC) has possessed expansive powers to override local zoning, permitting, and environmental review authority, based on decisions by a board of directors and president selected by the governor.⁵⁵ The state legislature eliminated UDC's override powers in suburban jurisdictions in the early 1970s, but UDC has retained these powers for projects in cities.⁵⁶ UDC, currently known as Empire State Development,⁵⁷ has used its authority on behalf of controversial transit-oriented development projects in New York City,⁵⁸ although roundtable participants were unaware of any invocation of UDC's authority explicitly related to a GHG emissions-reduction strategy.

Oregon takes a less intrusive approach, limiting the authority of municipalities within a UGB to restrict dense development, and California is currently considering legislation that would specify minimum allowable densities in portions of some cities. Oregon sets minimum standards for local land use regulation through its growth management model. A state agency must approve local plans as consistent with the state's 19 land use policy goals and, as noted above, local land use regulation must be consistent with local plans. This requirement is supported by a private right-of-action to block local land use regulations that are inconsistent with state-approved plans and policy goals.⁵⁹ Oregon's state land use goals, however, do not target VMT reduction or climate change mitigation.

48. CALIFORNIA GOVERNOR'S OFFICE OF PLANNING AND RESEARCH, 2017 GENERAL PLAN GUIDELINES 223 (2017), available at http://www.opr.ca.gov/docs/OPR_C8_final.pdf.

49. CARB 2018 PROGRESS REPORT, *supra* note 4, at 63.

50. Oregon Land Use and Development Act of 1973, OR. REV. STAT. §§197.175, 215.050 (2017).

51. *Id.* §197.830.

52. CAL. GOV'T CODE §§65803, 65860(d). Charter cities that are exempt from the consistency requirement may nevertheless impose such a requirement on themselves. See *Irvine, City of v. Irvine Citizens Against Overdevelopment*, 25 Cal. App. 4th 868 (Cal. Ct. App. 1994).

53. CAL. GOV'T CODE §65860.

54. Comment by Nicholas Marantz, UCI Department of Urban Planning and Public Policy, at CLEANR Workshop Roundtable (Oct. 19, 2018).

55. New York State Urban Development Corporation Act, ch. 174, 1968 N.Y. Laws 806 (codified as amended at N.Y. UNCONSOL. LAW §§6251-85 (McKinney 2019)). See also N.Y. UNCONSOL. LAW §6266(3) (West 2012); *Floyd v. New York State Urban Dev. Corp.*, 41 A.D.2d 395 (N.Y. App. Div.), *aff'd*, 300 N.E.2d 704 (N.Y. 1973) (authority to override local land use regulation).

56. Act of June 5, 1973, ch. 446, 1973 N.Y. Laws 1610, 1611 (codified at N.Y. UNCONSOL. LAW §6265(5) (McKinney 2019)).

57. See, e.g., Memorandum of Understanding by and Between New York State Urban Development Corporation Doing Business as Empire State Development, the City of New York, New York City Economic Development Corporation, and Amazon.com Services, Inc. (Nov. 12, 2018), <https://d39w-7f4ix9f5s9.cloudfront.net/4d/db/a54a9d6c4312bb171598d0b2134c/new-york-agreement.pdf>.

58. See, e.g., Amy Lavine & Norman Oder, *Urban Redevelopment Policy, Judicial Deference to Unaccountable Agencies, and Reality in Brooklyn's Atlantic Yards Project*, 42 URB. LAW. 287 (2010).

59. Comment by Rebecca Lewis, Assistant Professor of Planning, Public Policy, and Management, University of Oregon, at CLEANR Workshop Roundtable (Oct. 19, 2018).

In 2018, the California Legislature considered a bill that would have allowed denser development and eliminated parking requirements within one-half mile of a major transit stop or one-quarter mile of a high-quality transit corridor.⁶⁰ The bill would have facilitated relatively dense residential development in transit-accessible neighborhoods, and it therefore could have produced substantial per capita VMT and GHG emissions reductions.⁶¹ This bill was voted down in committee in April 2018,⁶² but a similar bill was introduced in December 2018, adding provisions for density minimums in areas with good schools and accessible jobs, but limited transit infrastructure.⁶³

Roundtable participants were divided on the merits and feasibility of state intervention in land use regulation. Some characterized it as a potentially important mechanism for expanding housing supply. Others, however, emphasized concerns about the political feasibility of minimum state land use standards. States often encounter substantial political opposition. Indeed, such opposition led the California Legislature to expressly disavow any requirement that local general plans and land use regulations conform to their MPO's SCS in S.B. 375.⁶⁴ Roundtable participants also expressed concerns that state governments would locate new development based on coarse-grained criteria that would not always align with quality of life, affordability, and environmental goals. Part II discusses ways to address these concerns surrounding state interventions in land use regulation.

D. Provide Funding and Technical Assistance With Planning Mandates

I. Grant and Incentive Programs

States can use grant and incentive programs to help local and regional governments achieve GHG emissions and VMT reductions throughout the planning and implementation processes for public works projects. Such programs may be useful in filling gaps where mandates are infea-

sible or inappropriate. In some contexts, mandates may not be politically feasible and financial incentives for certain forms of planning, or implementation can be a more palatable alternative. States may also wish to avoid mandates in cases where the desired planning or implementation is not tightly linked to a genuine state policy goal, but instead is something the state wants to encourage primarily for its localized benefits.

Grants and incentives in most states seem to play a limited role in the initial planning process.⁶⁵ In theory, they could be used to promote local and regional planning. In practice, states tend to rely on either mandates or exhortation.⁶⁶ However, California has provided support for the SCS process via Sustainable Communities Planning Grants and Incentives Program Awards, awarding a total of \$67 million between 2010 and 2014.⁶⁷ More recently, Caltrans announced \$29.5 million in Sustainable Communities Grants for fiscal year 2019-2020 to encourage local and regional planning that further state goals.⁶⁸

California has also used grant and incentive programs to promote plan implementation. It has adopted two incentive-based mechanisms related to S.B. 375 implementation: (1) linkage to federal transportation funds, and (2) competitive grant programs. First, S.B. 375 requires that SCS be incorporated into the RTPs prepared by MPOs.⁶⁹ To be eligible for federal funding, all transportation projects must be included in a state transportation improvement program (STIP) or an MPO transportation improvement program (TIP).⁷⁰ A TIP must be consistent with an RTP, which in turn includes the SCS, which CARB must certify as sufficient to meet regional per

60. S.B. 827, 2017-2018 Leg., Reg. Sess. (Cal. 2018), https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201720180SB827.

61. See NATHANIEL DECKER ET AL., UNIVERSITY OF CALIFORNIA BERKELEY, RIGHT TYPE RIGHT PLACE: ASSESSING THE ENVIRONMENTAL AND ECONOMIC IMPACTS OF INFILL RESIDENTIAL DEVELOPMENT THROUGH 2030, at 27-31 (2017) (indicating that locating all new residential development in California through 2030 within three miles of transit or in low-VMT neighborhoods (areas without rail but where residents drive at low rates) would induce annual reductions of 1.79 MMT of GHG emissions compared to the business-as-usual scenario, the equivalent of taking 378,000 cars off the road), available at http://turnercenter.berkeley.edu/uploads/right_type_right_place.pdf.

62. Benjamin Schneider, *YIMBYs Defeated as California's Transit Density Bill Stalls*, CITYLAB, Apr. 18, 2018, <https://www.citylab.com/equity/2018/04/californias-transit-density-bill-stalls/558341/>.

63. Liam Dillon, *California Legislator Revives Bill to Boost Apartment Complexes Near Transit*, L.A. TIMES, Dec. 4, 2018, <https://www.latimes.com/politics/la-pol-ca-housing-transit-bill-20181204-story.html>.

64. See Fulton, *supra* note 17, at 117-18 (This "decoupling" was the result of lobbying by the League of California Cities to maintain local autonomy in land use regulation).

65. Delaware offers a rare illustration of a robust program using financial incentives in planning, although it does not specifically address climate change or VMT. Local and county comprehensive plans in Delaware are subject to review by the Cabinet Committee on State Planning Issues for consistency with the Strategies for State Policies and Spending. Rebecca Lewis, *Delaware's Quiet Emergence Into Innovative State Planning*, in PLANNING FOR STATES AND NATION-STATES IN THE U.S. AND EUROPE, *supra* note 17, at 237. If a city's or county's plan is not ultimately certified by the governor as consistent with the strategies, the state is not obligated to provide funding or infrastructure to support development. *Id.* at 245-46. This approach has been moderately successful in promoting consistency of local and county plans with state policy goals without direct interference with local land use authority and has also been resilient to multiple gubernatorial transitions. *Id.* at 246. However, its impact in terms of reshaping development patterns is less clear. Developers and local governments can still pay for infrastructure to support undesirable development on their own, and the state may ultimately pay for infrastructure to accommodate development after the fact. *Id.* at 249.

66. The distinction between mandates and incentives is not always sharp, as the penalty for failing to comply with a mandate may be loss of funding.

67. California Strategic Growth Council, *Sustainable Communities Planning Grants and Incentives (SCPGI) Program*, <http://sgc.ca.gov/programs/prop84/scgpi.html> (last visited Mar. 12, 2019).

68. CALTRANS, FISCAL YEAR 2019-2020 TRANSPORTATION PLANNING GRANTS, http://www.dot.ca.gov/hq/tpp/grant_files/FY_19-20/FinalFY19-20Grants-Brochure.pdf.

69. CAL. GOV'T CODE §65080. Under federal law, RTPs must extend out at least 20 years and be updated every five years (every four years in criteria pollutant nonattainment areas, which cover most of California). 23 U.S.C. §134(i). Federal Department of Transportation regulations stipulate that MPOs must base RTP updates on "the latest available estimates and assumptions for population, land use, travel, employment, congestion, and economic activity." 23 C.F.R. §450.324.

70. 23 U.S.C. §134(j)(1).

capita vehicle emission targets.⁷¹ In this way, S.B. 375 links transportation-sector GHG emissions-reduction strategies to the distribution of federal transportation funds.

Second, California has a few competitive grant programs to support S.B. 375 implementation. The \$29.5 million Sustainable Communities Grants Program, administered by Caltrans, is designed to encourage local and regional planning that furthers state goals, including SCS implementation.⁷² The Strategic Growth Council administers the rest of these programs and is funded with a dedicated stream of auction revenue from the state's cap-and-trade program.⁷³ These programs have awarded a total of \$570 million through 2017.⁷⁴

While such financial and regulatory incentives offer a less coercive option for encouraging local and regional plan implementation of land use reforms and other policies to reduce VMT, they have the disadvantage of on-budget costs and may be less effective than mandates in bringing about the desired planning, especially if the programs are poorly funded. Roundtable participants also noted that planning cycles are much longer range than budget cycles. Budgets change from year to year, making it difficult for states to make multi-year commitments that planning may require.⁷⁵ Similar concerns would likely apply to any funding stream based on road, parking, and fuel pricing revenue. Another concern raised by roundtable participants regarding competitive grant programs is that they require substantial capacity and resources just to apply. As a result, smaller or less-resourced jurisdictions may have limited access to such funds.⁷⁶

California's experience, as the state that has most heavily relied on grant and incentive programs, points to other limitations of such programs. California's existing set of grant and incentive programs have not been especially effective in driving S.B. 375 implementation. CARB's 2018 S.B. 375 Progress Report finds that the linkage between federal transportation and emissions goals enacted through the SCS requirement has had only a limited effect on local land use decisions and GHG emissions.⁷⁷ One reason for this is that county transportation commissions can use

sales tax revenue to fund transportation projects that are not in the TIP, reducing their dependence on federal highway funds.⁷⁸

Roundtable participants expressed a number of other concerns about California's existing grant programs. Many of these programs are administered by the Strategic Growth Council, which has a small staff and may lack the resources for effective administration. Moreover, the grant programs are highly oversubscribed, and their impact is limited by the small quantity of funds dedicated to them. Thus, they may offer local governments fairly weak incentives to coordinate their plans with an SCS.

Opportunities for addressing these challenges and improving existing grant and incentive programs are discussed in Part II.

2. Technical Assistance

States can provide technical assistance for planning and implementation to local governments and MPOs. Technical assistance can enhance the capacity and expertise of MPOs and local governments, and it can also convey guidance on state policy goals, priorities, and preferred strategies. Roundtable participants emphasized that clear guidance and technical support is a particularly important element of any state policy regime that relies primarily on local authorities to implement GHG emissions and VMT reduction goals through land use and transportation decisions, as opposed to direct state interventions.⁷⁹ This support can serve to not only communicate state goals and preferred policies, but also to take advantage of economies of scale in addressing expertise and capacity needs in small and under-resourced jurisdictions.

□ *Assistance for MPOs.* California and Washington provide technical assistance to regional governments. In California, CARB plays a role in supporting MPOs in the SCS process; however, MPO officials point out that CARB is a regulatory agency that lacks planning expertise. Washington uses a multiagency approach. H.B. 2815 set up a collaborative process led by the Departments of Transportation, Ecology, and Commerce to develop tools and best practices to assist MPOs in achieving the statewide vehicle emissions targets.⁸⁰

A 2009 Executive Order also gave the Washington Department of Transportation (WDOT) responsibility for working with the state's four largest MPOs—Olympia, Seattle, Spokane, and Vancouver—to “cooperatively develop and adopt” RTPs that achieve the statewide VMT

71. *Id.* TIPs must extend out at least four years, be updated every four years (though they are often amended annually), and contain projects “consistent with” the current RTP. *Id.* §134(i)(1)(A), (j)(1)(A).

72. Caltrans, *Caltrans Transportation Planning Grant Program*, <http://www.dot.ca.gov/hq/tpp/grants.html> (last visited Mar. 12, 2019).

73. California Strategic Growth Council, *Programs* (the programs include Model Incentives Grant Program, California Climate Investments Technical Assistance Program, and the Transformative Climate Communities Program), <http://sgc.ca.gov/programs/> (last visited Mar. 12, 2019).

74. CALIFORNIA DEPARTMENT OF FINANCE, CALIFORNIA CLIMATE INVESTMENTS USING CAP-AND-TRADE AUCTION PROCEEDS: 2017 ANNUAL REPORT iii (2017), available at https://www.arb.ca.gov/cc/capandtrade/auctionproceeds/cci_annual_report_2017.pdf.

75. California's cap-and-trade revenues fluctuate from year to year, so it is difficult for the state to make multi-year commitments. Comment by Marie Liu, California Assembly Speaker's Office, at CLEANR Workshop Roundtable (Oct. 19, 2018).

76. Comment by Chris Schmidt, Division of Transportation Planning Chief, Caltrans, at CLEANR Workshop Roundtable (Oct. 19, 2018).

77. See CARB 2018 PROGRESS REPORT, *supra* note 4, at 50. Elisa Barbour, *Evaluating Sustainability Planning Under California's Senate Bill 375*, 2568 TRANSP. RES. REC.: J. TRANSP. RES. BD. 17-25 (2016).

78. Comment by Chris Schmidt, Division of Transportation Planning Chief, Caltrans, at CLEANR Workshop Roundtable (Oct. 19, 2018).

79. Comment by Krute Singa, Metropolitan Transportation Commission, at CLEANR Workshop Roundtable (Oct. 19, 2018).

80. Rebecca Lewis et al., *Reducing Greenhouse Gas Emissions From Transportation and Land Use: Lessons From West Coast States*, 11 J. TRANSPORT & LAND USE 343, 352 (2018). Act of Mar. 13, 2008, ch. 14, 2008 Wash. Laws 172 (codified as amended in scattered sections of WASH. REV. CODE tit. 28B, 43, 47, 70 (2018)).

targets.⁸¹ The Seattle MPO's 2010 RTP relied on input from WDOT and included a strategy for reducing transportation-sector GHG emissions by promoting compact development and multimodal transportation, and implementing roadway pricing.⁸² The RTP also gives credit for GHG emissions reductions due to advances in vehicle and fuel technology. The 2009 order did not produce significant results in the other three major MPOs. This is, in part, because WDOT officials have limited legal authority to influence local land use choices,⁸³ and state agency officials no longer treat the reduction of GHG emissions as a priority.⁸⁴

□ *Assistance for local governments.* All five states analyzed provide technical assistance to local governments. In Washington, Growth Management Services within the state's Department of Commerce is tasked with providing technical assistance to local governments in order to encourage planning decisions that will meet the state's goals.⁸⁵ In California, the Governor's Office of Planning and Research provides technical guidance to local governments in drafting their general plans and achieving environmental and transportation goals.⁸⁶ However, roundtable participants indicated that the Office of Planning and Research does not have adequate resources to provide this guidance.

California also pairs technical assistance with incentive programs. For example, S.B. 1072 created a regional climate collaborative program to provide under-resourced jurisdictions with technical assistance to apply for competitive Transformative Climate Communities Program grants administered by the Strategic Growth Council.⁸⁷ As discussed above, these smaller communities would otherwise lack the resources or expertise to participate in these competitive grant programs.⁸⁸

New York uses a coordinated, multiagency approach to provide information and technical support to improve local planning. The Climate Smart Communities Program is a joint effort of the state's Energy Research and Development Authority and five state government departments—Environmental Conservation, Health, Public Service, State, and Transportation. The program seeks to “provide guidance to local governments on best practices for mitigating and adapting to climate change,”

such as optimizing traffic signal timing, promoting car-sharing for government employees, and adopting anti-idling policies.⁸⁹ The program also offers certification to communities that adopt and implement the Climate Smart Communities Pledge, which includes a transportation element.⁹⁰ Pledge elements include adopting a climate action plan and reviewing existing plans for opportunities to decrease climate change impact vulnerability using the state's Climate Smart Resiliency Planning Tool.⁹¹

The Maryland Department of Planning provides data analysis and forecasting assistance to local governments.⁹² In doing so, it makes use of a variety of data sets and analytical tools that it has developed, such as a parcel database, land use/land cover data, and a growth simulation model.⁹³ The Department also assists local governments in “infill and redevelopment projects in existing communities, utilizing various best planning practices to help revitalize and attract new development” to these areas.⁹⁴

Oregon has also sought to provide information-based support for local implementation. In 2007, the state created the Global Warming Commission tasked with “recommend[ing] statutory and administrative changes, policy measures and other recommendations to be carried out by state and local governments, businesses, nonprofit organizations or residents.”⁹⁵ However, the Commission was not provided with its own staff, budget, or legal authority. Instead, it relied on staff support from the Oregon Department of Energy and had limited capacity for sustained action through gubernatorial transitions in 2011 and 2015.⁹⁶

California, Maryland, New York, Oregon, and Washington show that technical assistance can enable willing local and regional jurisdictions to act consistent with state policy goals when they might otherwise lack the capacity and expertise. However, states themselves may lack the necessary funding, expertise, or other resources to adequately provide such technical assistance. Roundtable participants indicated that CARB and Oregon's Global Warming Commission have encountered these problems.

E. Reallocate Transportation Spending

Targeted transportation spending is another way in which states can reduce GHG emissions and VMT. There is strong evidence that highway expansion *increases* VMT, and there is also evidence that transit and active

81. Washington Exec. Order No. 09-05, Washington's Leadership on Climate Change (2009), available at <http://governor.wa.gov/sites/default/files/execute/09-05.pdf>.

82. See generally PUGET SOUND REGIONAL COUNCIL, TRANSPORTATION 2040: TOWARD A SUSTAINABLE TRANSPORTATION SYSTEM (2010), available at <https://www.psrc.org/sites/default/files/t2040finalplan.pdf>.

83. Telephone Interview with Karin Landsberg, Air & Energy Program Manager, WDOT (Apr. 25, 2018).

84. *Id.*

85. LEWIS & ZAKO, *supra* note 14, at 28.

86. California Governor's Office of Planning and Research, *General Plan Guidelines*, <http://opr.ca.gov/planning/general-plan/> (last visited Mar. 12, 2019).

87. S.B. 1072, Act of Sept. 13, 2018, ch. 377, 2018 Cal. Stat. (codified at CAL. PUB. RES. CODE §§71130-32 (West 2019)).

88. Comment by Joel Espino, Environmental Equity Legal Counsel, Greenlining Institute, at CLEANR Workshop Roundtable (Oct. 19, 2018).

89. New York State Department of Environmental Conservation, *A Guide to Local Action*, <https://www.dec.ny.gov/energy/50845.html> (last visited Mar. 12, 2019).

90. *Id.*

91. *Id.*

92. Maryland Department of Planning, *Planning Data and Research*, <https://planning.maryland.gov/Pages/OurWork/growthtrends.aspx> (last visited Mar. 12, 2019).

93. MARYLAND 2015 PLAN, *supra* note 32, at 166.

94. *Id.*

95. H.B. 3543, Act of Aug. 7, 2007, ch. 907, 2007 Or. Laws (codified at OR. REV. STAT. §§468A.200-60 (2017)).

96. Telephone Interview with Rebecca Lewis, Assistant Professor of Planning, Public Policy, and Management, University of Oregon, (Mar. 30, 2018).

transportation investments *decrease* VMT.⁹⁷ States can leverage control of infrastructure funding to limit VMT by eliminating legal barriers to spending transportation revenue on transit and active transportation infrastructure, and by shifting transportation infrastructure funds away from new highway construction.⁹⁸

Some states face significant practical and legal obstacles to shifting their allocation of transportation funds. State departments of transportation must attend to ongoing maintenance needs, which can limit their ability to shift funding away from highways.⁹⁹ Legal obstacles can compound these practical limits. Oregon's state constitution, for example, prohibits the state from diverting revenues from state vehicle-related taxes and fees to any use other than building and maintaining highways.¹⁰⁰

In addition, roundtable participants noted that the centralization of control over transportation funds varies significantly among states, and that decentralized finance systems may impede climate change mitigation. California, for example, has a relatively decentralized system of transportation funding, because county transportation commissions have significant authority over revenues derived from county sales taxes.¹⁰¹ By contrast, states with relatively centralized funding mechanisms can geographically target infrastructure investments within priority funding areas (PFAs)/UGBs to support denser development. Maryland's Smart Growth Areas Act directs state spending on roads, water and sewer plants, and economic development toward PFAs.¹⁰² Since 1997, Maryland has also offered funding for infrastructure and brownfield cleanup, business tax credits, and homebuyer assistance to promote development in PFAs that meet density criteria or are targeted for economic revitalization.¹⁰³ Oregon also allocates infrastructure spending to promote compact development within UGBs.¹⁰⁴

Some participants noted, however, that there is limited evidence that reallocating investment within UGBs and PFAs reduces GHG emissions or VMT and some evidence that it does not. UGBs may divert population

growth and induce leapfrog development in outer suburbs not subject to the UGB.¹⁰⁵ Moreover, Maryland's smart growth regime, which relies primarily on PFAs, has had no measurable impact on development patterns or VMT.¹⁰⁶ Roundtable participants noted that this is likely due to the relatively small share of total infrastructure funding that is restricted to PFAs.¹⁰⁷ Since local government funds are fungible, funds can usually be moved around to fund any investments outside PFAs that local governments want to make.¹⁰⁸ Recommendations for addressing the challenges associated with reallocating infrastructure spending are discussed in Part II.

F. Pricing Policies

Policies such as road pricing and gas tax increases are important tools that states can implement directly in order to reduce GHG emissions, VMT, and traffic congestion.¹⁰⁹ Road pricing regimes require vehicle operators to pay fees in order to use roads, and the fees may vary depending on the number of occupants in a vehicle, the time of day, and the number of other vehicles on the road. There is an extensive body of research indicating that road pricing and gas taxes can raise revenue and reduce traffic congestion, enhancing aggregate welfare and improving environmental quality.¹¹⁰ On the other hand, road pricing and gas tax regimes that do not redistribute the revenues based on need can function as a regressive tax.¹¹¹ Moreover, road pricing has proven to be politically challenging in the United States.¹¹²

Oregon and California offer lessons for the future viability of pricing policies. Oregon has experimented with road pricing as an alternative to the gas tax via a

97. MARLON BOARNET & SUSAN HANDY, A FRAMEWORK FOR PROJECTING THE POTENTIAL STATEWIDE VMT REDUCTION FROM STATE-LEVEL STRATEGIES IN CALIFORNIA 3 (2017), available at <http://sgc.ca.gov/resources/docs/20170125-State-LevelVMTStrategies.pdf>.

98. See *id.* at 4.

99. Comment by Karin Landsberg, Air & Energy Program Manager, WDOT, at CLEANR Workshop Roundtable (Oct. 19, 2018).

100. OR. CONST. art. IX, §3a.

101. Comment by Chris Schmidt, Division of Transportation Planning Chief, Caltrans, at CLEANR Workshop Roundtable (Oct. 19, 2018).

102. National Center for Smart Growth Research and Education, *Smart Growth in Maryland*, <http://smartgrowth.umd.edu/smartgrowthinmaryland.html> (last visited Mar. 12, 2018); Maryland Department of Planning, *Priority Funding Areas*, <http://planning.maryland.gov/Pages/OurProducts/pfapmap.aspx> (last visited Mar. 12, 2019).

103. GIAN-CLAUDIA SCIARA, NATIONAL CENTER FOR SUSTAINABLE TRANSPORTATION, MEASURING LAND USE PERFORMANCE: POLICY, PLAN, AND OUTCOME 7 (2015), available at <https://ncst.ucdavis.edu/wp-content/uploads/2014/08/10-20-2015-Sciara-MEASURING-LAND-USE-PERFORMANCE-POLICY-PLAN-AND-OUTCOME-SD.pdf>.

104. See OREGON DEPARTMENT OF LAND USE CONSERVATION AND DEVELOPMENT, 2017-2019 LEGISLATIVELY ADOPTED BUDGET 226 (2017), available at https://www.oregon.gov/lcd/About/Documents/2017-19_LAB.pdf.

105. See Myung-Jin Jun, *The Effects of Portland's Urban Growth Boundary on Urban Development Patterns and Commuting*, 41 URB. STUD. 1333 (2004).

106. See Rebecca Lewis et al., *Managing Growth With Priority Funding Areas: A Good Idea Whose Time Has Yet to Come*, 75 J. AM. PLAN. ASS'N 457 (2009); Comment by Gerrit Knaap, Professor of Urban Studies and Planning & Executive Director of the National Center for Smart Growth Research and Education, University of Maryland, at CLEANR Workshop Roundtable (Oct. 19, 2018).

107. Comment by Gerrit Knaap, Professor of Urban Studies and Planning & Executive Director of the National Center for Smart Growth Research and Education, University of Maryland, at CLEANR Workshop Roundtable (Oct. 19, 2018).

108. Comments by Gerrit Knaap, Professor of Urban Studies and Planning & Executive Director of the National Center for Smart Growth Research and Education, University of Maryland, and Rebecca Lewis, Assistant Professor of Planning, Public Policy, and Management, University of Oregon, at CLEANR Workshop Roundtable (Oct. 19, 2018).

109. BOARNET & HANDY, *supra* note 97, at 2. CARB's 2018 S.B. 375 Progress Report identified transportation pricing as an important policy tool for decreasing VMT and suggested further experimentation with pricing models by both state agencies and local governments. CARB 2018 PROGRESS REPORT, *supra* note 4, at 78.

110. BOARNET & HANDY, *supra* note 97, at 2. Revenues raised from pricing policies can also be used to make investments in transportation infrastructure. See *id.* at 13. Examples of investments that can induce significant reductions in transportation-sector GHG emissions include infill development, active transportation, mass transit, travel demand management, and system operations and efficiency improvements. See *id.* at 14-36.

111. See generally Michael Manville & Emily Goldman, *Would Congestion Pricing Harm the Poor? Do Free Roads Help the Poor?*, 38 J. PLAN. EDUC. & RES. 329 (2017).

112. See generally ANTHONY DOWNS, STILL STUCK IN TRAFFIC (2004).

pilot program. This program allows volunteers to install a mileage reporting device on their vehicles and pay 1.5 cents per mile driven in exchange for a full refund of their state gas taxes. More than 1,300 vehicles have been enrolled in the program.¹¹³ The rationale for this policy is that fuel economy improvements and increasing electric vehicle usage reduce gas tax revenues, but do not cut VMT.¹¹⁴

The Oregon Department of Transportation (ODOT) considers the most significant barriers to universal adoption of mileage-based user fees to be administrative costs and the current reliance on devices installed in vehicles. To address these issues, it is considering an option for a flat annual user charge.¹¹⁵ In 2017, the Oregon Road User Fee Task Force introduced legislation that would lift the cap on participation in the voluntary program and make participation mandatory for all new vehicles rated at a fuel efficiency of 20 miles per gallon or greater.¹¹⁶ ODOT also concluded that the pilot suggests the viability of congestion pricing and related zone and variable pricing schemes.¹¹⁷

California recently raised its gas excise tax from 18 to 30 cents per gallon and indexed it to the California Consumer Price Index.¹¹⁸ The measure was not designed to address GHG emissions, but to mitigate transportation funding shortfalls and fund transportation infrastructure.¹¹⁹ However, this increase is approximately equivalent to imposition of a carbon dioxide (CO₂) tax of \$14 per metric ton of vehicle tailpipe CO₂ emissions.¹²⁰ It is projected to reduce light-duty vehicle emissions by about 3% relative to trend.¹²¹

Other transportation revenue policies in California were designed to reduce emissions. For instance, California included a \$100 flat registration fee for electric vehicles starting with model year 2020 in S.B. 1, the same legislation that raised the gas tax.¹²² California's cap-and-

trade program is also estimated to raise gasoline prices by at least 15 cents per gallon in 2021 and was designed to price GHG emissions-related externalities.¹²³

Despite the potential for such pricing policies to address transportation-sector GHG emissions and VMT, roundtable participants recognized that there are substantial political obstacles to implementing them and that the impact of pricing at politically viable levels would likely be limited.¹²⁴ The politics of pricing policies is made challenging by the diffuse and indirect nature of their benefits in contrast to highly salient and relatively concentrated costs.¹²⁵ Participants expressed concern that the levels of pricing needed to meaningfully impact travel behavior would not be politically viable.¹²⁶

Further, as noted above, pricing policies can have a regressive impact, particularly in places where commuters have limited alternatives to driving. This distributive concern could be mitigated via toll rebates or tax refunds, similar to the earned income tax credit.¹²⁷ Part II discusses potential options for addressing these political feasibility and equity concerns.

G. Alter Standards for Environmental Impact Analysis

Environmental impact assessment statutes in California, Maryland, New York, and Washington can offer an important leverage point for influencing transportation and land use decisionmaking.¹²⁸ The relevant requirements may partially compensate for relatively weak state requirements concerning integrating transportation-sector GHG emissions and VMT into local planning.

For example, while S.B. 375 does not require local governments to integrate VMT and GHG emissions reductions into local general plans, the California Environmental Quality Act (CEQA) has nonetheless led local governments to address transportation-sector GHG emissions.¹²⁹ CEQA requires the preparation of an environmental impact report (EIR) for certain local projects anticipated to have significant adverse environmental effects, including zoning ordinance amendments and

113. ODOT, OREGON'S ROAD USAGE CHARGE: THE OREGO PROGRAM 4 (2017), available at http://www.oregon.gov/ODOT/Programs/RUF/IP-Road%20Usage%20Evaluation%20Book%20WEB_4-26.pdf.

114. *Id.* at 7-11.

115. *Id.* at 4. This move would likely have the effect of increasing VMT, but removing the marginal incentive that gas taxes and road user fees offer to drive less.

116. H.B. 2464, 79th Leg. Assem., Reg. Sess. (Or. 2017).

117. ODOT, *supra* note 113, at 4, 20.

118. California Road Repair and Accountability Act of 2017, ch. 5, 2017 Cal. Stat. (codified in relevant part at CAL. REV. & TAX CODE §7360 (West 2019)).

119. California League of Cities, *SB 1 (Beall) Road Repair and Accountability Act of 2017*, <https://www.cacities.org/Policy-Advocacy/Hot-Issues/Transportation-Funding> (last visited Mar. 12, 2019).

120. Marc Hafstead & Paul Picciano, *Calculating Various Fuel Prices Under a Carbon Tax*, RESOURCES, Nov. 28, 2017, <http://www.rff.org/blog/2017/calculating-various-fuel-prices-under-carbon-tax>.

121. E-Mail from Marc Hafstead, Fellow and Director for the Carbon Pricing Initiative, Resources for the Future (May 29, 2018). The 3% result can be extrapolated from Figure 6.10b in LAWRENCE GOULDER & MARC HAFSTEAD, *CONFRONTING THE CLIMATE CHALLENGE: U.S. POLICY OPTIONS* (2017). Proposition 6, which failed on the November 2018 ballot, would have repealed S.B. 1 and amended the California Constitution to require all future gas tax increases to be approved by voters via a ballot proposition. Elijah Chiland, *Proposition 6: Voters Reject Gas Tax Repeal*, CURBED L.A., Nov. 7, 2018, <https://la.curbed.com/2018/11/6/18070108/california-proposition-6-gas-tax-results-fail>.

122. CAL. VEH. CODE §9250.6.

123. Letter from Mac Taylor, Legislative Analyst, California Legislative Analyst's Office, to Assembly Member Vince Hong (Mar. 29, 2017), <https://lao.ca.gov/letters/2017/fong-fuels-cap-and-trade.pdf>.

124. Comment by Gabe Pacyniak, Assistant Professor of Law, University of New Mexico, at CLEANR Workshop Roundtable (Oct. 19, 2018).

125. Brian D. Taylor, *The Politics of Congestion Mitigation*, 11 TRANSPORT POL'Y 299 (2004).

126. Comments by Gabe Pacyniak, Assistant Professor of Law, University of New Mexico, and Joel Espino, Environmental Equity Legal Counsel, Greenlining Institute, at CLEANR Workshop Roundtable (Oct. 19, 2018).

127. Manville & Goldman, *supra* note 111, at 340-41.

128. Connecticut, the District of Columbia, Georgia, Hawaii, Indiana, Massachusetts, Minnesota, New Jersey, North Carolina, Puerto Rico, South Dakota, Virginia, and Wisconsin also have environmental review statutes. COUNCIL ON ENVIRONMENTAL QUALITY, *STATE NEPA CONTACTS* (2013), available at https://www.energy.gov/sites/prod/files/2013/09/f2/States_NEPA_Like_22June2013.pdf.

129. See CALIFORNIA GOVERNOR'S OFFICE OF PLANNING AND RESEARCH, *supra* note 48, at 222-33.

general plan updates.¹³⁰ EIRs must include an assessment of the GHG emissions of the proposed project and a determination as to the significance of those emissions.¹³¹ CEQA also requires state and local agencies to mitigate the environmental impact of their projects, if feasible.¹³²

Historically, CEQA analysis has employed a traditional traffic level-of-service test, which tends to encourage road widening and discourage dense development. Legislation adopted in 2013 initiated a process of replacing this test with a VMT impact analysis, which is currently in the process of being implemented in regulatory guidance and will be finalized in 2020.¹³³ Preliminary evidence from the city of Pasadena, which has acted early to adopt a VMT-based CEQA analysis regime, indicates that this change may help to expedite infill projects that conform with the city's general plan.¹³⁴

At least two other CEQA reforms may also contribute to GHG emissions reductions. First, the state has issued guidelines indicating that the agencies responsible for adopting EIRs, including local governments, may elect to analyze GHG emissions impacts at the programmatic level and incorporate that analysis by reference in project-specific EIRs.¹³⁵ This guidance has induced some local governments to adopt climate action plans.¹³⁶ Second, S.B. 375 also offers CEQA streamlining benefits for transit priority projects. These provisions are designed to encourage construction of new projects that are consistent with the state's goals concerning housing, VMT, and emissions. The available evidence suggests that they have not been widely used, and many public officials and developers view them as excessively cumbersome.¹³⁷

New York's State Environmental Quality Review Act (SEQRA) requires all state and local government agencies to consider environmental impacts equally with social and economic factors during discretionary decisionmaking.¹³⁸ While the text of SEQRA does not expressly require consideration of GHG emissions impacts, the state's Department of Environmental Conservation has issued

nonbinding guidance indicating that analysis of GHG emissions should be conducted for some projects.¹³⁹

Washington and Maryland have less sweeping environmental impact assessment requirements than California and New York.¹⁴⁰ Washington's State Environmental Policy Act (SEPA) requires publication of an environmental impact statement for any state or local agency project that may have a significant environmental impact, including new buildings, changes of use, adding units to a building, grading, and new parking.¹⁴¹ SEPA's text does not specifically reference GHG emissions and the state has not issued official guidance, but the state's Department of Ecology does consult with local governments about consideration of GHGs on a case-by-case basis.¹⁴² WDOT has issued guidance on addressing GHG emissions and climate change in its projects.¹⁴³ The Maryland Environmental Policy Act similarly requires publication of an environmental effects report for actions anticipated to significantly affect the environment, but it only applies to state agency actions, not county or municipal agencies.¹⁴⁴ These states' environmental impact analysis statutes, and particularly the replacement of the level-of-service test in CEQA with a VMT impact analysis, demonstrate how such requirements can impact land use decisions and thereby facilitate reductions in GHG emissions and VMT.

II. Recommendations and New Policy Tools

As suggested in Part I, the various policy strategies that California, Maryland, New York, Oregon, and Washington have adopted have had limited success in mitigating transportation-sector GHG emissions. California is falling short of both the regional per capita targets set by CARB and the state's broader transportation-sector emissions goals.¹⁴⁵ Oregon's aggregate VMT and transportation-se-

130. CAL. PUB. RES. CODE §§21000-21178.

131. CAL. CODE REGS. tit. 14, §15126.

132. CAL. PUB. RES. CODE §21002.1(b).

133. S.B. 743, Act of Sept. 27, 2013, ch. 386, 2013 Cal. Stat. (codified in relevant part at CAL. PUB. RES. CODE §21099 (West 2019)); CARB, 2017 SCOPING PLAN-IDENTIFIED VMT REDUCTIONS AND RELATIONSHIP TO STATE CLIMATE GOALS (2019), https://ww2.arb.ca.gov/sites/default/files/2019-01/2017_sp_vmt_reductions_jan19.pdf.

134. Telephone Interview with Fred Dock, Director of Transportation, City of Pasadena (Nov. 7, 2018).

135. CAL. CODE REGS. tit. 14, §15183.5.

136. See, e.g., ICF INTERNATIONAL, MARIN COUNTY CLIMATE ACTION PLAN (2015 UPDATE) 1-5 (2015), available at https://www.marincounty.org/-/media/files/departments/cd/planning/sustainability/climate-and-adaptation/chpt1marincapupdate_final_20150731.pdf; COUNTY OF SAN DIEGO, CLIMATE ACTION PLAN (2018), available at [https://www.sandiegocounty.gov/content/dam/sdc/pds/advance/cap/publicreviewdocuments/PostBOS-Docs/\(Optimized\)%20San%20Diego%20County%20Final%20CAP.pdf](https://www.sandiegocounty.gov/content/dam/sdc/pds/advance/cap/publicreviewdocuments/PostBOS-Docs/(Optimized)%20San%20Diego%20County%20Final%20CAP.pdf).

137. SCIARA & STRAND, *supra* note 11, at 12.

138. New York State Department of Environmental Conservation, *Introduction to SEQRA*, <https://www.dec.ny.gov/permits/6208.html> (last visited Mar. 12, 2019).

139. OFFICE OF AIR, ENERGY, AND CLIMATE, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, ASSESSING ENERGY USE AND GREENHOUSE GAS EMISSIONS IN ENVIRONMENTAL IMPACT STATEMENTS (2009), available at https://www.dec.ny.gov/docs/administration_pdf/eisghgpolicy.pdf.

140. Oregon does not have an analogous environmental review statute.

141. Seattle Department of Construction and Inspections, *Land Use/Master Use Permit—State Environmental Policy Act (SEPA)*, <http://www.seattle.gov/dpd/permits/permittypes/landusesepa/default.htm> (last visited Mar. 12, 2019).

142. Telephone Interview with Ben Blank, Washington State Department of Ecology (Aug. 31, 2018).

143. WDOT, WSDOT GUIDANCE—PROJECT-LEVEL GREENHOUSE GAS EVALUATIONS UNDER NEPA AND SEPA (2018), available at <https://www.wsdot.wa.gov/sites/default/files/2019/02/08/ENV-ANE-GHGGuidance.pdf>.

144. MD. CODE ANN., NAT. RES. §§1-301 to 1-305.

145. MPO-level aggregate VMT data indicate that all but two MPOs, the Santa Barbara County Association of Governments and the Tahoe Metropolitan Planning Organization, saw an absolute rise in VMT. See Caltrans, *HPMS Data Library: California Public Road Data (PRD)*, <http://www.dot.ca.gov/hq/tsip/hpms/datalibrary.php> (last updated June 23, 2017). The four largest MPOs, the Southern California Association of Governments (Los Angeles and Orange County), Metropolitan Transportation Commission (San Francisco Bay Area), San Diego Association of Governments, and Sacramento Area Council of Governments, saw absolute VMT rises of 9.0%,

tor GHG emissions began to rise again in 2015 after a dip from 2005 to 2014.¹⁴⁶ Washington's on-road vehicle emissions were fairly steady from 2010 to 2013, the most recent data available.¹⁴⁷ Maryland's aggregate VMT has risen fairly steadily since 2009, but per capita VMT had been falling consistently through 2014, with a modest uptick in 2015.¹⁴⁸ New York's transportation emissions peaked in 2006 and fell steadily through 2011. Total emissions have since begun to pick back up, but this increase was primarily due to jet fuel and kerosene, not the gasoline and diesel used by on-road vehicles.¹⁴⁹

This part explores opportunities to improve the effectiveness of the existing policy regimes implemented in California, Maryland, New York, Oregon, and Washington. It also offers emerging lessons from these existing programs and proposes new policy tools available for reducing transportation-sector GHG emissions and VMT for states that have yet to attempt climate change mitigation through transportation and land use policy.

A. Setting Targets for Reducing GHG Emissions and VMT

As detailed above, setting targets for reducing GHG emissions and VMT involves trade offs associated with determining substantive goals, metric design, and ambitiousness of the target. Because reductions in GHG emissions and VMT are often lower priorities for many voters, as compared to making housing more affordable, minimizing congestion, and improving access to jobs, roundtable participants emphasized the importance of crafting policies that address these more salient and near-term priorities in order to enhance the political viability of climate change mitigation. Accordingly, states can encourage local embrace of standards by emphasizing complementarities between reductions in GHG emissions and VMT, these other core state policy objectives, and local concerns.

Roundtable participants concluded that although setting high standards and offering clear policy guidance is unlikely to drive sufficient local or state action on its own,

7.5%, 5.5%, and 12.1%, respectively. *Id.* The per capita figures are lower, due to rising population during this period, but still fall short of both the original 7% to 8% per capita targets for 2020 and the revised 7% to 15% targets (effective September 2018). *Id.*; CARB, SB 375 REGIONAL GREENHOUSE GAS EMISSIONS REDUCTION TARGETS (2018), <https://www.arb.ca.gov/cc/sb375/finaltargets2018.pdf>.

146. OREGON GLOBAL WARMING COMMISSION, BIENNIAL REPORT TO THE LEGISLATURE 2017, at 18-20 (2017), available at <https://static1.squarespace.com/static/59c554e0f09ca40655ea6eb0/t/59dd4984a8b2b090a38f07a1/1507674513035/2017-OGWC-Legislative-Report.pdf>.

147. STATE OF WASHINGTON DEPARTMENT OF ECOLOGY, REPORT TO THE LEGISLATURE ON WASHINGTON GREENHOUSE GAS EMISSIONS INVENTORY: 2010-2013 (2016), available at <https://fortress.wa.gov/ecy/publications/documents/1602025.pdf>.

148. MARYLAND DEPARTMENT OF TRANSPORTATION, ON-ROAD INVENTORY DEVELOPMENT PROCESS 8 (2017), available at <http://mde.maryland.gov/programs/Air/ClimateChange/MCCC/STWG/OnRoadInventoryMDOT.pdf>.

149. NEW YORK STATE ENERGY RESEARCH AND DEVELOPMENT AUTHORITY, NEW YORK STATE GREENHOUSE GAS INVENTORY: 1990-2015, FINAL REPORT 12 (2018).

it is a necessary predicate for action. However, most agreed that it is too early to draw any conclusions as to which particular metric is most effective for achieving reductions in GHG emissions or VMT, or regarding how ambitious of a target to set. Rather, participants largely agreed that regulatory efforts should focus more on other policy strategies that have been more neglected, and that thus present greater opportunities for improvements in existing approaches to reducing transportation-sector GHG emissions.

B. Planning

I. State-Level Planning

As discussed above, although many states have climate action plans that articulate strategies for promoting climate change mitigation generally, such plans frequently propose few measures to address the impact of land use on VMT or GHG emissions.¹⁵⁰ Most roundtable participants agreed that state-level plans should directly address the connection between transportation, land use, and climate change mitigation. Maryland's smart growth requirements, discussed above, for example, could address this connection by linking to the state's climate action plans. Likewise, states' long-range transportation plans and STIPs could be adjusted to prioritize investments in transit, active transportation, transportation demand management, and maintaining existing infrastructure over highway expansion.

To address the potential that state-level planning may inadequately accommodate local concerns, state-level planning could be paired with local implementation. For example, in its 2018 S.B. 375 Progress Report, CARB proposes a state-level planning effort that envisions "an interagency body involving the Secretaries and Chairs of key California agencies and Commissions, and representatives from regional and local governments [that] produce and implement a new 'State Mobility Action Plan for Healthy Communities'" to address the challenges encountered in achieving the goals of the legislation.¹⁵¹ CARB recommends tasking the proposed body with addressing several priority challenges and opportunities, including developing a state vision for increasing travel choices, access to jobs, and affordable housing for underserved communities.¹⁵²

For many states, simply beginning state-level planning for reducing VMT and transportation-sector GHG emissions would constitute a significant advance, if such planning directly addresses the connection between transportation, land use, and climate change mitigation. It could also promote interagency coordination to better account for regional and local concerns and expertise.

150. Center for Climate and Energy Solutions, *supra* note 27.

151. CARB 2018 PROGRESS REPORT, *supra* note 4, at 8.

152. *Id.* at 11.

2. State-Imposed Planning Mandates

As discussed above, California's and Oregon's experiences imposing planning mandates on regional agencies offer lessons for improving the efficacy of planning mandates to reduce transportation-sector GHG emissions and VMT. If Oregon and other states want to use planning mandates to focus attention on transportation-sector GHG emissions reductions, they could integrate such reductions into their planning requirements. But California's experience shows that such integration, standing alone, does not ensure VMT and GHG emissions reductions.

A key lesson learned from California's experience is that planning mandates may be more effective at achieving VMT and GHG emissions reductions if imposed on the governmental entities responsible for implementing land use and transportation decisions.¹⁵³ As detailed in Part I, California is falling short of its S.B. 375 targets. This may be partially due to the disconnect resulting from the state imposing planning mandates on the MPOs, rather than the local governments with authority to reform land use regulation. To address this disconnect, states could give MPOs authority to reform land use regulation to reduce transportation-sector GHG emissions and VMT.

A potentially more politically feasible alternative is for states to impose planning mandates on local governments, which already have the authority to implement relevant land use and transportation decisions. The efficacy of imposing planning mandates on local governments may be greater if combined with a requirement that local regulations be consistent with local plans (discussed in Section II.C. below).

In California, a less sweeping change that may still address some of the S.B. 375 implementation issues described above is to require local governments' general plans and climate action plans to be consistent with MPOs' SCS and to require local regulations to be consistent with the local plans. Roundtable participants also noted that S.B. 375 relies on linking SCS to federal transportation funding via MPOs' long-range transportation plans.¹⁵⁴ There is no analogous funding stream available to enforce compliance with land use planning mandates. This suggests a possible need for alternative enforcement mechanisms, including private rights-of-action and restrictions of state-directed funding streams.

Oregon's growth management framework includes an example of such an alternative enforcement mechanism. It enables private enforcement to block local land use regulation changes that are inconsistent with the state's 19 goals (none of which are climate- or VMT-related).¹⁵⁵

Combined with state review of local comprehensive plans, this approach has succeeded in increasing average urban density by 20% over a 20-year period and in preserving farmland in the state.¹⁵⁶ It has not had a significant impact on GHG emissions or VMT, which were not part of the program's goals.¹⁵⁷ Thus, it is plausible that the same basic enforcement structure could be linked to a set of goals and principles aligned with VMT reduction. Roundtable participants, however, expressed some doubts regarding the political viability of Oregon's relatively prescriptive approach in states with a strong tradition of local control.¹⁵⁸

Thus, while there are challenges associated with state imposition of planning mandates,¹⁵⁹ the experience of states that have employed this strategy suggests that planning mandates can be more effective if they (1) directly address VMT and GHG emissions reductions, and (2) are imposed upon the entity with authority to carry out relevant land use and transportation decisions.

C. Regulate Land Use

As described in Part I, states can intervene in land use regulation to mitigate transportation-sector GHG emissions and VMT by (1) directly permitting development projects that would reduce GHG emissions and/or VMT; (2) requiring regional or local land use regulation to be consistent with GHG emissions and/or VMT targets identified through state, regional, and/or local planning; or (3) setting minimum standards for regional or local land use regulation that promotes denser development. For states to effectively intervene in land use regulation, they must manage political backlash and provide adequate flexibility to regional and local governments to account for regional and local knowledge.

While states' direct permitting of development projects may be effective in achieving states' GHG emissions and/or VMT targets, no lessons on addressing political feasibility concerns associated with this strategy have emerged because states have yet to employ it to reduce GHG emissions and/or VMT. However, as described above, New York may be well-positioned to explore this strategy due to the state's existing authority to override local land use regulation.

Oregon's approach may provide a more plausible model forward for many states. As described in Section I.C., Oregon requires consistency between local regulations and local plans, which must in turn be consistent with state policy goals. Such an approach may provide states with greater flexibility, as compared with the state directly permitting development projects. States that want to employ

153. Comment by Steve Winkelman, Founder, Green Resilience Strategies, at CLEANR Workshop Roundtable (Oct. 19, 2018).

154. Comment by Chris Schmidt, Division of Transportation Planning Chief, Caltrans, at CLEANR Workshop Roundtable (Oct. 19, 2018).

155. OREGON DEPARTMENT OF LAND CONSERVATION AND DEVELOPMENT, OREGON'S STATEWIDE PLANNING GOALS & GUIDELINES (2010), available at https://www.oregon.gov/lcd/OP/Documents/compilation_of_statewide_planning_goals.pdf.

156. Comment by Rebecca Lewis, Assistant Professor of Planning, Public Policy, and Management, University of Oregon, at CLEANR Workshop Roundtable (Oct. 19, 2018).

157. *Id.*

158. *Id.*

159. Comments by Marie Liu, California Assembly Speaker's Office, and Lezlie Kimura, Manager, Sustainable Communities Policy and Planning Section, CARB, at CLEANR Workshop Roundtable (Oct. 19, 2018).

this strategy in the way that Oregon has should (1) require that land use regulations be consistent with planning to potentially improve the efficacy of their planning mandates, and (2) specifically target transportation-sector GHG emissions and/or VMT. As noted above, Oregon itself has not adapted its planning mandate or its consistency requirement to specifically address transportation-sector GHG emissions or VMT.

There are multiple permutations of strategies tying planning to land use regulation, and states can choose which variation best fits their needs. For example, a state can itself conduct planning to mitigate transportation-sector GHG emissions and/or VMT and require regional agencies to regulate land use in a manner consistent with the GHG emissions and/or VMT targets in the state plan. Alternatively, a state could require that regional governments conduct planning consistent with state GHG emissions and/or VMT targets and also require consistency between local governments' regulations and regional governments' plans.

States can also intervene in land use regulation by setting minimum standards for regional or local land use regulation that promotes denser development. For example, a state could make higher density zoning around transit the default rule, but allow regional or local governments to petition to substitute an alternative regime that the state certifies as being at least as effective at meeting state goals for VMT reduction and housing supply.¹⁶⁰ Such an approach might mitigate some concerns about political feasibility raised by roundtable participants.

Roundtable participants also suggested that more limited forms of intervention, such as bonuses for projects that include affordable housing, may be a politically viable option in some states.¹⁶¹ Others thought that direct state interventions would be more viable if linked with funding or other measures to support a vision beyond VMT reduction.¹⁶² Walkable neighborhoods and affordable housing are more near-term and salient policy goals than climate change mitigation and may present a vision that communities are more likely to rally around.¹⁶³

An alternative that moves in the direction of direct intervention while addressing concerns about regional or local control would be using the threat of intervention as a backstop for a target-based planning mandate like S.B.

375. Some roundtable participants supported this potential strategy as a means of supplementing existing tools for implementing regional GHG emissions reduction plans.¹⁶⁴ Local governments could maintain authority over zoning and other land use policies so long as they or their regions are on track to meet their per capita emissions targets or other state policy goals like housing supply.

If a city or region falls behind its benchmarks, however, state-level provisions preempting local density restrictions would start to kick in. This could motivate local governments to implement land use changes (such as those assumed in California MPOs' SCS) that would promote state policy goals in order to avoid infringements on their land use authority. Failing that, state intervention could directly promote infill development, possibly with less political opposition and greater scope for incorporation of local knowledge and priorities than direct preemption in the mode of S.B. 50.

One concern with this strategy is that it would allow for a greater lag before emissions reductions are realized and provide less certainty to developers and lenders than direct preemption. If implemented based on regional targets like those under S.B. 375, there is also a potential regional commons problem. Local governments each perceive themselves as having too little influence over meeting regional GHG emissions targets to motivate them to reform their land use regulations. This concern could be addressed via local GHG emissions reduction allocations analogous to the housing allocations under the regional housing needs assessment process.¹⁶⁵ However, CARB has encountered data access and quality challenges in its efforts to report regional progress toward meeting S.B. 375 targets.¹⁶⁶ Reliable data on regional emissions and/or VMT would be essential for implementation of this strategy.

States have generally not intervened in land use regulation in order to reduce transportation-sector GHG emissions and VMT. Accordingly, there remain significant opportunities for states to influence regional or local land use regulation to mitigate transportation-sector climate change, through some combination of requiring consistency between land use plans and regulation, setting minimum standards for regional or local land use regulation that promotes denser development, and, perhaps, overriding regional and local land use regulation to permit development projects.

160. Comment by Gabe Pacyniak, Assistant Professor of Law, University of New Mexico, at CLEANR Workshop Roundtable (Oct. 19, 2018). This proposal would require reliable data on local and regional progress toward meeting state policy goals. CARB's 2018 S.B. 375 Progress Report complicates this, noting that the agency was not reporting findings regarding regional progress on meeting S.B. 375 targets due to data access and quality concerns. CARB 2018 PROGRESS REPORT, *supra* note 4, at 23-24. These issues will have to be addressed before a system can be implemented that relies on measures of regional emissions performance to implement a preemption backstop.

161. Comments by Gabe Pacyniak, Assistant Professor of Law, University of New Mexico, and Emily Wier, Greenlots, at CLEANR Workshop Roundtable (Oct. 19, 2018).

162. Comment by Steve Winkelman, Founder, Green Resilience Strategies, at CLEANR Workshop Roundtable (Oct. 19, 2018).

163. Comments by Marie Liu, California Assembly Speaker's Office, and Steve Winkelman, Founder, Green Resilience Strategies, at CLEANR Workshop Roundtable (Oct. 19, 2018).

164. Comment by Marlon Boarnet, Professor of Public Policy, University of Southern California, at CLEANR Workshop Roundtable (Oct. 19, 2018).

165. However, it is worth noting that the RHNA process has run into implementation and enforcement challenges similar to those faced in S.B. 375 implementation. MAWHORTER ET AL., *supra* note 47, at 3, 7-11.

166. *Id.* at 23-24.

D. Providing Funding and Technical Assistance With Planning Mandates

I. Grant and Incentive Programs

As detailed in Part I, grant and incentive programs to support local and regional planning efforts or to drive implementation of land use and transportation policies have had limited effectiveness in reducing GHG emissions and VMT. However, there remain opportunities to improve the effectiveness of existing grant and incentive initiatives and to expand the use of such programs in other states.

Specifically in California, the efficacy of grant and incentive programs for S.B. 375 implementation can be improved by strengthening the link between federal transportation funds and SCS. As explained in Section I.D.1., county transportation commissions' ability to use sales tax revenue to fund projects not in the TIP reduces their dependence on federal highway funds, which may contribute to the limited efficacy of grant and incentive programs in promoting S.B. 375 implementation. Limiting the authority of county transportation commissions to only allow the use of sales tax revenues for road widening and other VMT-inducing projects might make S.B. 375's linkage between federal transportation funds and SCS more direct, although any such change would be controversial.

Another way to strengthen the link between federal transportation funds and SCS in California is to proportionally allocate a greater share of transportation funds to MPOs¹⁶⁷ that "move aggressively to realize *near-term* GHG [emissions] reductions."¹⁶⁸ While S.B. 375 requires MPOs to demonstrate how they will achieve GHG emissions reductions in their long-range SCS, there is no requirement that MPOs do the same with respect to near-term projects funded in the TIPs.¹⁶⁹ As a result, there is nothing to deter MPOs from investing heavily in highway expansion in the near term while delaying GHG-reducing projects like transit and active transportation.¹⁷⁰ Proportionally reallocating funds to reward MPOs that invest in transportation projects that will reduce GHGs in the near term might address this.

Akin to this Article's recommendation for state-imposed planning mandates,¹⁷¹ grant and incentive programs in any state may be more effective in promoting implementation of projects that reduce transportation-sector GHG emissions and VMT if they are directed at the entities with land use regulatory authority. To do this, states could use transportation funds

to reward jurisdictions that improve job accessibility by non-single occupant vehicle modes, for instance, by increasing the number of jobs that residents can reach by public transit, walking, and/or cycling. . . . Accessibility indicators could be used to reward jurisdictions that enhance mobility options and access to economic, social, and educational opportunities for vulnerable communities.¹⁷²

Roundtable participants were particularly divided regarding how to improve the efficacy of competitive grant programs.¹⁷³ One participant favored shifting more funds into noncompetitive programs, saying the incentive effects of the grants are limited.¹⁷⁴ Some maintained that competitive grant programs were appropriate, but needed greater funding to be effective.¹⁷⁵ Others asserted that application processes for competitive grants are too onerous and that states should make funds available for projects that the state certifies as meeting criteria similar to those used in evaluating competitive grant applications and to which smaller jurisdictions would have proportionate access.¹⁷⁶ However, many states lack the budgetary resources or flexibility to provide this kind of funding, and thus substantial reforms are needed to make funds accessible to smaller jurisdictions.¹⁷⁷ Some participants maintained that competitive grants have an essential role to play as part of a broader policy framework—competitive grants could be paired with targeted technical assistance for smaller jurisdictions, for example.¹⁷⁸

There are untapped opportunities for states to use grant and incentive programs throughout the regulatory process. Such programs may be more effective if the incentives are directed at the entity with land use regulatory authority and if states can improve smaller jurisdictions' access to funds by pairing grants and incentives with additional policy strategies.

167. Before S.B. 1 raised the gas tax, California's transportation-earmarked revenue sources raised a total of \$11 billion annually, of which roughly \$5 billion are reserved for the California Highway Patrol, the Department of Motor Vehicles, and debt service reimbursements to the general fund. GIAN-CLAUDIA SCIARA & AMY LEE, NATIONAL CENTER FOR SUSTAINABLE TRANSPORTATION, ALIGNING CALIFORNIA'S TRANSPORTATION FUNDING WITH ITS CLIMATE POLICIES 14 (2018), available at https://ncst.ucdavis.edu/wp-content/uploads/2017/08/NCST_Sciara_Transportation-Finance_Final-White-Paper_JAN-2018.pdf. The gas tax increase, combined with other revenue provisions in S.B. 1, is projected to increase these revenues by an average of \$5.4 billion over its first 10 years. AMERICAN ROAD AND TRANSPORTATION BUILDERS ASSOCIATION, THE ECONOMIC IMPACTS OF SENATE BILL 1 ON CALIFORNIA 58 (2018), available at https://www.artba.org/wp-content/uploads/2018/02/ARTBA_California_Report_Feb_2018.pdf.

168. SCIARA & LEE, *supra* note 167, at 14 (emphasis added).

169. *Id.* at 14-15.

170. *Id.*

171. See *supra* Section II.B.2.

172. SCIARA & LEE, *supra* note 167, at 15.

173. Comment by Chris Schmidt, Division of Transportation Planning Chief, Caltrans, at CLEANR Workshop Roundtable (Oct. 19, 2018).

174. *Id.*

175. Comment by Marie Liu, California Assembly Speaker's Office, at CLEANR Workshop Roundtable (Oct. 19, 2018).

176. Comment by Chris Schmidt, Division of Transportation Planning Chief, Caltrans, at CLEANR Workshop Roundtable (Oct. 19, 2018).

177. Comment by Marie Liu, California Assembly Speaker's Office, at CLEANR Workshop Roundtable (Oct. 19, 2018).

178. *Id.*

2. Technical Assistance

State technical assistance for local and regional governments, described above, can communicate state policy goals, priorities, and preferred policies. It can also offer economies of scale in capacity and expertise. However, as roundtable participants pointed out, states are regularly constrained in resources and may lack funding and expertise to provide sufficient assistance.

To address this, roundtable participants recommended greater investment in capacity for technical assistance. Roundtable participants emphasized that even large MPOs, like the Association of Bay Area Governments in northern California, would benefit from clear guidance on state priorities and preferred policies, in part to help MPO officials garner support for controversial provisions from local stakeholders.¹⁷⁹ CARB's recent proposal for an interagency body to coordinate state policy on sustainable community issues may also help address concerns over lack of resources and expertise by involving local, regional, and state entities.¹⁸⁰

Most roundtable participants agreed that state technical assistance is more effective if paired with mandates and/or incentives. If states provide technical assistance as part of a broader policy package, even reluctant jurisdictions may be more likely to implement transportation and land use policies consistent with state goals.

E. Reallocate Transportation Spending

As detailed in Part I, states can reallocate transportation spending to reduce GHG emissions and VMT by shifting investments away from highways and toward transit and bike/pedestrian infrastructure, and by geographically targeting spending to support denser development. Roundtable participants generally agreed that states requiring funds to be dedicated to highway projects should eliminate such requirements. Because highway projects tend to induce growth in VMT, removing such requirements would eliminate an impediment to reducing VMT and shifting development patterns. Due to the limited evidence to support the effectiveness of the geographic concentration of state-controlled transportation spending to induce denser development, roundtable participants were somewhat skeptical about relying on this strategy as the *primary* mechanism for shifting land use patterns, but were open to its inclusion as one element of a broader policy regime.

F. Pricing Policies

As discussed above, while pricing policies can be effective in reducing transportation-sector GHG emissions and

VMT, states must navigate substantial political obstacles in order to implement such policies. Revenues from pricing policies may be used to address such political opposition.¹⁸¹ Revenues can be used to mitigate regressive distributive effects of gas taxes and user fees for roads via rebates, tax credits, and reductions in sales or payroll taxes. Such measures may also make pricing strategies more politically palatable,¹⁸² although it is difficult in practice to fully compensate all those made worse off by pricing policies, and the evidence regarding politically advantageous use of revenues is sparse and inconclusive.¹⁸³

Despite the political obstacles to implementing pricing policies, many roundtable participants agreed that states, at a minimum, should eliminate any legal restrictions that prevent local governments from implementing road, fuel, and parking pricing policies. Some roundtable participants suggested that, in addition, states should implement mileage-based user fees that scale with vehicle weight, so that, for example, sport utility vehicles would pay higher costs than subcompact vehicles.

Due to the substantial evidence that transportation pricing policies can reduce VMT and GHG emissions while generating additional environmental and welfare benefits, roundtable participants generally voiced strong support for such policies and recommended that states consider integrating these tools into their transportation and climate action plans.

G. Alter Standards for Environmental Impact Analysis

As discussed in Part I, states' environmental impact analysis requirements can promote reduction of transportation-sector GHG emissions and VMT. Most roundtable participants supported altering environmental impact analysis standards to shift the focus away from the traditional level-of-service test that tends to block infill development and promote highway widening. A roundtable participant indicated that the shift to VMT-based CEQA analysis has had more of an impact on land use in California than S.B. 375, reducing the post-World War II bias toward auto-oriented development patterns.¹⁸⁴ Roundtable participants were generally optimistic about

179. One participant cited the Washington Growth Management Act and the Washington Commute Trip Reduction Law as bolstering Seattle's case for expanding its bus service in 2014. Comment by Krute Singa, Principal Regional Planner, Metropolitan Transportation Commission, at CLEANR Workshop Roundtable (Oct. 19, 2018).

180. See CARB 2018 PROGRESS REPORT, *supra* note 4, at 8.

181. Bruce Schaller, *New York City's Congestion Pricing Experience and Implications for Road Pricing Acceptance in the United States*, 17 TRANSPORT POL'Y 266 (2001); David King et al., *The Political Calculus of Congestion Pricing*, 14 TRANSPORT POL'Y 111 (2007).

182. ELIZABETH DEAKIN ET AL., UNIVERSITY OF CALIFORNIA TRANSPORTATION CENTER, TRANSPORTATION PRICING FOR CALIFORNIA: AN ASSESSMENT OF CONGESTION, EMISSIONS, ENERGY, AND EQUITY IMPACTS 13-6 (1996).

183. *Id.*; Ian W.H. Parry, *Pricing Urban Congestion*, 1 ANN. REV. RES. ECON. 461 (2009); Jesse D. Jenkins, *Political Economy Constraints on Carbon Pricing Policies*, 69 ENERGY POL'Y 467 (2014); Kenneth A. Small, *Using the Revenues From Congestion Pricing*, 19 TRANSP. 359 (1992).

184. E-Mail from and Telephone Interview with Eric Sundquist, Managing Director, State Smart Transportation Initiative (Mar. 26, 2018). See generally MAYORS INNOVATION PROJECT & STATE SMART TRANSPORTATION INITIATIVE, MODERNIZING MITIGATION: A DEMAND-CENTERED APPROACH (2018), available at <https://www.ssti.us/wp/wp-content/uploads/2018/09/Transit-Center-final-report.pdf>.

the potential for such reforms to reduce VMT and enhance quality of life if adopted in other jurisdictions.¹⁸⁵

Further, some roundtable participants expressed optimism that shifting to VMT impact analysis is broadly applicable.¹⁸⁶ Even in states without environmental review statutes, major transportation and land use projects typically undergo some form of analysis in which traffic impacts are assessed, and those approaches could be modified. Thus, participants agreed that states can not only use environmental impact analysis statutes to address transportation-sector GHG emissions, but can have a greater impact on land use by eliminating or decreasing application of level-of-service analysis in environmental impact assessment.

III. Conclusion

Few states are tackling climate change mitigation through the transportation sector due to the substantial political obstacles, costs, and other institutional challenges. California, Maryland, New York, Oregon, and Washington have attempted to address these challenges by employing the strategies analyzed in this Article. Their various experiences with these strategies provide valuable lessons not only for these states to better achieve VMT and GHG emissions reductions, but also for states that have not yet employed strategies to mitigate climate change through the transportation sector.

For states that are beginning to build a toolkit of strategies to reduce transportation-sector GHG emissions and VMT, both the literature and CLEANR workshop roundtable discussion support the following recommendations:

1. In setting VMT or GHG emissions reduction targets, states should provide local and regional governments with clear guidance that highlights complementarities between state policy goals and local concerns.
2. States directly engaging in planning should ensure their state-level plans address the connection between transportation, land use, and climate change mitigation, and should explore ways to account for local expertise and concerns, such as through the creation of interagency bodies.
3. States imposing planning mandates on lower levels of government should target the entities with actual authority to implement the relevant land use and transportation decisions that will result in VMT and GHG emissions reductions.

4. State intervention in land use regulation can be an effective strategy for reducing VMT and GHG emissions because it involves linking land use regulation to state VMT and/or GHG emissions targets identified in state, regional, and/or local planning. While all variations of state intervention in land use regulation may face political obstacles, states using this strategy can build in flexibility for regional or local governments. For example, a state that sets a minimum standard for local land use regulation to promote higher density can allow local governments to petition to use an alternate strategy that the state certifies as meeting the state's policy goals.
5. As with state-imposed planning mandates, grants and technical assistance may be most effective at reducing VMT and GHG emissions if states provide them to the entities with land use regulatory authority and if such programs are paired with other policy strategies.
6. States should reallocate transportation funds and shift investment away from new highway capacity toward transit, active transportation, and other investments that induce denser development.
7. States should explore reducing legal barriers to local adoption of pricing policies. If such policies can overcome political headwinds, they are likely to be an effective strategy for reducing GHG emissions and VMT. Reducing legal limitations on local adoption of pricing policies may be necessary for the adoption of such policies, even if not sufficient. Moreover, states may be able to address the political obstacles and equity concerns associated with pricing policies through strategic use of revenues.
8. States should leverage their environmental impact analysis statutes or other means by which large land use and transportation projects undergo review to address transportation-sector GHG emissions and VMT by using a VMT-based analysis rather than a level-of-service test.

In order to make their chosen package of policies work, states may need to consider shifting allocations of authority between state agencies, regional governments, and municipalities. The optimal mix of direct state interventions, mandates, and incentives will undoubtedly vary across states, but our delineation of the advantages and disadvantages of the range of policy tools should help policymakers identify the suite of strategies that are most likely to be successful at mitigating climate change through the transportation sector in their jurisdiction.

185. Interviews conducted by CARB as part of its S.B. 375 implementation review process confirm that local and regional stakeholders consider the shift to VMT-based CEQA analysis to be an important step toward easing barriers to transit-oriented and infill development. CARB 2018 PROGRESS REPORT, *supra* note 4, at 67.

186. Comments by Eric Sundquist, Director, State Smart Transportation Initiative, and Steve Winkelman, Founder, Green Resilience Strategies, at CLEANR Workshop Roundtable (Oct. 19, 2018).