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## **Executive Summary**

Californians are increasingly trapped in their cars: sitting in ever-worsening traffic and making longer and longer commutes to get to work, take their kids to school, buy groceries, access healthcare, or just to get outside and play. This intrusion of windshield time into every facet of daily life is the direct result of the state's transportation planning decisions, which have left most Californians without choices in how they get around. When we measure driving levels in vehicle miles traveled (VMT), the trendline in the data is clear: despite urgent calls and promises from the state to reduce car dependence, vehicle use continues to rise.

California's persistent failure to offer better options that reduce car dependence isn't just a waste of our time – it is costing billions of dollars each year, dramatically harming public health with dirty air, worsening our quality of life, and deepening racial and economic inequities. Moreover, the California Air Resources Board (CARB) warns that the state will not achieve its climate pollution reduction targets or be on track to reach carbon neutrality by 2045 unless we significantly reduce VMT.

Since 2008, California has made multiple commitments to reduce statewide VMT per capita. But despite a clear mandate to reroute transportation policy toward a better future, last century's pave-the-earth approach is on cruise control in Sacramento. A recent report issued by CARB shows that state and regional authorities have only fueled the steady growth of traffic and car dependence over the past 15 years.

## "The highways constructed to meet the demands of car-oriented development continue a legacy of racist planning." pg.9

The good news is that solutions are available if elected officials and agency leadership can look past the false promises of status quo transportation planning. Smarter transportation policy will create more jobs per public dollar, improve quality of life, decrease pollution, and free Californians from hours upon hours of time spent in traffic. Reducing VMT and traffic is possible and practical.

The primary driver of California's steadily increasing rates of vehicle travel is simple: we continue to expand freeways, despite decades of research showing expansions ultimately increase VMT and – perhaps counterintuitively – lead to more traffic. This phenomenon, known as induced travel, is akin to a law of physics: where more cars can go, more cars will go.

Addressing this root problem will simultaneously free up billions of dollars in wasted public funds and allow us to turn our full attention to implementing transportation solutions that better serve Californians' needs. Such solutions include an equitable approach to managing road usage through pricing, funneling investments towards fast, reliable, and convenient public transit, providing protective infrastructure for active modes such as walking and biking on existing roadways, and increasing access to housing near where people work.

Three strategies will have the most immediate and measurable impact to help Californians escape freeway traffic and reduce statewide VMT:

- 1. Stop making the problem worse by fully aligning the transportation planning process with California's established climate goals, which will rule out the vast majority of freeway expansions;
- 2. Manage the network by implementing an equitable roadway pricing system; and
- **3. Optimize existing infrastructure** by using parts of existing roadways to reconnect communities and provide more safe, efficient, sustainable mobility options.

Many of these changes can be implemented under current law by existing state agencies, including the California State Transportation Agency, Caltrans, and the California Transportation Commission. Agency heads may act under their own authority or pursuant to an executive order by the Governor. In instances where legal authority is unclear, the state legislature should consider potential new legislation to address these issues. And advocates should consider their full range of options in pushing for these changes.

The first part of this report focuses on the need for a step-change in how California approaches VMT reduction policy in light of the state's failure to live up to its commitment and urgent need to address this problem. The second part of this report focuses on strategy (1), establishing a framework for this specific reform and discussing some of the tools that will help build towards success. Subsequent reports will address strategies (2) and (3).

In the past few years, states like Colorado and Minnesota have taken bold policy stances against continued highway widening, demonstrating leadership in sustainable transportation planning that has recently been absent in the Golden State.

If California is going to live up to its reputation as a climate leader, we must have the courage of our convictions and bring transportation planning into the 21st century. It is time to end our addiction to throwing billions upon billions of dollars into the bottomless pit of traffic-inducing highway sprawl, and commit both in policy and in our state's budgeting to cleaner air, shorter commutes, and a more equitable transportation system.

#### Introduction

Gasoline burned in passenger cars is the largest source of greenhouse gas (GHG) emissions in California. Car tailpipes alone (to say nothing of upstream oil production, transportation and refining or the rest of the transportation sector) produce more planet heating gasses in our state than every power plant and the entire buildings sector, combined.<sup>1</sup> Decarbonization is a transportation problem, first and foremost.

To its credit, with the adoption of the Advanced Clean Cars II rule (ACCII), California has enacted world-leading vehicle electrification standards that, together with federal incentives, will put the state on track for every new car sold to be zero-emission by 2035 or sooner. But even if California achieves its difficult and ambitious vehicle electrification goals, it will not be enough to meet the carbon reduction targets the state has set for itself. Without significantly reduced car dependence statewide, the state's legally obligated emissions reduction targets — 40% below 1990 levels in 2030, and 85% in 2045 — will be out of reach.<sup>2</sup>

## "Traffic fatality rates – which correlate with VMT – are higher in California than most of the industrialized world. " pg.9

Setting California on a path to achieve its vehicle electrification goals has required the hard work of staff across multiple state agencies, dozens of full-time advocates, and billions of dollars in state investments. Moreover, the success of these efforts has been made possible by the willingness of leaders to regulate the automobile industry and put the force of law behind vehicle electrification. A similar, or potentially even more far-reaching effort will be required to achieve the equally vital goal of reducing VMT. Unfortunately, no such initiative currently exists at the scope required among government actors, and efforts within the non-profit advocacy community remain limited in scale.

With no binding enforcement mechanisms in place, low prioritization by government decisionmakers, and limited advocacy resources, California's policy framework for reducing car dependence has struggled to produce results:

car travel has continued to grow for the last 15 years. Currently, the state has no credible plan in place for how it will halt and reverse this trend.

The failure to make progress towards driving reductions results from continued construction of freeway lane miles, and a failure to effectively and equitably manage the use of existing lane miles. Improved transit service, infill housing development, and improved cycling and pedestrian infrastructure can all help get people out of their cars and on to transit, but there is no practically feasible way to fully mitigate the amount of driving induced by the construction of new lane miles.

State legislators, agency decision makers, and advocates alike can help get the state back on track to meet its climate goals, but they must first confront the realities that (1) meeting our VMT targets is at least as vitally important as meeting our clean electricity and vehicle electrification goals, and (2) induced travel from lane-mile additions acts in a manner akin to the laws of physics to increase VMT.

This report describes the significance of reducing VMT for the climate, health and economic equity, and quality of life for all Californians. It also provides an overview of points of leverage in the state's transportation funding and regulatory structure that can be used to reverse current VMT trends.

## "California currently wastes huge sums of money on highway expansion projects that do not deliver congestion relief or economic benefit..." pg. 12

These tools alone, however, will not be sufficient to put our state on track to meet the VMT goals that it must achieve to reach carbon neutrality. Accomplishing those goals will require an all-hands-on-deck effort to urgently implement policies that will foster a more sustainable transporation system for all Californians.

Among other policies, to meet this moment, our state must:

- 1. Fully align the transportation planning process with California's established climate goals, which will rule out the vast majority of freeway expansions;
- 2. Implement an equitable roadway pricing system; and
- 3. Use parts of existing roadways to reconnect communities and provide more safe, efficient, sustainable mobility options.

This report focuses on tools that can help build toward the first of these transformations in how our state approaches transportation planning and funding.

## Section 1: Why VMT Matters

1. ZEVS ARE NOT ENOUGH: CALIFORNIA MUST REDUCE CAR DEPENDENCY TO MEET ITS CLIMATE GOALS.

Transportation accounts for nearly 40% of California's greenhouse gas emissions — more than any other sector alone. To decarbonize its most polluting sector, the state officially adopted a two-pronged approach: (1) reduce pollution per mile driven by transitioning the entire vehicle fleet to zero-emission technology and lower-carbon liquid fuels, and (2) reduce vehicle miles traveled.

In the Air Resources Board's 2022 Update to the Statewide Scoping Plan, the state's models for achieving our 2030 and 2045 greenhouse gas targets depend heavily on reducing per capita VMT: 25% below 2019 levels by 2030, and 30% by 2045.<sup>3</sup> In the near term, VMT reductions are an even more critical tool for achieving emissions reductions than ACCII. In the long term, reducing VMT will set the state up for success at other critical junctures in the climate transition.

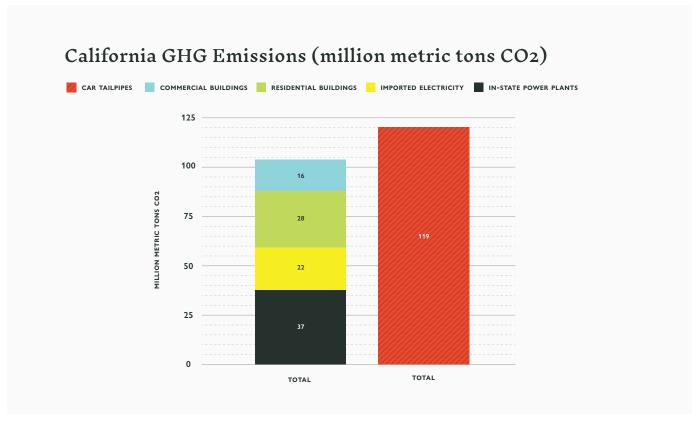


Figure 1: In the 2019 statewide greenhouse gas emissions inventory, car tailpipes accounted for 119 MMTCO<sub>2</sub>e — roughly 28% of California's overall emissions, and more than the emissions from the entire buildings sector and electricity sector combined.<sup>4</sup>

Tackling car dependence will help reduce tailpipe emissions alongside vehicle electrification. But a VMT reduction strategy also helps cut transportation-driven emissions beyond those caused by driving. The demands of a cardependent transportation system drive emissions in other sectors, such as manufacturing (producing cars), construction (road construction and maintenance), and land use (parking lots, sprawl, damage to natural habitats, loss of access to nature, and loss of farmland). ZEVs can eliminate tailpipe emissions, but leave a significant portion of these other emissions and harms unaddressed.

Vehicle fleet turnover timelines also present a challenge. Even with ACCII's requirement that all new vehicle sales are ZEVs by 2035, CARB projects that 30 percent of cars on the road in 2045 will run on fossil fuels.<sup>5</sup> The more driving those vehicles do, the more the state will have to rely on speculative and potentially highly costly carbon removal technologies to fully close the gap to carbon neutrality.

Growing car dependence inflates the cost of the ZEV transition and further strains California's capacity to deliver clean, reliable electricity. In the ZEV-dominant future, more driving will mean more charging. Preliminary cost estimates by the California Public Utilities Commission for the grid upgrades necessary to manage the load required for future ZEV charging are around \$50 billion by 20356 — a cost that will only go up the more that Californians have to drive. Meanwhile, the sprawling land uses that are both the cause and effect of high VMT travel patterns also exhibit 20 percent higher building GHG emissions compared to more compact land

use development,<sup>7</sup> and the greater acreage of development leads to additional GHG emissions from soil carbon releases, reduced access to nature, and other harms to natural and working land resources.

The Scoping Plan projects that increased electric vehicle sales in line with the implementation of ACCII will result in an annual GHG reduction of 12 million metric tons compared to business as usual in the year 2030. Put another way, the ZEV target contributes about a 3% reduction in statewide emissions towards the 2030 target of reducing overall annual emissions by 40%. In contrast, the modeled VMT reductions in the Scoping Plan would account for more than double that amount. By 2030, CARB's plan relies on VMT reductions contributing approximately 26 million metric tons in annual avoided emissions compared to business as usual.

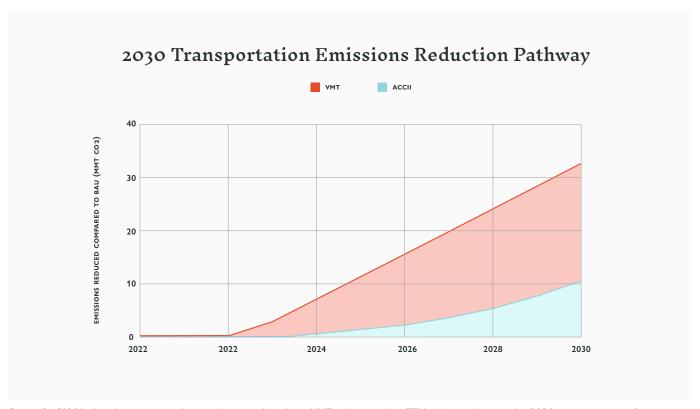


Figure 2: CARB's decarbonization pathway relies more heavily on VMT reduction than ZEV sales in achieving the 2030 emissions target.<sup>8</sup> Cumulatively, the VMT goal is responsible for more than 3x the emissions reductions by 2030 as ACCII.

But despite the state's preeminent climate planning document plainly stating that reduced car dependency is more than twice as important as vehicle electrification for meeting near-term decarbonization goals, only the latter strategy is subject to credible policy commitments.

#### 2. CURRENT EFFORTS TO REDUCE VMT FALL SHORT, AND INCREASED ROADWAY LANE-MILES ARE TO BLAME

Despite various commitments to reducing car dependence, and broad recognition of the associated benefits, California has failed to make lasting progress towards its VMT goals. In fact, since driving reduction goals first became state policy with the 2008 passage of SB 375 — the Sustainable Communities and Climate Protection Act (Steinberg), — Californians have only become more reliant on their cars.

## VMT trajectories and California's GHG Goal 24.6 25 PASSENGER VEHICLE VMT PER CAPITA (MILES/DAY/PERSON) 20 18.4 Target VMT reduction 17.2 15 10 5 2010 2015 2020 2045 2025 2030 2035 2040 CALENDAR YEAR

Figure 3: Illustration of VMT trajectory needed to achieve GHG emissions reduction goals, from the 2022 Scoping Plan.9

In the 2022 Sustainable Communities and Climate Protection Act Progress Report — commonly referred to as the 2022 SB 150 report — CARB found that vehicle travel is increasing overall and per capita:

California is still not reducing GHG emissions from personal vehicle travel... Per capita GHG emissions and per capita VMT continued to increase... Californians continue to drive farther distances in the course of their daily lives... Increases in per capita GHG emissions and per capita VMT are observed in nearly all MPO regions.<sup>10</sup>

The report digs in to these metrics, observing that key sustainable community initiatives have not yielded progress on emissions:

California has made policy efforts to expand access to affordable homes in convenient locations, and to safe and useful travel choices, but these have not yet been sufficient to reverse the increase in per capita GHG emissions and per capita VMT found in the 2018 Progress Report and again in this 2022 Progress Report.<sup>11</sup>

This lack of progress can be attributed in part to challenges in building infrastructure to support less car-centric lifestyles: transit systems have struggled under the disruption of the pandemic and ridership is down, and building sufficient infill housing to both solve housing shortages and increase the density of the built environment will take years, probably decades. But one key statistic does more to explain why California's per capita VMT is creeping upwards each year than any of these dynamics: between 2016 and 2019, the state's highway lane mileage grew by 5.4% overall.<sup>12</sup>

Those highway capacity increases are fundamentally incompatible with achievement of California's greenhouse gas emissions reduction targets. In fact, if expansions continue apace, they could substantially cancel out emissions reductions from progress made implementing sustainable community strategies and clean mobility programs in general.

# A less car-dependent future is a more equitable, healthy, and prosperous future

On top of the need to meet our climate goals, VMT reduction policies produce co-benefits across several issues of importance to Californians. Many of the secondary benefits of tackling VMT are enough to justify urgent policy interventions on their own.

#### AFFORDABILITY AND RACIAL EQUITY

The burdens of car dependence are felt most acutely by disadvantaged Californians. Reducing these burdens is key to making the climate transition more equitable overall.

Low-income households in California spend upwards of two-thirds of their income on housing and transportation combined.<sup>13</sup> This crisis of affordability is driven by a shortage of homes near jobs and the necessity of car ownership for access to daily needs — phenomena that are themselves rooted in sprawling development patterns that highway expansions perpetuate.

The highways constructed to meet the demands of car-oriented development continue a legacy of racist planning. In the middle of the 19th century, countless Black and brown neighborhoods in urban areas were destroyed to make way

for the very same road network that would induce more driving and make car ownership a basic, yet expensive, necessity in California. Even today, road capacity expansions are most frequently constructed near communities that are of a lower socioeconomic status and have the fewest resources to influence such projects.

Marginalized groups are disproportionately exposed to air pollution generated by cars. A recent study performed in Los Angeles showed that despite driving less, low-income earners and people of color were more likely to be exposed to harmful air pollution from cars. This dynamic can be attributed to car-dependent commutes and highways that carve through disadvantaged communities, resulting in whiter, wealthier residents effectively "exporting" vehicle pollution to the air breathed by their neighbors.<sup>14</sup>

#### **PUBLIC HEALTH**

Car dependence has harmful implications for public health beyond the associated tailpipe emissions that ZEVs promise to eliminate. These problems have a common solution: making it easier not to drive.

Traffic fatality rates — which correlate with VMT — are higher in California than most of the industrialized world. California's car-dependent transportation system causes thousands of traffic fatalities each year, at about 9.9 deaths per 100,000 people. That number excludes a much higher number of excess serious and life changing injuries each year. Car crashes are the leading cause of death of people in the US between the ages 1-54. Research shows that higher VMT leads to more crashes and fatalities and that the most sprawling, high VMT counties have a traffic fatality rate of approximately five times the least sprawling, lowest VMT counties.

Brake and tire wear are a major source of pollution that ZEVs cannot solve. Most of PM 2.5 emissions now come from brake and tire wear,<sup>19</sup> which increase with higher vehicle travel rates. PM pollution exposure has been shown to cause childhood and adult asthma, elevated rates of preterm birth, and chronic heart disease. As outlined above, PM pollution has the greatest impact on people who reside close to high volume roadways, who tend to belong to otherwise disadvantaged communities.

High levels of driving lead to sedentary behavior, causing serious increases in chronic disease and premature death. California sees over 21,000 premature deaths each year due to sedentary behavior, which auto reliance promotes. "California achieving its stated goals of doubling walking and transit trips and tripling bicycling... [would] overall lead to 2,095 fewer deaths and 30,124 fewer years of life lost and disability" annually.<sup>20</sup> Achieving these reductions in morbidity would be similar in scope to the accomplishments of California's efforts to control tobacco.<sup>21</sup>

#### **ECONOMIC PROSPERITY**

The land use and transportation decisions that lead to a low-VMT society are not just smart climate policy, but also good fiscal policy.

Highway projects are not efficient or lasting job creators when compared to their alternatives. Research finds that projects to construct transit, pedestrian, and active transportation infrastructure create more jobs per dollar spent than roadway construction projects. Meanwhile, workers are burdened by the high costs of auto mobility, upon which accessing a livelihood depends, as they are pushed out into sprawl housing and saddled with long commutes.

Walkable communities are economic powerhouses. Analysis performed by Smart Growth America found that nearly

20% of U.S. GDP can be attributed to just over 1% of the country's land, where about 7% of the country's population resides in neighborhoods that embody "walkable urbanism." <sup>24</sup> Channeling public resources and priorities towards infill housing, mixed use development, and pedestrian-friendly streets instead of new auto infrastructure would help California meet its climate goals while unlocking a prosperous fiscal engine.

New highways and highway capacity expansions provide no lasting economic benefits. Adding highway capacity does not durably reduce congestion, and does not substantially benefit regional economies.<sup>25</sup> The benefits of highway capacity building appear to be limited to those who profit from building them, and to the land speculators and sprawl developers that monetize the temporary improvements in accessibility to their land before congestion returns.

## Section 2: Stopping VMT Increases at the Source

### 1. INCREASES IN HIGHWAY CAPACITY ARE THE CENTRAL HURDLE TO PROGRESS

Numerous studies show that adding highway capacity to the road network induces more driving, and that VMT increases on average by the same percentage as highway capacity.<sup>26</sup> In other words: if you build it, cars will come.

This phenomenon – the fact that vehicle travel will generally increase until the roadway system congests – is known among transportation practitioners as "induced travel." Induced travel has been so well-documented in academic studies and research that it is widely accepted by economists and leading transportation experts as playing a determinative role in car use and land use development patterns.

One important implication of this phenomenon often goes overlooked: in virtually every scenario relevant to the U.S. transportation context, once highway capacity is built, the associated increase in VMT cannot be undone through expansions in public transit. In a major study on induced travel, published in the top US economics journal, Duranton and Turner (2011)<sup>27</sup> demonstrate the robustness of this "Fundamental Law of Roadway Congestion" even in the face of new transit service. The study showed that, when people switch from driving to transit and give up their space on the highway, that space simply backfills with new vehicle travel by others, returning the roads to their congested equilibrium.

This means that, once highway capacity is added, the proverbial horse is out of the barn. That highway capacity will hold VMT at a new, elevated level, and cannot be mitigated by simply adding transit capacity concurrently. Attempts to mitigate induced travel with investments in transit, active transportation, and various forms of transportation demand management (TDM) will be undone as the newly freed space on the highway backfills with new cars.

Transit, active transportation and TDM have an important role to play in any VMT reduction strategy – they can improve the interconnectedness of the transportation system beyond the vehicle network, which is key to maintaining and expanding travel throughput and access to opportunity in a future where driving is just one transportation option of many. These types of mobility investments also crucially provide affordable, clean, and efficient transportation, effectively upholding the foundation of a functioning (and less car dependent) society.

But these investments, while of critical importance, do not address the specific goal of substantially reducing driving. Indeed, if California continues to expand highway capacity, the resulting increase in VMT will overwhelmingly cancel out the climate benefits of mode shift generated through concurrent transit improvements.

#### 2. PRINCIPLES AND RECOMMENDATIONS

The first step towards creating a virtuous cycle of reduced car dependence and sustainable communities is halting the vicious cycle of highway expansion and its effect on VMT. The following recommendations establish a framework for transportation planning that advances California's climate goals — one that has already begun to take shape as a result of the hard work of a small group of advocates and policymakers. This framework can be split into three principles: (1) Aligning transportation funding with climate goals, (2) bringing transparency and accountability to the project selection process, and (3) improving oversight and rigor in agency analyses of project impacts.

### Principle 1: Align transportation funding with climate goals

California's transportation spending is misaligned with its climate goals. A forthcoming study by the Natural Resources Defense Council (NRDC) found that over 80% of California's state transportation spending flows towards projects that either do nothing to help or actively undermine the state's driving goals.<sup>28</sup> The state can do more to put transportation funds to work in pursuit of climate and equity priorities, through legislative, regulatory, and local action.

The legislative budget process should be leveraged to better align spending with VMT goals. In recent years, the legislature and the Governor have worked together to authorize historic sums of funding for climate mitigation and adaptation, with upwards of \$50 billion dollars dedicated to climate programs across a multi-year budget window. A substantial share of this funding is put towards ZEV programs, sustainable transportation infrastructure, and transit. However, as the NRDC study demonstrates, significant state funding continues to flow towards programs that enable spending on highway capacity expansions and maintain the transportation status quo. These expansions have a nullifying effect on the climate benefits of the state's critical investments in sustainable transportation, and do not deliver congestion relief or economic benefits to Californians. This funding should be diverted towards projects aligned with climate goals.

Agency funding guidance should be updated to ensure transportation funds are spent on projects that bring real public benefits and do not expand highway capacity. Transportation funding programs like the State Highway Operation and Protection Program (SHOPP) and the State Transportation Improvement Program (STIP) serve an important role in repairing existing infrastructure and improving road safety for all users, but continue to allow for capacity expansions to be funded. Caltrans and MPOs across the state have made some progress updating funding guidance to better align with state objectives on VMT, GHG emissions, and equity, but more work is urgently needed.

Local transportation spending should be improved through sales tax reform and revisions to existing spending plans. Local projects are framed as "promises made" to voters who voted for funding highway capacity projects — sometimes decades ago — despite processes built into most sales tax measures that allow for changes to be made to spending plans in light of new information. Given the extensive research showing that capacity expansions provide no lasting public benefit, these plans should be updated where possible. Going forward, local sales tax measures should be required to disclose the projected VMT impacts of included projects; regions should also require that projects named in local measures are named in regional planning documents.

**TAKEAWAY:** Across local, regional and statewide budgets, California currently wastes huge sums of money on highway expansion projects that do not deliver congestion relief or economic benefit, while moving the state further away from achieving its climate targets and equity goals. By increasing accountability for public transportation spending, California can dramatically boost the public benefit generated by taxpayer dollars.

#### Principle 2: Strengthen the public process for highway project selection

Given their impacts on emissions and air quality, many highway capacity projects would not get built if subject to robust public scrutiny and the plausible threat of California Environmental Quality Act (CEQA) litigation. Nevertheless, such projects continue to be built, thanks in large part to a lack of public visibility into the project pipeline, the sheer quantity of initiated capacity projects, and dubious "statements of overriding consideration," which effectively nullify the requirement that a project meet CEQA's usual requirements. These hurdles limit and dilute the oversight that the public can provide in decisions regarding highway expansion. Increasing transparency and accountability in the project selection process can help shift the balance towards better transportation projects.

Lists of planned transportation projects should be made accessible to the public. Caltrans currently keeps a statewide list only of forthcoming SHOPP projects, which consist primarily of maintenance projects. There is no centralized list of forthcoming capacity projects, and procuring this information is a challenge even for agency staff. In the interest of transparency, Caltrans should develop lists of all forthcoming projects statewide, and maintain them in a publicly available fashion.

Caltrans should exercise its administrative authority to refuse initiation of highway capacity projects. Once projects are in the pipeline, they become significantly more likely to get built. Project Initiation Documents (PIDS) for capacity projects work against Caltrans' and the State's stated goals. Existing law codifying California's climate targets, along with Executive Order N.19.19 and the adopted Climate Action Plan for Transportation Infrastructure (CAPTI) provide Caltrans districts with ample directives to cease developing or accepting these documents. To increase transparency, California should institutionalize public review of PIDS.

Highway capacity projects should not receive overriding consideration. Even with robust public engagement through the planning and CEQA processes, the possibility remains that highway capacity projects will receive statements of overriding consideration if officials deem it infeasible to fully mitigate VMT increases. A statement of overriding consideration allows a project to proceed despite unmitigated environmental costs, with the assumption that the project benefits make those costs worth bearing. Since capacity expansions provide no lasting benefit to the public, providing one of these statements for capacity projects would be an abuse of procedure and actively work against California's climate goals. Decision makers should rule out the use of overriding consideration for highway capacity projects.

Takeaway: Implementing these recommendations would lift barriers to a more robust public process surrounding proposed highway capacity projects, through CEQA enforcement and otherwise. By expanding transparency and public accountability for proposed transportation projects, California can begin to repair the social and environmental harms of past highway construction, while fostering community buy-in for a more modern, sustainable transportation system.

### Principle 3: Bring rigor to agency analysis of VMT impacts

Even operating under the existing transportation planning framework, California could improve upon VMT outcomes by eliminating misrepresentations and biases within project analyses. Certain analytical tools systematically underestimate the VMT-related impacts of highway projects, allowing those projects to move forward in the pipeline despite predictable and well-understood negative impacts that do not make it into the project analyses. The obscure, technical nature of these analyses mean that they often escape scrutiny by stakeholders and decision makers.

Caltrans guidance should be updated to treat VMT consistently between analyses. Caltrans guidance recommends using the National Center for Sustainable Transportation (NCST) Induced Travel Calculator<sup>29</sup> as the primary tool to assess induced VMT.<sup>30</sup> However, Caltrans' emissions models for GHG and air quality studies continue to rely on travel demand model outputs that badly underestimate induced VMT.<sup>31</sup> This discrepancy between study methods needs to be reconciled. Caltrans should benchmark its travel demand model outputs against the NCST Induced Travel Calculator across all relevant project studies.

Fundamental flaws in cost-benefit analysis for highway capacity projects need to be fixed. Currently, California's official cost-benefit model, Cal-B/C,<sup>32</sup> greatly overestimates travel time savings due to a highway capacity project, due to its reliance on travel demand model outputs that capture only a small fraction of the induced travel effect.<sup>33</sup> The inflated travel time savings is carried forward through the full 20 years of analysis performed by Cal-B/C, contradicting research showing that travel time savings from highway capacity projects disappear over the span of five years on average.<sup>34</sup> The effect of this factor alone is to exaggerate congestion relief benefits by several times. Since travel time savings are the central benefits that Cal-B/C touts for highway capacity projects, the overall analysis is badly skewed. Additionally, academic studies show that highway capacity project costs are severely and constantly underestimated,<sup>35</sup> further contributing to the imbalance in agency benefit-cost analyses. These deep misrepresentations of project impacts should be corrected for.

The air quality conformity process should be broadened to more thoroughly account for air pollution generated by driving in nonattainment areas.<sup>36</sup> By law, if conformity can't be met, a project can't move forward. Yet, in reality, projects are rarely stopped. Caltrans and the US Environmental Protection Agency both provide quality control evaluation of the Air Quality Conformity Analysis included as an attachment to Regional Transportation Plans (RTPs) prior to final review and official approval for the overall plan by the Federal Highway Administration. In both instances, the RTP's effect on VMT should be added as a criterion within the agencies' evaluations.

**TAKEAWAY:** Efforts to reform a framework as deeply rooted in public policy as the transportation system status quo face immense inertia, but California may be approaching a transformational tipping point. In the meantime, pointing to technical changes in project analyses that have precedent in recent updates to guidance can be one way to give better projects more of a fighting chance. Air quality is also a serious equity and public issue for both the state and federal governments. Calling attention to the air quality implications of VMT can be another powerful tool in fighting highway expansions.

#### Conclusion

A tremendous opportunity lies in front of California policymakers to accelerate climate action while promoting racial equity, public health, and sustainable economic growth. The first step towards building the transportation system of the future is leaving traffic-inducing highway capacity projects in the past.

This report highlights actions that stakeholders can take now, under existing policy frameworks, to shine a light on, and in some cases slow or stop, these types of projects. California should build on these existing tools by enacting bold new policies that align transportation planning with our climate goals by preventing new lane-mile additions in virtually all instances.

But it is not enough to simply stop making the problem bigger; VMT will not decline unless lane-miles dedicated to single-passenger vehicle travel also shrink. This means we means we must put the infrastructure we have today to better use.

Two strategies stand out as strong near-term candidates for rapidly reducing VMT. Each of these strategies merit a standalone discussion that is outside the scope of this report, but that we hope to address in future publications. The first is the implementation of equitable roadway pricing. Pricing makes driving less attractive as the default option for drivers, reduces incentive for sprawl construction, and creates a source of revenue to fund other transportation modes' construction, operation, and maintenance. The second strategy involves bringing true multimodalism to existing roadways. This approach includes, for example, putting existing car lanes to more inclusive uses by repurposing them as bus lanes, dedicating them to bicycle- and pedestrian-only use in some areas and during certain times of day, and the creation of low- and zero-emission vehicle zones that prioritize higher-occupancy vehicles.

Rapidly reducing car dependence and implementing these sustainable traffic solutions will be essential to meeting our climate targets. CARB's Scoping Plan could not be more explicit: if we do not cut VMT, we will not achieve carbon neutrality by 2045. It is time for California to treat this reality with the urgency it deserves.

## **End Notes**

- <sup>1</sup> California Greenhouse Gas Emissions for 2000 to 2019, CARB, 2021. Page 8.
- <sup>2</sup> 2022 Scoping Plan for Achieving Carbon Neutrality, CARB, 2022. Pages 116-117.
- <sup>3</sup> 2022 Scoping Plan for Achieving Carbon Neutrality, CARB, 2022. Page 72.
- <sup>4</sup> California Greenhouse Gas Emissions for 2000 to 2019, CARB, 2021. Page 8.
- <sup>5</sup> 2022 Progress Report California's Sustainable Communities and Climate Protection Act, CARB, 2023.
- <sup>6</sup> Electrification Impacts Study Part 1, CPUC, 2023.
- <sup>7</sup> <u>The Impact of Urban Form on U.S. Residential Energy Use,</u> Ewing and Rong, 2010. Pages 21-22.
- <sup>8</sup> Emissions projections modeled using Energy Innovation and Rocky Mountain Institute's California Energy Policy Simulator version 3.3.1.1.
- <sup>9</sup> 2022 Scoping Plan Appendix E Sustainable And Equitable Communities, CARB, 2022.
- <sup>10</sup> 2022 Progress Report, California's Sustainable Communities and Climate Protection Act, CARB, 2023.
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- <sup>13</sup> 2022 Progress Report, California's Sustainable Communities and Climate Protection Act, 2023.
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- <sup>22</sup> Ibid.
- <sup>23</sup> What We Learned from the Stimulus, Smart Growth America 2010.
- <sup>24</sup> Pedestrian and Bicycle Infrastructure: A National Study of Employment Impacts (Heidi Garrett-Peltier, 2011) finds that per \$1M spending, cycling projects create 11.4 jobs, pedestrian projects create 10 jobs, multi-use trails create 9.6 jobs, while roadway projects create 7.8 jobs.
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- <sup>26</sup> Impact of Highway Capacity and Induced Travel on Passenger Vehicle Use and Greenhouse Gas Emissions, Handy and Boarnet, 2014.
- <sup>27</sup> See: <u>The Fundamental Law of Road Congestion: Evidence from US Cities</u>, <u>Duranton and Turner</u>, 2011; <u>If you build it</u>, they will drive: <u>Measuring induced demand for vehicle travel in urban areas</u>, <u>Hymel</u>, 2019; <u>Increasing Highway Capacity Unlikely to Relieve Traffic Congestion</u> (Policy Brief summarizing studies); <u>Updating the Induced Travel Calculator</u>, Volker, 2022.

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- <sup>29</sup> Closing the Climate Investment Gap, Rubin, Abonour and Gahbauer, NRDC. (Forthcoming October 2023)
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- <sup>35</sup> Underestimating Costs in Public Works Projects: Error or Lie?, Flyvbjerg et al., 2013.
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