OCTOBER 2023
R: 23-07-B

REPORT

CLOSING THE CLIMATE INVESTMENT GAP:

CALIFORNIA MUST PRIORITIZE CLIMATE-SMART TRANSPORTATION PROJECTS

Families cycling down a street in the Florence-Firestone neighborhood of Los Angeles, California, during a CicLAvia event on May 16, 2016.

AUTHORS:

Carter Rubin

Rabi Abonour

John Gahbauer

ACKNOWLEDGMENTS

This report was made possible with support from NRDC's funders and donors.
The authors are grateful for the review and thoughtful comments from the following individuals:

- Zak Accuardi, NRDC
- Stuart Cohen, TransForm
- Jackie Ennis, NRDC
- Deron Lovaas, NRDC alumnus
- Jamie Pew, NextGen Policy
- Nailah Pope-Harden, ClimatePlan
- Dr. Kelcie Ralph, Rutgers University
- Craig Segall, Evergreen Action
- Dr. Jamey Volker, University of California, Davis

NRDC Chief Communications Officer: Kristin Wilson-Palmer
NRDC Managing Directors of Communications: Lisa Goffredi, Jenny Powers, Rosa Del Angel
NRDC Senior Policy Publications Editor: Leah Stecher
NRDC Director of Peer Review, Science Office: Laurie Geller

Cover image: © Steve Hymon/Metro, CC BY-NC-SA 4.0
Design and Production: www.suerossi.com

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The danger of climate change to Californians is more obvious than ever, with extreme weather and climate-related disasters making it clear that the status quo cannot continue. The state's climate regulator, the California Air Resources Board (CARB), recently adopted a plan to achieve carbon neutrality and cut human-caused greenhouse gas (GHG) emissions 85 percent below 1990 levels by 2045.[1] The transportation sector is the largest source of GHG emissions in California, contributing 38 percent of the total, and is the area most ripe for urgent action.[2]

CARB's 2030 Scoping Plan Update pinpoints the need to reduce per capita vehicle miles traveled (VMT) 25 percent by 2030 in order to meet statewide emissions-reduction targets. Reaching such a goal will require a significant refocusing of available state transportation resources on projects that help Californians get around via safe and reliable public transit, biking, and walking, thus reducing per capita VMT. And to address the disparate impact of highways on communities of color, these investments in clean, affordable mobility options should be prioritized for projects identified by those communities bearing the heaviest pollution and displacement burdens from our highway and road system. The transformative change needed in the transportation sector presents California with a distinct opportunity to light a path for states across the country in reimagining how we plan, fund, and build transportation infrastructure to minimize burdens and maximize benefits in most-impacted communities.

However, our analysis finds a disconnect between the projects and programs that California funds and the urgency to decarbonize the transportation system in order to meet the state's climate goals. NRDC analyzed state transportation investment decisions across 10 key funding programs that span 2019 to 2027—representing $22.4 billion invested in 4,824 projects—to see to what extent California's transportation spending matches the urgency of its climate goals.

Our analysis shows that California has significant room to improve its transportation funding choices to support its climate goals. Within the funding programs analyzed, the state allocated only $4.2 billion (19 percent of the total) to projects that would help reduce vehicle miles traveled. The state has committed $2.2 billion to projects that will encourage *more* driving and lead to more pollution. An additional $16.1 billion is allocated to projects that will not move the needle in either direction but could be leveraged to achieve climate goals more explicitly. The $4.2 billion committed to VMT-reducing projects does contribute to reducing climate-warming emissions, but it does not go far enough to help the state eliminate pollution from the transportation sector at the speed required to meet its climate goals. With less than one-fifth of the total budget going to VMT-reducing projects, the state must do more to support sustainable transportation.

We recommend four strategies that should be put in place to better align California's transportation investments with its climate and VMT goals.

Strategy 1: Discontinue funding for VMT-increasing projects.

Strategy 2: Convert projects that have no VMT impacts to projects that reduce VMT.

Strategy 3: Build a better pipeline of VMT-reducing projects.

Strategy 4: Track progress on VMT reduction in state-funded transportation projects.

Implementing these strategies will require political leadership from the governor and legislature to shift us out of our current policy inertia. And these strategies will require meaningful participation and collaboration from the agencies that will have to implement them, including the California State Transportation Agency, the California Department of Transportation, and the California Transportation Commission.

© Courtesy of LA Metro

Metro announced in October of 2021 the successful completion of its transition to an all-electric bus fleet on the popular Metro G Line (Orange) in the San Fernando Valley.

INTRODUCTION

Faced with the disaster of climate change, Californians overwhelmingly support climate action by a ratio of 3 to 1, and many call it their "top priority."[3] But reducing greenhouse gas (GHG) emissions in the Golden State will especially require rethinking how California and Californians approach transportation, which is the single largest contributor to the state's emissions.

Transportation's outsize contributions to climate pollution in California result from nearly a century of public investment totaling hundreds of billions of dollars in car-oriented transportation in the form of the state's sprawling freeway system and car-dependent communities. The construction of the highway system in California caused the displacement of thousands of Californians, including more than 10,000 just since 1991.[4] These displacements disproportionately occurred in Black and Latino communities, and these same communities live every day with disproportionate pollution burdens from the state's highway system.[5]

To cut transportation emissions quickly enough to reach its climate goals, the state will need to both rapidly shift to zero-emissions vehicles and help Californians move around via public transit, biking, walking, and carpooling. And to address the disparate impact of highways on communities of color, these investments in clean, affordable mobility options should be prioritized for projects identified by those communities bearing the heaviest pollution and displacement burdens from our highway and road system.

CARB notes that "despite increases in fuel efficiency and decreases in the carbon content of fuel, California will not achieve the necessary GHG emissions reductions to meet mandates for 2030 and beyond without significant changes to how communities and transportation systems are planned, funded, and built."[6] More specifically, CARB's 2030 Scoping Plan Update pinpoints the need to reduce per capita vehicle miles traveled (VMT) 25 percent by 2030 in order to meet statewide emissions-reduction targets.

California has taken several important policy steps in this direction. Recent efforts to address climate pollution from the transportation sector include the Advanced Clean Cars II standard, requiring all new cars and light trucks sold in California to be zero-emissions by 2035, and the Advanced Clean Fleets Rule and the In-Use Locomotive Rule, which curb pollution from freight vehicles. These are critical components of a zero-emissions transportation system for California.

Initial steps to better align transportation planning and investments with climate goals include SB 743 (2013) and SB 375 (2008), Executive Order (EO) N-19-19, and policy documents such as the *Climate Action Plan for Transportation Infrastructure*, which have begun to create a new framework for evaluating and prioritizing transportation projects based on their climate benefits or harms. SB 743 better aligned the California Environmental Quality Act review of transportation projects with measuring climate impacts, and SB 375 created a framework for planning transportation and land use to achieve reductions in climate pollution. With EO N-19-19, Governor Gavin Newsom directed the State Transportation Agency to "align the state's goals with transportation spending on planning, programming and mitigation to achieve the objectives of the state's Climate Change Scoping Plan, where feasible," and to "reduce vehicle miles traveled by strategically directing discretionary transportation investments" and encouraging a shift to transit, walking, and biking.

However, these policies alone are not yet solving California's transportation emissions problem at the scale needed. A recent report from the Strategic Growth Council found a significant "gap between the vision for a more climate friendly and equitable transportation system and actions and infrastructure spending decisions."[7] And a report released this year by CARB found that "California is still not reducing GHG emissions from personal vehicle travel as needed to meet climate commitments and as targeted under SB 375."[8]

Understanding the gap between California's climate values and spending requires following the money. So, NRDC analyzed state transportation investment decisions across 10 key funding programs that span 2019 to 2027 representing $22.4 billion invested in 4,824 projects. Our analysis finds that California's transportation spending does not yet match the urgency of its climate goals.

Of the $22.4 billion in transportation investments we analyzed, only 18.6 percent go towards projects and programs that are helping curb Californians' reliance on private automobiles by through the buildout of bike lanes, sidewalks, electric buses, regional rail systems and affordable housing.

The remaining 81.4 precent is allocated towards maintaining (71.7 percent) and expanding (9.7 percent) the current system of roads and highways that contribute not only to climate pollution, but also unhealthy air, urban sprawl and endemic traffic fatalities. To zero out pollution from the transportation system in California, the state must fully align public spending with climate and clean air priorities, stop expanding our roads, and leverage maintenance investments to expand clean transportation options.

METHODOLOGY

Previous research conducted by the UCLA Institute of Transportation Studies for the Strategic Growth Council found that "the state's transportation spending is not well aligned with many of its goals" for climate change. This conclusion was based on an evaluation of state and regional transportation programs' funding levels and their statutory descriptions and criteria.[9] Building on this research, NRDC investigated further to evaluate how well individual *projects* within these programs (and others) were aligned with the state's goals for reducing vehicle miles traveled (VMT) and greenhouse gas (GHG) emissions. We looked at projects within 10 top-level programs, including California Transportation Commission programs and those specifically named in the Climate Action Plan for Transportation Infrastructure (CAPTI) that received funding augmentations through Executive Order N-19-19:

- Affordable Housing and Sustainable Communities (AHSC) Program
- Low-Carbon Transit Operations Program (LCTOP)
- Transit and Intercity Rail Capital Program (TIRCP)
- Active Transportation Program (ATP)
- Local Partnership Program (LPP)
- Solutions for Congested Corridors Program (SCCP)
- State Highway Operations and Protection Program (SHOPP)
- Local Streets and Roads Program (LSRP)
- State Transportation Improvement Program (STIP)
- Trade Corridor Enhancement Program (TCEP)

See Table A1 in Appendix A for additional details on these programs.

Our analysis involved looking at each project to determine whether it was expected to increase VMT, decrease VMT, or have no impact on VMT (Table A3). We determined the category of each project using a framework developed by the Governor's Office of Planning and Research (OPR) in a 2018 technical advisory for the preparation of transportation impact analyses done under the California Environmental Quality Act.[10]

Projects that increase VMT include new and expanded highways and roads. Projects that reduce VMT include improvements in bicycle, pedestrian, and transit systems and access to those systems. Projects that have no impact on VMT include road maintenance and minor expansions to roads. A full set of examples is included in Appendix A.

We evaluated 4,824 projects in the 10 programs, reflecting $22.4 billion in funding for projects spanning fiscal years (FY) 2019 to 2027. With an assessment of VMT effects for each project in place, we calculated the share of projects that increased, reduced, and had no impact on VMT in each program; similarly, we calculated the share of *funding* going to projects that increased, reduced, and had no impact on VMT. We then used these summary calculations to come up with a score for each program (Table 2). The scores provide a general assessment of the extent to which California's transportation programs have recently funded and delivered VMT-reducing projects.

See Appendix A for further details on methodology.

Installation of intersection crossing panels on the Crenshaw/LAX line.

FINDINGS

This analysis found that, for programming years 2019 to 2027, the state of California has allocated only $4.2 billion (18.6 percent of overall funding) to projects that would help reduce vehicle miles traveled. A total of $2.2 billion (9.7 percent) has been allocated to projects that increase VMT. The largest share, $16.1 billion (71.7 percent), has been allocated to projects that would not be expected to significantly impact VMT levels—for example, maintenance and rehabilitation projects such as repaving roads, rebuilding bridges, and installing new guardrails. This last category represents a missed opportunity to leverage state investments in ways that reduce VMT and help the state reach its climate goals, while also achieving transportation system maintenance and rehabilitation objectives.

In analyzing allocations in terms of number of projects and programs funded, we found that California is investing in a large number of VMT-reducing projects such as bike lanes, sidewalks, and other active transportation infrastructure, as well as transit operations and capital improvements. The total spending on VMT-reducing projects is nearly twice that of VMT-increasing projects ($4.2 billion versus $2.2 billion), but there are more than seven times as many VMT-reducing *projects* as VMT-increasing *projects* (1,304 versus 178). This means that, on average, each VMT-increasing project receives nearly four times the funding of a VMT-reducing project: an average per-project funding allocation of $12.3 million versus $3.2 million.

Of these 178 VMT-increasing projects in recent funding programs, some entail significant highway expansions, or even entirely new highways, that would be expected to generate hundreds of millions of new annual vehicle miles traveled. These VMT-increasing projects are concerning not only because they will produce significant additional GHG emissions (undermining the state's climate goals), but also because they will divert funding from projects that could have instead *reduced* VMT.

Table 1 highlights the three largest investments made during the study period in each category of VMT increasing, decreasing and no-impact.

TABLE 1: PROJECTS RECEIVING THE LARGEST STATE INVESTMENT, BY VMT CATEGORY

VMT category	Project description	Funding allocation	Program
VMT decreasing	Los Angeles County MTA: East San Fernando Valley North-South Light Rail	$167,509,000	STIP
VMT decreasing	Los Angeles County MTA: Metro Red and Purple Line core capacity improvements	$131,177,000	LPP– Formulaic
VMT decreasing	Bay Area Rapid Transit Transbay Corridor Core Capacity Program: vehicle acquisition	$107,100,000	TIRCP
No impact	Caltrans: Interstate 10 in Riverside County, truck climbing lane	$231,481,000	SHOPP
No impact	Caltrans: State Route 14 Los Angeles County, replacement and maintenance of roadway and related elements	$169,950,000	SHOPP
No impact	Caltrans: Interstate 405 Los Angeles County: Replacement and maintenance of roadway and related elements; upgrades to Transportation Management System (TMS) elements; guardrail and facilities to Americans with Disabilities Act (ADA) standards	$147,305,000	SHOPP
VMT increasing	Caltrans and Los Angeles County MTA: 57/60 interchange and other improvements	$217,900,000	TCEP
VMT increasing	Caltrans and Los Angeles County MTA: I-105 express lanes—construction	$150,000,000	SCCP
VMT increasing	Caltrans and Solano County Transportation Authority: Solano I-80 managed lanes	$123,400,000	TCEP

We found that VMT-increasing projects are concentrated in five programs: Local Partnership Program–Competitive, Local Partnership Program–Formulaic, Solutions for Congested Corridors Program, State Transportation Improvement Program, and Trade Corridor Enhancement Program. Together these programs spend more than a quarter of their funding on VMT-increasing projects. Two of them, LPP-Competitive and TCEP, spend more than half of their funding on VMT-increasing projects.

The disconnect between policy goals and investment choices is highlighted by the STIP program. The STIP funding guidelines are based on numerous state goals, including those related to reducing GHG emissions to 40 percent below 1990 levels by 2030 (EO N-19-19 and SB 32 [2016]); reducing VMT (AB 32 [2006]); improving air quality (SB 1 [2017]); and encouraging active modes of transportation (SB 1), particularly in historically underinvested communities (EO 79-20).[11] Despite this, STIP still allocates more funding to VMT-increasing projects than VMT-reducing ones. In some cases, this can be explained by STIP continuing to fund projects that have been in the planning process for decades and therefore predate more recently adopted climate goals.

SCORECARD

Our findings are summarized in Table 2, below, which shows both the funding going to each category of project and a letter grade for each program. Letter grades were generated by scoring each program on the basis of the *amount of funding* going to VMT-reducing, VMT-increasing, and no-VMT-impact projects in each program (which received 75 percent of the weighting), along with the *number* of each category of project (which received 25 percent of the weighting). See Appendix A for more details. As the table shows, eight out of 14 programs (and subprograms) have no funding allocated to VMT-increasing projects.[12] Of those eight, six have a minimal share of their funding designated to no-VMT-impact projects. In our scoring methodology (explained in Appendix A), these six projects score best (and get an A+ grade). All six programs are focused on transit capital or operations or active transportation and safe routes to school. These programs' funding choices are completely aligned with the need to shift trips from cars and trucks to sustainable modes of transportation in order to meet climate goals.

The funding allocated to VMT-increasing projects is concentrated in only a few of the state's programs. Four programs have more funding assigned to VMT-increasing projects than to VMT-reducing ones: LPP-Competitive, STIP, SCCP, and TCEP. TCEP has nearly *ten times* more funding for projects that increase VMT than for those that reduce VMT. Three of the four programs include many highway expansions and widenings, which run counter to the state's climate goals and are a missed opportunity for climate-aligned transportation investments.

While the State Highway Operations and Protection Program does not have a large share of VMT-increasing projects, it is by far the largest funding program of those studied, accounting for nearly three-quarters of all funding represented by these programs in the time frame analyzed. SHOPP has 91.5 percent of its funding dedicated to no-VMT-impact projects. This represents the largest missed opportunity for using state transportation investment to leverage greater reduction in fuel consumption and GHG emissions, which EO N-19-19 directs the State Transportation Agency to do.

This summary scorecard also makes clear that not enough funding overall goes to VMT reduction.

© Stephen Lam for NRDC

A sign separating a lane for parked cars from a bike path as part of the new Better Bikeways network in San Jose, California.

TABLE 2: PROGRAMS BY SCORE AND GRADE							
			Project funding for projects (millions)				
Program	Program name	VMT-reducing elements	VMT-reducing	No-VMT-impact	VMT-increasing	Weighted score	Grade
AHSC	Affordable Housing and Sustainable Communities Program	Transit-oriented development, bike facilities/access, fare programs	$721.0	$87.3	$–	100%	A+
ATP-MPO	Active Transportation Program—Metropolitan Planning Organization Component	Active transportation, Safe Routes to School	$171.8	$4.7	$–	100%	A+
ATP-Small Urban and Rural	Active Transportation Program Small Urban and Rural	Active transportation, Safe Routes to School	$44.0	$0.2	$–	100%	A+
ATP-Statewide	Active Transportation Program Statewide	Active transportation, Safe Routes to School	$237.5	$4.0	$–	100%	A+
LCTOP	Low-Carbon Transit Operations	Zero-emission buses, fare-free programs, expanded night/weekend service	$81.8	$-	$–	100%	A+
TIRCP	Transit and Intercity Rail Capital Program	Transit vehicles, facility improvements	$500.0	$-	$–	100%	A+
SCCP	Solutions for Congested Corridors Program	Complete streets (featuring bicycle, pedestrian, and public transit facilities), active transportation, transit facilities/vehicles	$222.0	$0.5	$277.5	78%	C+
LPP–Formulaic	Local Partnership Program–Formulaic	Various active transportation, transit, streets	$295.0	$52.1	$205.8	77%	C
LSRP (Cities)	Local Streets and Roads Program: Cities (project element)	Complete streets, complete streets components	$173.4	$202.0	$–	73%	C
LPP–Competitive	Local Partnership Program–Competitive	Various active transportation, transit, streets	$69.0	$15.4	$101.0	70%	C–
STIP 2022	State Transportation Improvement Program	Major bicycle and pedestrian elements, transit vehicles, Link Union Station	$320.6	$173.6	$338.1	68%	D+
TCEP	Trade Corridor Enhancement Program	Rail (LOSSAN)	$105.4	$240.0	$1,011.9	53%	F
LSRP (Counties)	Local Streets and Roads Program: Counties (project element)	Complete streets, complete streets components	$101.0	$387.9	$–	52%	F
SHOPP	State Highway Operations and Protection Program	Complete streets, bike and pedestrian facilities, bus aux lanes, transit stops, some ADA curb improvements	$1,137.3	$14,913.0	$250.2	47%	F
Total			**$4.2 billion**	**$16.1 billion**	**$2.2 billion**		

FURTHER DISCUSSION: LIMITATIONS OF THE ANALYSIS

While our analysis provides a helpful high-level understanding of the degree to which California's transportation investments are aligned with the state's climate goals, we encountered some limitations and constraints with the data available that influenced our approach.

First, many projects combine VMT-increasing activities with VMT-reducing ones, which complicates the assessment of the probable overall VMT effect. For example, a roadway project that adds two lanes for cars and two lanes for bikes may be better than a widening without bike lanes, but the VMT effect of the lanes for cars is likely to be far greater than the VMT-reducing effect of the added bike lanes.[13] This is because there is a much higher baseline of vehicle travel and a complete vehicle network, whereas a few miles of bike lanes do not produce a network effect that would generate a significant shift of trips from cars to bikes. The net effect is not always clear, however, as when a roundabout (no impact) is combined with a nearby transit park-and-ride. The mix of elements in a single funded project complicates the assessment. Ongoing benchmarking efforts for state transportation investments should include the development of a consistent approach for tracking projects that accounts for this mix of elements.

Second, the GHG emissions resulting from project construction, which can be significant, are not factored into our evaluation of project impacts. Even a VMT-reducing project can have construction emissions. Existing modeling tools (such as CalEEMod) could make self-reporting possible.

Third, this evaluation does not capture the other very important benefits or burdens of transportation projects on communities. More analysis is needed to understand whether California is prioritizing communities already burdened by environmental injustices when allocating transportation investments that provide health and mobility benefits, to ensure that further burdens are not being placed on these communities.

Finally, our analysis considers only state and federal transportation funding programmed by California state agencies for the years 2019 to 2027. Most of the funding that flows through the 10 programs analyzed comes from the state and does not require local funding matches. However, it is necessary to note the increasing importance of local transportation funding in California. Since 1976, more than 76 "local option sales tax" (LOST) measures have appeared on ballots in 30 of the state's 58 counties. As of 2018, 25 counties, representing 88 percent of the state's population, had active LOST measures that generated more than $4 billion annually for transportation projects and maintenance.[14] Further analysis is needed to understand how locally funded projects contribute to or work at cross-purposes with state goals to reduce VMT and GHG emissions.

Corcoran, California received a grant of nearly $2 million from the Active Transportation Program for Safe Routes to School projects.

RECOMMENDATIONS

Our analysis shows that several transportation funding programs in California are well aligned with the state's GHG emissions-reduction and climate goals. However, there remains a significant degree of transportation spending that undermines the state's progress toward these goals, and California is missing substantial opportunities to gain climate-related benefits from spending that currently has neither a positive nor a negative impact on VMT. California's environmental priorities and the increasingly dire need for urgent climate action mean that the state must use its transportation dollars to reduce VMT now. Those responsible for making progress on the recommendations we discuss in this section include the governor, the legislature, the California State Transportation Agency, the California Transportation Commission, and the California Department of Transportation (Caltrans).

We propose four strategies for ensuring that California's transportation investments maximize their potential climate benefits:

1. Discontinue funding for VMT-increasing projects.
2. Convert projects that have no VMT impacts to projects that reduce VMT.
3. Build a better pipeline of VMT-reducing projects.
4. Track progress on VMT reduction in state-funded transportation projects.

Our recommendations flow from these strategies, as outlined below.

STRATEGY 1: DISCONTINUE FUNDING FOR VMT-INCREASING PROJECTS

California has VMT-increasing projects in the pipeline that are undermining the state's climate goals and using limited transportation resources that should be invested in projects that reduce VMT and emissions. Some were proposed decades ago but are still in line for funding. Environmental clearance may be outdated in some cases, and currently no protocol exists for reevaluating these projects in light of contemporary climate and equity goals or for soliciting new public input. For example, the environmental impact report for Los Angeles County's SR-71 highway expansion project was released in 1989, and that was apparently the last time the public had the opportunity to comment prior to the groundbreaking in 2021.

Recommendation 1.1: Adopt criteria for reevaluating old VMT-increasing projects to ensure alignment with CAPTI. Create a transparent process for lead agencies to re-scope projects to remove VMT-increasing elements before they can be considered for further state investment, while ensuring that those projects and communities still receive transportation investments.

Recommendation 1.2: Add provisions for additional public input when VMT-increasing or no-VMT-impact projects are decades old, as part of their re-scoping prior to receiving further state funding.

Recommendation 1.3: Allow programs to require sponsoring agencies to add new VMT-reducing project elements such as bike lanes, active transportation infrastructure, and transit stops without triggering additional review.

STRATEGY 2: CONVERT PROJECTS THAT HAVE NO VMT IMPACTS TO PROJECTS THAT REDUCE VMT

In the programs we studied, most state transportation funding goes to highway maintenance and rehabilitation projects that have no significant impact on VMT, and there are many more of these projects than there are VMT-reducing projects. No-VMT-impact projects use funds and program resources that must be leveraged to also include VMT-reducing undertakings if we are going to reach our statutory state environmental goals.

Recommendation 2.1: Convert maintenance and rehabilitation projects to VMT-reducing projects by directing staff to incorporate elements that reduce VMT, such as sidewalks, protected bike lanes, and transit-priority lanes. Prioritize funding for projects that extensively incorporate "complete streets" elements—i.e., those that provide benefits to people taking transit, biking, and walking—and thus reduce VMT and improve safety.

Recommendation 2.2: Leverage the state highway system for low-VMT networks. For projects on state highways, Caltrans should prioritize its maintenance investments to close any gaps in the surrounding community's bike, transit, and pedestrian infrastructure to create connected networks of sidewalks, bike lanes, and bus lanes where state highways serve a key link in the local transportation system.

Recommendation 2.3: Accelerate Caltrans's existing work on complete streets design standards to promote greater connectivity and safety in addition to VMT reduction. Caltrans should ensure that projects meet the highest level of safety for vulnerable road users. Further, Caltrans should apply these design standards retroactively to projects still in the pipeline to ensure that there are no further missed opportunities to incorporate VMT-reducing elements.

© Steve Hymon/Courtesy of LA Metro

Seventeen miles of open streets for cycling, pedestrians, and skaters in South Pasadena, San Merino, Arcadia, Monrovia, Duarte, Irwindale, and Azusa presented by Los Angeles Metro.

STRATEGY 3: BUILD A BETTER PIPELINE OF VMT-REDUCING PROJECTS

Most of the 10 funding programs we analyzed are competitive, meaning that agencies not awarded funding for their VMT-reducing projects must repeat the time-consuming and expensive process of applying in the next cycle, which slows down project delivery. Smaller projects with large VMT-reduction potential—the low-hanging fruit—may be too small to justify the expense and effort of repeated grant applications and will instead die on the vine.

Recommendation 3.1: Help good VMT-reducing projects get the funding they need by breaking down silos between programs, such as by establishing referrals to other programs.

Recommendation 3.2: Shift the Active Transportation Program away from time-intensive, all-or-nothing project application cycles to consistent and more flexible program funding that allows awardees to build faster and more efficiently.

Recommendation 3.3: Help communities across the state access funding through technical assistance for VMT-reducing projects, possibly through a clearinghouse agency that directs applicants to the most suitable programs and provides grant assistance.

Recommendation 3.4: Conduct a rural ATP needs assessment to identify where VMT-reducing projects may be delayed due to a lack of staffing and local resources.

Recommendation 3.5: Increase funding to oversubscribed programs, such as ATP, that invest in projects that reduce VMT, increase biking and walking, and improve air quality.

STRATEGY 4: TRACK PROGRESS ON VMT REDUCTION IN STATE-FUNDED TRANSPORTATION PROJECTS

Tracking progress toward a better alignment of state transportation funding with VMT-reduction goals is important for benchmarking, identifying areas and programs that need additional attention, and enabling better decision making in general. Measuring this progress, however, requires project-level assessment of VMT effects (such as this NRDC analysis) on a recurring basis. To facilitate benchmarks and increase transparency, we recommend tracking the VMT impacts of all federal, state, and local funding spent on California transportation projects.

Recommendation 4.1: Develop a consistent methodology to track whether projects receiving state or federal funding increase, decrease, or have no impact on VMT. One option would be to use as a proxy the air quality conformity information reported in the Federal Transportation Improvement Program (FTIP). To be used as a proxy for VMT effect, projects categorized as "non-exempt" by FTIP can be considered VMT-increasing (see Appendix B for a detailed explanation and rationale for incorporating FTIP designations).

Recommendation 4.2: Implement a single tabular database, published in a standardized, open data format, for all projects in the state that are seeking state or federal funding. This database should contain a standard list of relevant project information, including the expected directional impact on VMT.

Recommendation 4.3: Report continually on transportation funding for projects that increase VMT, decrease VMT, and have no impact on it. As part of each individual funding program, during each allocation cycle the responsible agency should provide a summary of how much funding is being allocated to projects that increase, decrease, or have no impact on VMT. Regular updates to CAPTI should provide summary-level information highlighting what proportion of the state's transportation investments are going to projects that increase, decrease, or have no impact on VMT. The state should further track the impacts of these investments on racial equity to ensure that communities most impacted by California's highways are receiving more concentrated investments in VMT-reducing projects.

CONCLUSION

As California seeks to rapidly reduce GHG emissions from the transportation sector, the state can no longer afford to be in the dark about the impacts of its own transportation infrastructure investments. Our analysis represents a first attempt to describe the overall VMT impact of these investments by looking at how budgets are allocated to projects that increase VMT, decrease VMT, or have no impact. Looking at the key funding streams the state controls, we found that less than one-fifth of the money is going to projects that reduce VMT. To fully align transportation funding with California's climate goals, the $2.2 billion spent on VMT-increasing projects should be reallocated to projects that decrease VMT. And the state should accelerate efforts to leverage climate benefits from the large segment of funding that goes to maintaining and preserving the transportation system. In a time of climate crisis, we can no longer afford to spend more than 80 percent of our state transportation investments expanding and maintaining the very sector that is contributing more than any other to climate pollution.

APPENDIX A

METHODOLOGY

In each of 10 programs, our analysis assessed the number of projects—and the amount of funding—that reduced VMT, increased VMT, or had no VMT impact.

Because programs' methods of reporting projects vary and the types of projects also vary across programs, each program required a different methodology for assessing which projects increase, decrease, or have no effect on VMT. (These different approaches are summarized in Table A3.) For all programs, we used the most recent, complete program data, except for the Local Streets and Roads Program, whose most complete dataset was not the most recent. We downloaded data from official state sources; because most data were available only in PDF format, we extracted table data for analysis using Acrobat PDF exports or Microsoft Power Query.

Assessing VMT effects for most programs involved manually reviewing individual project titles and descriptions to determine what elements the projects included and the net effect of VMT. When project titles were ambiguous or unclear, we searched for details online to determine what elements were included and in what balance. For example, an improvement project with both a VMT-increasing element (widening a roadway from two lanes to four) and a VMT-reducing element (adding a bike lane) was assumed to have a net effect of increasing VMT, and we therefore classified it as VMT-increasing.[15]

TABLE A1: ANNUAL PROGRAM FUNDING AMOUNT,* SOURCE, PURPOSE, AND LOCAL MATCH REQUIREMENT

Program	Establishment Year	Annual funding (approx.)	Funding from	Funds roads/ highways?	Local match requirement?
Active Transportation Program	2013	$100–250 million	Federal sources, Greenhouse Gas Reduction Fund (GGRF) (since 2016), SB 1 (since 2017)	No	No (but metropolitan planning organizations can require matches; leveraging considered for medium and large infrastructure projects)
Affordable Housing and Sustainable Communities Program	2015	$400 million	GGRF	No	No
Local Streets and Roads Program	2017	$1.5 billion	SB 1 (Road Maintenance and Rehabilita-tion Account)	Yes	No
Local Partnership Program	2017	$200 million	SB 1	Yes	Yes, 1:1
Low-Carbon Transit Operations	2015	Variable, depending on auction proceeds	GGRF (5% of annual GGRF per SB 862, since FY 2015–16)	No	No
Solutions for Congested Corridors Program	2017	$250 million	SB 1	Yes	No, but leveraging is a criterion
State Highway Operations and Protection Program	1977	$4.3 billion	Federal funds, state funds including Road Maintenance and Rehabilita-tion Account (RMRA) (SB 1)	Yes	No
State Transportation Improvement Program	2007	$110 million	SB 1 (since 2018)	Yes	No
Trade Corridor Enhancement Program	2017	$300 million (state), $515 million (federal)	SB 1	Yes	Yes: 30% (unless Caltrans nominated)
Transit and Intercity Rail Capital Program	2014	$100 million	SB 1, GGRF	No	No

* Annual funding is approximate, calculated by the total amount of funding in each program's round/cycle divided by the number of years in that round/cycle. Because program rounds/cycles differ in the number of years over which funding is programmed (ranging from two to five or more years), the sum of annual funding amounts differs from the sum of program funds.

PROGRAM SELECTION

We built on previous work done by UCLA/Strategic Growth Council that focused on state funding programs identified for study in AB 285. UCLA/SGC also identified several additional programs as important in state transportation funding, with a particular emphasis on transit funding programs such as the Local Transportation Fund (LTF).[16] Focusing on individual projects within these programs, we built on this selection and added several others we found were relevant to VMT-reduction goals (e.g., LSRP). We could not study programs for which there were no available project-level data, such as the LTF.

TABLE A2: PROGRAMS EVALUATED

	Program identified for study in AB 285	Program evaluated by UCLA/SGC (2021)	Program projects evaluated by NRDC (2023)	Referenced in CAPTI (2021), EO N-19-19
Affordable Housing and Sustainable Communities	✔	✔	✔	
Low-Carbon Transit Operations Program	✔	✔	✔	
Sustainable Transportation Planning Grant	✔	✔		
Transformative Climate Communities	✔	✔		
Transit and Intercity Rail Capital Program	✔	✔	✔	✔
Active Transportation Program		✔	✔	✔
Interregional Transportation Improvement Program		✔	✔*	✔
Local Partnership Program		✔	✔	✔
Solutions for Congested Corridors Program		✔	✔	✔
State Highway Operations and Protection Program		✔	✔	✔
Local Transportation Fund		✔		
Local Streets and Roads Program			✔	
State Transportation Improvement Program			✔	
Trade Corridor Enhancement Program			✔	✔

OPR CATEGORIES OF VMT EFFECT

We based our assessment of the VMT effects of project elements on examples given in the California Office of Planning and Research (OPR) technical advisory guidelines for projects likely to increase, decre ase, and have no effect on VMT.

The OPR technical advisory lists the following examples of project types that "would likely lead to a measurable and substantial increase in vehicle travel":

- Addition of through lanes on existing or new highways, including general-purpose lanes, high-occupancy vehicle (HOV) lanes, peak-period lanes, auxiliary lanes, or lanes through grade-separated interchanges.

OPR specifies the following as "projects that would not likely lead to a substantial or measurable increase in vehicle travel":

- Rehabilitation, maintenance, replacement, safety, and repair projects that are designed to improve the condition of existing transportation assets (e.g., highways; roadways; bridges; culverts; Transportation Management System field elements such as cameras, message signs, detection, or signals; tunnels; transit systems; and assets that serve bicycle and pedestrian facilities) and that do not add additional motor vehicle capacity
- Addition of an auxiliary lane of less than one mile in length designed to improve roadway safety
- Installation, removal, or reconfiguration of traffic lanes that are not for through traffic, such as left, right, and U-turn pockets, two-way left turn lanes, or emergency breakdown lanes that are not utilized as through lanes
- Addition of roadway capacity on local or collector streets, provided the project also substantially improves conditions for pedestrians, cyclists, and if applicable, transit

- Conversion of existing general-purpose lanes (including ramps) to managed lanes or transit lanes, or changing lane management in a manner that would not substantially increase vehicle travel
- Grade separation to separate vehicles from rail, transit, pedestrians, or bicycles or to replace a lane in order to separate preferential vehicles (e.g., HOV, HOT, or trucks lanes) from general vehicles
- Installation of roundabouts or traffic circles
- Addition of tolled lanes, where tolls are sufficient to mitigate VMT increase
- Addition of passing lanes, truck climbing lanes, or truck brake-check lanes in rural areas that do not increase overall vehicle capacity along the corridor

OPR's list of potential measures to reduce VMT include:

- Improving or increasing access to transit
- Orienting a project toward transit, bicycle, or pedestrian facilities
- Improving pedestrian or bicycle networks, or transit service
- Implementing roadway pricing

Table A3, below, provides examples of project elements in each program that we classified as VMT-reducing VMT, increasing VMT, or having no impact, based on the OPR guidelines described above. Because our approach, based on OPR's, assumes no increase in VMT from road rehabilitations and improvements that could make it faster and easier to drive, our approach is conservative and likely underestimates the overall increase in VMT in programs that fund many "no impact" projects.

TABLE A3: CATEGORIES OF PROJECT VMT EFFECT, BASED ON OPR GUIDELINES

Program	Methodology	VMT-reducing projects	VMT-increasing projects	No-VMT-impact projects
AHSC: Round 6	R6 award data extracted from PDFs, merged with application log details. Project descriptions manually categorized.	Housing projects with robust orientation toward transit, bicycle, or pedestrian facilities; purchase of new transit equipment; construction of new bike lanes, pedestrian facilities; transit passes for residents	N/A	Projects that do not explicitly add (or add connections to) transit, bike, or pedestrian access
ATP-MPO, Small Urban and Rural, Statewide	All projects receiving funding, including SRTS considered VMT-reducing, tallied by "recommended" funding. Planning grants excluded.	All projects except plans	N/A	Plans
LCTOP 2020–21	Extracted and converted data from FY 2020–21 award list. Project descriptions manually categorized.	Free fare programs, reduced fare programs, transit vehicle purchases, transit service increase or expansion, transit stop improvements, zero-emission vehicle infrastructure, hydrogen fueling infrastructure, solar panels, replacement transit vehicle purchases, security cameras, onboard technology	N/A	N/A
LPP–Competitive 2020	2020 award recommendations log used. Project descriptions manually categorized.	Class I, II, IV bike lanes, sidewalk improvements, multiuse paths, complete streets, technology to improve transit operations, transit mobile validators	Road widening, including projects with minor modal elements (e.g., Class III bike routes), new HOV construction, new lane/road construction, new interchange	Road realignment, new turn pockets, sound walls, roadway reconstruction, roundabout construction

TABLE A3: CATEGORIES OF PROJECT VMT EFFECT, BASED ON OPR GUIDELINES				
Program	**Methodology**	**VMT-reducing projects**	**VMT-increasing projects**	**No-VMT-impact projects**
LPP–Formulaic 2020	Amended Program Resolution used. Project titles manually categorized (descriptions not available). Looked up 32 projects online for details.	Transit capital projects (station and facility improvements), transit vehicle purchases, transit service expansion, sidewalk improvements, ADA improvements (if primary), complete streets, multiuse path construction	Road widening projects, including projects with minor ATP elements; new HOV and high-occupancy toll (HOT) lane construction, interchanges, roadway extensions, auxiliary lanes I mile or longer	Road rehabilitation and road resurfacing/ maintenance projects, street drainage improvements, bridge painting, signage improvements
LSRP (cities and counties)	Extracted data from FY 2019–20 Expenditure Report (most recent available project data with budget information). Projects counted and allocations summed by "project element."	Projects with self-reported complete streets project element(s)	N/A	Road rehabilitation, reconstruction, repair, signals, all other projects without complete streets project elements
SCCP 2020	Extracted data from the Updated 2020 Solutions for Congested Corridors Program of Projects; assessed likely VMT effects by evaluating project descriptions.	Bicycle and pedestrian facilities, multiuse trails, new transit vehicles, transit equipment and infrastructure	New HOT lane construction; new HOV lane construction; new interchange construction; auxiliary lane construction (> I mile)	Freeway ramp meters
SHOPP 2020	Caltrans data download was missing FY 2020–21 projects; data instead were extracted and combined from District List PDFs; 1,195 projects were manually categorized for VMT effects based on project description per OPR-based criteria.	New sidewalk construction, new Class I and II bike facilities, transit stops, pedestrian refuge islands, complete streets elements, bulb out installation, pedestrian/bicycle barricades/ separation, pedestrian and cyclist safety enhancements (if primary project activity), ADA ramp construction (if primary project activity), curb ramps, signal/intersection improvements for pedestrian and/or bicycle safety	New lane construction, roadway widening, auxiliary lane construction (I mile or more)	Curve corrections, shoulder widening, bridge widening, road realignment, auxiliary lanes (< I mile), turn lane construction, roundabout construction, on-ramp extensions/lengthening, declaration lane extension, retaining walls, roadway maintenance, roadway rehabilitation, drainage, lighting, bridge rail replacement, bridge replacement, seismic retrofit, vegetation, worker safety, ADA improvements (if not primary project activity), sidewalk repair, erosion control, environmental mitigation, TMS, Class III bike lanes, fire damage repair, rockfall prevention, building construction, intersection improvements, signage, zero-emission vehicle charging station installations, maintenance vehicle pullout stations, chain control area widening, signalized intersection construction, weigh-in-motion systems, inspection lanes, lighting, worker access
STIP 2020	Extracted programmed projects from 2022 Staff Recommended Projects List.	Priority transit lanes, bike lanes, pedestrian facilities, multiuse path construction, transit station improvements, transit vehicle purchases, bus charging equipment, streetscape improvements, complete streets	New lane construction, road widening, new HOV or HOT express lane/ managed lane construction, connector additions, interchange construction, capacity-adding transportation system management	Planning, programming, and monitoring, bridge replacement, roundabout construction, truck climb lanes, road reconstruction, ramp improvements, intelligent transportation system improvements, turnouts

TABLE A3: CATEGORIES OF PROJECT VMT EFFECT, BASED ON OPR GUIDELINES				
Program	**Methodology**	**VMT-reducing projects**	**VMT-increasing projects**	**No-VMT-impact projects**
TCEP 2020	Data from Amended 2020 TCEP Resolution (Dec. 2021). Project titles categorized manually (no project descriptions); multiple projects looked up for details.	Rail corridor improvements serving passenger and commuter rail	Interchange improvements, bridge widening, road widening, climbing lane additions, additional lanes	Grade separations, freight terminal rail projects, port of entry lane expansions, enforcement facility projects
TIRCP 2020	Reviewed 2020 award list project descriptions.	New transit vehicle purchases, service expansions and infrastructure to support service expansion directly	N/A	N/A

The OPR's advisory provides an authoritative framework for assessing projects' likely VMT effects categorically. However, it is worth noting that both the OPR's categories and our application of them involved assumptions that are open to disagreement. For example, the OPR's guidelines identify cycling and pedestrian infrastructure rehabilitation, maintenance, and replacement and grade separations as causing "no substantial or measurable increase in vehicle travel." However, other research indicates that active transportation improvements such as these do contribute to mode shift and reduced VMT[17] and that microscale improvements (such as adding benches) can significantly improve "pedestrian satisfaction" and encourage mode shift and should be part of VMT-reduction strategies.[18]

SCORING AND WEIGHTING

Our goal in scoring and grading was to arrive at a meaningful summary number and grade that succinctly identified which programs excel at advancing projects that reduce VMT, and which programs have deficiencies.

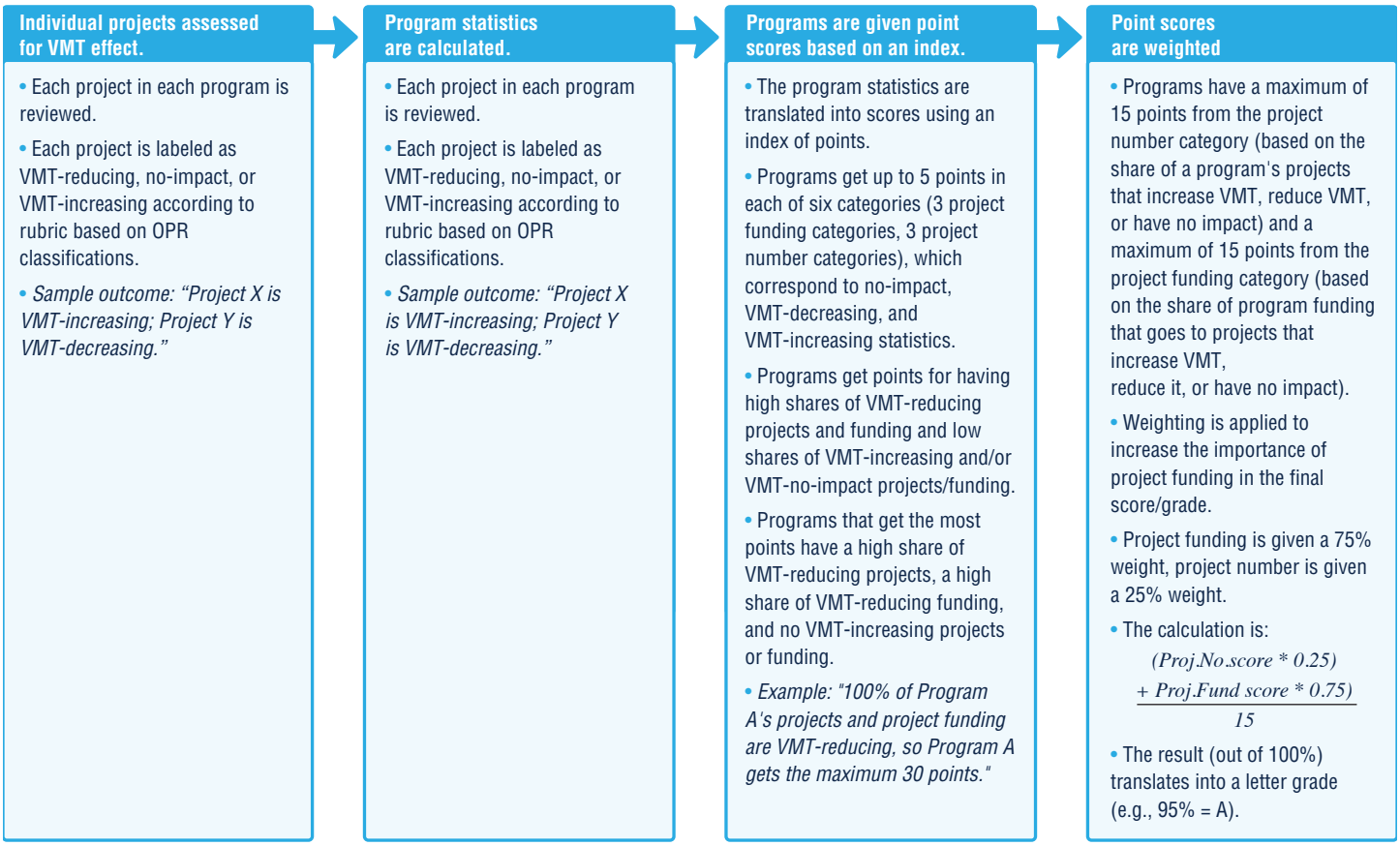
Our process for grading each program involved four steps:

1. Assessing each project in each program as VMT-increasing, VMT-reducing, or having no VMT impact, based on the OPR rubric discussed above.
2. Calculating the statistics for the following in each program:
   - Percentage of projects that are VMT-increasing
   - Percentage of projects with no VMT impact
   - Percentage of projects that are VMT-reducing
   - Percentage of project funding that is VMT-increasing
   - Percentage of project funding with no VMT impact
   - Percentage of project funding that is VMT-reducing
3. Indexing and scoring the results by assigning 1 to 5 points to each program based on the percentage calculations in step 2. For example, a program with 81–100 percent of projects that are VMT-reducing would receive a score of 5, whereas a program with 0–20 percent would receive a score of 1. Table A4, below, shows how points were assigned. A program could receive up to 5 points from each of the three VMT effect categories across both indexes, for a maximum of 30 points (15 from the "project number" index, and 15 from the "project funding" index). The results, a percentage up to 100, were then translated to a letter grade, using the scholastic convention of 98–100 percent = A+, 93–97.9% = A, 90–92.9 = A-, etc.

TABLE A4: POINTS ALLOCATED BASED ON PERCENTAGE OF PROGRAM FUNDING AND PROJECT COUNTS							
Index: Project Number				Index: Project Funding			
	Range: Low	Range: High	Score		Range: Low	Range: High	Score
Project #: VMT-reducing	0%	20%	1	Project $: VMT-reducing	0%	20%	1
Project #: VMT-reducing	21%	40%	2	Project $: VMT-reducing	21%	40%	2
Project #: VMT-reducing	41%	60%	3	Project $: VMT-reducing	41%	60%	3
Project #: VMT-reducing	61%	80%	4	Project $: VMT-reducing	61%	80%	4
Project #: VMT-reducing	81%	100%	5	Project $: VMT-reducing	81%	100%	5
Project #: VMT-no impact	0%	20%	5	Project $: VMT-no impact	0%	20%	5
Project #: VMT-no impact	21%	40%	4	Project $: VMT-no impact	21%	40%	4
Project #: VMT-no impact	41%	60%	3	Project $: VMT-no impact	41%	60%	3
Project #: VMT-no impact	61%	80%	2	Project $: VMT-no impact	61%	80%	2
Project #: VMT-no impact	81%	100%	1	Project $: VMT-no impact	81%	100%	1
Project #: VMT-increasing	0%	20%	5	Project $: VMT-increasing	0%	20%	5
Project #: VMT-increasing	21%	40%	4	Project $: VMT-increasing	21%	40%	4
Project #: VMT-increasing	41%	60%	3	Project $: VMT-increasing	41%	60%	3
Project #: VMT-increasing	61%	80%	2	Project $: VMT-increasing	61%	80%	2
Project #: VMT-increasing	81%	100%	1	Project $: VMT-increasing	81%	100%	1

Weighting the results. The points from the "project funding" index were weighted 75 percent and the "project number" points were weighted 25 percent. Mathematically, this means the project funding points were multiplied by 0.75, the project funding score was multiplied by 0.25, and the result was divided by 15, the maximum number of points a program could have in either index.

FIGURE AI: METHODOLOGY FOR ASSIGNING PROGRAMS A LETTER GRADE



The logic behind the weighting is as follows: Programs that provide a greater share of funding to a smaller number of VMT-reducing projects are likely to have more of a net impact than programs that have more VMT-reducing projects that are each minimally funded. A caveat is that many large projects that we counted as VMT-reducing have other elements that do not necessarily reduce VMT. We did not have a practical way of identifying what percentage of each project's budget went to specified VMT-reducing elements (except when the entire project budget was dedicated to a VMT-reducing purpose, such as building out Complete Streets improvements, constructing a bike path, or expanding transit service).

APPENDIX B

USING FTIP DESIGNATIONS AS A PROXY FOR "VMT-INCREASING" IN FUTURE PROJECT ASSESSMENTS

Currently, tracking the VMT effects of the state's funded and implemented projects is difficult for two reasons: 1) A robust rubric for assessing VMT effects is lacking, and 2) many projects commingle elements that have conflicting VMT effects, e.g., a road-widening project that adds transit lanes. A solution to this tracking problem exists—latently—in the Federal Transportation Improvement Program reporting that the state's city and county project sponsors and metropolitan planning organizations already prepare. FTIP holds a key to better VMT-effect reporting and outlines the straightforward changes that could unlock effective tracking of California's transportation projects' VMT impacts.

Using FTIP data elegantly addresses the limitations of VMT analysis. FTIP is a listing that each of California's 18 Metropolitan Planning Organizations (MPOs) prepares regularly. The FTIP lists all transportation projects proposed over six years that will receive federal funding or involve federal action, such as approval from federal agencies (even if no federal funding is used). MPOs and project sponsors must *themselves* identify whether each project conforms with regional emissions analysis requirements or whether it is categorically exempt from conformity. In doing so, they must consider *all* the components of each project and assess whether there is any potential impact from any part of the project to any part of the region. As a result, the FTIP is conservative and comprehensive. Projects are clearly identified in FTIPs as "exempt" or "non-exempt."

FTIP's exempt projects have "no emissions impact" or are "considered to be neutral or de minimis."[19] Exempt projects correspond closely to the "no-VMT-impact" and "VMT-reducing" effect analysis that NRDC performed on the basis of OPR's technical advisory. For example, projects exempt from conformity include those that support, include, or fund:

- Capital or operating assistance to transit
- Ride-sharing and van-pooling
- Bicycle and pedestrian facilities
- Roadway safety measures and improvements
- Intersection and travel signal improvements
- Sound walls and landscaping
- Studies

Other project types that are generally FTIP-exempt include replacing vehicle lanes with bicycle lanes, auxiliary lanes under one mile, and ramp metering. These accord with aforementioned OPR SB 743 guidance on likely VMT effects of various project types.

FTIP exemption classifications could provide a way to track state projects and project funding in a robust, consistent, and transparent way. Instead of analysts needing to assess each project's likely VMT effects based on OPR guidance not intended for this purpose, they could instead quickly use exemption categories to determine what number of projects in what areas and under what programs increase VMT. FTIP potentially allows this sort of analysis to piggyback on an existing program and its criteria.

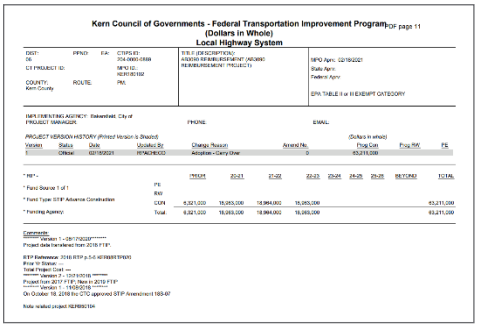
Current FTIP reports are mostly unsuitable for this type of analysis. However, some particular adjustments to formats and a standardization of table formatting (described below) would enable MPOs' FTIP reports to serve as the basis for tracking California's progress toward its VMT-reduction and, by proxy, GHG-reduction goals.

Many MPOs provide project information in non-tabular formats, which makes it difficult, impractical, or impossible for analysts to glean and use the data contained in the reports. Conventional methods for extracting data from files require data to be in clear and consistent tables. This enables analysts to use automated (or mostly automated) methods to pull large amounts of data from the tables.

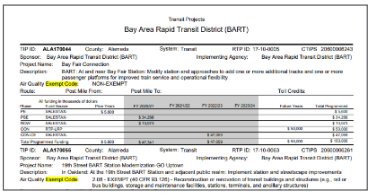
DATA REPORTING THAT DOESN'T WORK WELL

It is difficult for spreadsheet software to work with data that are "page formatted" instead of "row formatted." Page formatting means that, for example, the project name is listed only once at the top of the page, and details appear in multiple "table islands" that contain no reference to the project in rows. This format is suitable for people reviewing projects individually, but it is not machine readable and makes reviewing and summarizing projects with spreadsheet analysis difficult. Figure B1, below, illustrates several examples of MPO table outputs that are human readable but not machine readable.

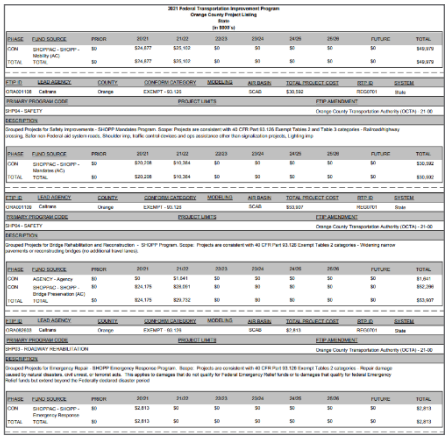
FIGURE B1: EXAMPLES OF CURRENT MPO FTIP REPORTS THAT ARE NOT MACHINE READABLE



Kern Council of Governments - Federal Transportation Improvement Program (Dollars in Whole) Local Highway System



Bay Area Rapid Transit District (BART)



2021 Federal Transportation Improvement Program — Orange County Project Listing

DATA REPORTING THAT DOES WORK WELL

Simple tables with information stored consistently across rows, even if information is repeated, is machine readable. Analysts can quickly and easily use these tables to summarize the information. Figure B2 provides a good example of data in machine-readable, tabular format.

FIGURE B2: EXAMPLE OF A CURRENT MPO FTIP REPORT THAT IS MACHINE READABLE AND USABLE

FRESNO COUNCIL OF GOVERNMENTS
2022 REGIONAL TRANSPORTATION PLAN
FINANCIALLY CONSTRAINED PROJECT LISTING (in $1,000)

AGENCY	PROJECT ID	PROJECT TITLE	PROJECT DESCRIPTION	PROJECT TYPE	ESTIMATED OPEN TO TRAFFIC	ESTIMATED TOTAL COST ($1,000)
Fresno Area Express (FAX)	FRE092602	Remodel Existing Transit Facilities	Engineer and remodel FAX buildings, yard, and facilities to meet current capacity needs and ADA requirements.	Transit	N/A	$3,001
Fresno Area Express (FAX)	FRE130077	Install CAD-IVLU System Fleet-wide	FAX will purchase and install a new Computer Aided Dispatch - Integrated Vehicle Logic Unit (CAD-IVLU) system on its revenue vehicle fleet.	Transit	N/A	$100
Fresno Area Express (FAX)	FRE130081	Project Administration	Project administration for FAX capital program.	Transit	N/A	$750
Fresno Area Express (FAX)	FRE210004	Bus Wash/Vault Facility Improvements	Modernize and relocate FAX Bus Wash and Vault Facility to improve efficiency and security	Transit	N/A	$870
Fresno Area Express (FAX)	FRE210005	Zero-Emissions Bus Charging Infrastructure	Installing charging equipment and necessary infrastructure to accommodate the charging needs of new zero-emissions battery-electric buses	Transit	N/A	$2,631
Fresno Area Express (FAX)	LSTMP521	FAX Manchester Transit Center Rehabilitation	Manchester Transit Center (MTC), 3590 N. Blackstone Ave, Fresno; Rehabilitate MTC including façade revisions, bus shelter renovations, passenger amenity upgrades, security lighting, additional security camera infrastructure, landscaping, ADA compliant pathways, bus pull-in road repairs, and vehicular traffic upgrades.	Transit	N/A	$295
Fresno Area Express (FAX)	LSTMP726	Southwest Fresno Route 29	Southwest Fresno transit service expansion on Route No. 29; to include three years of operating support. Expanded route to begin at Courthouse Park and end near intersection of S. Orange Ave and E. Central Ave.	Transit	N/A	$1,600
Fresno Area Express (FAX)	LSTMP786	FAX - Purchase Maintenance Vehicles	Purchase new vehicles and equipment to maintain bus stops	Transit	N/A	$425

To facilitate further analysis based on FTIP data, we recommend that FTIP table outputs be amended, or that data be made available separately, as follows:

1. Present data in a simple table format, with rows and columns clearly labeled, and with all data in a single row corresponding to only one project.
2. Ensure row and column format is consistent across projects.
3. Minimize text that appears outside of the table.

Once FTIP data are available in this machine-readable format, we recommend the use of FTIP project reports for tracking the number of transportation projects that are exempt (corresponding to VMT-reducing or having no VMT impact) and the amount of transportation funding for exempt and non-exempt projects by program.

With these small, one-time changes to templates and/or database export settings, MPOs will allow their future FTIP reports to facilitate efficient, "plug and play" tracking of California's progress in meeting VMT and GHG reduction goals over time.

ENDNOTES

1 California Air Resources Board (hereinafter CARB), "AB 32 Climate Change Scoping Plan," accessed April 3, 2023, https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan. Note that CARB measures greenhouse gas emissions in carbon dioxide–equivalent values, calculated using the 100-year global warming potential values in the Intergovernmental Panel on Climate Change's (IPCC) Fourth Assessment Report.

2 CARB, "Current California GHG Emission Inventory Data," accessed April 3, 2023, https://ww2.arb.ca.gov/ghg-inventory-data.

3 Craig Miller, "Poll: Strongest Support Yet for Climate Action in California," KQED, July 31, 2013, https://www.kqed.org/science/6401/poll-strongest-support-yet-for-climate-action-in-california; David Lauter, "Hit by Fires and Droughts, California Voters Call Climate Change Their Top Priority," *Los Angeles Times*, December 6, 2019, https://www.latimes.com/politics/story/2019-12-04/issues-in-the-democratic-primary.

4 Liam Dillon and Ben Poston, "Freeways Force Out Residents in Communities Of Color—Again," *Los Angeles Times*, November 11, 2021, https://www.latimes.com/california/story/2021-11-11/how-we-reported-the-story-on-freeway-displacements.

5 Liam Dillon and Ben Poston, "How We Reported the Story on Highway Displacement," *Los Angeles Times*, November 11, 2023, https://www.latimes.com/california/story/2021-11-11/how-we-reported-the-story-on-freeway-displacements; Sammy Roth, "How White and Affluent Drivers Are Polluting the Air Breathed by L.A.'S People of Color," *Los Angeles Times*, March 9, 2023, https://www.latimes.com/environment/newsletter/2023-03-09/white-drivers-are-polluting-the-air-breathed-by-l-a-s-people-of-color-boiling-point.

6 CARB, *2018 Progress Report: California's Sustainable Communities and Climate Protection Act*, November 2018, https://ww2.arb.ca.gov/sites/default/files/2018-11/Final2018Report_SB150_112618_02_Report.pdf.

7 California Strategic Growth Council (hereinafter SGC), *California Transportation Assessment Report*, February 18, 2022, https://sgc.ca.gov/resources/docs/20220218-AB_285_REPORT.pdf.

8 CARB, *2022 Progress Report: California's Sustainable Communities and Climate Protection Act*, June 2023, *https://ww2.arb.ca.gov/sites/default/files/2023-05/2022-SB150-MainReport-FINAL-ADA.pdf.*

9 Elizabeth Deakin et al., *Evaluation of California State and Regional Transportation Plans and Their Prospects for Attaining State Goals*, Berkeley Institute of Transportation Studies, December 1, 2021, https://doi.org/10.7922/G2MP51KQ .

10 State of California, Governor's Office of Planning and Research, *Technical Advisory on Evaluating Transportation Impacts in CEQA*, December 2018, https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf.

11 John Gahbauer et al., *Examination of Key Transportation Funding Programs in California and Their Context*, Berkeley Institute of Transportation Studies, December 1, 2021, https://doi.org/10.7922/G23N21PX.

12 Fourteen programs appear in this table because LSRP and ATP have separate data for different areas (e.g., counties versus cities, small urban and rural versus statewide). LPP also has a formulaic and a competitive program, and we analyzed these separately as subprograms.

13 Barbara Lee, *Quantifying Greenhouse Gas Mitigation Measures*, California Air Pollution Control Officers Association, August 2010, http://www.aqmd.gov/docs/default-source/ceqa/handbook/capcoa-quantifying-greenhouse-gas-mitigation-measures.pdf.

14 Martin Wachs et al., *Balancing Accountability and Flexibility in California's Local Option Sales Taxes*, Pacific Southwest Region University Transportation Center and UCLA Institute of Transportation Studies, March 2020, https://metrans.org/assets/research/psr-18-33_to-012_wachs_final-report.pdf.

15 Projects such as these with multiple project elements required making judgments about net VMT effects. In nearly all such cases, the scale of the VMT-increasing project element was so much larger than other elements that the net effect of the project was easy to assume. In a few cases, a best guess was harder, as when multiple VMT-decreasing project elements were involved and the VMT-increasing element was a smaller part of the overall project. Because project sponsors do not themselves identify VMT effects or even budget breakdowns by project element, judgment calls in this type of analysis were unavoidable.

16 SGC, *California Transportation Assessment Report*.

17 Brian E. Saelens and Susan L. Handy, "Built Environment Correlates of Walking: A Review," *Medicine and Science in Sports and Exercise* 40, no. 7 (July 2008): S550–66, https://doi.org/10.1249/MSS.0b013e31817c67a4.

18 Serena E. Alexander, Mariela Alfonzo, and Kevin Lee, *Safeguarding Equity in Off-Site Vehicle Miles Traveled (VMT) Mitigation in California*, Mineta Transportation Institute, https://doi.org/10.31979/mti.2021.2027.

19 An MPO's "exempt" designation could be erroneous if it is based only on travel demand model runs and the model does not properly account for induced travel.