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State Transportation Funding in California: Progressive Targets or Prehistoric Thinking?

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State Transportation Funding in California: Progressive Targets or Prehistoric Thinking?

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Client: California Integrated Travel Program

June 2022



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16. Abstract <p>Since its passing in 2017, Senate Bill 1 (SB1) has launched thousands of infrastructure projects across the state. Over the next decade, this \$54 billion investment will work to achieve safety improvements, reduce traffic delays, improve goods movement, and increase options for transit. Identifying their significant role in transportation, this report posits social equity and climate change response as the main goals and objectives of SB1 projects. After analyzing program data, this report refocuses on the Local Streets and Roads (LSR) program, explaining the role of local roads in individual transportation choices, as well as defining them as a site to advance social equity and climate change goals. This analysis shows that the LSR program largely does not address key components of advancing social equity and climate change responses. This report recommends four actions that Caltrans staff can do to improve the rigor of program evaluation across SB1: (1) Establish Evaluation Criteria across SB1; (2) Align SB1 and its Programs with Caltrans' Strategic Plan; (3) Establish Social Equity and Climate Change Goals for the Local Streets and Roads Program and; (4) Improve Data Quality Throughout the SB1 Program.</p>			
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State Transportation Funding in California: Progressive Targets or Prehistoric Thinking?

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A comprehensive project submitted in partial satisfaction of the requirements for the degree of Master of Urban and Regional Planning.

Faculty Advisor: Adam Millard-Ball, Ph.D.

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Client Advisor: Hunter Owens

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Courtesy of Caltrans

Disclaimer

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Executive Summary

Integrated and efficient transportation networks have the potential to transform sociophysical components of communities, increasing access to employment, education, healthcare, and cultural institutions. Since its passing in 2017, Senate Bill 1 (SB1) has launched thousands of infrastructure projects across the state. Over the next decade, this \$54 billion investment will work to achieve safety improvements, reduce traffic delays, improve goods movement, and increase options for transit. These projects are a welcome improvement to California's infrastructure, and critical to maintaining mobility.

Identifying their significant role in transportation, this report posits social equity and climate change response as the main goals and objectives of SB1 projects. I attempt to perform components of program evaluation to measure the extent to which programmed projects address social justice and climate change. However, a review of the fourteen funding programs under SB1 reveals that there are limited evaluation criteria, and none to evaluate social justice and climate change.

After analyzing SB1 data, this report refocuses on the Local Streets and Roads (LSR) program, explaining the role of local roads in individual transportation choices, as well as defining them as a site to advance social equity and climate change goals. In the absence of established evaluation criteria, I conduct a frequency search of terms in project descriptions. I combine these with additional terms that are prevalent in literature and practice, identifying projects that meet self-defined criteria. This analysis shows that the LSR program largely does not address key components of advancing social equity and climate change responses. Additionally, I discuss the ambiguity of this self-defined methodology as further rationale that SB1 needs defined evaluation criteria.

This report recommends four actions that Caltrans staff can do to improve the rigor of program evaluation across SB1. These actions are intended to improve the project selection and tracking processes, as well as strategically align goals and objectives with proposed evaluation criteria and project evaluation methods. These recommendations are:

1. Establish Evaluation Criteria across SB1.
2. Align SB1 and its Programs with Caltrans' Strategic Plan.
3. Establish Social Equity and Climate Change Goals for the Local Streets and Roads Program.
4. Improve Data Quality Throughout the SB1 Program.

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Introduction and Background

The United States transportation network teeters on the brink of catastrophe and transformation. Over the last several years, our nation's roads and highways¹, transit systems, airports, global ports, and micromobility networks have responded in real-time to overlapping crises of social uprising, public health emergencies, and economic stagnation. The result is that our ways of movement exist in their own state of emergency, while public attitudes towards infrastructure improvements continue to trend in a positive direction.

In 2022, national traffic levels and vehicular deaths are at all-time highs^{2,3}. Transit systems coast-to-coast are slowly beginning to recover from months of crippling economic uncertainty while attempting to lure riders back to the systems^{4,5,6,7}. Airports are plagued by hours-long security lines and near record-breaking flight delays⁸. Congestion at ports on both coasts further stresses the global supply chain, with one California entry point momentarily holding the title of most congested port in the world⁹.

Integrated and efficient transportation networks have the potential to transform sociophysical components of communities, increasing access to employment, education, healthcare, and cultural institutions. But, California has a substantial share of state and local roads in need of repair¹⁰. Pockets of the state have high-quality transit infrastructure¹¹, but overall traveling without a car is a burden. Traveling by bike is only a viable option in some of the State's denser, tourist-heavy cities. Transcending geographies and demographics, the transportation network serves us all, but it leaves many users at a disadvantage with poor conditions and performance.

But mired in all of these issues are shifting attitudes and emerging financial relief for transportation infrastructure¹². The federal government passed one of its largest infrastructure bills in history, while states like California have been implementing and programming their own historic infrastructure investments over the past few years. As the money continues to flow, there emerge several foci that legislators, transportation agencies, and the general public have successfully implemented these funds. Across these discussions, two focus areas consistently emerge: social equity and climate change. Each is necessary in its own right, and together they compromise some of the most critical issues and needs in modern history.

¹ Technical note: For the purposes of this report, highways are defined as any thoroughfare on the California State Highway Network. Roads are defined as thoroughfares over which Caltrans and the State of California has no jurisdiction. Local thoroughfares that are owned by municipalities but contract with Caltrans for maintenance are classified as roads.

² "NSC Analysis: Traffic is Back to Pre-pandemic Levels. Deaths Continue to Climb." *National Safety Council*. (2022).

³ "Newly Released Estimates Show Traffic Fatalities Reached a 16-Year High in 2021." *National Highway Traffic Safety Administration*. (2022).

⁴ Vock, Daniel C. "Transit in Crisis." *American Planning Association*. (2020).

⁵ Gurley, Gabrielle. "Public Transportation in Crisis." *The American Prospect*. (2020).

⁶ Cowan, Jill. "Why Public Transit's Pandemic Recovery Is Complicated." *The New York Times*. (2022).

⁷ Wasserman, Jacob L., et. al. "Transit(ory) Finance: The Past, Present, and Future Fiscal Effects of COVID-19 on Public Transit in Southern California." *UCLA Institute of Transportation Studies*. (2022).

⁸ Rodriguez, Jose Jr. "Here's Why Flying Sucks Right Now." *Jalopnik*. (2022).

⁹ Berger, Paul. "Port Congestion Spreads Across More U.S. Import Gateways." *The Wall Street Journal*. (2022).

¹⁰ Bach, Trevor. "These States Have the Worst Roads." *U.S. News*. (2020).

¹¹ California Government Code 65088.1.e. (2014).

¹² Lopez, German. "What's in the new infrastructure bill — and why it's a big deal." *Vox*. (2021).

California Transportation Investments

Since passing the Road Repair and Accountability Act of 2017 - known as Senate Bill 1 (SB1) - Caltrans and the California State Transportation Agency (CalSTA) have launched thousands of infrastructure projects across the state. Over the next decade, the state will invest \$54 billion to achieve safety improvements, reduce traffic delays, improve goods movement, and increase options for transit. These projects are a welcome improvement to California's infrastructure, and critical to maintaining mobility across the state. This also gives Caltrans access to a wealth of new data allowing the state to more formally implement data-informed decision-making for future programs and policies. SB1's fourteen programs are detailed in [Appendix 1](#).

SB1 is part of a growing number of transformative state transportation bills across the country, spurred in part by increases in federal infrastructure investment during the 2008 recession, and more recently by substantial federal infrastructure bills during the Coronavirus pandemic and recession. As California spends the most money in its history to improve transportation infrastructure, it is crucial to understand the conditions and impacts this investment will have. Further, it is important to understand how these transportation expenditures align with statewide goals and targets, specifically how these projects will advance social equity and mitigate the effects of climate change.

Successfully improving the transportation network is not simple, and doing so requires routine program evaluation and review of SB1 programs. The mechanisms to do so do not exist, at least not as measurable criteria to evaluate the success of each program over time. Therefore, this report seeks to accomplish three goals:

1. Analyze SB1 project data, identifying noteworthy statistics demonstrating the State's progress;
2. Recognize success and identify opportunities for more closely aligning SB1 projects with social equity and climate change goals and;
3. Recommend appropriate mechanisms to perform future evaluations of SB1's fourteen programs.

Successfully achieving the goals of this report requires an intimate understanding of the intricacies of transportation program evaluation in the United States. This includes evaluating projects for on-scope and on-time completion, as well as their ability to meet specific goals and objectives. This report focuses on the latter. After researching existing evaluation methodologies, criteria, and techniques at the national, state, regional (Metropolitan Planning Organization [MPO]), and local levels, I determine that these intricacies can be divided into three broad categories: (1) Effects of Project Type; (2) Capacity

and Expertise of State Departments of Transportation (DOTs) and; (3) Best Practices for Project Delivery and Management.

Effects of Project Type

Research on the effectiveness of implementation across project types and transportation modes is very limited. Here, the project type is broadly defined by both the scope as well as the physical infrastructure. Examples of different project types include roadway widening, bridge safety enhancements, stormwater drainage reconfiguration, and removing parking lanes to create bicycle and pedestrian infrastructure.

There is no evidence that, under the current schema of infrastructure projects in the United States, a project's type or the transportation mode is a causal factor in both its successful completion and implementation, as well as its long-term operation as is defined in the original project documentation.

Despite this, many states have undertaken programs and legislation aimed at specifically expediting project delivery methods - that is, getting projects completed on time - but there is limited alignment with statewide goals, targets, and objectives. This reinforces the false narrative that project type and mode influence its success, while not defining criteria for program evaluation over time¹³.

Capacity and Expertise of State DOTs

State DOTs maintain a reputation of solely focusing on roadway expansion projects, despite stated goals of multimodal integration¹⁴. This aligns with the historic responsibilities of State DOTs, and despite attitude shifts toward non-automotive travel, official guidance at both the federal and state levels still prioritize vehicle throughput and safety for drivers above all else^{15,16}.

This focus is important for both the analysis in this report as well as the recommendations because it shows how State DOTs spend money, regardless of the goals they strive to achieve. This notion of evolving beyond highway building is not new, and work has been ongoing since the early 2000s to understand how these departments tackle changing priorities and expectations¹⁷. Despite this, many State DOTs have not been able to efficiently strike a balance between the existing highway and roadway maintenance and preservation and multimodal system integration. For example, the 2020-2024 Caltrans Strategic Plan lists

¹³ "Accelerating Highway and Transit Project Delivery: Issues and Options for Congress." *Congressional Research Service*. (2011).

¹⁴ Bliss, Laura. "Can America's Road Builders Break the Highway Habit?" *Bloomberg CityLab*. (2022).

¹⁵ Perez, Benito. "USDOT urges states to prioritize repair, safety, and climate with their influx of infrastructure bill cash." *Transportation for America*. (2021).

¹⁶ "Strategic Plan for FY 2018-2022." *U.S. Department of Transportation*. (2019).

¹⁷ Rahn, Pete K. "NCHRP Project 20-24(84): State DOT Mission Evolution." *National Cooperative Highway Research Program Transportation Research Board*. (2013).

equity as a core value, promoting multimodal transportation, livability, and sustainability, but a cursory review of current SB1 projects across all 12 districts reveals nearly all ongoing projects relate to the state highway system, including roadway widenings. The story is the same in Oregon, where the DOT describes equity and a modern transportation system as two of its priorities in the 2021-2023 Strategic Action Plan but had been expanding Interstate 5 through Downtown Portland before the federal government ordered a pause¹⁸. These scenarios exist across the United States, reflecting the limited capacity and expertise of State DOTs to evolve away from roadway capacity and expansion projects.

Best Practices for Project Management and Delivery

While no two projects are alike, there is a strong consensus that internal project management practices can have a significant effect on a project's success. Evidence from New York City shows that funding and community pushback - as a result of poor internal project management - are the primary reason for transportation mega-projects not being delivered on time¹⁹. This research underscores that successful project implementation - regardless of mode - requires a fundamental change to existing institutional structures that exacerbate ineffective project management.

Evidence from Europe introduces the principal-agent paradigm as a contributing factor to project success. In the context of large-scale transportation projects, this paradigm suggests that the principal - or the managing authority on the project - must be aware of their own "priorities, requirements, decision-making authority, and risk allocation". The ability to do so decreases the prevalence of asymmetric information between principal and agent (contractors, etc.), and improves project management overall²⁰. In a nutshell, Caltrans must have its own internal priorities solidified in order for contractors and consultants to effectively complete the project. There is evidence of this happening in the United States as well, with various institutions and researchers recommending broader theoretical changes to improve project delivery^{21, 22}.

Importance of Program Evaluation

Performance evaluation is a relatively simple concept, yet it has only made its way into transportation legislation in the last decade. Designed to hold public agencies accountable, this analysis allows internal and external stakeholders to an organization to evaluate whether or not a policy, program, or process is meeting its stated goals. The Federal Transit

¹⁸ Stites, Sam. "Federal officials direct ODOT to complete new environmental assessment for I-5 Rose Quarter project." *Oregon Public Broadcasting*. (2022).

¹⁹ Teglassi, Victor S. "Why Transportation Mega-Projects (Often) Fail?: Case Studies of Selected Transportation Mega-Projects in the New York City Metropolitan Area". *Graduate School of Architecture, Planning and Preservation; Columbia University*. (2012).

²⁰ Lando, Henrik. "Why Do Large Infrastructure Projects Often Fail?" *Copenhagen Business School, SSRN*. (2011).

²¹ Discenza, Richard, & James B. Forman. "Seven causes of project failure: how to recognize them and how to initiate project recovery." *Project Management Institute*. (2007).

²² Shane, Jennifer, et. al. "Guide to Project Management Strategies for Complex Projects." *SHRP 2 Report S2-R10-RW-2, Institute for Transportation, Iowa State University*. (2015).

Administration (FTA) and the Federal Highway Administration (FHWA) codified performance-based planning into law in 2016, requiring transportation projects to “set performance targets, and integrate those performance targets and performance plans into their planning documents”. These performance targets are required to link to objectives set forth in (State) Transportation Improvement Program (S/TIP)²³. Both agencies established national performance measures to assess the performance of transportation agencies across the country. This report does not address federal performance measures but rather references their rationale to establish the significance of these evaluation techniques.



²³ "Performance-Based Planning and Programming." *Federal Transit Administration*. (2020).
Image: Market Street, San Francisco. Source: SFCTA

Research Motivations

This project analyzes the cost, status, and geography of all transportation projects that are funded by SB1. From there, I detail the Local Streets and Roads (LSR) program under SB1, to more closely evaluate specific projects. Its main objective is to identify the current trajectory of SB1-funded transportation projects to meet the State's goals related to climate change and equity. There are no defined evaluation criteria for SB1, and this project explores potential methods to correctly conduct context-specific program evaluation.

This paper's focus on climate change and equity is intentional. The existing transportation network is one of the largest pollution sources in modern history, and this built environment has a clear history of racism and social segregation. Climate change and equity represent distinct yet intertwined threats to the traveling public, and the State of California has been keen to account for this in recent years with legislation, policies, and programs. As these efforts progress, it is important to understand whether or not they are fully addressing the problem they set out to address.

Equally as intentional is selecting the Local Streets and Roads program for in-depth analysis. While larger projects like highway expansions have clear implications for social justice and climate change goals, I argue that local streets and roads - those operated and governed by local municipalities and jurisdictions - serve as vital components in achieving social justice and climate change goals in our transportation system. Safety improvements and infrastructure changes on local roads will have a significant impact on the travel behaviors and patterns of thousands of residents on a daily basis. Projects on the state highway network may have larger, regional impacts, but changes in peoples' neighborhoods may determine whether someone takes transit or walks, rather than driving; or allow residents harmed by the transportation system in the past to have significant input on moving away from these traumatic histories.

If we are to care about goals of social equity and climate change, understanding how we're building and maintaining our local roads is important. They face many of the same long-term maintenance challenges as highways and interstates but receive less attention^{24,25}. The majority of crashes and traffic fatalities in the United States are on non-highway roads²⁶. Many of these crashes are the result of speeding, lane departures, or other design and engineering problems that could potentially be improved with more investment, like the LSR program in SB1.

Overview of Climate Policy in California

The State of California is a national leader in progressive climate policy. For the last several decades, the State has passed policies and programs to lessen the severity of climate change

²⁴ "Local Streets and Roads in Bad Shape, and Getting Worse." *California State Association of Counties*. (2014).

²⁵ Budzynski, Brian W. "Size Doesn't Matter." *Roads & Bridges*. (2015).

²⁶ "Traffic Safety Facts: Rural/Urban Comparison of Motor Vehicle Traffic Fatalities." *National Highway Traffic Safety Administration*. (2021).

and extreme weather events. These policies are broad in both scope and application, and for the purposes of this report, I focus on climate action directly related to transportation.

The California Global Warming Solutions Act of 2006 (Assembly Bill 32 [AB32]) is the State's core climate legislation, requiring specific solutions on how carbon neutrality will be achieved by 2045. Transportation is fundamental in achieving this success, as the "combustion of fossil fuels in vehicles emits significant amounts of [greenhouse gas emissions (GHGs)], criteria pollutants, and toxic air contaminants"²⁷. Additional climate policies include the California Clean Truck, Bus, and Off-Road Vehicle and Equipment Technology Program (Senate Bill 1204 [SB1204]), the Charge Ahead California Initiative (SB1275), and the Alternative Fuel Vehicle Incentive Program. California's climate policies are summarized in [Appendix 2](#) and identify connections to transportation projects where applicable.

All of these policies and programs operate independently, with different goals and evaluation criteria. As is true with SB1 programs, this makes it difficult to determine whether the State is meeting its own goals, and does not allow for data sharing or collaboration. The Climate Change Scoping Plan, required by AB32, does not state evaluation criteria to determine California's ability to reach carbon neutrality by 2045²⁸. The Environmental Goals and Policy Report developed by the Governor's Office of Planning and Research also does not identify evaluation criteria²⁹. It has not been updated since 2015, and still references Jerry Brown as Governor.

The Climate Action Plan for Transportation Infrastructure (CAPTI) released by CalSTA in 2021 includes specific implementation actions through eight strategies³⁰. To date, this is the State's most comprehensive document for identifying actionable investments and solutions to achieve climate goals. Yet still, these actions and strategies are not necessarily aligned with SB1 - the largest source of transportation funding - nor other programs within CalSTA and Caltrans. This is not to say it won't play a role in guiding SB1 funding, but it remains an independent framework with no stated evaluation criteria³¹. The California Transportation Commission (CTC) identifies no criteria in its annual report but does note CAPTI, as well as other climate legislation as it relates to transportation ([Appendix 2](#))³².

As time progresses, it becomes increasingly clear that California is unlikely to meet its own climate goals. In 2021, the California State Auditor's Office stated that "California may not successfully meet its upcoming GHG reduction goal", which is an interim goal working

²⁷ "Draft 2022 Scoping Plan Update." *California Air Resources Board*. (2022).

²⁸ "AB32 Climate Change Scoping Plan." *California Air Resources Board*. (2022).

²⁹ "Environmental Goals." *Office of Planning and Research*. (2015).

³⁰ "Climate Action Plan for Transportation Infrastructure." *California State Transportation Agency*. (2021).

³¹ **Technical Note: CalSTA is planning to release a progress report in Fall 2022 on the implementation status of these activities. This report was not available at the time of publishing this document.**

³² "2021 Annual Report to the State Legislature." *California Transportation Commission*. (2021).

towards full carbon neutrality³³. This is because the California Air Resources Board (CARB) has not adequately measured the effectiveness of its programs at both reducing GHG emissions and their socioeconomic impacts. This is not only consistent with transportation and climate policies of the past but is indicative of the future as well: California has not passed any “significant” climate change legislation in four years³⁴. The desire for measurable criteria to accurately identify the alignment of the State’s transportation investments with climate goals is not new. It is stated time and again in various research and policy mediums, with various suggestions of frameworks, benchmarks, and performance standards^{35,36}. Nonetheless, Caltrans, CalSTA, and their state partners have not yet established ways to examine the allocation of SB1 funds.

Overview of Transportation Equity Policy in California

Transportation equity has no one definition. By nature, it is a fluid concept that seeks to prioritize the access and mobility needs of the most marginalized populations. What this actually entails from a policy and programming perspective varies widely across geographies, and requires nuanced approaches and implementation techniques to successfully achieve. To conceptualize this, take any project, regardless of mode, and imagine how its implementation and definition of success will vary if it were to take place in Los Angeles, or the Central Valley, or along the North Coast.

In 2020, Caltrans established the Office of Race and Equity to “[advance] racial equity throughout the Department's internal and external operations”. The Office is currently developing a Transportation Equity Index, that will be used to assess potential equity impacts on state transportation projects. This is in addition to racial justice and equity statements published by CalSTA and CTC. Also in 2020, Caltrans released its Race and Equity Action Plan, identifying a few broad action items to better incorporate equity in the project selection and evaluation processes³⁷.

But unlike climate change, there is no statewide legislation *on equity*. Numerous state agencies undertake similar efforts to Caltrans when it comes to internal equity analysis and practices, and in 2018 the Capitol Collaborative on Race and Equity was established as a working group for state agencies to collaborate on racial justice and equity policy. The absence of statewide legislation leads to the absence of evaluation criteria, meaning there is no established methodology to build off of when evaluating SB1 projects.

³³ “Improved Program Measurement Would Help California Work More Strategically to Meet Its Climate Change Goals.” *California State Auditor*. (2021).

³⁴ Creasman, Mary. “California gets a grade of ‘D’ for inaction on the climate crisis.” *CalMatters*. (2022).

³⁵ Elkind, Ethan. “Moving Dollars: Aligning Transportation Spending With California’s Environmental Goals.” *Emmett Institute on Climate Change and the Environment, UCLA School of Law*. (2015).

³⁶ Brown, Austin L., et. al. “Driving California’s Transportation Emissions to Zero.” *Institute of Transportation Studies, University of California*. (2021).

³⁷ “Race and Equity Action Plan.” *Caltrans*. (2022).

Background on SB1

With its fourteen programs, SB1 empowers both Caltrans and local municipalities and jurisdictions to fix California's roads and bridges, reduce traffic delays, improve goods movement, and increase options for transit, intercity rail, and active transportation. SB1 increases funding annually by roughly \$5.4 billion. This funding structure means that the majority of funds will not be expended at the program's onset, and there will be more equal opportunities for funding throughout SB1's lifecycle³⁸.

The SB1 program as a whole measures its progress in four areas (referred to as asset classes): pavement, culvert, bridges, and transportation management systems (TMS). These classes are identified because they represent the majority of annual transportation investments across the state, and are critical to public safety. And working toward the premise of this report, these four asset classes include no evaluation criteria. Caltrans tracks progress made but does not compare these to pre-determined measures of success. These asset classes are further evidence that SB1 is mainly focused on roadway projects on the state highway network, and gives less precedent to projects on local streets and roads, and non-automotive projects (public transportation, active transportation, etc.).



³⁸ **Technical Note:** Since the majority of funds are not yet spent for future fiscal year periods, there is no visual to represent the flow of expenditures over time. [Figure 3](#) shows all of the funds programmed, but not the years in which they will be spent.

Image: Interstates 10 and 110 Interchange in Downtown Los Angeles. Source: Shutterstock

Overview of Existing Goals

This report takes a critical look at how SB1 projects have the potential to impact goals related to social equity and climate change. Much of it asserts that there is an overwhelming absence of evaluation criteria (including goals, objectives, targets, etc.) that are necessary to conduct any sort of project evaluation. And while this is true, Caltrans and CalSTA have published some stated objectives that both (a) allow Caltrans to determine they have evaluation criteria and (b) further this report’s main thesis that they in fact do not.

Caltrans establishes six areas of impact that are “just some of the benefits that transportation infrastructure projects supported by SB 1 and Infrastructure Investment and Jobs Act (IIJA) have created”³⁹.

Areas of Impact

Reduced Climate Impact	Improved Equity of Access
Reduced Traffic Delays	Increased Jobs and Employment
Efficient Movement of Goods	Safe Active Transportation Facilities

But these areas of impact make no direct connections to the four asset classes that Caltrans is actually measuring, mentioned above: pavement, culvert, bridges, and transportation management systems (TMS).

The four asset classes and six areas of impact do in fact relate to each other, but there is no discussion about what mechanisms programs are used to do so. Further, it is notable that none of the six areas of impact define evaluation criteria and are not measured in any way. This is important to the research implications and recommendations of this report because this is one of the few instances with stated goals related to social equity and climate change, but there is no evaluation.

³⁹ Technical Note: Since the passage of IIJA by Congress in 2021, Caltrans includes references to IIJA funding in some SB1 documentation because IIJA funds are supplementing certain projects. No IIJA funds are included in this report to provide summary statistics on SB1 projects, nor to influence evaluation criteria.

Current programming allocates nearly \$16.5 billion to 5,956 SB1 projects. This funding will be expended through fiscal year (FY) 2026-2027. The tables and figures below show the breakdown of funding by SB1 program by funding and the number of projects.

Table 1. Project Count and SB1 funds by program

Program	Number of Projects	Sum of SB1 Funds (\$)
Active Transportation Program	302	560,604,000
Field Maintenance	36	215,268,915
Highway Maintenance	363	974,017,274
Local Partnership Program, Competitive	55	492,001,000
Local Partnership Program, Formulaic	135	495,516,000
Local Streets and Roads	3345	1,553,016,363
Solutions for Congested Corridors Program	42	1,506,089,000
State Highway Operations	808	5,485,896,161
State of Good Repair	503	401,121,615
State Rail Assistance	41	142,673,071
State Transit Assistance	196	964,265,119
State Transportation Improvement Program	28	⁴⁰
Trade Corridor Enhancement Program	66	2,675,170,000
Transit and Intercity Rail Capital Program	36	968,953,500
Total	5,956	16,434,592,018

⁴⁰ Technical Note: The State Transportation Improvement Program (STIP) is incorporated as an SB1 program from a governance standpoint, but has its own dedicated funding source - and did so prior to SB1 - as is required by legislation.

Figure 1. Distribution of Funds by Program

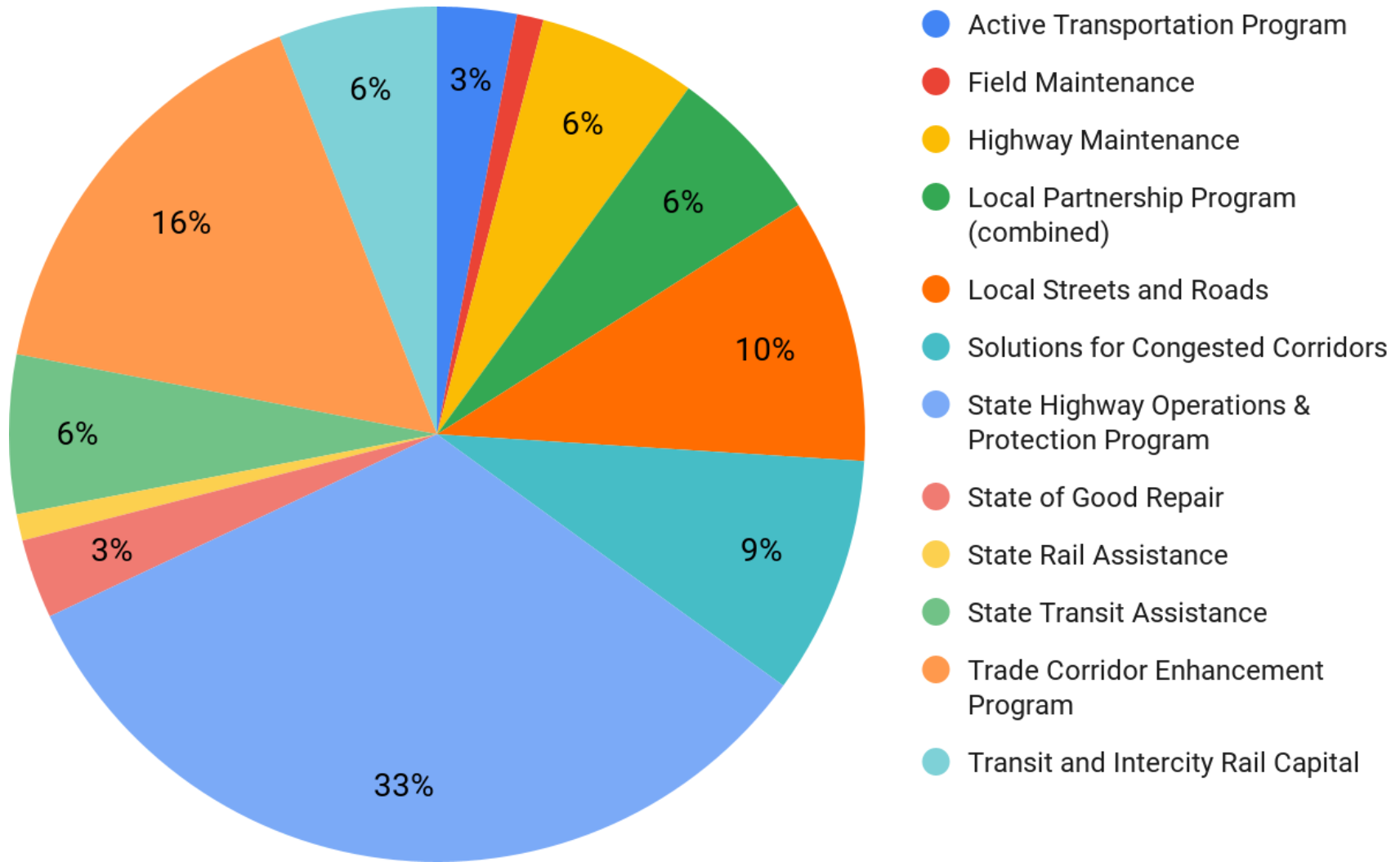
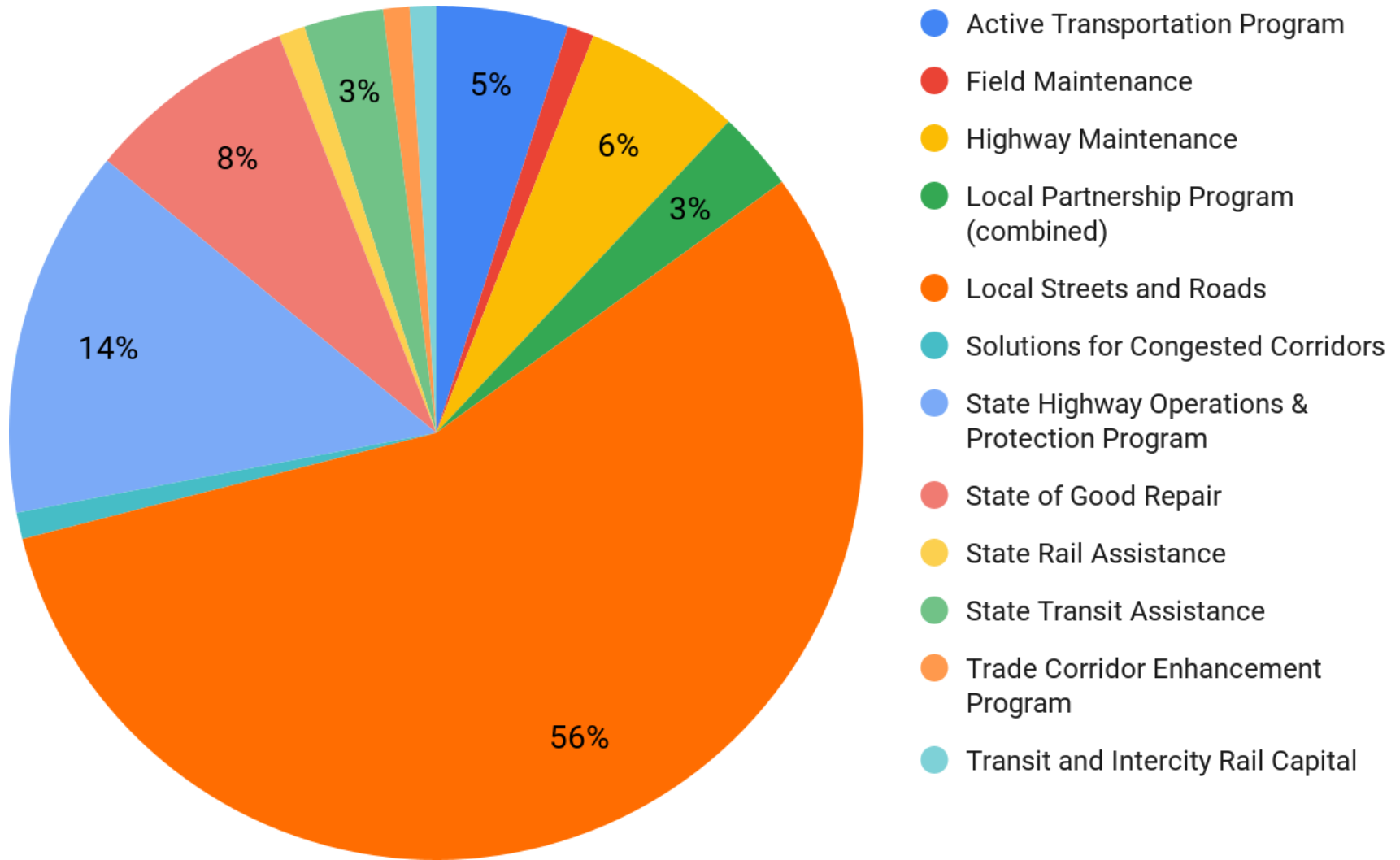
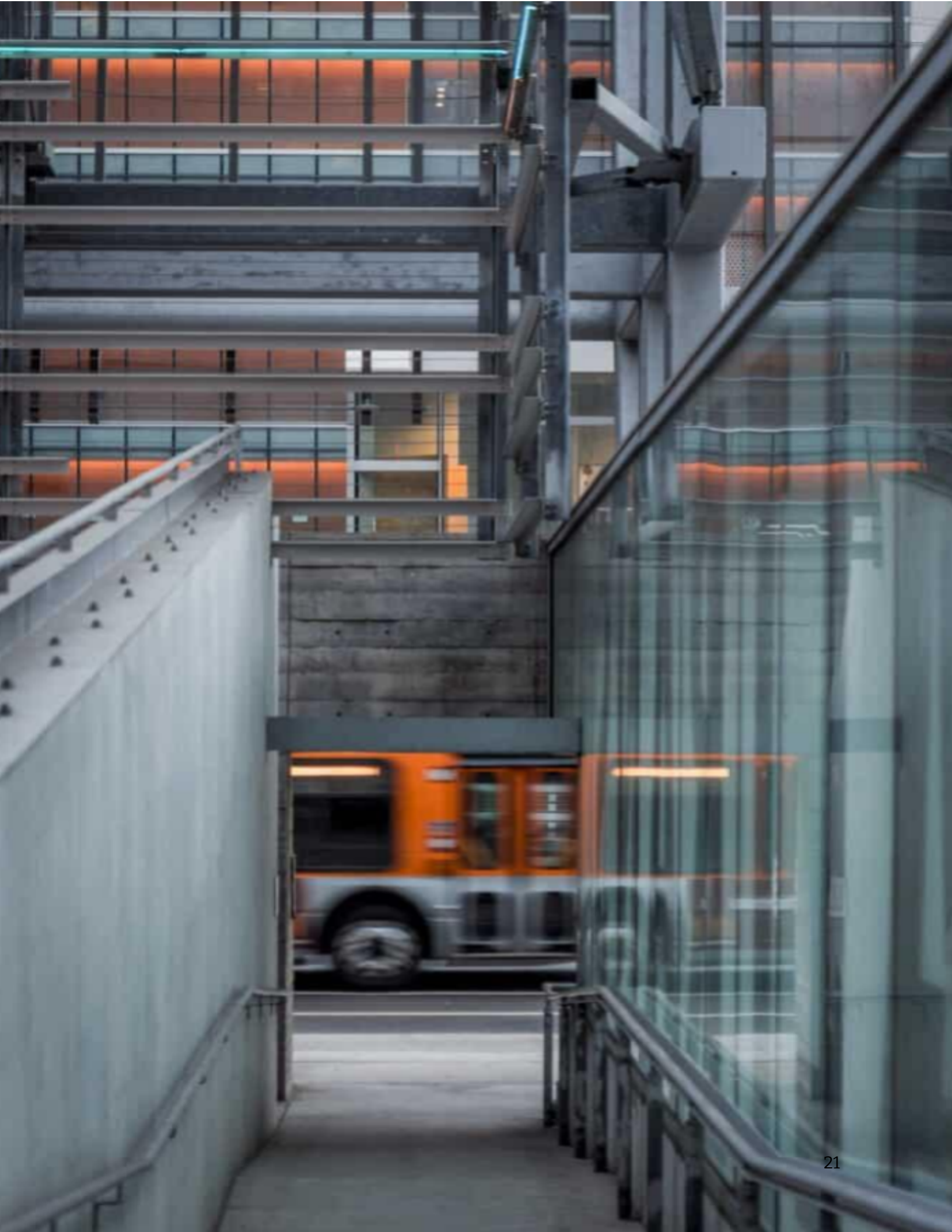


Figure 2. Distribution of Projects by Program





Discussion and Observations

Observation 1

These initial statistics clearly identify one component of SB1 funding: a small number of projects receive a disproportionate amount of funding. Nearly 50% of all SB1 funds pay for projects in the State Highway Operations and Trade Corridor Improvement programs, amounting to only 874 projects, or just 15% of all SB1 projects.

The Local Streets and Roads program stands out for the opposite reason. This program accounts for 56% of all SB1 projects but comprises only 10% of its funding. These discrepancies are somewhat understandable: highway projects, by nature, are more expensive and larger capital undertakings than projects on local streets. They often extend across multiple fiscal years and can require more preliminary planning with regard to community engagement and environmental review. Smaller projects funded through the Local Streets and Roads program require similar administrative and procedural documentation, but doing so to improve storm drainage along Sunset Boulevard is less involved than expanding I-5 in Santa Clarita.

Observation 2

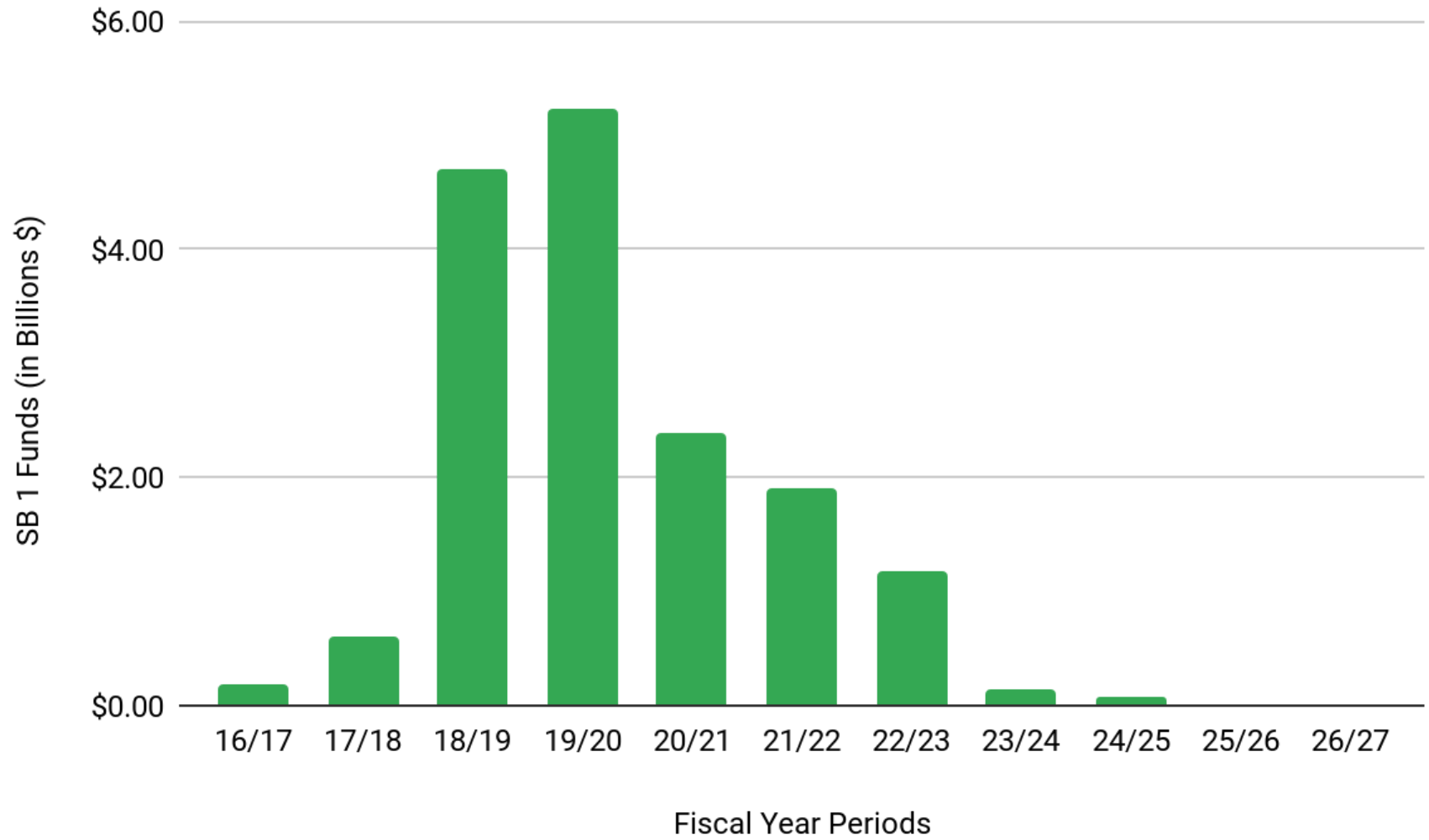
Nearly half of all SB1 funds have yet to be programmed for the remaining fiscal years. [Table 1](#) shows that all SB1 funds have been programmed for the bill's lifecycle, but there is no data on how these programmed funds will be expended over time. For example, if a project is programmed during FY 2019-2020, and is expected to take three years, Caltrans programs the expected funds for all three years during the FY 2019-2020, but those programmed funds are then spent over the three-year period. There is data on the former ([Figure 3](#)), but not the latter. This matters for this report because the inability to see the expenditure of funds over time further complicates program evaluation.

Observation 3

Moreso a reaffirmation of this report's premise rather than a new observation, SB1 lacks consistent evaluation criteria across its programs. The four goals, or asset classes, are broad enough to track ongoing progress but are not metered to criteria that allow Caltrans to determine whether or not these funds are being spent efficiently and effectively.

Additionally, these asset classes make no direct connections to anything related to social equity or climate change. And while there can be potential, indirect connections, the clear focus on roadway projects likely negates any potential improvements that could be made over time.

Figure 3. Programmed Funds by FY



On average, SB1 funds accounted for a small portion of total project funding. This is especially true of larger, capital projects, which receive significant federal funding. The breakdown of SB1 funds by project status is included in [Table 2](#) below.

Table 2. SB1 Funds as a Portion of Total Funding by Project Status

Completed Projects	46%
In Progress Projects	20%
Planned Projects	19%

Analysis: Local Streets and Roads

The Local Streets and Roads program is a significant component of SB1 funding. Across all fiscal years, there are 3,345 projects funded through Local Streets and Roads with \$1.55 billion. The average amount of SB1 funds per project is \$464,280, while the average total project cost (including SB1 funds) is \$1.495 million. Roughly 31% of project costs for Local Streets and Roads projects were covered by SB1 funds, which is consistent with trends identified in Table 2 for all SB1 programs. What remains notable about this program, however, is that it dwarfs the others in terms of the total number of projects: the program with the next highest count is State Highway Operations with 808.

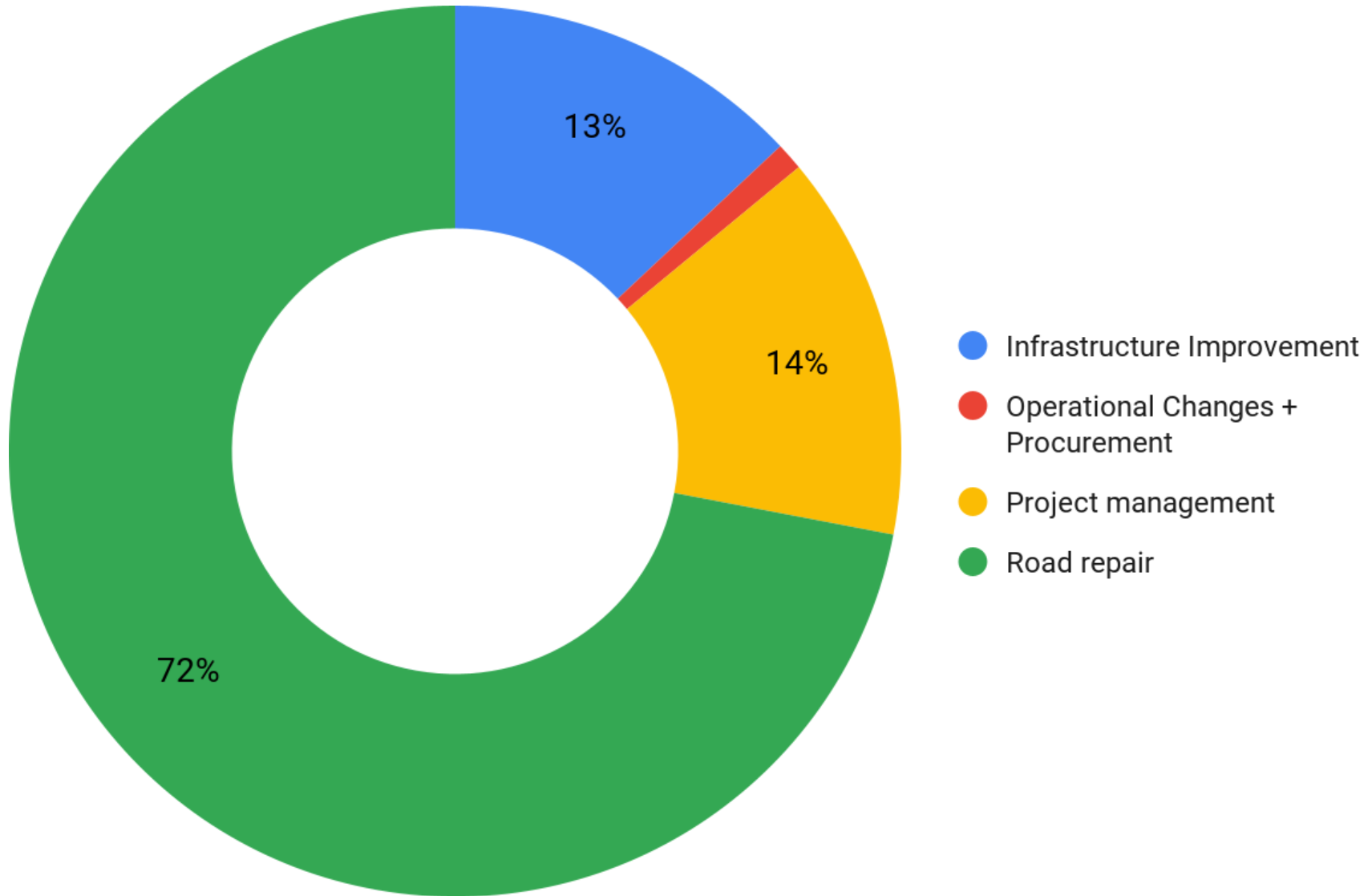
This is important for our analysis because the Local Streets and Roads program is far less sophisticated compared to others, in terms of project requirements, performance targets and metrics, and oversight. That is to say, evaluating the performance of this program is difficult because there is no evaluation criteria.

To assess this program, I isolate the 3,345 projects, assign sub-categories and identify each project's alignments with institutional goals. Using project descriptions provided by Caltrans, four sub-categories emerge:

1. Infrastructure Improvement
2. Operational Changes and Procurement
3. Project Management
4. Road Repair

In theory, a project can fall into multiple categories, but for the purposes of this analysis, only one was assigned to each project, based on how the bulk of the work is identified in the project description. The breakdown of these subcategories is depicted in [Figure 4](#) below.

Figure 4. Percent of Local Streets and Roads Projects by Sub-Category



The Local Streets and Roads program does not include specific objectives, goals, targets, or performance indicators of any kind. In order to properly analyze these projects, I reference SB1-wide indicators, as well as those laid out in the Caltrans Strategic Plan 2020-2024. I identify five areas of need identified throughout institutional documents as they relate to the scope, context, and applicability of projects funded by the LSR program, determining whether or not a project addresses this. These categories are not exclusive; a project can be counted in more than one if it is applicable. The categories of need are:

1. Safety Improvements
2. Bicycle Improvements
3. Pedestrian Improvements
4. Infrastructure Resiliency
5. Congestion Relief

Each of these categories is defined using keywords such as “traffic”, “rehabilitation”, and “sidewalk”. Each category contained three keywords, which were determined based on the most relevant terminology used in project descriptions. [Table 3](#) below shows how many projects align with each of the five areas of need. These five categories of need are also addressed by other SB1 programs. The Active Transportation Program (ATP) focuses on bicycle and pedestrian infrastructure, while several programs focus on safety, resiliency, and work to address congestion. Therefore, this report does not say that these categories of need are not addressed by SB1. Rather, there is a clear opportunity to supplement these investments through the LSR program, given the critical role local streets and roads play in addressing these needs.

Table 3. Projects Addressing Categories of Need

Categories of Need	Number of Projects (% of total LSR projects)
Safety Improvements	1,960 (59%)
Bicycle Improvements	41 (1%)
Pedestrian Improvements	85 (3%)
Infrastructure Resiliency	216 (6%)
Congestion Relief	5 (<1%)
Does Not Address any Categories of Need	1,351 (40%)

Forty-percent of all LSR projects do not address any of the five categories of need. This number could be explained in part by the terms that I used, that explanation only further underscores the inability to properly evaluate these projects. Holding this number true, it shows that the LSR program is not being used to its full potential.

This report advocates that local streets and roads have the potential to make substantial progress in advancing social equity and the needs of climate change within our transportation network. The fact that 40% of projects cannot be categorized into five broad categories of need that are common on local streets and roads is cause for concern. Just 33 of the 1,351 uncategorizable projects fall under the sub-category of project management, so these funds are not being (overwhelmingly) used for planning purposes.

Many of the uncategorizable projects can be justified, but they are removed from the direct benefits that investments in local streets and roads may reap. These include the purchase of new vehicles for local municipalities, as well as repairing small portions of streets, intersections, and sidewalks. Repaving one lane in one intersection is needed but is unlikely to make a difference in larger safety goals. Adding greenery to an existing bikeway is certainly a win for cyclists, but again, isn't going to address any category of need.

Image: Road Repair in Turlock, California. Source: City of Turlock



Findings and Recommendations

Findings

From this assessment, I identify three key findings for evaluating whether or not SB1 projects are addressing the critical areas of social equity and climate change. They are identified and discussed below.

Finding 1: There are no evaluation criteria across all fourteen SB1 programs, limiting the prospects of program evaluation.

It is not possible to effectively evaluate SB1 projects at achieving program goals because there are no evaluation criteria. In some cases, such as with Local Streets and Roads, there are none, or very poorly identified program goals. This not just limits the ability to assess the social equity and climate change impacts of these projects but also limits that to assess any of the other, broadly defined objectives laid out in various Caltrans and CalSTA documents.

Finding 2: There is no universal definition or understanding of social equity by which to evaluate these projects.

While not something unique to Caltrans, it is difficult to assess the potential equity impacts of transportation projects when equity means different things in different scenarios. Caltrans, CalSTA, and the State of California as a whole have been making significant efforts to better incorporate some form of social equity into decision making, but despite being cited in numerous plans and documents, there is no way to accurately measure its implementation.

Finding 3: Local Streets and Roads funds can be used more effectively to deliver more substantial improvements to residents.

As a byproduct of the Local Streets and Roads program not having stated goals, objectives, or any performance evaluation criteria, the funds can be used more effectively. Even as I broadly defined categories based on other Caltrans documents and common terms in project descriptions, 40% of all projects did not align with any of the five categories. As there are no definitions to guide these funds, they are applied to a wide range of projects, with varying benefits for users of local streets and roads.

Recommendations

Based on my findings from this analysis, I propose four recommendations for Caltrans. These recommendations work to enhance all fourteen SB1 programs to define measurable criteria. This is necessary if Caltrans and CalSTA seek to evaluate and understand the impacts of SB1 long term. These recommendations also seek to more intricately align SB1 programs with broader Caltrans, CalSTA, and statewide strategic goals and objectives.

Recommendation 1: Establish Evaluation Criteria across SB1.

Based on this analysis, the first recommendation is to establish aspirational, achievable, and measurable goals and performance indicators not just for the Local Streets and Roads program, but for all of SB1's fourteen programs. Doing so will increase the rigor of project selection, allowing Caltrans to directly state (1) the goals of each program, and (2) how these goals align with broader agency priorities. Larger programs under SB1 such as State Highway Operations and Protection and Active Transportation have broadly stated goals that guide Caltrans staff in project selection, but this is missing in programs that fund smaller-scale projects.

Simply establishing the criteria is an improvement, as it will allow for a more thorough and consistent program evaluation that this report attempts to do. These criteria will eliminate some of the ambiguity I encountered when creating a methodology to perform components of a program evaluation on a program with little to evaluate.

Recommendation 2: Align SB1 and its Programs with Caltrans' Strategic Plan.

The second recommendation from this analysis is for Caltrans to explicitly identify how SB1 and its programs support the core values, strategic imperatives, and goals identified in the 2020-2024 Strategic Plan⁴¹. Doing so will help the organization more clearly align its funding to its goals, while also increasing its accountability to the public on where transportation money is spent. At present, smaller programs like Local Streets and Roads and discretionary programs provide little to no information to the public on how and why this money is being spent.

Recommendation 3: Establish Social Equity and Climate Change Goals for the Local Streets and Roads Program.

In tandem with the first two recommendations, Caltrans should establish explicit goals and evaluation criteria for both social equity and climate change as part of the LSR program. Local streets and roads have the potential to have significant impacts in both of these areas,

⁴¹ "Caltrans 2020-2024 Strategic Plan." *Caltrans*. (2020).

affecting peoples' daily travel patterns and quality of life. Specific criteria for local municipalities and jurisdictions to meet will go a long way in advancing both of these goals, while also more clearly defining the purpose and outcomes of the LSR program.

Several other programs within SB1 could also benefit from more explicit equity and climate goals as components of recommendations one and two.

Recommendation 4: Improve Data Quality Throughout the SB1 Program.

Data quality and governance across all SB1 programs needs improvement. While there is publicly available data for all projects, it is limited in what it contains to effectively evaluate the success of these programs. More robust, publicly available datasets with established data standards are necessary to improve both internal and external program evaluation. This includes geographic data, which is not currently defined at latitude and longitude coordinates.

The SB1 program should partner with peer programs, divisions, and offices within Caltrans to build upon and enhance ongoing data improvement efforts throughout the organization. For example, the California Integrated Travel Program (Cal-ITP) is a recently launched program that operates to improve the passenger experience on public transportation in the State through robust data gathering. Cal-ITP uses its data infrastructure to make informed decisions about transit riders' experiences and works with stakeholders to consistently update and improve datasets. As it continues to build its data repertoire, Cal-ITP is establishing minimum data standards for peer agencies in California to ensure this data is deployed and utilized statewide. SB1 could benefit from adopting a similar approach, better integrating its data with other programs across the organization to improve coordination and knowledge sharing, as well as building more robust public datasets.

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Appendices and Maps

Appendix 1: Summary Table of SB1 Programs

Program	Description
Active Transportation Program	The Active Transportation Program (ATP) is aimed at increasing the use of non-motorized modes of transportation including biking and walking throughout California.
Field Maintenance	
Highway Maintenance	
Local Partnership Program	The Local Partnership Program (LPP) supports investment by local communities by providing matching funds for voter-approved transportation tax measures. There are formulaic and competitive funds.
Local Streets and Roads	SB 1 dedicated approximately \$1.5 billion per year in new formula revenues apportioned by the State Controller to cities and counties for basic road maintenance, rehabilitation, and critical safety projects on the local streets and roads system.
Solutions for Congested Corridors Program	The Solutions for Congested Corridors Program (SCCP) funds projects that reduce congestion with a goal of achieving a balanced set of transportation, environmental, and community access improvements.
State Highway Operations	The State Highway Operation and Protection Program (SHOPP) funds projects that relate to maintenance, safety, operation, and rehabilitation of some of California's busiest roads – the state highway system.
State of Good Repair	The State of Good Repair Program was created to provide a consistent and dependable revenue source to transit operators to invest in the upgrade, repair, and improvement of their respective agency's existing transportation infrastructure and services.
State Rail Assistance	SB 1 created the State Rail Assistance (SRA) Program by directing a portion of new revenue specifically to intercity rail and commuter rail.
State Transit Assistance	The STA Program provides funding for transportation planning, public transportation, and community transit purposes as specified by the Legislature. Transit agencies

can use STA funds for planning, capital, and operational costs, including public transportation services and community transit services.

State Transportation Improvement Program

SB 1 funds will be used to restore the State Transportation Improvement Program (STIP). Projects funded by the STIP include future state highway, intercity rail and transit improvements throughout California, including new capacity projects.

Trade Corridor Enhancement Program

The Trade Corridor Enhancement Program (TCEP) provides funding for infrastructure improvements on certain federally designated roadways and other corridors that have a high volume of freight movement.

Transit and Intercity Rail Capital Program

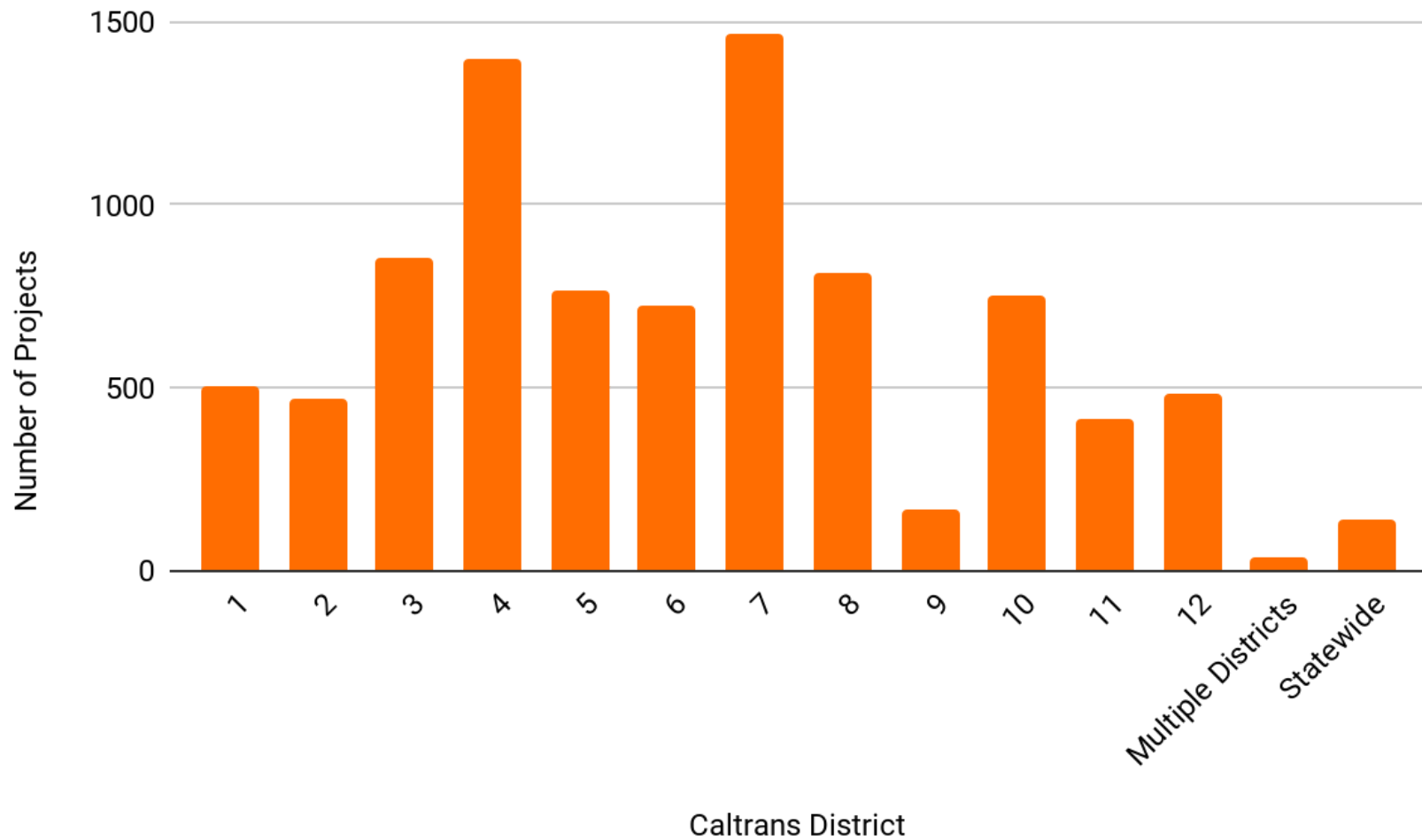
The Transit Intercity Rail Capital Program (TIRCP) supports capital improvements to modernize intercity, commuter, and urban rail systems, as well as bus and ferry transit systems, to reduce vehicle miles traveled, congestion, and greenhouse gasses produced.

Appendix 2: California Climate Policy Goals Related to Transportation

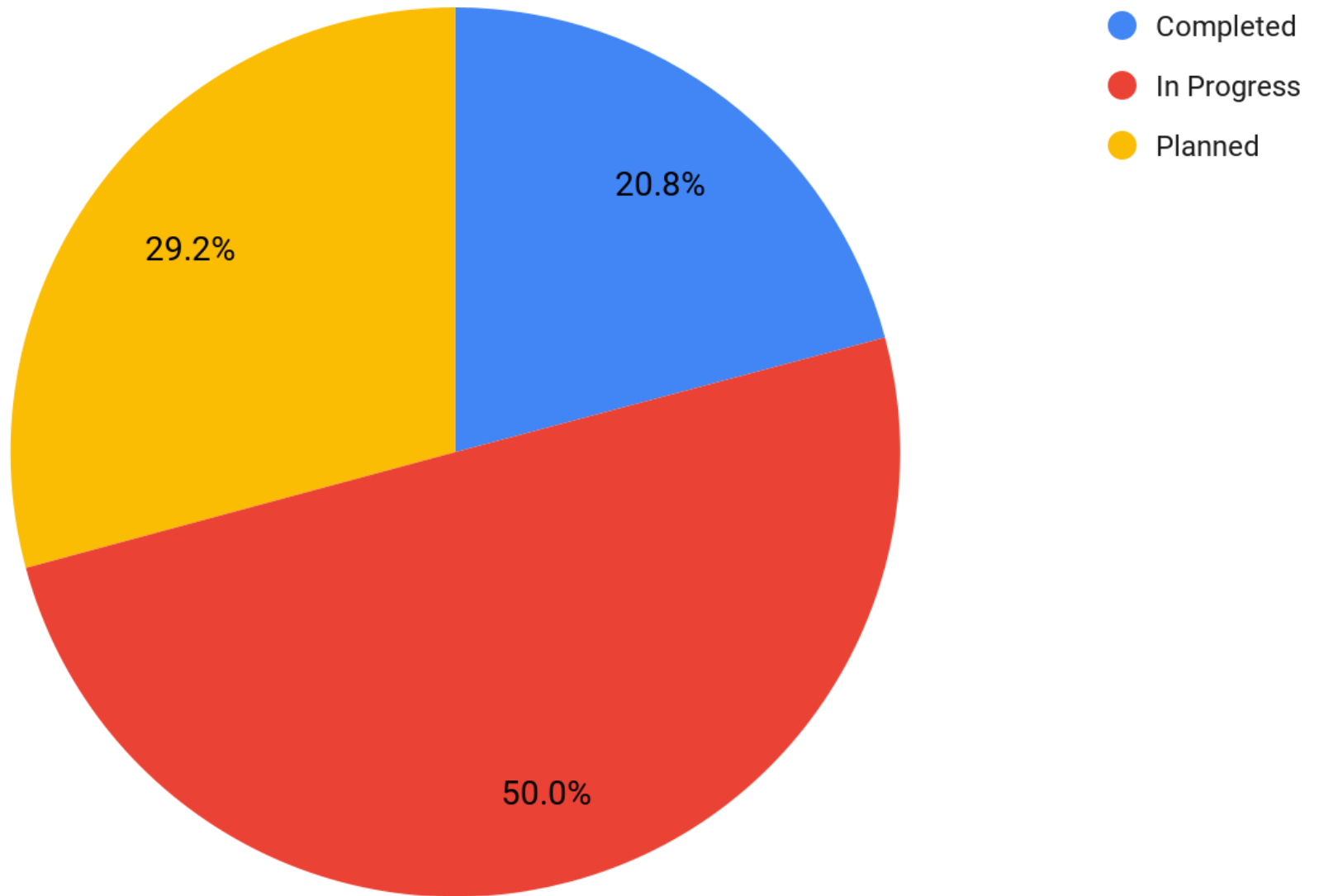
Policy Goals	Description
Greenhouse Gas Emission Reduction (AB 32, SB 32)	Legislation requiring California to reduce its overall greenhouse gas emissions to 1990 levels by 2020 and 40% below 1990 levels by 2030.
Renewable Energy Procurement (SB 100, SB 350)	Legislation requires the state to procure 60% of all electricity from renewable sources by 2030 and 100% from carbon-free sources by 2045. This includes greater electric utility investment in electric vehicle charging infrastructure.
Transportation Infrastructure Funding (SB 1)	Transportation funding legislation that increases the state's gasoline tax by \$0.12 per gallon, raising over \$5 billion per year for transportation projects including improvements in efficiency and emission reduction.
Sustainable Transportation Planning (SB 375, SB 743)	Transportation planning legislation setting regional greenhouse gas emission reduction targets for passenger vehicles and requiring agencies to assess and mitigate the vehicle miles traveled (VMT) impacts of new developments.
Adaptation and Resiliency (AB 2800, SB 1035)	Legislation requiring local governments to include adaptation and resiliency strategies in general plans, and requiring state agencies to account for climate change when planning new infrastructure, among other things.
Energy Storage (AB 2514)	Law requiring electric utilities to install minimum levels of grid-scale energy storage infrastructure.
Automobile Emissions Standards (AB 1493)	State law requiring the first set of greenhouse gas emission standards for passenger vehicles.
Cap-and-Trade (AB 398)	Law extending California's cap-and-trade program through 2030.
Electric Vehicle Charging (AB 1236)	Law requiring local governments to develop streamlined ordinances for electric vehicle charging infrastructure.

Source: University of California, Berkeley, School of Law. Information on relevant policies adapted from the California Climate Policy Dashboard.

Appendix 3: Project Count by Caltrans District



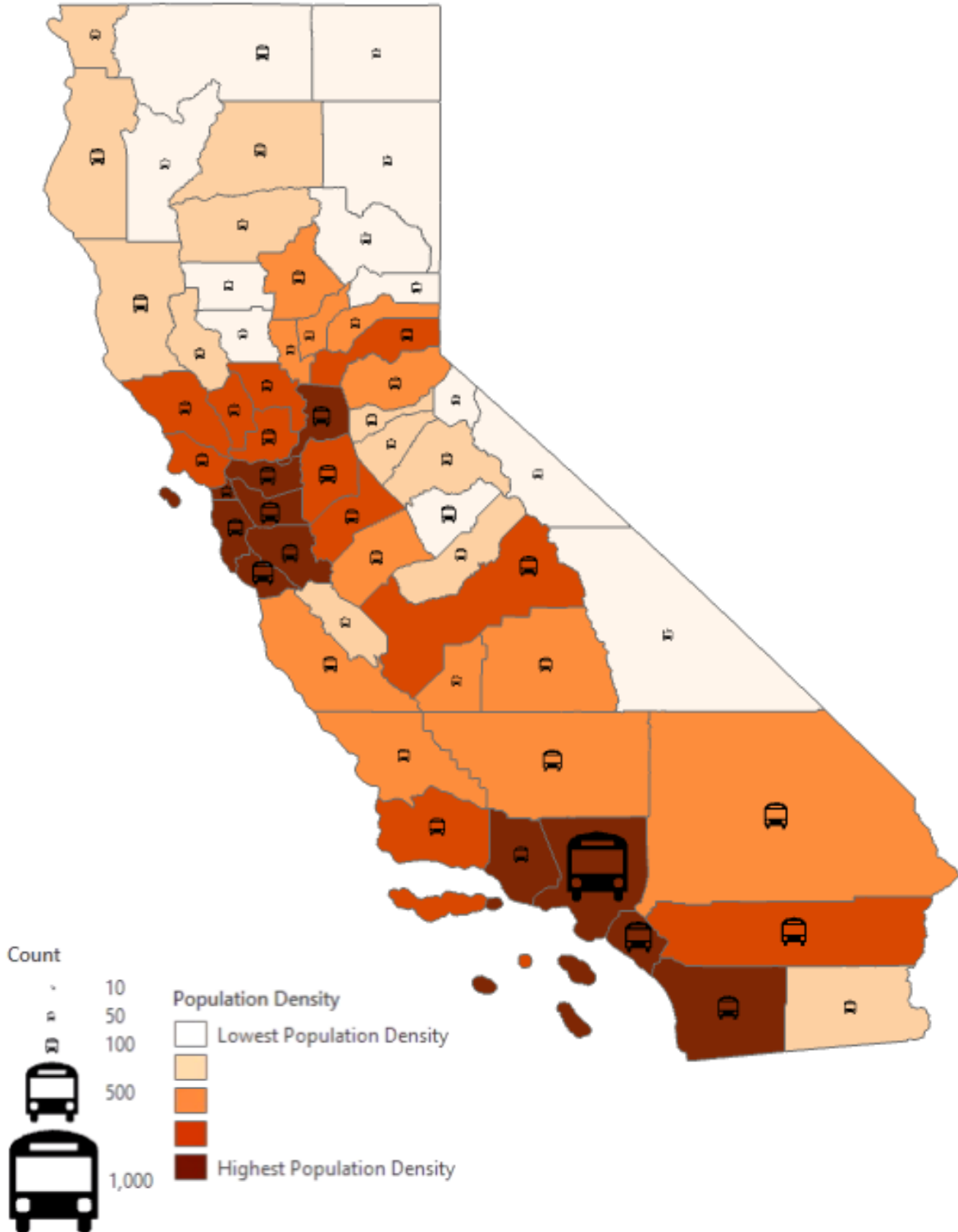
Appendix 4: Project Status of all Programmed SB1 Funds



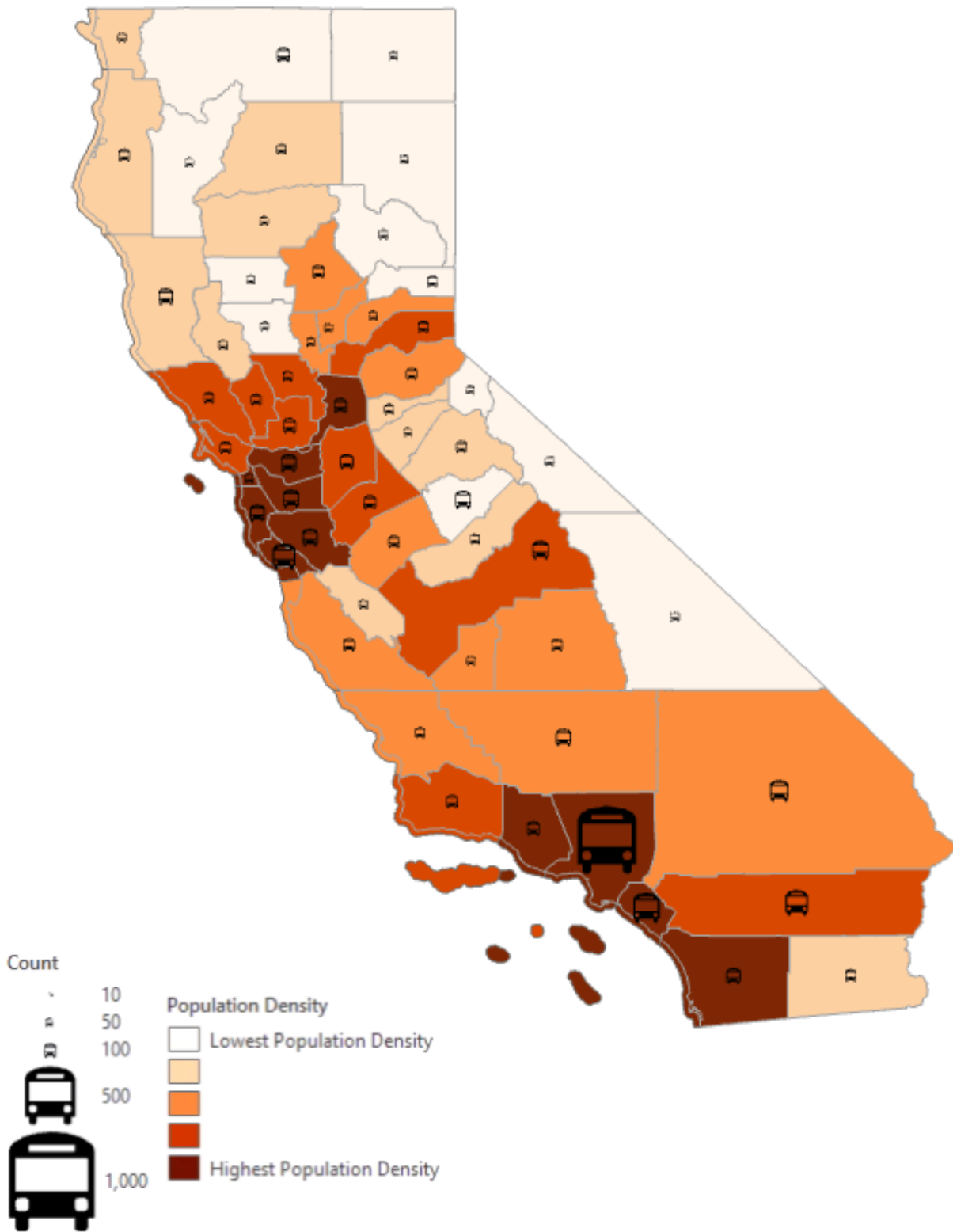
Appendix 5: Table of Acronyms

ATP	Active Transportation Program
Cal-ITP	California Integrated Travel Program
CalSTA	California State Transportation Agency
CAPTI	Climate Action Plan for Transportation Infrastructure
CARB	California Air Resources Board
CTC	California Transportation Commission
DOT	Department of Transportation
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
FY	Fiscal Year
GHG	Greenhouse Gas
IIJA	Infrastructure Investment and Jobs Act
LSR	Local Streets and Roads
MPO	Metropolitan Planning Organization
SB1	Senate Bill 1
TIP	Transportation Improvement Program
TMS	Transportation Management Systems

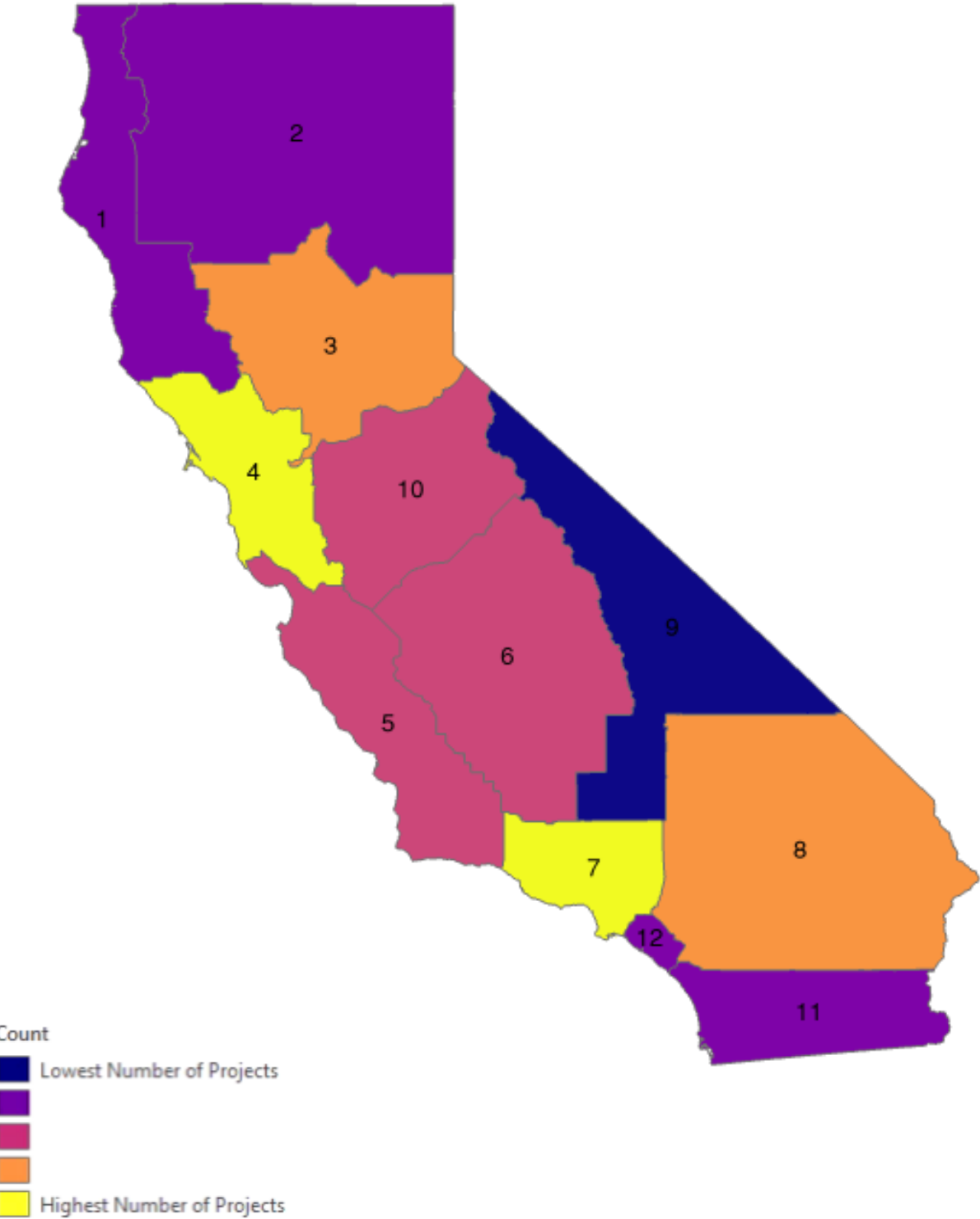
Map 1: Population Density Map of Project Count by County



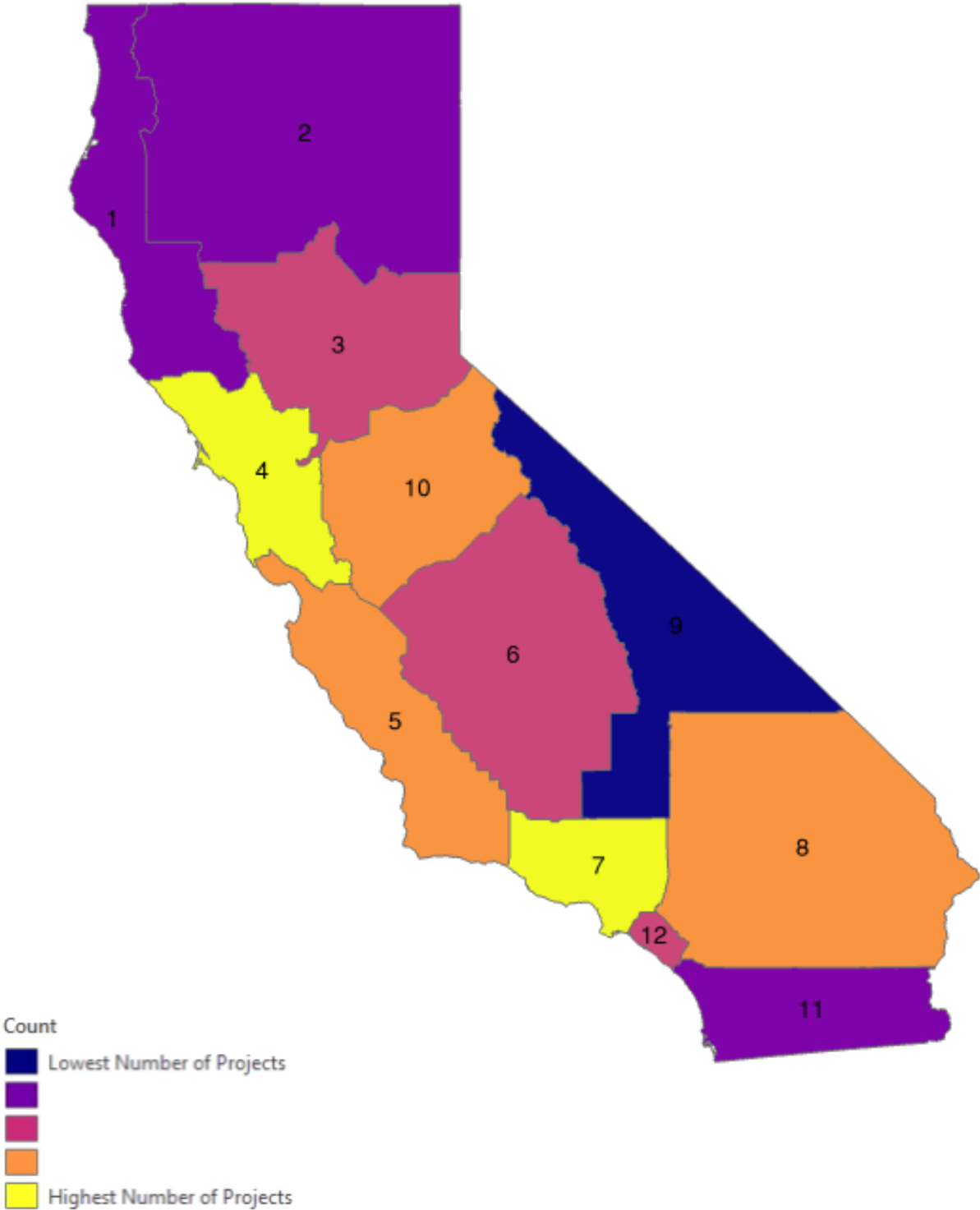
Map 2: Population Density Map of LSR Projects by County



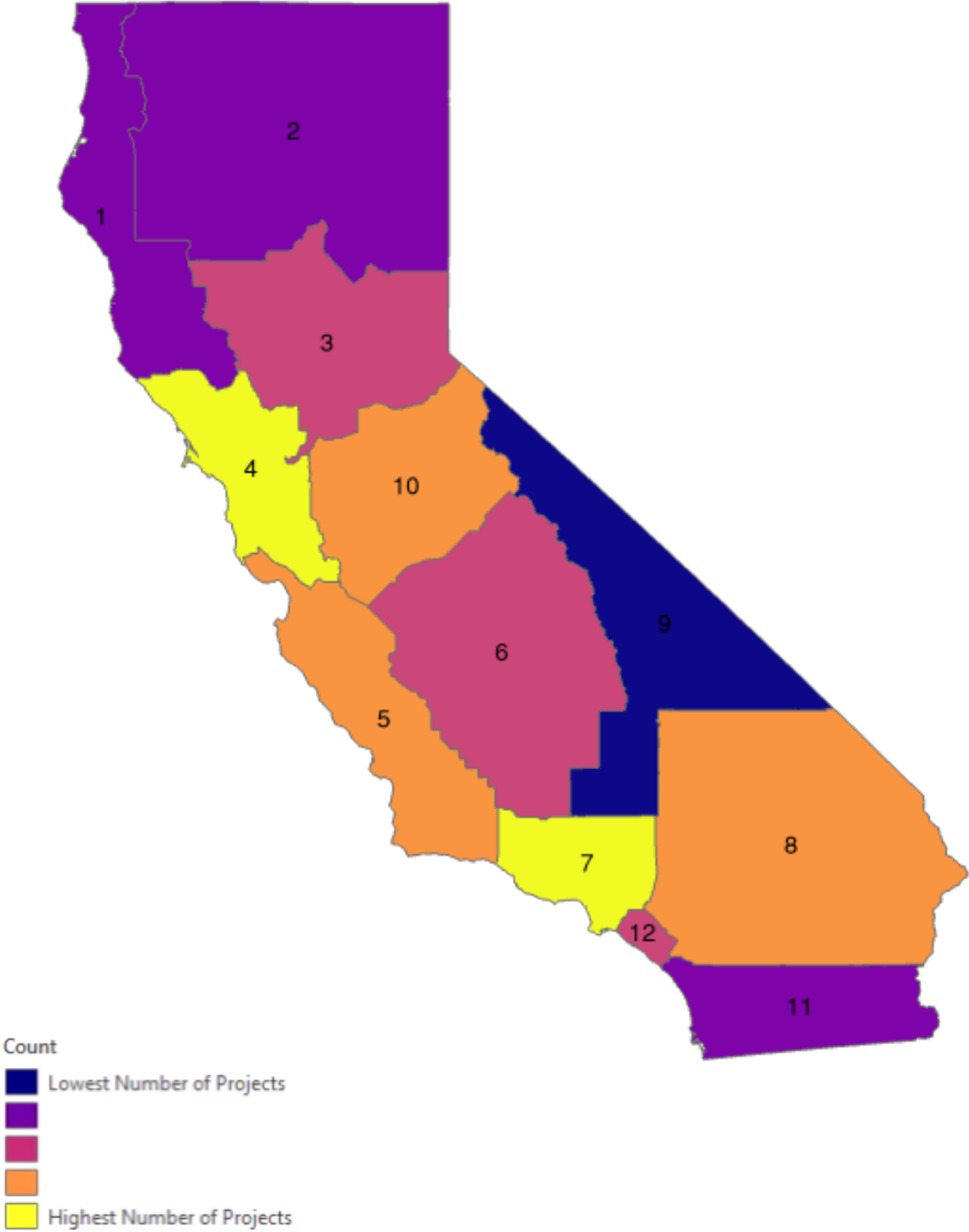
Map 3: Map of Project Count by Caltrans District



Map 4: Map of LSR Count by Caltrans District



Map 6: LSR Projects as a Percent of All Project by District





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