Senate Bill 1121

State and Local Transportation Full Needs Assessment

California Transportation Commission

1120 N Street, Stop 52
Sacramento, CA 95814

May 2025

NCE

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Sacramento, CA 95826

NCE Project No. 1388.01.55

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Prepared for:

California Transportation Commission
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Executive Summary

Background

California is the fourth largest economy in the world and is home to more than 39 million people. Connecting us is the nation's largest and most complex multimodal transportation system that has grown and continues to transform to fit our state's diverse needs. California's transportation system is vital to achieving the state's safety, climate, equity, and economic prosperity goals. Understanding infrastructure needs and revenue projections for transportation funding is imperative to ensuring a long-term, sustainable mechanism for current and future multimodal transportation investment. Without adequate investment, the state will not be able to deliver a safe system for all users that reduces greenhouse gas emissions, promotes climate resiliency, achieves transportation equity, and supports a strong economy.

The goal of the 2025 State and Local Transportation System Needs Assessment is to identify California's transportation needs, the revenue available to cover those needs, and to analyze the difference between our needs and available revenue through the year 2035. California's transportation goals require not only building on the state's historical investments in transportation infrastructure—such as freeways, roads, active transportation, bridges, culverts, intercity and passenger rail, and public transit systems—but also making future investments to ensure continued progress.

In 2017, the California Legislature enacted Senate Bill 1 (Beall, Chapter 5, 2017) identifying a $59 billion shortfall over ten years to maintain the existing state highway system and a $78 billion shortfall over ten years to maintain the existing network of local streets and roads. Senate Bill 1 increased state revenues to partially offset these shortfalls. For the first ten years, revenues were projected to be $52 billion to address a portion of deferred maintenance needs while also boosting funding for transit and active transportation. In its findings and declarations when approving Senate Bill 1, the Legislature recognized the additional funding would address only a portion of statewide transportation needs identified at that time.

Deferred maintenance is not the only challenge the transportation system faces. California's transportation system continues to transform and adapt for many other reasons too, like addressing equity and accessibility, implementing technological innovation and efficiencies, and adopting new policies that better serve the needs of the people. California also is experiencing extreme climate events with increased frequency and severity. From December 2022 through April 2023, multiple atmospheric rivers caused considerable damage due to prolonged periods of heavy rainfall. Entire towns have been lost due to increasingly intense wildfires. Entire segments of roadways have been washed away, and railroad tracks have fallen into the Pacific Ocean. Most recently the Los Angeles area has experienced multiple wildfires, specifically the Palisades and Eaton fires, which erupted on January 7, 2025. These two wildfires, which turned into firestorms due to wind gusts ranging up to 100 miles per hour, have destroyed more than 12,000 structures, burned more than 37,000 acres, and forced over 200,000 people to evacuate.[1] The Palisades fire alone covers the entire footprint of the City of Miami – 36 square miles.[2] Another wildfire, the Hughes Fire, erupted on January 22, 2025 near Lake Castaic forcing residents from Los Angeles and Ventura counties to evacuate.

[1] https://www.cbsnews.com/news/california-fire-maps-palisades-eaton-hurst-2025/
[2] https://www.cbsnews.com/news/california-map-palisades-fire-us-cities/

Continued transportation investment plays a role in economic growth and stimulus as well as helping the state transition to a more equitable, accessible, safer, resilient, and cleaner multimodal transportation system. This includes investments in curb ramps addressing the Americans with Disabilities Act, zero-emission buses, improved paratransit services, expanded bicycling and pedestrian networks, coordination with local transportation service providers assisting seniors and people with disabilities, goods movement, emergency evacuation planning, and continued safety improvements across all modes of transportation. As California looks ahead to the next ten years, the 2025 State and Local Transportation System Needs Assessment highlights one of the most significant challenges to continued investment in our multimodal transportation infrastructure: the decline of state fuel tax revenues. These revenues are declining due to increased vehicle fuel economy and the shift toward improved vehicle technologies, which do not rely on traditional fuel sources and whose drivers therefore pay no fuel tax. This challenge is not unique to California as states across the country are looking at alternative revenue mechanisms to fund transportation. Ultimately, the replacement of the state fuel tax with a more sustainable funding source, coupled with efficient transportation and housing accountability that result in infrastructure cost-savings, will allow the state to deliver a safer, more equitable, cleaner transportation system that supports economic growth while continuing to invest in the ongoing transportation maintenance needs at the state and local level.

Senate Bill 1121

Senate Bill 1121 (Gonzalez, Chapter 508, Statues of 2022), signed into law by Governor Newsom in 2022, requires the California Transportation Commission to prepare a needs assessment to quantify the costs to operate, maintain, and grow the state and local multimodal transportation system over the next 10 years. This needs assessment, consistent with the California Transportation Plan, considers climate resiliency needs, forecasts expected federal, state, and local agency revenues, quantifies revenue shortfalls, and provides recommendations on how to address these shortfalls. An Interim State and Local Transportation System Needs Assessment Report was submitted in 2024, and the Full State and Local Transportation System Needs Assessment Report is due in 2025, and every 5 years thereafter. The needs assessment is required to: include improvement costs from the California State Rail Plan, State Highway System Management Plan, and Regional Transportation Plans; include costs to address climate change impacts to provide system resiliency; use existing reports or analysis for needs assessment; and include consultation with stakeholders. Airports and maritime ports are essential components of the statewide movement of people and goods; however, their needs are beyond the scope included in the 2025 State and Local Transportation System Needs Assessment.

A Stakeholder Working Group was formed to guide, review, and provide feedback on the development of this Needs Assessment, identify data or information gaps, ensure revenue projections were realistic and accurate, and assist in framing policy recommendations. The Stakeholder Working Group included representatives from community-based organizations, environmental justice and equity-based organizations, organized labor, the transportation industry, metropolitan planning organizations, county transportation commissions, regional transportation planning agencies, local governments, and transit operators. All Stakeholder Working Group meetings were posted online and accessible to the public.

Needs, Revenues, and Shortfalls

Based on the unconstrained needs identified in each Regional Transportation Plan, the results from a 2024 extended fiscal needs survey, and an assessment of transit and rail systems, climate adaptation, and tribal transportation needs, the total transportation funding needs over the next 10 years are estimated to be

approximately $756.8 billion (Table E1). Approximately 13% of the identified needs are associated with state highways, 32% with local roads and streets, and 46% with transit and rail.

Table E1. Summary of transportation needs (all sources).

Facility	10 year Need ($ billion)
Transit and rail	$350.4
Local roads and streets	$240.7
State highway system	$101.7
Complete streets and active transportation	$34.1
Subtotal	*$726.9*
Tribal transportation (pavements only)[1]	$0.5
Climate (sea level rise & storm surge) [1]	$16.0
Climate (vegetation & wildfire management) [1]	$0.9
Electric vehicle charging infrastructure (medium and heavy-duty vehicles)[1]	$12.5
Total	**$756.8**

[1] Tribal transportation, climate, and electric vehicle charging needs require further analysis to fully quantify.

The projected statewide 10-year revenue is approximately $572 billion (Table E2). The major sources of revenue include local and regional (47%), state (32%), and Federal and transit (8% each). However, the projected revenue is anticipated to decline due to a reduction in gasoline and diesel consumption resulting from the State's ongoing work to reduce air pollution by encouraging cleaner vehicles on the road in the future. It is anticipated that this may result in a decline in revenue of up to $31 billion over the next decade, reducing the anticipated 10-year revenue to $541 billion.

Table E2. Summary of transportation revenue (from extended needs survey).

Funding Source	10 Year Revenue ($ billion)
State[1]	$185.5
Local and regional sales tax	$126.4
Federal	$46.2
Transit[2]	$43.9
Tolls	$26.2
Other local[3]	$143.8
Subtotal	*$572.0*
Estimated impact from declining fuel consumption	-$31.0
Total	**$541.0**

[1] Includes Senate Bill 1 and others.
[2] Includes Federal Transit, state grants, Transportation Development Act, and transit fare revenue.
[3] Includes mitigation fees, forest reserves, and grants.

The projected 10-year revenue shortfall is approximately $215.7 billion. In comparison, the 2011 Statewide Transportation System Needs Assessment identified an annual system preservation, management, and expansion cost of $536.2 billion, a revenue of $242.0 billion, and a shortfall of $294 billion.

Policy Recommendations

Government Code Section 14518, as added by Senate Bill 1121, requires the State and Local Transportation System Needs Assessment to provide recommendations for addressing any projected shortfall between revenues and needs over the 10-year assessment period. To develop these recommendations, the Commission engaged stakeholders in a series of workshops. The stakeholder workshops identified several first principles to inform the policy recommendations. In this case, the first principles are the building blocks for identifying important aspects of the statewide transportation system (Figure E1). While the Commission gave equal weight to these first principles in developing the Assessment's recommendations, the Legislature may choose to elevate specific priorities as it evaluates the recommendations.

Figure E1. First principles.

Policy Recommendation Discussion Scenarios

Several discussion scenarios were included in the Policy Recommendations workshops. The Assessment's discussion scenarios are intended to begin the conversation of identifying viable options that could make up for future revenue loss due to California's declining revenue.

Scenario 1: Do nothing. – Maintain existing revenue mechanism structures

This scenario includes maintaining the existing revenue mechanism structures. The current sources of revenue collection would remain unchanged.

This approach is not recommended because it is not sustainable and fails to support the first principles. That is, doing nothing would hinder the state from further achieving critical goals for safety, sustainability, equity, and economic development.

Scenario 2: Increase existing funding mechanisms.

In this scenario, there were several existing revenue mechanisms identified that could be increased. The first and immediate assumption was to increase the existing state fuel excise tax. A second assumption was to increase the transportation improvement and road improvement fees. The latter two fees are paid with vehicle registration but are distinct from the base vehicle registration fee.

The perceived benefit of the scenario increasing these fees, from a technical basis, is it may be easier to implement due to the existing revenue collection structure. The fuel tax would continue to be collected through the California Department of Tax and Fee Administration.

However, these fees are either flat or tied to the value of the vehicle and not based on the miles driven, which raises concerns around fairness and equity. That is, the amount paid for a registration fee is not related to how much one uses the roadway system, which generates costs for road maintenance and repairs.

__A road charge__ is a fee based on the number of miles traveled regardless of vehicle fuel source.

Additional considerations to increasing existing mechanisms were also identified through feedback received during the development of the 2025 State and Local Transportation System Needs Assessment, including tolling all roadways. The benefit of increasing existing mechanisms is the ability to raise additional revenue without having to implement new revenue mechanisms. However, tolling infrastructure currently exists on only a small portion of the state highway system and few, if any, local roads. There would be additional capital and operations cost to implement an all-road tolling policy. In addition, tolling most state highways would require federal approval.

Scenario 3: Phased-in Road Charge

A road charge is a fee based on the number of miles traveled regardless of vehicle fuel source. Studies suggest a road charge is considered a fairer revenue mechanism than fuel taxes because drivers pay based on the amount they use the road, rather than how much gasoline or diesel fuel they consume, which is especially important considering zero-emission vehicles do not consume traditional fuels. A road charge is considered a sustainable revenue source that will not diminish as drivers shift to zero-emission vehicles.

Scenario 3 includes maintaining the state fuel excise tax, applying a road charge initially to zero-emission passenger vehicles (which do not pay fuel taxes), and fully transitioning all vehicles (passenger, medium-duty, and heavy-duty) to a road charge by 2035 when the fuel tax, under this scenario, would be eliminated entirely for all vehicles.

The benefits of a phased-in approach include maintaining the existing revenue system (i.e., state excise fuel tax) while applying a more equitable revenue mechanism to zero-emission vehicles first, and then phasing in a road charge regardless of vehicle type over time. Under this scenario, the road charge would replace the state fuel excise tax and would supersede the road improvement fee currently paid by zero-emission vehicles.

Initial challenges with this scenario include the traveling public's unfamiliarity, implementation, and associated administrative costs.

Scenario 4: Fully Implemented Road Charge

This scenario replaces the state fuel excise tax with a road charge with no transition period. Like Scenario 3, this scenario is linked to road usage regardless of the vehicle type and addresses and stabilizes the existing transportation revenues.

Another potential benefit for fully implementing a road charge would be the ability to collect revenue from all vehicles as opposed to a phased-in approach.

Some initial challenges with Scenario 4 include the traveling public's unfamiliarity, implementation, and associated administrative costs. The challenges would be heightened compared to Scenario 3 because there would be no transition period.

First Principles

The report recommends utilizing the First Principles, as seen in Figure E1, in conjunction with the recommended preferred scenario of a Phased-Implementation of a Sustainable Revenue Mechanism. The first principles are the building blocks for identifying important aspects of the statewide transportation system. Each principle is of equal importance to the statewide transportation system. Using the first principles approach helps to establish the policy objectives the Legislature should address when developing a more sustainable funding mechanism to replace the state fuel excise tax. While the Commission gave equal weight to these first principles in developing the Assessment's recommendations, the Legislature may choose to elevate specific priorities as it evaluates the recommendations.

Preferred Scenario - Phased-Implementation of Sustainable Funding Mechanism

This report recommends implementing a sustainable revenue mechanism as a full replacement to the state fuel excise tax. This would help stabilize transportation funding and allow California to remain competitive and make progress toward achieving the state's safety, climate, equity, and economic goals.

The first focus of implementing a new sustainable funding mechanism should be to stop the loss of transportation revenues due to declining fuel consumption. This by itself will not allow California to meet all its transportation needs, as was the case when Senate Bill 1 passed. A significant shortfall would remain even if the projected revenue decline was halted, and funding stabilized. Additional revenues are needed to address the identified shortfall.

The preferred scenario would be to implement a phased-in approach for a sustainable funding mechanism. This would require legislative action. Indexing the sustainable funding mechanism to inflation would be critical to ensuring purchasing power for transportation needs do not erode. Importantly, the sustainable funding mechanism would be a replacement of the state fuel excise tax, which would ultimately be phased out.

Phasing in a sustainable funding mechanism is recommended because it allows time to address any potential challenges and provide clear steps on the transition to the chosen sustainable funding mechanism.

A critical step for transitioning away from the state fuel excise tax to another sustainable funding mechanism should include developing an educational outreach and engagement plan. Scaling the outreach will be important, along with identifying state agency partners that can distribute information to vehicle owners, such as the Department of Motor Vehicles. State agencies such as the California State Transportation Agency, California Transportation Commission, Department of Transportation, Department of Motor Vehicles, and the California Department of Tax and Fee Administration would need to work together as the state moves towards the implementation of a sustainable fund source.

In preparation of the 2025 State and Local Transportation System Needs Assessment the following areas were identified for further study:

- **Tribal Transportation Needs**: The transportation needs of tribal communities are not as well documented as those of other communities. There is no existing mechanism for these needs to be aggregated and communicated to the state and there are resource challenges within tribal communities

to identify transportation needs. These needs vary by tribal community and, in some cases, can be supported with existing state transportation programs. The Legislature should explore ways to solicit information on transportation needs in tribal communities statewide that recognizes the sovereignty and specific circumstances of individual tribes and provides technical assistance as needed within the process. This information could be used to further inform future State and Local Transportation System Needs Assessments.

- **Accessible Transportation Needs:** Many older adults and individuals with disabilities are unable to access or use private vehicles or conventional public transportation. Accessible transportation for those experiencing mobility challenges is critical to the health and welfare of these individuals. These needs and services are addressed across multiple sectors of government as well as private social service agencies. The Legislature should commission a study to supplement the needs identified in regional transportation plans and coordinated transportation plans to ensure all needs, including those provided by social service agencies that are beyond Americans with Disabilities Act are captured. The study should also evaluate the extent to which transportation agencies are able to obtain and utilize funding that can be used to increase the accessibility of public streets and transit.
- **Climate Resiliency Transportation Needs:** The Legislature established the Local Transportation Climate Adaptation Program in 2022, funded with a combination of one-time state funds and federal formula funds from the Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT) Program. With the expiration of the one-time state funds, and the federal authorization for the federal PROTECT formula funds ending in federal fiscal year 2026, the program will be left without a funding source for new projects after the current funding cycle concludes.

  The Local Transportation Climate Adaptation Program funds critically needed resilience improvements, projects that enhance community resilience or evacuation routes, and projects that address at-risk coastal infrastructure. It is the only state transportation program dedicated solely to these purposes. With every passing year, California's transportation system is increasingly impacted by the effects of climate change. For example, the State Highway Operation and Protection Program has included major damage reservations of more than $1 billion to address emergency repair work necessitated in part by storm damage or coastal erosion. It is recommended that the Legislature identify an ongoing funding source to meet these growing needs and provide consistent funding levels once the existing state and federal funds are exhausted.

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Chapter 1 Introduction

Importance of California's Multimodal Transportation Infrastructure

California's Transportation System supports:

$200 billion in annual economic output, earnings, and tax revenue.

More than 13,000 jobs for every $1 billion spent.

At its core, California's multimodal transportation system exists to benefit the people it serves. The people of California depend on a safe, accessible, and reliable transportation system to get to their jobs and schools; doctors and other health care services; family and friends; community services; libraries; parks; to purchase food, clothing, and other essential items; and to get to a host of other destinations essential for their well-being and quality of life in a reasonable amount of time and at a reasonable cost. For this reason, it is imperative that the state's transportation system function for all users in all modes, regardless of income level, sex, race, ethnicity, sexual orientation, geographic location, ability, age, or other personal characteristics or individual circumstances.

California's transportation infrastructure is also critical to both the nation and the world's economy. More than 40% of the total containerized cargo entering the United States arrives through California's ports. This cargo is transported on local roads, highways, and rail for distribution across the nation. Investing in California's multimodal transportation infrastructure continues to be a top priority that ensures the well-being of its people and communities, as well as maintain its economic ranking as the fourth largest economy in the world.

Adequate funding is needed to address ongoing maintenance needs and to ensure the system achieves meaningful outcomes consistent with the California Transportation Plan 2050 goals (Figure 1).

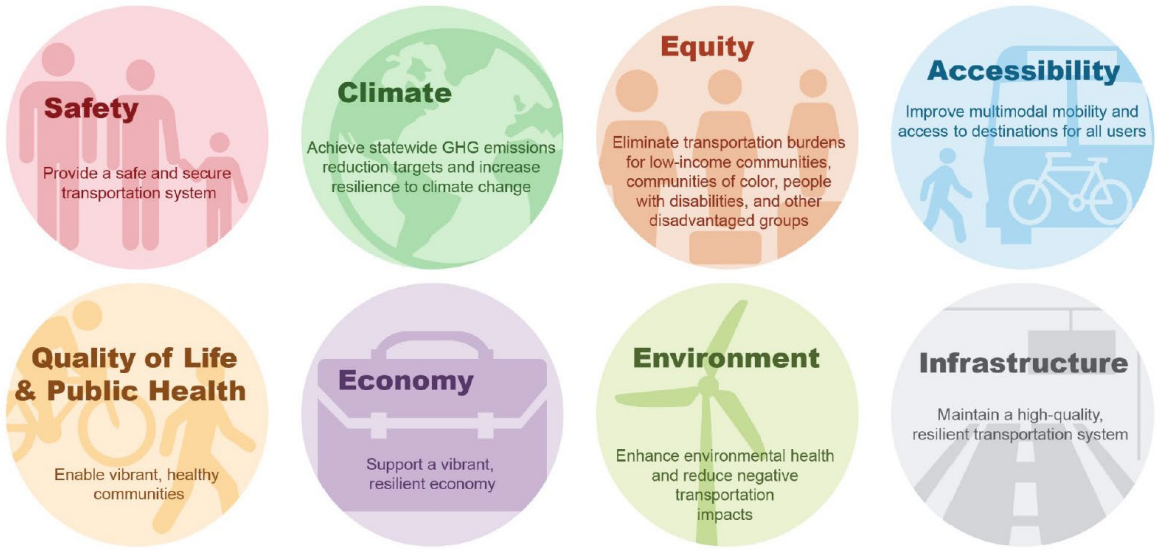


Figure 1. California Transportation Plan 2050 goals.[3]

California is at the vanguard of many areas, including technological innovation, equity, climate policies, and transportation investment. Understanding the funding needs for transportation infrastructure is critical for the

[3] https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/ctp-2050-v3-a11y.pdfhttps://dot.ca.gov/programs/transportation-planning/division-of-transportation-planning/state-planning/long-range-policy-planning

state to meet Californians' expectations for a safe, accessible, equitable, and reliable multimodal transportation system. California continues investing to achieve its climate goals identified in state statutes, executive orders, and through the Climate Action Plan for Transportation Infrastructure.[4]

Building on the 2011 Transportation Needs Assessment

In 2011, the California Transportation Commission (Commission) prepared a Transportation Needs Assessment in partnership with the California Department of Transportation (Caltrans), metropolitan planning organizations, and regional transportation planning agencies, as well as other stakeholders, to communicate an inventory of multimodal transportation needs, the associated costs, and to provide a consistent message to the Legislature about the needs and costs. Like the 2011 Transportation Needs Assessment, the Senate Bill 1121 State and Local Transportation Full Needs Assessment (Full Needs Assessment) articulates to the California Legislature a clear picture of multimodal transportation needs, available revenues, funding gaps, and potential policy solutions for long-term sustainable transportation funding. The Full Needs Assessment process was developed to provide a consistent message from a diverse coalition of transportation industry stakeholders, local and regional transportation planning agencies, metropolitan planning organizations, organized labor, community-, environmental justice-, and equity-based organizations, cities, counties, and the public across the state.

Both the prior and current transportation needs assessments took place at a time of economic change. In 2011, California was at the tail end of the Great Recession, while the 2025 State and Local Transportation System Needs Assessment is being prepared just after the COVID-19 pandemic. Both the Great Recession and the COVID-19 pandemic had significant impacts on the state and resulted in periods of reduced fuel consumption.

Since 2011, laws, regulations, and executive orders have updated statewide climate goals. The state has made significant strides to reduce greenhouse gas emissions through the implementation of policies and regulations to increase average vehicle fuel efficiency and the market share for zero-emission vehicles. This in turn has had a direct effect on California's existing fuel tax structure, which relies heavily on the collection of taxes on gasoline consumption.

The 2011 Transportation Needs Assessment Report articulated that without action, California's world-class transportation system would be at risk due to decades of underinvestment. To address the issues identified in the 2011 Transportation Needs Assessment, in 2017, the California Legislature enacted Senate Bill 1 (Beall, Chapter 5, 2017). Over a ten-year period, Senate Bill 1 identified a $59 billion shortfall to maintain the existing state highway system and a $78 billion shortfall to maintain the existing network of local streets and roads. Senate Bill 1 enacted an increased per gallon fuel excise tax adjusted for inflation, a transportation improvement fee to be paid as part of the vehicle registration process, and a zero-emission vehicle registration fee. The Senate Bill 1 Road Maintenance and Rehabilitation Program was created to address a portion of the deferred maintenance on the State Highway System and the local streets and road system. Senate Bill 1 funds certain programs from the Road Maintenance and Rehabilitation Account off the top, such as active transportation. The remaining funding is then split equally between addressing the needs on the State Highway System and local streets and roads.[5] Senate Bill 1 also noted it would not address all statewide transportation needs.

Deferred maintenance is not the only drastic challenge faced by transportation infrastructure. California also faces extreme climate events with increased frequency and severity. From December 2022 through April 2023,

[4] https://calsta.ca.gov/subject-areas/climate-action-plan
[5] https://www.sco.ca.gov/aud_road_maintenance_sb1.html

California experienced multiple atmospheric rivers, causing considerable damage due to heavy rainfall for prolonged periods. Entire towns have been lost due to increasingly intense wildfires. Entire segments of roadways have been underwater or have fallen into the Pacific Ocean. Most recently the Los Angeles area has experienced multiple wildfires, specifically the Palisades and Eaton fires, which erupted on January 7, 2025. These two wildfires, which turned into firestorms due to wind gusts ranging up to 100 mph, have destroyed more than 12,000 structures, burned more than 37,000 acres, and forced over 200,000 people to evacuate.[1] The Palisades fire alone covers the entire footprint of the City of Miami – 36 square miles.[2] A third wildfire, the Hughes Fire, erupted on January 22, 2025 near Lake Castaic, forcing residents from Los Angeles and Ventura counties to evacuate.

State, regional, and local transportation agencies have demonstrated their ability to deliver transportation improvements efficiently and effectively with accountability and transparency. In 2023, the California State Auditor removed the state's transportation infrastructure from its "high-risk list" after 16 years in recognition of the progress California has made in rebuilding and upgrading the state's transportation system. This is due in large part to Senate Bill 1 and the state's wise use of tax-payer money to upgrade California's aging transportation infrastructure.[6]

Senate Bill 1

The Road Repair and Accountability Act, Senate Bill 1 (Beall, 2017), originally allocated an annual investment of approximately $5.4 billion to address roads, freeways, bridges, enhance transit and intercity rail, improve goods movement, and expand active transportation options across California. The 10-year Senate Bill 1 funding includes (total $52,470,000,000):

- Local Streets and Roads: $15,000,000,000
- Regional Share of the State Transportation Improvement Program (STIP): $825,000,000
- State Highway System: $15,000,000,000
- Park Programs: $800,000,000
- Transit Operations and Capital: $7,500,000,000
- Interregional Share of STIP: $275,000,000
- Highway Bridge and Culvert: $4,000,000,000
- Freeway Service Patrols: $250,000,000
- High-Priority Freight Corridors: $3,000,000,000
- Local Planning Grants: $250,000,000
- Congested Corridor Relief: $2,500,000,000
- State University Transportation Research: $70,000,000
- Local Partnership Program: $2,000,000,000

[6] https://www.constructionequipmentguide.com/california-state-auditor-removestransportation-infrastructure-from-and39high-riskand39-list/62473

- Active Transportation: $1,000,000,000

Prior to the passage of Senate Bill 1, state and local agencies faced a 10-year, $137 billion shortfall to maintain the transportation network to a state of good repair. While Senate Bill 1 did not completely address all identified needs, it nearly doubled the state funding levels for cities and counties for local streets and roads and required enhanced transparency and accountability of expenditures.

In April 2024, the California State Auditor performed an audit of the Senate Bill 1 Local Streets and Roads Program and highlighted the sound fiscal stewardship of the investments made on local streets and roads under Senate Bill 1. The audit concentrated on the administration of the Senate Bill 1 Local Streets and Roads Program by the Commission and State Controller's Office, as well as six sample agencies. The audit found that the Commission maintained transparency by ensuring all program and project-related details are publicly available; enhanced transparency through a dedicated website to provide detailed project expenditure reports; and conducted a proactive approach to ensuring every incorporated city and county reports its Local Streets and Roads Program expenditures. The audit also found the sample agencies had appropriately used program funds to maintain and repair streets and used those funds on other allowed activities, including street safety projects. However, despite the significant additional funding provided with the passage of Senate Bill 1, pavement conditions in the cities and counties reviewed are generally declining. [7]

Senate Bill 1 required Caltrans to meet several transportation asset performance outcomes. These outcomes include improving the condition of pavements, bridges, culverts, and transportation management systems on the state highway system. As summarized in Table 1, Caltrans is on track to meet the performance outcomes for pavements, bridges, and culverts by 2027. As of March 2024, Caltrans achieved the bridge target by fixing nearly 1,100 bridges and is currently monitoring progress toward meeting the transportation management systems target.

Table 1. Senate Bill 1 performance outcomes and progress in achieving targets[8]

Asset	2027 Senate Bill 1 Target	Caltrans Reported Conditions
Pavement	98% in good or fair condition	98.6% at the end of 2023 (on track)
Pavement	90% level of service for maintenance of potholes, spalls, and cracks	94.0% at the end of 2023 (on track)
Bridges	Fix an additional 500 bridges (minimum)	1,072 bridges fixed as of March 2024 (target achieved)
Culverts	90% in good or fair condition	90.5% as of April 2024 (on track)
Transportation Management Systems	90% in good condition	78.0% as of March 2024 (monitor)

Senate Bill 1121

In September 2022, Governor Newsom signed Senate Bill 1121 (Gonzalez, Chapter 508, 2022) into law. The goal of this legislation is to provide policymakers with a comprehensive picture of both state and local transportation funding needs, and how those needs will be met. Specifically, Senate Bill 1121 requires the Commission, in

[7] https://information.auditor.ca.gov/reports/2023-124/index.html#section1
[8] https://catc.ca.gov/-/media/ctc-media/documents/ctc-meetings/2024/2024-08/complete-book-1415.pdf

consultation with the California State Transportation Agency and Caltrans, to prepare a needs assessment of the cost to operate, maintain, and provide for the necessary future growth of the state and local transportation system for the next 10 years (and updated every 5 years thereafter), consistent with the California Transportation Plan and with specific consideration of climate resiliency needs. The Commission is required to forecast the expected revenue, including federal, state, and local, to pay for the cost identified in the needs assessment, identify any shortfall in revenue to cover the cost, and provide recommendations on how any shortfall should be addressed.

Under Senate Bill 1121, the Commission prepared and submitted an Interim State and Local Transportation System Needs Assessment (Interim Needs Assessment) to the Legislature on January 28, 2024. The first State and Local Transportation System Needs Assessment is due in 2025 and must be updated every 5 years thereafter.

Airports and maritime ports are essential components of the statewide movement of people and goods; however, their needs are beyond the scope included in the 2025 State and Local Transportation System Needs Assessment. Additional information on these modes can be found in the:

- 2020 California Aviation Systems Plan – https://dot.ca.gov/programs/aeronautics/california-aviation-system-plan
- 2023 California Freight Mobility Plan – https://dot.ca.gov/programs/transportation-planning/division-of-transportation-planning/strategic-freight-planning/cfmp-2023

Current Structure of Transportation Funding

California's transportation infrastructure is funded by federal and state taxes and fees, local and regional sales taxes, state and local bond measures, and other sources.

California receives approximately $5.7 billion annually in formula funds from the federal government, with approximately 40% ($1.4 billion) going directly to local governments. Federal funding is collected through a fuel excise tax (currently, 18.4¢ per gallon for gasoline and 24.4¢ per gallon for diesel fuel) and sales taxes on tire, truck, and trailer sales (fee depends on gross vehicle weight). Formula funds received from the federal government are deposited into the Federal Highway Trust Fund.

One of the primary sources at the state level for transportation funding is the state fuel excise tax.[9] As of Fiscal Year 2024-2025, the state gasoline excise tax was 59.6¢ per gallon and 45.5¢ per gallon for diesel. The gasoline excise tax consists of 3 components: a base excise tax (20.5¢ per gallon), Senate Bill 1 portion (13.7¢ per gallon), and the incremental excise tax (19.7¢ per gallon). Similarly, the diesel excise tax includes a base excise tax (18.2¢ per gallon) and the Senate Bill 1 portion (22.8¢ per gallon). The base excise tax, incremental excise tax, and Senate Bill 1 excise tax are distributed in state law between the state highway system, cities and counties, and trade corridors. Senate Bill 1 also increased the diesel fuel tax by 4%, with the funds distributed for public transit purposes under the State Transit Assistance Program and for intercity rail and commuter rail purposes. Table 2 provides a summary of the allocation of the excise tax (in percent distribution) to the state highway system, cities and counties, and trade corridors.

[9] https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/new-state-planning/transportation-economics/transportation-funding-booklet/2024-transportation-funding-in-california-a11y.pdf

Table 2. Excise tax allocation under state law (2024).[12]

Allocation	Base Excise Tax	Incremental Excise Tax	Senate Bill 1 Excise Tax (gasoline)	Senate Bill 1 Excise Tax (diesel)
State Highway System	64%	12% (SHOPP)[1] 44% (STIP)	50% (SHOPP / Maintenance)	N/A
Cities & Counties	36%	44%	50%[2]	50%
Trade Corridors Enhancement Account[3]	N/A	N/A	N/A	50%

[1] SHOPP – State Highway Operation and Protection Program includes state highway system maintenance and rehabilitation, including for active transportation; STIP – State Transportation Improvement Program projects may include road, active transportation, or intercity rail projects.

[2] Road Maintenance and Rehabilitation Account – funding priorities, for example, include road maintenance and rehabilitation, safety projects, complete streets, active transportation, and traffic control devices.

[3] Funds projects (e.g., eliminate at-grade crossings, reduce impacts to surrounding communities) to improve infrastructure on federally designated Trade Corridors of National and Regional Significance.

Additional state revenue sources that support spending on highways, roads, transit, and active transportation include:[9]

- Truck weight fees (based on vehicle gross weight).
- Road improvement fees (Senate Bill 1). As of 2024, the inflation-adjusted fee is $118 per zero-emission vehicle, model year 2020 and newer.
- Transportation improvement fees (Senate Bill 1). As of 2024, the inflation-adjusted fee ranged from $32 (vehicles valued at < $4,999) to $227 (vehicles valued at > $60,000).
- Proposition 1B (2007) authorized the state to sell $19.9 billion in general obligation bonds to fund congestion relief, goods movement, air quality improvement, safety, and security (funds have mostly been spent).
- Greenhouse Gas Reduction Funds.
- Other (e.g., interest, rent, property sales).

Additional local revenue sources include:

- Sales tax measures. Local sales tax measures generally collect revenue for 20 to 30 years. The total statewide revenue estimate for 2024 was approximately $8.2 billion.
- Tolls.
- Transportation Development Act of 1971 provides funding for public transportation; 0.25 cents of the state sales tax collected in each county is deposited into the Local Transportation Fund (LTF).
- Transit fares.
- General and other local funds include property taxes, developer fees, street assessments, bonds, fines, and forfeitures.
- Impact Fees.

Chapter 2 Report Development and Engagement Process

The Full Needs Assessment report was developed using four primary components: existing documentation, Stakeholder Working Group meetings, workshops, and additional outreach and engagement activities such as presenting to existing committee groups or advocacy organization meetings.

The information used to assist with the development of the Full Needs Assessment included documents prepared by local and state agencies.

Stakeholder Working Group Meetings

The Commission convened a Stakeholder Working Group and kicked off the Interim Needs Assessment development process in August 2023. The Stakeholder Working Group met eleven times over the course of the report's development, and, consistent with Senate Bill 1121, its membership included community-based organizations, environmental justice organizations, equity-based organizations, organized labor, the transportation industry, metropolitan planning organizations, county transportation commissions, regional transportation planning agencies, local governments, and transit operators (see Appendix A). In addition, coordination with state transportation agencies and advisory bodies was included in the engagement process.

Workshops and Working Sessions

Workshops were held to discuss and present the results of the extended fiscal needs survey of the regional transportation plans; the revenue impact of a growing number of zero-emission vehicles over time and increases to passenger vehicle fuel efficiency (see Chapter 5); and the policy recommendations for addressing the transportation funding shortfall.

Policy Recommendation Workshop

Two policy recommendation workshops were held, one for Southern California (May 2024) and one for Northern California (June 2024) for local and regional agencies, stakeholders, and the public to attend. During these workshops, participants discussed the first principles (Figure 2) and sustainable funding sources. The first principles are the building blocks for identifying important aspects of the statewide transportation system. Each principle is of equal importance to the statewide transportation system. Using the first principles approach helps to establish the policy objectives when developing a more sustainable fund source to replace the state fuel excise tax. Funding source scenarios discussed during the workshops include:

Figure 2. First principles.

Do Nothing

This scenario involves the continuation of existing revenue mechanism structures, maintaining the fuel excise tax, and the transportation improvement and road improvement fees. The latter two fees are paid with vehicle registration but are distinct from the base vehicle registration fee.

One advantage of this approach is that it retains the current sources of revenue collection, which are familiar to both agencies and the public.

However, this scenario is not sustainable, does not align with the first principles, and impedes the state's ability to further meet essential objectives related to safety, sustainability, equity, climate resilience, multimodal mobility, and economic development.

Increase Existing Revenue Mechanisms

In this scenario, the existing state fuel excise tax, and transportation improvement and road improvement fees are increased.

The perceived benefit of increasing these fees, from a technical basis, is it may be easier to implement due to the existing revenue collection structure. The fuel tax would continue to be collected through the California Department of Tax and Fee Administration. Additional considerations also included tolling all roadways.

Existing fees are either flat or tied to the value of the vehicle and not based on the miles driven, which raises concerns around fairness and equity. That is, the amount paid for a registration fee is not related to how much one uses the roadway system. Tolling infrastructure currently exists on a small portion of the state highway system and few, if any, on local roads. There would be additional capital and operation costs to implement an all-road tolling policy. In addition, tolling most state highways would require federal approval.

Phased-In Road Charge

This scenario includes maintaining the state fuel excise tax, applying sustainable revenue mechanism such as a road charge initially to zero-emission passenger vehicles (which do not pay fuel taxes), and fully transitioning all vehicles (passenger, medium-duty, and heavy-duty) to a road charge by 2035 when the fuel tax would be eliminated entirely for all vehicles.

> ***A road charge*** *is a fee based on the number of miles traveled regardless of vehicle fuel source.*

Studies suggest a road charge is a fairer revenue mechanism than fuel taxes because drivers pay based on the amount they use the road rather than how much gasoline or diesel fuel they consume, which is especially important considering zero-emission vehicles do not consume traditional petroleum-based fuels. A road charge is considered a sustainable revenue source that will not diminish as drivers shift to zero-emission vehicles. The benefits of a phased-in approach include maintaining the existing revenue system (i.e., state excise fuel tax) while applying a more equitable revenue mechanism to zero-emission vehicles first, and then phasing in a road charge regardless of vehicle type over time.

The road charge ultimately would replace the state fuel excise tax and would supersede the road improvement fee currently paid by zero-emission vehicles. Initial challenges with this scenario include the traveling public's unfamiliarity, implementation, and associated administrative costs.

Fully Implemented Road Charge

This scenario replaces the state fuel excise tax with a road charge with no transition period.

The potential benefits of this scenario include a link to road usage regardless of the vehicle type and it addresses and stabilizes the existing transportation revenues. In addition, fully implementing a road charge would provide the ability to collect revenue from all vehicles as opposed to a phased-in approach.

Some initial challenges include the traveling public's unfamiliarity, implementation, and associated administrative costs. The challenges would be heightened compared to a phased-in road charge scenario because there would be no transition period.

Workshop Recommendation

Workshop participants identified the preferred scenario as the phased-in sustainable funding mechanism. This would help stabilize transportation funding and allow California to remain competitive and make progress toward achieving the state's safety, climate, equity, and economic goals.

The first focus of implementing a new sustainable funding mechanism should be to stop the loss of transportation revenues due to declining fuel consumption. This by itself will not allow California to meet all its transportation needs, as was the case when Senate Bill 1 passed. A significant shortfall would remain even if the projected revenue decline was halted, and funding stabilized. Additional revenues are needed to address the identified shortfall.

This recommended approach would require legislative action. Indexing the sustainable funding mechanism to inflation would be critical to ensuring non-erodible transportation purchasing power. Importantly, the sustainable funding mechanism would be a replacement of the state fuel excise tax, which would ultimately be phased out.

Phasing in a sustainable funding mechanism is recommended because it allows time to address any potential challenges and provide clear steps on the transition between the replacement of the gas tax with the chosen sustainable funding mechanism.

A critical step for transitioning away from the state fuel excise tax to another sustainable funding mechanism would include developing an educational outreach and engagement plan. Scaling the outreach will be important, along with identifying state agency partners that can distribute information to vehicle owners, such as the Department of Motor Vehicles. State agencies such as the California State Transportation Agency, California Transportation Commission, Department of Transportation, Department of Motor Vehicles, and the California Department of Tax and Fee Administration would need to work together as the state moves towards the implementation of a sustainable fund source.

Revenue Impact of Zero-Emission Vehicles

Individual educational working sessions were also held on the revenue impact of zero-emission vehicles with representatives from the Association of Monterey Bay Area Governments, the North State Super Region, the Sacramento Area Council of Governments, the San Diego Association of Governments, the Southern California Association of Governments, and the San Joaquin Valley Region. The educational working sessions also focused on the information collected and synthesized from the adopted Regional Transportation Plans submitted by each of the agencies in attendance.

Extended Fiscal Needs Survey

In 2024, the Commission surveyed regional transportation planning agencies to gather information on 10-year multimodal needs and revenue projections based on agency transportation plans. The survey was sent to metropolitan planning organizations and regional transportation planning agencies. Six information sharing meetings were held with the transportation planning agencies shown in Table 3.

Table 3. Transportation planning agencies that reviewed survey results.

Agencies	Agencies
Association of Monterey Bay Area of Governments	Riverside County Transportation Commission
Butte County Association of Governments	San Bernardino Council of Governments
Del Norte Local Transportation Commission	San Diego Association of Governments
Glenn County Transportation Commission	San Luis Obispo Council of Governments
Humboldt County Association of Governments	Santa Barbara County Association of Governments
Kings County Association of Governments	Santa Cruz County Regional Transportation Commission
Lassen County Transportation Commission	Shasta Regional Transportation Agency
Los Angeles Metropolitan Transportation Authority	Sierra County Local Transportation Commission
Madera County Transportation Commission	Siskiyou County Local Transportation Commission
Mendocino Council of Governments	Southern California Association of Governments
Metropolitan Transportation Commission	Tehama County Transportation Commission
Modoc County Transportation Commission	Transportation Agency for Monterey County
Nevada County Transportation Commission	Trinity County Transportation Commission
Orange County Transportation Authority	Tulare County Association of Governments
Plumas County Transportation Commission	Ventura County Transportation Commission

Interagency Equity Advisory Committee Engagement

Members of the Interagency Equity Advisory Committee participated in several Stakeholder Workshops during the development of the full needs assessment. In addition to participation and providing feedback at the Stakeholder Workshops, Commission staff provided regular updates at the Interagency Equity Advisory Committee meetings. Briefings were also convened as an opportunity to gather additional input from Interagency Equity Advisory Committee members in November 2023, and June, October, and November of 2024. Two updates were provided to the Interagency Equity Advisory Committee, which were at the August 22, 2024 and December 4, 2024 meetings.[10] Additional updates were provided to the Walkability, Disability, and Complete Streets Subcommittee of the Interagency Equity Advisory Committee.

All feedback received from the Equity Advisory Committee was discussed during the December 4, 2024 Committee meeting.

Additional Outreach and Engagement

Outside of the Stakeholder Working Group and Interagency Equity Advisory Committee, additional outreach and engagement opportunities included providing updates at regularly scheduled meetings with organizations such as the Disability and Aging Community Living Advisory Committee; metropolitan planning organizations and regional transportation planning agencies; the Rural Counties Task Force; and Caltrans's Native American

[10] https://catc.ca.gov/-/media/ctc-media/documents/eac-meetings/2024/2024-08/tab-11-final-for-eac-draft-state-and-local-needs-assessment-v2-update-a11y.pdf

Advisory Committee. Meetings with individual organizations and agencies were also conducted with the California Transit Association, Seamless Bay Area, and ClimatePlan.

Regular updates on the needs assessment were provided at Commission meetings. All reports, agendas, fact sheets, presentations, and other materials are posted on the Commission's webpage at: https://catc.ca.gov/programs/sb1121.

The Commission also engaged with the California Health and Human Services Agency's Disability and Aging Community Living Advisory Committee when the Senate Bill 1121 Interim Report was released for public comment. Disability and Aging Community Living Advisory Committee members have provided invaluable perspectives, opportunities for improvements, challenges, and insights on accessible transportation options for people who are seniors, live with disabilities, and rely on transit or paratransit. These needs are described in more detail in Chapter 3 of this report.

Chapter 3 Transportation Needs, Revenue, and Funding Shortfall

The 2024 extended fiscal needs survey asked agencies to provide the 10-year unconstrained transportation infrastructure needs and projected revenue based on their transportation plans. The unconstrained needs include the costs for maintaining and preserving the existing transportation system along with, for example, costs associated with new or reconstructed roadways and bridges, roadway widening, capacity improvements, transit capital and operations, and new safety elements. The projected revenue includes, for example, sales tax, and state and federal sources.

The following summarizes the 10-year transportation needs and revenue that will be discussed in more detail in Chapter 3, Chapter 4, and Chapter 5. In this summary, the source of information is provided for clarity. A summary of statewide transportation needs is provided in Table 4 and the revenue summary is provided in Table 5.

Table 4. Summary of 10-year statewide transportation needs.

Asset	Information Source	10 year Needs ($ billions)
Local streets and roads	Regional Transportation Plans and Extended Fiscal Needs Survey	$240.7
State highways	State Highway System Management Plan	$101.7
Transit and commuter rail (capital, operations, maintenance, and rehabilitation)[1]	Regional Transportation Plans, Extended Fiscal Needs Survey	$321.1
State rail	California State Rail Plan	$29.3
Complete streets and active transportation (local)	Regional Transportation Plans and Extended Fiscal Needs Survey	$18.1
Complete streets and active transportation (state highway)	State Highway System Management Plan	$16.1
Subtotal	*N/A*	*$726.9*
Tribal transportation[2]	Case Study for Humboldt County Tribes	$0.5
Climate adaptation[3]	State Highway System Management Plan	$16.9
Zero-emission charging infrastructure[4]	Senate Bill 671[3]	$12.5
Total	**N/A**	**$756.8**

[1]Includes ADA Accessible Transit Needs
[2]Pavement needs only.
[3]Sea level rise and storm surge, and vegetation and wildfire management only.
[4]Clean Freight Corridor, medium- and heavy-duty vehicles only. $505 million to $950 million by 2025 and an additional $10 billion to $15 billion by 2035 (for simplicity, the table includes an average value of $12.5 billion).[11]

[11] https://catc.ca.gov/-/media/ctc-media/documents/programs/sb671/sb671-final-clean-freight-corridor-efficiency-assessment-dor.pdf

Table 5. Summary of projected statewide revenue.

Asset	Information Source	Revenue ($ billions)
State, local, and regional	Regional Transportation Plans and Extended Fiscal Needs Survey	$505.7
State highway (Maintenance and Rehabilitation)	State Highway System Management Plan	$66.3
Subtotal	*N/A*	*$572.0*
Impact of zero-emission vehicles	See Chapter 5	-$31.0
Total	**N/A**	**$541.0**

The estimated 10-year funding shortfall is anticipated to be $215.7 billion. In comparison, Senate Bill 1 identified a funding shortfall of $137 billion, $59 billion for maintaining the existing state highway system in a state of good repair, and $78 billion for maintaining the existing local street and road network. Documents obtained, reviewed, and summarized to identify needs and revenues included:

- 2021 Climate Action Plan for Transportation Infrastructure.
- 2021 California Transportation Plan 2050.
- 2023 California Statewide Local Streets and Roads Needs Assessment prepared for California Cities and Counties.
- 2022 California Department of Transportation Asset Management Plan.
- 2023 California Department of Transportation Bicycle and Pedestrian Progress Report.
- 2023 California Department of Transportation State Highway System Management Plan.
- 2023 – 2028 California Transit Association Strategic Plan.
- 2024 California State Rail Plan.
- Regional Transportation Plans and County Transportation Plans.

Complete Streets and Active Transportation

Investment in active transportation and complete streets is critical to California's efforts to meet its greenhouse gas reduction targets and make its transportation system more sustainable, equitable, and safe. Active transportation projects can include comfortable bikeways, improved sidewalks, comprehensive networks, multi-use paths, safer street crossings, and streetscaping elements such as shade trees, benches, wayfinding signage, and bike racks. These projects improve quality of life, build healthier communities, connect neighborhoods, and allow Californians to access jobs, schools, community resources, and transit without using a car.

Figure 3. Bicycle and Pedestrian Path, Town of Mammoth Lakes.

The majority of bicycle and pedestrian needs for this assessment are captured in regional transportation plans prepared by metropolitan planning organizations and regional transportation planning agencies.

Local Agency Needs

Local agencies own and maintain more than 149,000 miles of bicycle and pedestrian paths, of which 70% are owned and operated by cities. Based on the 2024 extended fiscal needs survey, agencies indicated a 10-year need of $18.1 billion for active transportation and complete streets.

Caltrans Bicycle and Pedestrian Plan

By 2040, people in California of all ages, abilities, and incomes can safely, conveniently, and comfortably walk and bicycle for their transportation needs.

Caltrans released its 2023 State Bicycle and Pedestrian Plan Progress Report, highlighting all that has been accomplished to date since the publication of the 2017 State Bicycle and Pedestrian Plan. The 2017 State Bicycle and Pedestrian Plan established objectives, strategies, and actions to support statewide policies for bicyclists and pedestrians.[12] The objectives included:

- Safer streets and crossings, education, data collection (bicycle and pedestrian collisions), and enforcement.
- Connected and comfortable networks, multi-modal access, efficient land use and development, network and travel data, and statewide and regional trails.
- Improve the quality of the infrastructure condition and integrate with other projects when possible.
- Community support, enhanced equity lens, and access to funding.

A significant accomplishment since the release of the 2017 California State Bicycle and Pedestrian Plan has been the development of the Caltrans's District Active Transportation Plans. As noted in the 2023 State Bicycle and Pedestrian Progress Report "district staff charted a public process that focused on increasing social equity, strengthening community partnerships, and improving connections between the state and local networks. These

[12] https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/f0020350-activeca-final-plan-2017-05-18-a11y.pdf

plans provide Caltrans with tools to use in collaborating with regional and local partners to identify, fund, construct, and maintain pedestrian and bicycle projects."

The 2017 State bicycle and Pedestrian Plan also estimated the long-term costs for several high-priority, significant investments. These investments included tripling the bicycle infrastructure ($8 billion), addressing pedestrian needs ($1.1 billion over 30 years for the Americans with Disabilities Act), and developing and providing education and training programs ($20 to $300 million annually).

In March 2024, Caltrans noted it would spend nearly $1 billion to improve the statewide bicycle and pedestrian infrastructure over the next 4 years.[13]

Caltrans Complete Streets

In 2021, Caltrans updated its Complete Streets policy, directing that "all transportation projects funded or overseen by Caltrans will provide comfortable, convenient, and connected facilities for people walking, biking, and taking transit or passenger rail unless an exception is documented and approved.[14] Towards this effort, Caltrans:

- Is developing guidance for incorporating Tier 1 Complete Streets Needs into projects on the state highway system. Tier 1 Complete Street Needs refers to the highest priority location based active transportation needs as documented in the Caltrans District Active Transportation Plans.
- Is developing a Complete Streets prioritization plan.
- Is developing "contextual Complete Streets guidance to address community needs and desires, geographic and topographic information, and development and land use patterns."
- Has developed and updated a Complete Streets toolbox https://storymaps.arcgis.com/stories/38530ceb5e3b4ee08b9b5b569e92587c).
- Has proposed regional active transportation projects in the Interregional Transportation Improvement Program.
- Has developed the Complete Streets Decision Document (included in the California Department of Transportation Project Development Procedures Manual).[15]
- Has developed a Complete Streets tracking form and process to assist with California Department of Transportation maintenance activities.

Complete Streets elements are being incorporated, where applicable, across the full range of Caltrans project types, including those funded through the State Highway Operation and Protection Program, Minor Program, and Maintenance Program. At this time Caltrans is currently developing Complete Streets Implementation Guidance, which would further help achieve the goals outlined in the 2017 California State Bicycle and Pedestrian Plan.

In 2024, Governor Newsom signed Senate Bill 960 (Wiener, Chapter 630), which requires the targets and performance measures of the Transportation Asset Management Plan to reflect state transportation goals and

[13] https://dot.ca.gov/caltrans-near-me/district-7/district-7-news/ctc-invests
[14] https://dot.ca.gov/-/media/dot-media/programs/esta/documents/complete-streets/dp-37-complete-streets-a11y.pdf
[15] https://dot.ca.gov/-/media/dot-media/programs/design/documents/mct-02102021-a11y.pdf

objectives for complete streets assets. The bill also requires the State Highway System Management Plan to include specific quantifiable accomplishments, goals, objectives, costs, and performance measures for complete streets facilities and transit priority facilities. As Caltrans implements these statutory changes, the documents that govern investments on the State Highway System and the investments themselves will change to reflect these requirements.

Figure 4. Examples of micromobility facilities.

Micromobility

Micromobility is a transportation travel mode that is different than active transportation but utilizes and shares many of the same transportation infrastructure such as bicycle lanes, sidewalks, multi-use path trails, and local roadways. Micromobility includes electric scooters, electric bicycles and bicycle scooters, and neighborhood electric vehicles that provide an alternative travel mode for short trips (Figure 4). In 2020, the National Association of City Transportation Officials reported more than 260 micromobility systems. State agencies, including the Commission, California Air Resources Board, and the Strategic Growth Council, have funded micromobility projects in eligible programs. For example, since 2014, the California Air Resources Board's Clean Mobility Options Program has funded clean and shared transportation services, including several bikeshare projects. Since micromobility modes are varied, rapidly evolving, and often involve public-private partnerships, there is limited data available to quantify future needs at this time. It is anticipated that more data will become available for future Needs Assessments.

Statewide Local Streets and Roads

Most trips that Californians take begin and end on a local street or road which act as arterials to connect people to other transportation options, schools, jobs, and other services. California's local streets and roads network, as well as related infrastructure including bridges, drainage systems, and traffic signals, is a critical component of the state's transportation network. The local streets and roads network includes more than 85% (approximately 145,000 centerline miles and 12,339 bridges) of the publicly maintained roads in California. This network serves multiple transportation modes which include various types of passenger vehicles as well as school and public transit buses, bicyclists, pedestrians, and individuals with disabilities. Local roads also help transport goods and services from their starting and end points, contributing to the quality of life throughout the state. Investing in local road maintenance and preservation helps save money in the long run by delaying pavement deterioration and replacement.

2023 California Statewide Local Streets and Roads Needs Assessment

The 2023 California Statewide Local Streets and Roads Needs Assessment included a survey of California's cities and counties requesting information and data related to the needs and revenue for maintaining and preserving existing pavements, essential elements, and bridges. Based on the findings from this survey, agencies identified a 10-year need of $127.2 billion, along with $52.9 billion in revenue, resulting in a funding shortfall of $74.3 billion.

The first comprehensive statewide study of California's local street and road system was done in 2008, and regular updates since then have provided critical information and analysis of the local transportation network's condition and funding needs. The 2023 California Statewide Local Streets and Roads Needs Assessment, sponsored by the California State Association of Counties, the California League of Cities, and the Rural Counties Task Force, quantifies the pavement condition of local streets and roads, estimates the cost of repair, identifies measures to provide a safely functioning system, and determines the impact of additional funding from Senate Bill 1 on the condition of local streets and roads, bridges, and essential components.[8]

Table 6. 2023 California statewide local streets and roads needs assessment.

Asset Category	Needs ($ billion)	Revenue ($ billion)	Shortfall ($ billion)
Pavement	$81.0	$33.6	$47.4
Essential components	$39.0	$16.4	$22.6
Bridges	$7.2	$2.9	$4.3
Total	**$127.2**	**$52.9**	**$74.3**

From the 2024 extended fiscal needs survey, agencies noted a 10-year unconstrained need of approximately $202 billion for local streets and roads, complete streets, and active transportation (Table 7). The 2024 extended fiscal needs survey estimate is higher than the 2023 California Statewide Local Streets and Roads estimate; however, the 2023 estimate is based only on maintaining the existing streets and roads network in a state of good repair while the extended needs survey also included unconstrained needs.

Table 7. Summary of unconstrained needs for streets and roads from extended fiscal needs survey.

Facility	Needs ($ billion)
Local streets and roads	$183.9
Complete streets and active transportation	$18.1
Total	**$202.0**

Transit and rail system needs identified from the extended fiscal needs survey are discussed in the latter sections of this chapter.

State Highway System

The State Highway System is critical to California's economic well-being and quality of life, as it enables the movement of people and goods around the state. Maintaining and preserving state highways, which includes bridges and drainage systems, and associated assets such as lighting, ramp meters, and signage, is critical to protecting the state's investment and allowing for efficient mobility. Backlogs of deferred maintenance ultimately cost the state more money in repairs, as well as drivers and public transit operators in damage to their vehicles over time. Caltrans owns and operates the State Highway System and its related infrastructure assets and facilities. Caltrans prepares the State Highway System Management Plan to integrate the maintenance, rehabilitation, and operation of the State Highway System into a single plan to meet state and

federal asset management requirements while aligning transportation investments with safety, climate, health, and social equity goals and stimulating a vibrant economy. The plan maintains a "fix-it-first" approach to meet defined condition targets while placing an even stronger emphasis on creating a climate-resilient transportation system that reduces greenhouse gas emissions.

System Summary

The 2023 California State Highway System Management Plan outlines the assets owned and operated by Caltrans. These assets are maintained, and performance management models are used to track their condition and provide a framework for calculating the budgetary needs to improve the status of the infrastructure to target conditions. The following performance management models are used and are dependent on the type of asset.

- A physical asset model is applied to physical assets that function on the principle of deterioration. Deterioration is defined as a combination of factors, including age, construction materials, environment, accidental damage, and traffic load. Physical asset models have 2 components: (1) system preservation to maintain assets in "good" or "fair" categories, and (2) system rehabilitation and replacement to improve assets in "fair" or "poor" categories. The rating scale is dependent on asset type.
- A deficiency model is applied to assets needing improvement or correction "identified through state or federal mandates, legal settlements, updated design codes and engineering practices or similar motivating factors." These assets can include measures to mitigate the environmental impact of stormwater or the addition of features to meet the requirements of the Americans with Disabilities Act. Deficiency models identify an asset as deficient (i.e., in "poor" condition) or as sufficient (i.e., in "good" condition).
- A reservation model is used for emergency response activities like floods, landslides, or slope failures where the scope and needs are unclear until the event occurs. Since the response and needs are reactive, the assets using the reservation model do not have inventory, condition, or targets.

Climate Action

Caltrans is focusing on the reduction of greenhouse gas emissions through the acceleration of zero-emission transit, rail, and freight system charging station infrastructure as highlighted in the California Carbon Reduction Strategy Report and 2024 California State Rail Plan. Some of the funding for charging station infrastructure is available through the Infrastructure Investment and Jobs Act. Specific needs and costs for implementing zero-emission vehicle and infrastructure goals continue to be defined.

Caltrans is evaluating adaptation and resiliency efforts to address climate change impacts (e.g., wildfires, sea level rise, increasing temperatures) on the statewide transportation infrastructure. Climate change impacts can lead, for example, to damaged or washed-out roads and bridges, long-term elevated temperatures can cause pavement and railroad tracks to buckle, and heavy rains and sea-level rise can result in landslides. In 2019, Caltrans identified sections of the State Highway System vulnerable to the impacts of increased precipitation, temperature, wildfires, storm surge, and sea level rise.

The State Highway System Management Plan outlines potential efforts to address climate impacts including:

- Temperature change – Identify projects needing special consideration, including material selection and landscaping options.
- Precipitation changes – Evaluate the need to increase culvert capacity, address profile grade, and assess the need for slope protection in the event of increased flooding.
- Wildfire risks – Reduce the amount of flammable materials and create defensible space within the highway right-of-way. Caltrans is increasing its vegetation and wildfire management efforts by $90 million per year to reduce the fuel load within the highway right-of-way.
- Sea level rise and storm surge – Defend (provide protection), accommodate (elevate or enhance), retreat (abandon or relocate), or change policies and practices. Estimated cost: approximately $16 billion (by 2035).

Table 8. State highway system primary and supplementary assets.

Asset	Unit	Inventory	% in Good Condition	% in Fair Condition	% in Poor Condition
Pavement	lane miles	50,019	53.2	45.5	1.3
Bridge and tunnels	square feet	253,638,040	49.3	46.9	3.8
Drainage	linear feet	20,033,247	74.2	16.2	9.6
Transportation management systems	each	20,298	77.8	N/A	22.2
Bicycle and pedestrian infrastructure	linear feet	8,423,470	64.9	14.5	20.6
Highway lighting	each	104,810	37.3	14.6	48.1
Overhead sign structures	each	18,006	58.7	34.7	6.6
Safety roadside rest area rehabilitation	each	86	30.2	41.9	27.9

Equity and Livability

Caltrans has established several strategic goals to address equity and livability in all California communities. These goals focus on avoiding and addressing transportation disparities on all new projects in underserved communities, supporting vibrant livable places, and making equity and inclusion a priority in funding decisions. The goals are advanced through performance objectives for Americans with Disabilities Act pedestrian infrastructure ($25 to $45 million annually) and bicycle and pedestrian infrastructure.

Multimodal Network

The 2023 State Highway Systems Management Plan outlines several strategic goals to provide a connected and efficient multimodal transportation network and include:[16]

- Reducing vehicle miles traveled.
- Investing in networks for active transportation, transit, and multimodal trips.
- Creating a multimodal travel experience.
- Improving travel demand management.
- Optimizing and expanding equitable pricing.

Cross-Cutting

Cross-cutting activities are discussed in Caltrans policies and guidelines and are addressed in projects. The cross-cutting activities include advance mitigation (e.g., slope deterioration, habitat conservation, natural community conservation), environmental stewardship (e.g., green infrastructure, addressing fish and wildlife barriers, historical bridges), and freight mobility (e.g., bridge vertical clearance, truck climbing lanes).

Ten-Year System Needs and Investments

The 10-year funding for the State Highway System is summarized in Table 9 by program and asset category. The total identified needs are $117.7 billion with approximately 90% of the identified needs are to maintain the existing system.

Table 9. Summary of State Highway System needs.

Asset Category	SHOPP ($ billion)	Maintenance ($ billion)	Total ($ billion)
Primary assets (e.g., bridges and tunnels, pavements)	$29.9	$6.6	$36.5
Supplementary assets (e.g., bicycle and pedestrian, lighting, signs)	$23.1	$0	$23.1
System resiliency (e.g., bridge scour, climate adaptation)	$22.1	$0.9	$23.0
Proactive and reactive safety	$8.1	$0.2	$8.3
Minor program[1]	$2.5	$0	$2.5
Other (e.g., fish and wildlife connectivity, mobility hubs)	$24.3	$0	$24.3
Total	**$110.0**	**$7.7**	**$117.7**

[1] One-year program, authorized by the Commission, to address low-cost transportation needs and includes Construction Minor A (up to $1.25 million) and Minor B (up to $333,000).

[16] https://dot.ca.gov/-/media/dot-media/programs/asset-management/documents/2023-shsmp-final-a11y.pdf

Table 10. Summary of State Highway System Investments

Asset	Investment ($ billion)
Primary assets	$35.8
Supplementary assets	$8.6
Safety	$7.3
Other assets and objectives	$6.0
System resiliency objectives	$6.0
SHOPP Minor Program	$2.7
Total	**$66.3**

The 10-year projected funding for the State Highway System is $66.3 billion, with 88% being applied to the State Highway Operation and Protection Program (**Error! Reference source not found.**). For the State Highway System, the 10-year funding shortfall is approximately $51.4 billion.

Transit and Rail Systems

California's transit systems provide transportation services to the public through buses, light rail, heavy rail, commuter rail, ferry service, and other means. Transit serves a critical role in the state's transportation network by enabling access to transportation services for individuals that utilize transit as their primary transportation mode or are unable to own or ride in a privately owned vehicle. Transit can move large numbers of people more efficiently than passenger vehicles, which can help alleviate congestion on the state's highways and roads as well as reduce greenhouse gas emissions.

The 2011 Unmet Transit Funding Needs Report, prepared by the California Transit Association, detailed the capital and operational funding estimates, as well as funding needs under unconstrained conditions, identifying a statewide 10-year funding total of $24.6 billion for transit capital and $85.4 billion for transit operations.[17] However, that report is over a dozen years old and predates major developments including the enactment of Senate Bill 1, the adoption of zero-emission transit regulations, and the COVID-19 pandemic. The Commission intends to leverage information acquired through the Senate Bill 125 program, as well as other sources of information, to enhance the transit capital and operations needs analysis and projected funding shortfalls moving forward.

Federal COVID Relief Funding and Senate Bill 125

Transit agencies were provided temporary federal relief funding for operations and payroll during the COVID-19 pandemic. Transit ridership declined dramatically and continues to rebound. This has directly affected revenues collected in the form of passenger fares by transit operators. The federal relief funding due to the pandemic

[17] https://caltransit.org/cta/assets/File/Unmet%20Transit%20Needs%20Technical%20Memo%201%20(July%2022%202013)%20v7Final.pdf

expired for many transit operators at the end of Federal Fiscal Year 2024 and transit operators across the state are being negatively impacted, potentially resulting in cuts to transit service and workforce layoffs.

Recognizing the dire financial situation faced by transit operators, the California State Legislature provided flexibility in one-time state funding to permit transit operators to use previously approved capital funding to meet near-term operations funding needs through the passage of Senate Bill 125 (Committee on Budget and Fiscal Review, 2023). Senate Bill 125 also established a series of new state processes to work with transit operators to identify a long-term solution to this precarious funding situation.

Senate Bill 125 was signed by Governor Newsom on July 10, 2023, and provides $5.1 billion between Fiscal Year 2023-2024 and Fiscal Year 2026-2027 to regional transportation planning agencies and transit operators. The funding can flexibly be spent on both capital and operating needs. Senate Bill 125 objectives include:

- Provide one-time multiyear "bridge" funding for transit operators to address operational costs until long-term transit sustainability solutions are identified.
- Assist transit operators in preventing service cuts and increasing ridership.
- Prioritize the availability of transit for riders who are transit dependent.
- Prioritize transit agencies representing a significant percentage of the region's ridership.[18]

In addition, Senate Bill 125 establishes a Transit Transformation Task Force led by the California State Transportation Agency to develop policy recommendations to grow transit ridership, improve the transit experience, and address long-term operational needs. An accountability program and reports on regional short-term financial plans were also required with the passage of Senate Bill 125.[13]

Commuter and Intercity Rail

The 2024 California State Rail Plan establishes the vision and framework for investing in passenger rail and significantly improving how people move within California for the next 25 years and beyond. The strategic and comprehensive plan lays the foundation for a network that provides a solution to congested corridors and identifies how the State will prioritize investments that provide Californians with more frequent, reliable, rail service to more destinations, with travel times that are competitive with traveling by air and automobile.

The California State Rail Plan is a federally required document that is updated every 4 years by the California Department of Transportation and is a road map to deliver on a unified and integrated statewide network that aligns needs for passenger and freight service and connects rail to other modes. The vision in the California State Rail Plan supports California Greenhouse Gas Emission goals, safety enhancements, and addresses transportation inequities by increasing access to affordable and frequent services, particularly benefiting communities that have been underserved.

The 2024 California State Rail Plan articulates strategic and technical guidance to coordinate state resources and guide implementation planning in a complex, dynamic environment. The Rail Plan describes funding available for rail, and identifies rail investments needed throughout the state, where the funding need includes a direct capital investment of $307 billion, with an estimated economic return of over $537 billion by 2050, representing a significant boost to California's economy and nearly twice the return on investment.

[18] https://calsta.ca.gov/subject-areas/sb125-transit-program

The 2024 California Rail Plan describes funding available for rail and identifies rail investments needed throughout the state and provides a list of capital projects, totaling $118 billion by 2050 (includes grade separations and fleet, exclusive of the California high-speed rail):

- Near-term (by 2028): $22.0 billion
- Mid-term (by 2034): $7.3 billion
- Long-term (2035 to 2050): $88.6 billion

The 2024 California State Rail Plan sets priorities for capital project development, funding, and fleet deployment that inform negotiations with host railroads of the state's direction for implementation. The planning horizons are defined as near-term (5 years), mid-term (10 years), and long-term (approximately 25 years). The first 10 years of the plan include improvements that should be phased in and advanced into project development to maximize the use of existing system capacity which the state reasonably expects to be delivered in that timeframe. The first 5 years include planned and programmed projects that will be implemented. The long-term vision includes larger-scale improvements that the state could achieve through partnerships to fully realize the network service goals. The network vision is tailored based on the understanding of market viability for passenger rail in different corridors, known constraints, and an assessment of order-of-magnitude costs.

The 2024 California State Rail Plan outlines network service goals for inter-city passenger rail, urban passenger rail, and short-, mid-, and long-term investment needs and implementation strategies through the year 2050. The 2024 California State Rail Plan is consistent with the California Transportation Plan 2050 and the Climate Action Plan for Transportation Infrastructure.

The 2024 California State Rail Plan highlights how the COVID-19 pandemic significantly impacted passenger rail service across the state in terms of both funding and ridership. Throughout the pandemic, there was a steep reduction in ridership for public transportation by as much as 95%. This reduction has significantly impacted operating costs and farebox recovery.

California High-Speed Rail

The California High-Speed Rail Authority was established by the California Legislature in 1996 to oversee the development of High-Speed Rail in California. In 2008 California voters approved the bond measure, Proposition 1A, making it the nation's first-ever voter-approved financing mechanism for high-speed rail. In 2015 a groundbreaking ceremony was held in Fresno to signify the construction of the nation's very first High-Speed Rail line. Today, 119 miles of the High-Speed Rail line is under construction in the Central Valley, with service planned between Merced and Bakersfield by the end of 2030. High-speed rail will provide the backbone of California's rail system, increase connectivity between statewide, regional, and urban services, and is an important component of the California State Rail Plan in terms of service connectivity and integration.

The California High-Speed Rail Business Plan identifies how High-Speed Rail is funded in the state and is updated biennially in even years, with updates in odd years through the Project Update Report[19]. The High-Speed Rail line is funded through Proposition 1A and receives funding from Cap-and-Trade auction revenues (also known as Greenhouse Gas Reduction Funds). The High-Speed Rail does not receive revenue from the fuel excise tax.

[19] https://hsr.ca.gov/about/high-speed-rail-business-plans/2024-business-plan/

Additional passenger rail funding has been made available through the Infrastructure Investment and Jobs Act and the High-Speed Rail Authority was awarded six new federal grants over the past 3 years.

The High-Speed Rail Project has never been fully funded and is advancing work on segments as funding is identified. The 2023 Project Update Report forecasts additional funding needs in the $80 billion to $100 billion range to complete the San Francisco to Los Angeles to Anaheim system. Additionally, the High-Speed Rail Authority is seeking new federal funding to close most of the $8 billion to $10 billion funding gap for Merced to Bakersfield service, and through new grant awards between 2021 and 2023, has secured $3.3 billion so far towards this goal. The California high-speed rail is a critical infrastructure investment; however, the associated needs and revenue are not included in the totals of this Needs Assessment because it is outside the scope of SB 1121. The High-Speed Rail Authority 2022 Business Plan outlines the projected costs for each segment of Phase 1, with an estimated total cost ranging from $76.7 billion to $113.2 billion.

Estimated Needs

The 2024 extended fiscal needs survey identified agency statewide transit (e.g., capital, operations, maintenance, and rehabilitation including ADA accessibility needs) and rail (e.g., expansion, efficiency, operations, and maintenance including ADA accessibility needs) needs. Agencies identified a 10-year transit and rail need of $257.5 billion (i.e., capital, operations, maintenance, and rehabilitation) and $63.6 billion (i.e., expansion, efficiency, operations, and maintenance), respectively (or $321.1 billion total including ADA accessibility needs).

Tribal Transportation

California has the second largest number of tribal governments in the United States (second to Alaska), with 109 federally recognized and 62 non-federally recognized tribes. As of 2024, California has the largest population of Native Americans (806,874). Combined, the California tribal nations and rancherias manage more than 930 miles of roadways. Tribal access roads provide access to or within Tribal lands and are often part of the Indian Reservation Roads system. This network of roads is managed by the Bureau of Indian Affairs and the Federal Highway Administration and provides connectivity to the State Highway System and local road network. Both the State Highway System and local road network are critical for tribal governments and serve multiple functions – many highways and roads function as the primary route to access essential services such as medical services, schools, and jobs and double as active transportation and evacuation routes, particularly in rural settings. Although Senate Bill 1121 does not specifically include transportation needs on Tribal lands, the roadway network is of significance and a Tribal transportation needs assessment is recommended.

Tribal Transportation Needs

Caltrans conducted tribal listening sessions to present the California Transportation Plan 2050. Those listening sessions identified several key needs and themes. While each tribe is unique in its transportation needs, common transportation priorities include safety and improving road conditions.

A statewide inventory of tribal transportation needs currently does not exist; however, an estimate of pavement conditions can be made based on a recent case study example.

Case Study –Humboldt County Tribes Pavement Needs

In July 2022, the North Coast Tribal Transportation Commission agreed to create a pavement management system and inventory of roads maintained by the tribes in Humboldt County (Eel River Athapaskan peoples, Hoopa Valley Tribe, Karuk Tribe, Mattole people, Wiyot Tribe, and Yurok Tribe of the Yurok Reservation, Blue Lake Rancheria and Trinidad Rancheria). This assessment was completed for the Hoopa Valley, Karuk, and Yurok tribes and the Trinidad Rancheria. In total, these four tribes maintain a roadway length of approximately 113.5 centerline miles. An assessment was conducted to determine the pavement condition index (described in Chapter 3) for each roadway within each tribe. Figure 5 shows examples of pavement conditions on select roads.

"Excellent," Campus Road "Good," Big Hill Road "Poor," Hostler Flat Road "Failed," Marshall Lane

Figure 5. Examples of pavement conditions on tribal roads.

Roadways for the Hoopa Valley and Karuk tribes have an overall network pavement condition index of 69 and 59 ("poor" condition), respectively. The Trinidad Rancheria and Yurok tribe have a network pavement condition index of 50 and 46 ("failed" condition), respectively. In comparison, the 2022 California statewide average pavement condition index was 65 ("poor" condition) (Figure 6).

Given the pavement condition and the estimated costs for treatment activities, the next step involved determining the network maintenance budget needs. The budget needs are a function of the current pavement condition and the required treatment activity to bring the pavement to a state of good repair.

Table 11 provides a 10-year summary of the pavement budgetary needs, as of 2023, for the Hoopa Valley, Karuk, and Yurok tribes, and Trinidad rancheria.

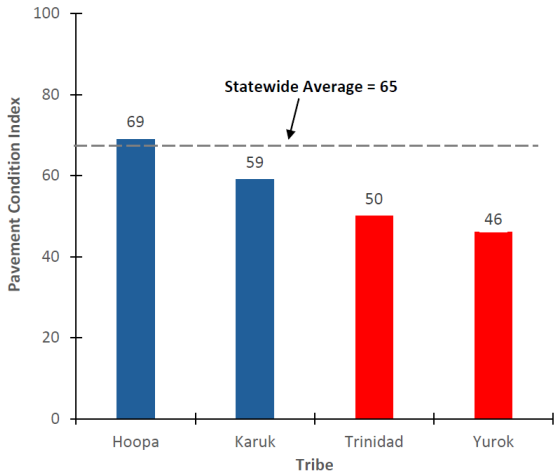


Figure 6. Network pavement condition index.

Table 11. Summary of 10-year pavement needs for Humboldt County tribes.

Year	Hoopa Valley ($ million)	Karuk ($ million)	Trinidad ($ million)	Yurok ($ million)	Total ($ million)
2023	$3.2	$1.2	$3.1	$7.2	$14.7
2024	$2.7	$0.1	$0.7	$4.7	$8.2
2025	$1.4	$0.4	$2.5	$3.6	$7.9
2026	$2.2	$3.7	$2.0	$3.0	$10.9
2027	$0.5	$0.2	$1.6	$3.2	$5.5
2028	$0.0	$0.0	$0.0	$0.0	$0.0
2029	$0.1	$0.0	$0.3	$0.6	$1.0
2030	$1.2	$0.7	$0.5	$0.2	$2.6
2031	$1.9	$0.8	$1.2	$4.0	$7.9
2032	$0.4	$0.1	$0.5	$3.8	$4.8
Total	**$13.6**	**$7.2**	**$15.4**	**$30.3**	**$66.5**

For these four tribes, the 10-year pavement needs are approximately $67 million. Assuming similar pavement conditions across the state, a conservative 10-year statewide tribal transportation needs estimate would be approximately $545 million. This analysis does not include additional infrastructure requirements such as unpaved roads, bridges, mobility, safety, and multi-modal transportation. It is important to recognize that the statewide transportation needs of tribal communities would be significantly higher. As noted, a more extensive needs assessment is needed, and it is recommended that a Tribal needs assessment be conducted in the state.

Tribal Transportation Funding Sources

Tribal governments fund transportation improvements through a variety of federal, state, and local transportation sources, and in some instances from businesses, such as casinos. The Federal Highway Administration Office of Federal Lands and the Bureau of Indian Affairs Division of Transportation jointly manage the Tribal Transportation Program, which provides funding to federally recognized tribes for transportation planning, research, maintenance, engineering, restoration, and construction. The Tribal Transportation Program includes programs focusing on:

- Planning – Identifying transportation needs, and addressing land use, economic development, traffic demand, safety, health, and social needs.[20]

[20] https://highways.dot.gov/federal-lands/tribal/planning

- Environment – Evaluating the environmental impacts of transportation planning and project development. Regulations are assessed per the National Environmental Policy Act.[21]
- Safety – Identifying and resolving issues associated with motor vehicles, bicycles, and pedestrians.[22]
- Bridge – Reducing the number of bridges in poor condition.[23]

The Infrastructure Investment and Jobs Act invests nearly $13 billion in tribal communities nationwide, along with additional funds available through grants. As of 2022, over $3.1 billion in Infrastructure Investment and Jobs Act funding was provided directly to Tribal communities nationwide, with $466 million for infrastructure projects and climate resiliency initiatives.[24] In California, tribal governments are eligible to apply for competitive Infrastructure Investment and Jobs Act funding grants for:[25]

- Safe Streets for All initiative ($6 billion).
- Rehabilitating or replacing bridges and culverts ($12.5 billion).
- Reconnecting communities ($1 billion).
- Nationally significant federal lands and tribal projects ($1.5 billion).

The State of California does not have the authority to collect fuel taxes on tribal lands due to the sovereign status of federally recognized tribal governments. As a result, California state fuel taxes do not provide dedicated funding to tribal governments, although tribes are eligible to apply for some competitive programs, and transportation agencies sometimes partner with tribal governments on projects that have tribal significance. Tribal governments may face additional hurdles when competing for funding, such as limited staffing, insufficient access to matching funds, lack of awareness about federal and state funding sources, and limited resources for the planning and data collection necessary to put together a competitive application.[26]

The California Air Resources Board's Clean Mobility Options program provides $20 million for zero-emission shared mobility (e.g., car, bike, and on-demand sharing) projects. Some tribal communities are eligible for this funding. California tribes/rancherias are also eligible for the Local Transportation Climate Adaptation Program created by Senate Bill 198 (Committee on Budget and Fiscal Review 2022). The Local Transportation Climate Adaptation Program provides competitive grants (approximately $252.5 million for 2021 – 2026) for capital projects to address impacts of climate change on local transportation infrastructure.[27]

Tribes are also eligible for the Commission's Active Transportation Program which is a statewide competitive program for encouraging the use of active modes of transportation. The program supports efforts to increase biking and walking trips, improve safety and mobility for non-motorized users, advance efforts for greenhouse

[21] https://highways.dot.gov/federal-lands/tribal/environment
[22] https://highways.dot.gov/federal-lands/tribal/safety
[23] https://highways.dot.gov/federal-lands/tribal/bridge
[24] https://www.doi.gov/ocl/native-communities-investment
[25] https://www.transportation.gov/sites/dot.gov/files/2021-11/BIL_California.pdf
[26] https://dot.ca.gov/programs/transportation-planning/division-of-transportation-planning/state-planning-equity-and-engagement/california-transportation-plan
[27] https://catc.ca.gov/programs/local-transportation-climate-adaptation-program

gas emission reductions, enhance public health, ensure disadvantaged communities fully share in the program benefits, and provide a broad spectrum of project benefiting active transportation users.[28]

Much work is needed to better assess the existing tribal infrastructure system needs and to reduce the barriers (i.e., contracting, technical assistance) to receiving funding. The Commission and Caltrans are working together, and in collaboration with Native American Tribal Governments, to better understand these barriers and improve processes.

Accessibility and Mobility

Many older adults and individuals with disabilities are unable to access or use private vehicles or conventional public transportation. Often these population groups rely on accessible transportation options to meet their essential needs and to stay connected to their jobs, educational access, services, social opportunities, and community activities. Common accessible transportation services include a range of programs that provide riders with necessary assistance getting into and out of a vehicle, accommodate special medical equipment and mobility devices, and pick up and drop off riders close to their origin. Regional Transportation Plans developed by Metropolitan Planning Organizations include projects identified in Coordinated Human Services Public Transportation Plans (Coordinated Plans) in order to receive funding from certain Federal Transit Administration grant programs. Coordinated Plans, which are updated every five years, identify the transportation needs of individuals with disabilities, older adults, and people with low incomes, provide strategies for meeting these needs, and prioritize transportation services for funding and implementation.[29] The American with Disability Act transit needs are captured in the Transit and Rail Systems section located above within the report.

The Americans with Disabilities Act (ADA) of 1990 requires public transit operators to provide paratransit transportation for people with disabilities who are unable to use the fixed-route transit service within three-quarters of a mile on each side of a fixed route service in their region. Each transit operator develops its process to determine if a rider is eligible to use their established paratransit service with the Federal Transit Administration ADA regulations. To assist in meeting this requirement, some agencies receive state funding through the Mills-Alquist-Deddeh Act, better known as the Transportation Development Act or formula federal funding from the Federal Transit Administration. Federal funding for the following programs includes the:

- Federal Transit Administration Section 5307 program (Urbanized Area Formula) $124,500,000
- Federal Transit Administration Section 5311 program (Rural Formula) $42,600,000
- Federal Transit Administration Section 5339 program (Bus and Bus Facilities) $13,200,000
- Federal Transit Administration Section 5310 program (Enhanced Mobility of Seniors and Individuals with Disabilities) $48,700,000.

Most small and large urban agencies utilize the Federal Transit Administration Section 5307 program funds to purchase transit buses and paratransit vehicles to provide service within their region. Rural transit operators utilize the Federal Transit Administration Section 5311 program funds to purchase transit vehicles and to cover

[28] https://catc.ca.gov/-/media/ctc-media/documents/programs/atp/guidelines/2020429-final-amended-adopted-2021-atp-guidelines-a11y.pdf
[29] https://www.transit.dot.gov/funding/grants/coordinated-public-transit-human-services-transportation-plans

operational costs of transit services. The Federal Transit Administration Section 5339 program can only be used for infrastructure or vehicle costs, such as the purchase of shelters and ADA vehicles.

The Federal Transit Administration Section 5310 program is competitively funded to help fill transit service gaps. All awarded projects must go beyond the basic requirements of the Americans with Disabilities Act and be included in a locally developed Coordinated Public Transit Human Services Transportation Plan. Federal Transit Administration Section 5310 is intended for non-profit organizations or qualifying public agencies to provide mobility options for seniors and individuals with disabilities when traditional public transit is unavailable, insufficient, or inappropriate to meet transportation needs. Eligible projects under Federal Transit Administration Section 5310 include Americans with Disabilities Act accessible vehicles, support equipment, operating assistance, and mobility management grants. The program administered by Caltrans is extremely competitive and demand is rising in California. In the latest application cycle, Caltrans received over 160% (83.1 million) in requests than funding available ($51.7 million) which is despite a 42% increase in funding with the 2021 Infrastructure Investment and Jobs Act legislation. Fifty-five percent of the Section 5310 program funds are statutorily required to be used for the traditional program for vehicles and does not need to go beyond the American with Disabilities Act. The remaining 45% is to be used for operating services that go beyond the American with Disabilities Act.

Beyond transit operations, Assembly Bill 120 (Social Services Transportation Improvement Act of 1979) allowed the creation of Consolidated Transportation Services Agencies in California. Consolidated Transportation Services Agencies are intended to promote the coordination of accessible transportation services and existing resources. In California, Consolidated Transportation Services Agencies are designated by transportation planning agencies, except that within the area of the Southern California Association of Governments, they shall be designated by the county transportation commissions. Consolidated Transportation Services Agencies in California can receive some limited federal, state, and local funding sources. However, not all regions in California have designated Consolidated Transit Services Agency which can create challenges when coordination with human services agencies.

California has recognized the need to stretch existing transportation funding further by leveraging federal and state investments in transportation infrastructure to promote multi-modal mobility options for older adults and people with disabilities. The state has also recognized the need to expand integrated accessible transportation models by encouraging flexible transit options and other innovative transit solutions.[30] The need for accessible transportation is growing. It is estimated that 11.3 percent, or 4.4 million Californians, have disabilities – either in hearing, vision, cognitive, ambulatory, self-care, or independent living difficulty based on the United States Census Bureau's 2023 American Community Survey 5-year's estimates.[31] Nearly 2.1 million Californians have ambulatory difficulty, which represents almost six percent of the state's total population. The 2021 Master Plan for Aging highlights that in California the over-60 population is projected to increase "from 16% in 2010 to one-quarter of the population by 2030, when there will be 10.8 million older adults in California." California has several opportunities to maximize existing resources and enhance coordination statewide. Flexing Federal Transit Administration/Federal Highway Administration funding to maximize federal dollars in programs that

[30] https://mpa.aging.ca.gov/

[31] https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/consumer-protection-and-enforcement-division/documents/tlab/accessforall/2024-tnc-access-for-all-annual-benchmark-report.pdf

support seniors and individuals with disabilities has been used in other states for transit capital but not for transit operations, as well as creating a Coordinated Mobility Management Action Plan.

A new and growing revenue source was established in 2019 with the Transportation Network Company Access for All Program. This program aims to increase the availability of on-demand transportation for persons with disabilities, including wheelchair users. Transportation Network Company users pay $0.10 per ride which funds the Access for All Program. Administered by the California Public Utilities Commission, this program provides dedicated funding where the Transportation Network Company trips originate and funding stays in that county. The Access for All Program has provided funding in 22 counties and has supported 223,900 wheelchair accessible vehicle trips across California over the program's lifespan. It is important to note that there are very few Transportation Network Company services that can accommodate users with wheelchairs or power wheelchairs due to vehicle limitations. However, due to Federal Transit Administration drug and alcohol testing regulations, transit agencies will be unable to use Transportation Network Company services to provide rides using federal funds unless the Transportation Network Company agrees to comply with the Federal Transit Administration regulations. Local businesses and nonprofits who provide wheelchair accessible transportation services have been able to offset some of the limitations local transit agencies encounter.

Case Study – Facilitating Access to Coordinated Transportation

The Consolidated Transportation Services Agency for San Diego County – assists all San Diego County residents with barriers to mobility to achieve independence through the coordination of transportation services. Facilitating Access to Coordinated Transportation operates RideFACT, a curb-to-curb transportation service for seniors and individuals with disabilities. Facilitating Access to Coordinated Transportation also provides referrals to contracted agency services, manages the Council on Access and Mobility, maintains a database of regional transportation services, and shares vehicles with specialized transportation providers. Facilitating Access to Coordinated Transportation is a current recipient of Federal Transit Administration 5310 and 5339 funding and recently won additional Federal Transit Administration funding for an Innovative Coordinated Access & Mobility Pilot Program to explore the latest on-demand type trip technologies.

Chapter 4 Climate Adaptation Challenges and Impacts

Climate change is steadily increasing the exposure of the state's multimodal transportation infrastructure to climate stressors, requiring more frequent repairs and adaptation improvements. According to the Legislative Analyst's Office April 2022 report, "Climate Change Impacts in California: Transportation," the major climate change hazards include coastal flooding and erosion, more severe wildfires, higher average temperature and periods of extreme heat, more frequent and intense droughts, and increased risk of floods.[32]

The 2023 State Highway System Management Plan identified an investment need of $14.7 billion by 2033, and $56 billion by 2100, to address anticipated transportation system impacts from sea-level rise. The 2023 State Highway System Management Plan, for the first time, also proposed the investment of $1.8 billion for sea level rise adaptation projects for the State Highway Operation and Protection Program. Furthermore, the Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation Federal Aid Program was created as part of the 2021 Infrastructure Investment and Jobs Act. The Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation Program brings first-of-its-kind federal funding dedicated to improving transportation resilience to natural hazards. The Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation Program will amount to over $630 million, over 5 years, in California and offers the opportunity for additional funding through nationally competitive discretionary grants.[33] However, additional billions of dollars in identified climate adaptation needs remain for all modes of transportation, both on and off the state highway system.[34] In particular, further assessment of infrastructure needs associated with emergency evacuation is necessary for climate-vulnerable communities that may not have reliable access to transportation options.

Estimated Risks on State Highway System

In 2019, Caltrans conducted a climate change vulnerability assessment for the entire state highway system.[35] The assessments used the latest available climate science to analyze the expected impacts of climate change, including rising temperatures, precipitation, wildfire, sea level rise, storm surge, and cliff retreat (Appendix C). The assessments found, that by the end of the century, 160 miles of the state highway were predicted to be inundated by sea-level rise, and almost 8,000 miles were predicted to be in areas at risk of wildfires. In 2020, Caltrans completed the Adaptation Priorities Reports to prioritize potentially exposed assets by conducting a more robust risk assessment including other risk metrics.[36] The prioritization methodology in these reports considers, amongst other things, the timing of the climate impacts, their severity and span, the condition of each asset (a measure of the sensitivity of the asset to damage), the number of system users affected, and the level of network redundancy in the area. The adaptation priorities identified thousands of statewide high-priority assets, including roadways, bridges, and culverts, at risk of climate change. In 2023, Caltrans launched another update, to be completed in 2025, to align with the release of new climate data from the International Panel on

[32] https://lao.ca.gov/Publications/Report/4576#Major_Climate_Change_Impacts_on_Transportation
[33] https://dot.ca.gov/programs/transportation-planning/division-of-transportation-planning/air-quality-and-climate-change/state-climate-resilience-improvement-plan-for-transportation
[34] https://mtc.ca.gov/sites/default/files/documents/2023-07/SLR_Framework_Final_Report.pdf
[35] https://dot.ca.gov/programs/transportation-planning/division-of-transportation-planning/air-quality-and-climate-change/2019-climate-change-vulnerability-assessments
[36] https://dot.ca.gov/programs/transportation-planning/division-of-transportation-planning/air-quality-and-climate-change/2020-adaptation-priorities-reports

Climate Change, the National Climate Assessment, and the State of California's Fifth Climate Change Assessment. The updated assessment will incorporate multimodal considerations for transit, rail, and active transportation systems and assets, as well as a further focus on equity and integration of Caltrans's Transportation Equity Index into the analysis. The results of the updated analysis will contribute to future prioritization of adaptation projects and identification of funding needs, advancing and accelerating Caltrans's adaptation planning and implementation of climate-resilient statewide transportation projects.

The California Department of Water Resources Climate Technical Advisory Group identified 4 global climate models most suitable for California's water resource climate change studies: CanESM2 (average simulation), HadGEM2-ES (warmer/drier simulation), CNRM-CM5 (cooler/wetter simulation), and MIROC5. The projections shown in this section feature the Representative Concentration Pathway 8.5 scenario. The changes in annual maximum temperature, average annual precipitation, and acres burned were estimated using data provided by the California Adaptation Forum.

Rising Temperatures

Temperatures are expected to increase across the state over the next century. Percent change in temperature, by county, is provided in Appendix C. In the next 10 years, the counties facing the largest temperature increases are projected to be Alpine, Fresno, Inyo, Lassen, Madera, Mariposa, Mono, Sierra, Tulare, and Tuolumne, with a 2% increase in temperature each. By 2055, Alpine and Mono County are projected to have the highest temperature increases, at 6%.

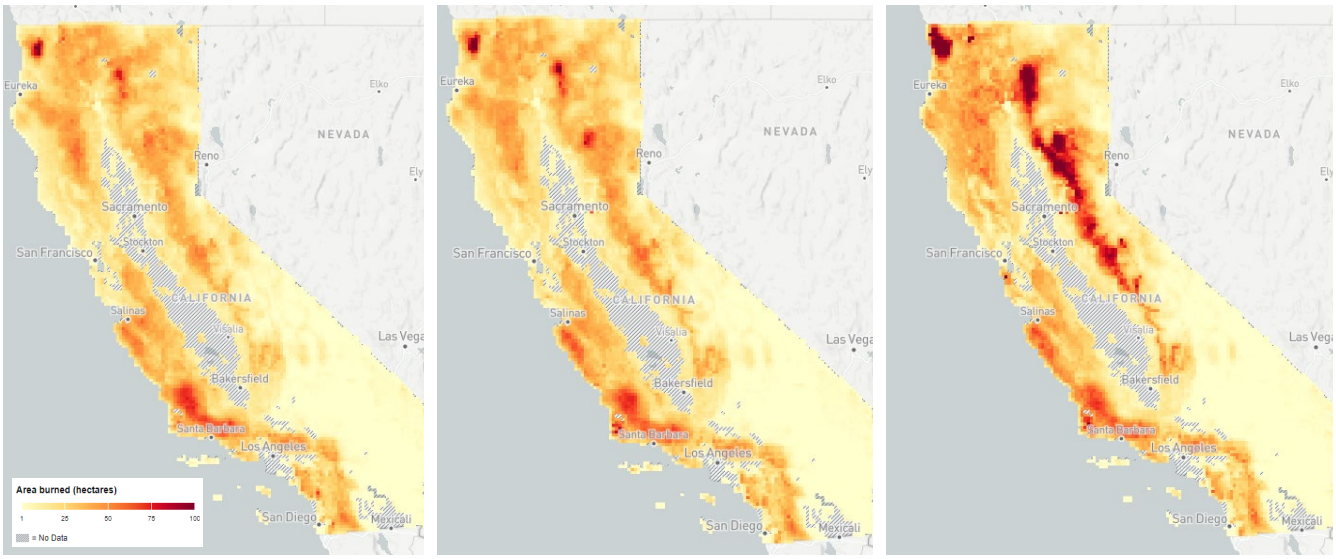
Drought

Research suggests wet years will become more wet and dry years will become more dry, with dry years likely followed by more dry years, increasing the likelihood of drought. Precipitation is likely to manifest with more intense storms within a shorter period. All California counties are expected to see a decrease in precipitation over both the short-term (10 years) and long-term (30 years). The counties expected to experience the greatest decrease in precipitation by 2035 are Imperial, Riverside, San Bernadino, and Inyo, ranging from an 18% to 30% decrease (see Appendix C for details by county).

Wildfires

It is challenging to predict exactly where and how wildfires will burn, as the frequency, severity, and impact of wildfires are sensitive to climate change, development patterns, temperature increases, wind patterns, precipitation, and local ecosystems. However, it is generally predicted that California will see an increased risk of wildfires along with wildfire seasons beginning earlier, running longer, and occurring as more extreme events.[37] Looking at the historical annual average area burned can help determine if wildfire activity is likely to increase over time. The CanESM2 (average simulation) model shows the projected annual average area burned for the current period (2020 – 2029), 10 years from now (2030 – 2039), and 30 years from now (2050 – 2059) (Figure 7). The information shown in Figure 7 is incomplete, as many regions across California do not have projects and more detailed analyses are necessary for local decision-making.

[37] https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/office-of-smart-mobility-and-climate-change/caltrans-climate-change-vulnerability-assessment-statewide-summary-feb2021-a11y.pdf



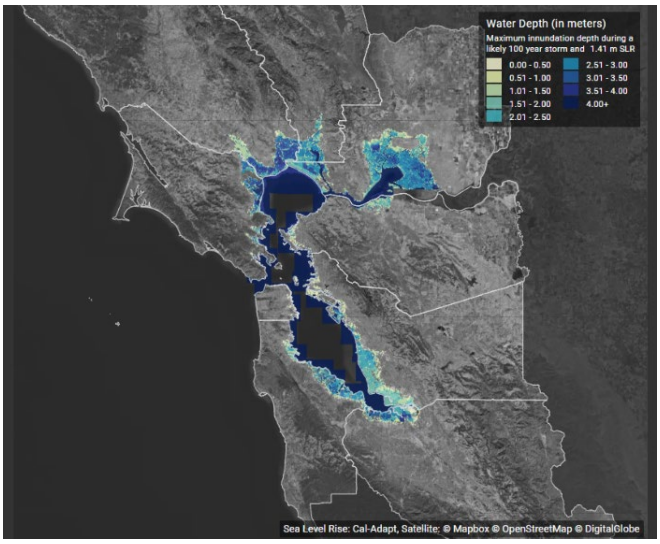
2020 – 2029 2030 – 2039 2050 – 2059

Figure 7. CanESM2 model – annual area burned.

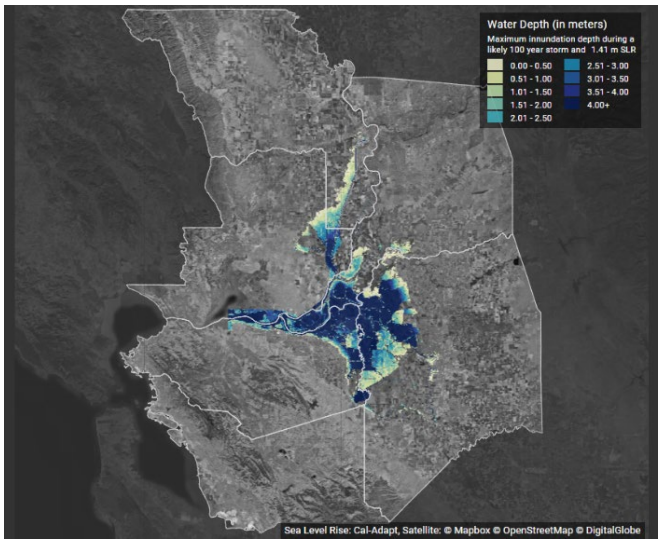
Based on the available data, the counties that may see the greatest increase in acres burned over the long term are Butte, Fresno, Mono, Nevada, San Mateo, Santa Cruz, Tuolumne, and Yuba, ranging from 50% to 95% increase by 2055 (see Appendix C for details by county). In the long term, Colusa, Siskiyou, Sutter, and Yolo may expect to see a 26% to 29% decrease in acres burned.

Flooding

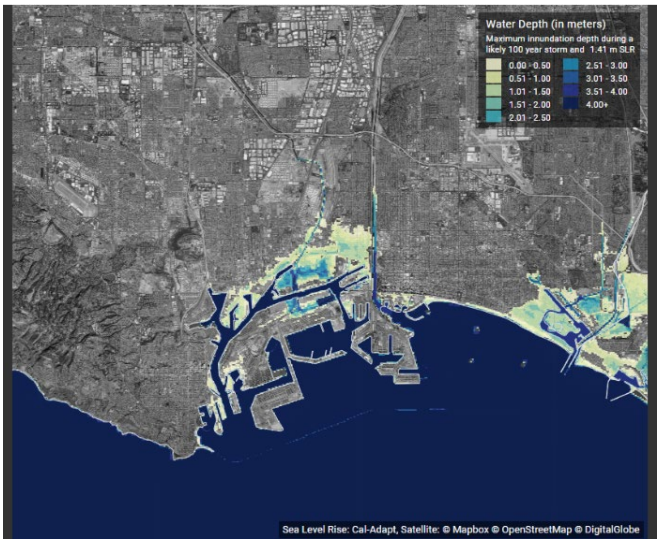
Sea level rise projections for the San Francisco Bay Area, Sacramento – San Joaquin Delta, and the California Coast were captured from the California Adaptation Forum, and the statewide projection was captured from the National Oceanic and Atmospheric Administration (Figure 8). Much of the state's coast, but especially the far northern and the far southern portion, is highly vulnerable to sea level rise.



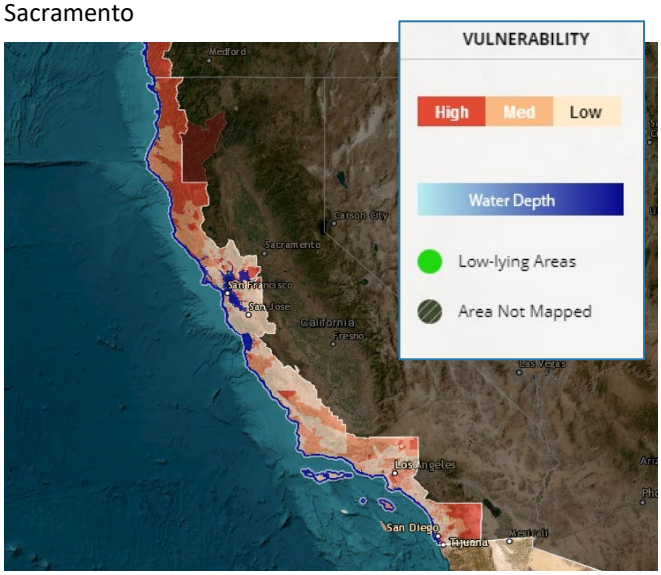
San Francisco Bay Area



Sacramento



California Coast



Statewide

Figure 8. Maximum inundation depth during a likely 100-year storm and 1.41-meter sea level rise.

Funding Needs to Address Climate Change

The 2023 State Highway System Management Plan added climate change resiliency as an objective for the state highway system, focusing on needs associated with the impacts of sea-level rise. From 2023 to 2033, Caltrans has identified an investment plan of $1.8 billion to address sea-level rise on the state highway system. Overall, Caltrans is investing approximately $2.3 billion to address climate adaptation and resilience.

At this time, there is no long-term dedicated funding source; however, federal funding from the Inflation Reduction Act and Infrastructure Investment and Jobs Act, as well as California funding programs, can provide some solutions (Table 12).

Table 12. Federal and California grant programs for climate change adaptation.

Funding Program	Available Funds	Description
Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation Program[38]	$1.46 billion in 2024 $1.49 billion in 2025 $1.52 billion in 2026	Created as part of the 2021 Infrastructure Investment and Jobs Act, provides funding to support planning activities, resilience improvements, community resilience, evacuation routes, and at-risk coastal infrastructure. Funds available nationwide.
Climate Ready Program[39]	No maximum or minimum, most grants are between $200,000 – $500,000	Grants from the Coastal Conservancy fund projects to restore and protect the California coast, including enhancing its resilience to climate change.
Integrated Climate Adaptation and Resiliency Program[40]	$25 million in 2024	Adaptation planning grant program to help fill local, regional, and tribal planning needs to identify climate resilience priorities and support the development of a pipeline of climate resilient infrastructure projects across the state.

Other statewide efforts to address climate change in transportation within the last 5 years include:

- Executive Order, N-19-19, signed by Governor Gavin Newsom on September 20, 2019, requires the redoubling of the state's efforts to reduce greenhouse gas emissions and mitigate the impacts of climate change while building a sustainable, inclusive economy. The California State Transportation Agency is directed to leverage over $5 billion toward transportation construction, operations, and maintenance to lower fuel consumption and greenhouse gas emissions from transportation. This action prompted the creation of the Climate Action Plan for Transportation Infrastructure in 2021.[41]
- Senate Bill 1 (Beall, Chapter 5, 2017) provided $20 million for climate adaptation planning grants. Over 3 years, the California Department of Transportation has awarded 61 grants, on a competitive basis, to local and regional entities to prepare for and reduce damage from climate change impacts on transportation infrastructure.
- AB 2800 (Quirk, Chapter 118, 2016) established the Climate-Safe Infrastructure Working Group comprised of engineers, scientists, and architects to examine how to incorporate climate change impact data into state infrastructure planning, design, construction, operations, and maintenance. The working group published findings in 2018.[42]
- Senate Bill 198 (Government Code § 14560) directs the use of Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation Program funds in California to ensure alignment with existing state climate adaptation policy and guidance, including additional requirements around consideration of climate risk and alignment with California's Climate Adaptation Strategy. Senate Bill 198 also introduced the Climate Adaptation Planning Grant Program, offering $50 million to local

[38] https://dot.ca.gov/programs/transportation-planning/division-of-transportation-planning/air-quality-and-climate-change/state-climate-resilience-improvement-plan-for-transportation
[39] https://scc.ca.gov/climate-change/climate-ready-program/
[40] https://opr.ca.gov/climate/icarp/grants/adaptation-planning-grant.html
[41] https://calsta.ca.gov/-/media/calsta-media/documents/capti-july-2021-a11y.pdf
[42] https://resources.ca.gov/CNRALegacyFiles/docs/climate/ab2800/AB2800_Climate-SafeInfrastructure_FinalNoAppendices.pdf

and regional agencies for identifying transportation-related climate vulnerabilities. To date, $28.8 million has been awarded to 30 local and regional agencies, initiating planning-level groundwork to better understand the impacts on local systems and to identify long-term solutions. Additionally, capital support is provided to local and regional agencies for delivering climate resilience-focused projects in disadvantaged communities, from a mix of Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation funds and an additional one-time state appropriation.

California's vast multimodal transportation system traverses a diverse range of geographies that experience a range of complex impacts due to climate change. These impacts are expected to become more intense over time until atmospheric greenhouse gas concentrations stabilize and decline. Transportation agencies are working to plan for and deliver projects to directly address climate change impacts or integrate resilience elements on location-specific projected impacts. Current funding is not adequate to adapt the statewide transportation system at the scale and the necessary pace. The magnitude of identified needs, combined with needs yet to be fully identified and the time required to deliver projects, requires a long-term, comprehensive solution. While statewide agencies continue to work towards a solution, continued funding support from programs dedicated to improving climate resilience will be imperative to successfully addressing the impacts of climate change on the statewide transportation infrastructure.

Chapter 5 Revenue Impact of Improved Vehicle Technology and Fuel Efficiency

In California, the transportation sector is the largest contributor of greenhouse gas emissions, contributing approximately 39% of total emissions in 2021. Of that 39%, light-duty vehicles, such as passenger cars and trucks, are the greatest contributors (Figure 9).[43] Greenhouse gas emissions include carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, and others.

Several policies have been passed in California aimed at reducing the state's overall greenhouse gas emissions. For the transportation sector, this reduction will rely heavily on improved vehicle technologies (i.e., battery-electric, plug-in hybrid electric, and hydrogen fuel cell vehicles) and increasing stringent emission standards for vehicles powered by internal combustion engine vehicles.

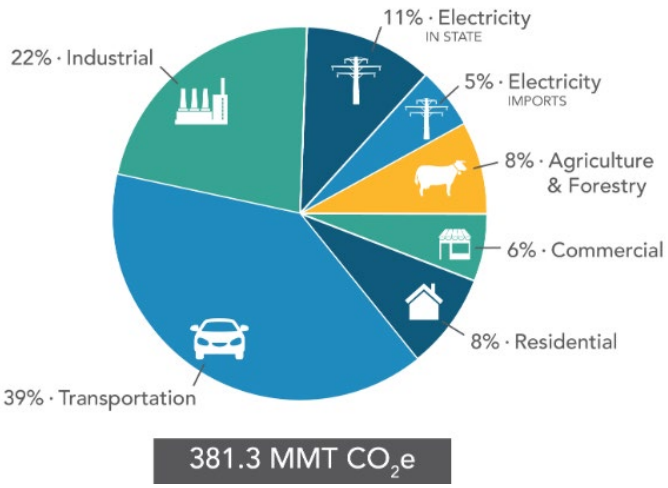


Figure 9. Sources of greenhouse gas emissions in California in 2021.

Greenhouse Gas and Zero-Emission Vehicle Policies and Regulations

As summarized in Table 13, there are several bills and executive orders to reduce greenhouse gas emissions in California. Assembly Bill 32 (Nunez, 2006) was the first bill to require a reduction in greenhouse gas emissions. Senate Bill 32 (Pavley, 2016) and Assembly Bill 1279 (Muratsuchi, 2022) extended and further reduced the greenhouse gas emission target originally set by Assembly Bill 32.

In 2020, Governor Gavin Newsom issued Executive Order N-79-20, which established targets for new vehicle sales to be zero-emission vehicles. To achieve these targets and policy goals, the California Air Resources Board is tasked with developing an updated strategy every 5 years. The latest Scoping Plan was released in 2022 and identified strategies for achieving the state's greenhouse gas emission reduction goals. These goals also include targets for increased sales of zero-emission vehicles and reduced vehicle miles traveled (Table 13).

[43] https://ww2.arb.ca.gov/ghg-inventory-data

Table 13. Summary of State regulations and policy goals on GHG reduction and clean vehicle sales.

Regulation or Policy Goal	Summary
Assembly Bill 32 (Nunez 2006)	• Authorized the California Air Resources Board to monitor and regulate greenhouse gas sources. • Targeted greenhouse gas emissions to the 1990 level by 2020.
Senate Bill 32 (Pavley 2016)	• Extended the Assembly Bill 32 target to 40% below the 1990 emission level by 2030.
2020 Executive Order N-79-20[44]	• All new passenger vehicle sales to be zero-emission vehicles by 2035. • All medium- and heavy-duty vehicle sales to be zero-emission vehicles by 2045. • Laid the foundation for the California Air Resources Board Advanced Clean Cars II and Advanced Clean Fleets regulations.
Assembly Bill 1279 (Muratsuchi, 2022)	• Extends the Assembly Bill 32 and Senate Bill 32 targets to 85% below the 1990 emission level by 2045. • Carbon neutrality goal by 2045.

The state has made significant strides to reduce greenhouse gas emissions through the implementation of policies and regulations to reduce emissions from motor vehicles to the greatest extent possible, including increasing the in and the market share for zero-emission vehicles. California has the largest zero-emission vehicle population in the nation and has experienced a steady increase in sales over the last decade as seen in Figure 10. Electric vehicle sales in California. Sales of zero-emission passenger vehicles in the first quarter of 2023 surpassed the state's goal, set in 2012 under Governor Jerry Brown,[45] of selling 1.5 million light-duty passenger vehicles by 2025, 2 years ahead of schedule.[46] As of the first quarter of 2024, light-duty passenger vehicle sales reached nearly 1.9 [47][48]

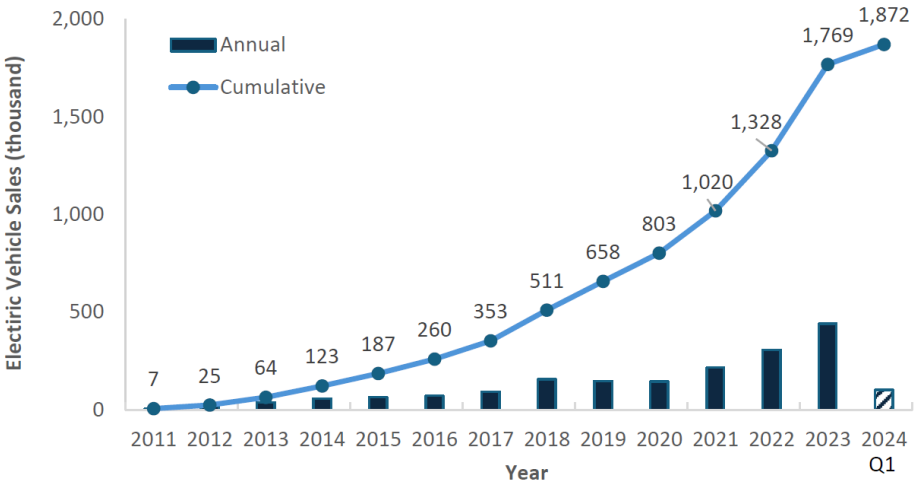


Figure 10. Electric vehicle sales in California.

Improvements to fuel efficiency and increasing the introduction of zero-emission vehicles is not

[44] https://www.gov.ca.gov/wp-content/uploads/2020/09/9.23.20-EO-N-79-20-Climate.pdf
[45] https://www.ca.gov/archive/gov39/2019/01/04/executive-order-b-62- 18/index.html
[46] https://www.gov.ca.gov/2023/04/21/california-surpasses-1-5-million-zevs- goal-two-years-ahead-of-schedule/

[48] https://www.energy.ca.gov/data-reports/energy-almanac/zero-emission-vehicle-and-infrastructure-statistics-collection/new-zev

only beneficial to achieving statewide climate goals but reduces the number of pollutants and improves overall air quality, directly benefiting people and their communities. The reduction in greenhouse gas emissions from transportation is also important to help reduce the number and severity of climate related events discussed in Chapter 4.

Review of Estimates of Impact from Improved Vehicle Technology and Fuel Efficiency

Currently, the largest source of the state's transportation funding is the state excise tax. This tax is built into the price paid per gallon at the pump when filling up a car with either gasoline or diesel fuel. The widespread adoption of improved vehicle technologies and increases in fuel efficiency are decreasing gasoline and diesel fuel consumption. While these shifts will reduce greenhouse gas emissions and help us achieve important climate and health goals, they will also affect the state's excise tax revenue and transportation funding.

This is not a California-specific phenomenon. As vehicle fleets shift from conventional gasoline vehicles to improved vehicle technologies, state gasoline excise tax revenues are decreasing throughout the country. For example, Connecticut estimated a gasoline tax revenue decrease of approximately $222 million (or 4.2%) between 2012 and 2021 due primarily to improved vehicle technologies, as well as pandemic effects.[49] Similarly, West Virginia estimated gasoline excise tax revenue will decrease by $480 million to $835 million through 2030 and by $2.6 billion to $4.3 billion by 2050 due to increased vehicle fuel efficiency and electric vehicles.[49] A 2022 study in Michigan estimated, despite improved vehicle technologies representing only 6% of the new vehicle market, that vehicle electrification resulted in a funding deficit of $20.8 million in 2022. This deficit is expected to increase to over $95 million per year by 2030.[50] A University of California at Berkeley study used the 2017 National Household Travel Survey data from the United States Department of Transportation and estimated an increase in the number of improved vehicle technologies results in an annual nationwide funding reduction of $250 million.[51]

In 2024, the Congressional Budget Office released a 10-year highway trust fund budget baseline projection. The baseline budget includes $78.5 billion in 2025, $80.0 billion in 2026, and a 2% increase per year resulting in $93.2 billion by 2034.[52] However, the projected Trust Fund revenue is anticipated to drop from $49 billion in 2025 to $38.8 billion in 2034, resulting in a cumulative funding gap of approximately $54.4 billion. Revenue from diesel and trucking fees over the same period are anticipated to increase slightly due to growth in the trucking sector based on the Needs Assessment Analysis.

Several entities have estimated how much the state's transportation revenue will be affected by vehicle technology and increasing fuel efficiency: the California Legislative Analyst's Office, the Mineta Transportation Institute, and the Senate Bill 1121 State and Local Transportation System Needs Assessment analysis.

[49] https://www.cpapracticeadvisor.com/2022/11/04/72837/72837/.
[50] https://www.andersoneconomicgroup.com/wp-content/uploads/2023/01/AEG_CRA_EVs_RoadFunding.pdf
[51] https://www.journals.uchicago.edu/doi/epdf/10.1086/706793
[52] https://enotrans.org/article/highway-trust-fund-revenue-hole-approaches-300b-by-2035/

Legislative Analyst's Office

In December 2023, the California Legislative Analyst's Office released a report on the effect the state's climate policies will have on transportation funding.[53] The report specifically looked at the fiscal impact of the 2 scenarios outlined in the 2022 California Air Resources Board Scoping Plan:

- The Scoping Plan scenario is based on the 2022 Advance Clean Cars II regulation and assumes the number of vehicles driven in the state will transition from 97% internal combustion engine vehicles in 2022 to 85% zero-emission vehicles by 2045, with most vehicles being zero-emission vehicles by 2037.
- The Reference scenario assumes the transition from internal combustion engine vehicles to zero-emission vehicles occurs over a more conservative rate with zero-emission vehicles composing 35% of the vehicle population by 2045.

The Legislative Analyst's Office analyses included several state revenue sources including fuel taxes (such as fuel excise and sales taxes) and vehicle fees (Road Improvement, Transportation Improvement, and weight fees). Both scenarios assumed that internal combustion engine vehicles will continue to increase in fuel efficiency over time, thus contributing to reduced gasoline consumption (Figure 11). The results of both scenarios were adjusted based on inflation.

The 10-year annual cumulative transportation revenue, beginning from 2023-2024, is expected to decrease between $13.2 billion to $29.9 billion.

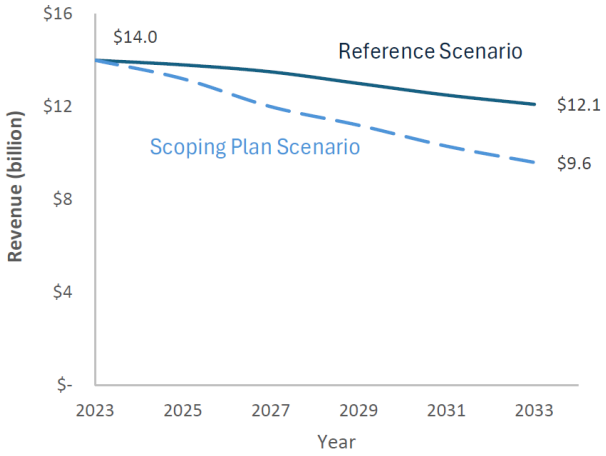


Figure 11. Legislative Analyst's Office projected revenue (redrawn).

Mineta Transportation Institute

In March 2024, the Mineta Transportation Institute published a report analyzing how California's electric vehicle policies may affect future transportation revenues.[54] The Mineta Transportation Institute considered a wide range of possible revenue outcomes. Several variables, including the state population, the number of light-duty vehicles per capita, the annual vehicle miles traveled for light- and heavy-duty vehicles, and the rate of zero-emission vehicle adoption, were considered under 8 different scenarios The variables incorporated into each scenario are summarized in Table 14. The analysis considered revenue sources including fuel taxes (gasoline excise tax, diesel excise, and sales taxes), and vehicle fees (Transportation and Road Improvement fees). Vehicle weight fees were not considered.

[53] https://lao.ca.gov/Publications/Report/4821
[54] https://transweb.sjsu.edu/research/2312-Transportation-Revenue-Fuel-Taxes-Electric-Vehicles

Table 14. Mineta Transportation Institute scenario descriptions.

Vehicle Miles Traveled Low	Vehicle Miles Traveled Medium	Vehicle Miles Traveled Mixed	Vehicle Miles Traveled High
• Population: Declines 1% annually • Vehicle miles traveled: Light-duty decreases 17% by 2040, heavy-duty decreases 2% annually • Vehicles per capita: Decreases to 0.61 by 2040	• Population: Stays constant • Vehicle miles traveled: Light-duty stays constant, heavy-duty increases 1% annually • Vehicles per capita: Stays constant	• Population: Increases by 220,000 annually • Vehicle miles traveled: Light-duty increases 25% by 2040, heavy-duty increases 3% annually • Vehicles per capita: Decreases to 0.61 by 2040	• Population: Increases by 220,000 annually • Vehicle miles traveled: Light-duty increases 25% by 2040, heavy-duty increases 3% annually • Vehicles per capita: Increases to 0.81 by 2040

Percent of Zero Emission Vehicles Low	Percent of Zero Emission Vehicles Medium	Percent of Zero Emission Vehicles High
• Light-duty vehicles increase to 20% in 2040 • Heavy-duty vehicles increase to 5% by 2040	• Light-duty vehicles increase to 50% in 2040 • Heavy-duty vehicles increase to 40% by 2040	• Light-duty vehicles increase to 99% in 2040 • Heavy-duty vehicles increase to 40% by 2040

The analysis indicated the state's transportation funding may decrease from 2025 to 2040 given the current funding structure (Figure 12). The estimated revenue will decrease by $1.2 to $8.5 billion annually in 2040.

The rate of decrease depends significantly on the adoption rate of zero-emission vehicles and whether per capita vehicle miles traveled increases or decreases. In Figure 12, Scenarios 1 and 6 represent an accelerated zero-emission vehicle adoption rate with annual revenue deficits ranging from $5.5 billion to $8.5 billion below the current level.

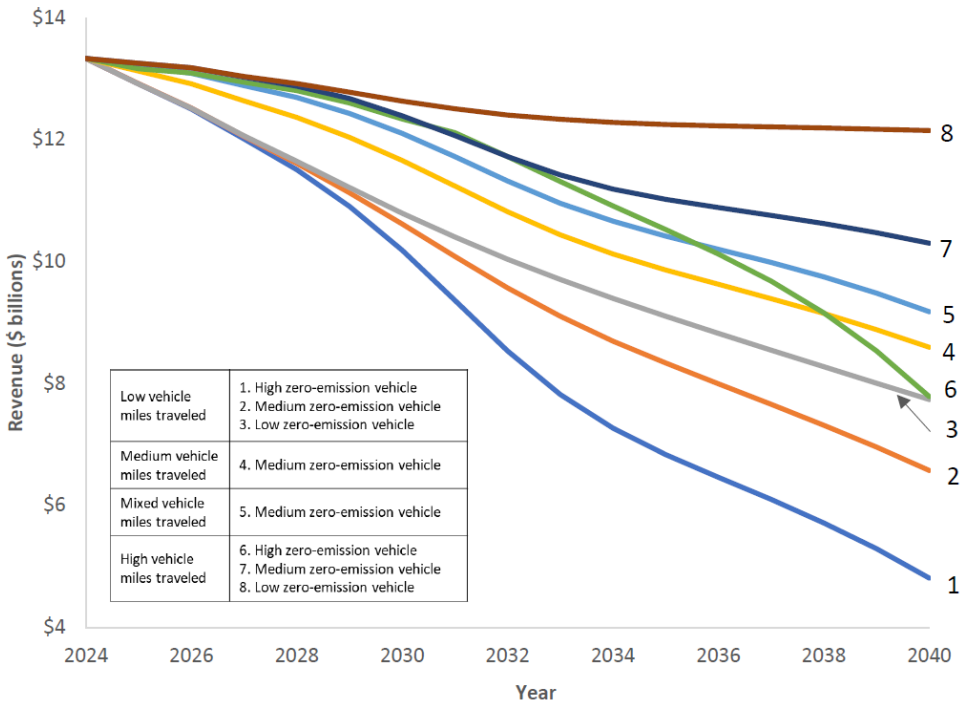


Figure 12. Mineta Transportation Institute revenue estimate (redrawn).

Scenarios 3 and 8 represent a slower adoption rate of zero-emission vehicles with a total revenue deficit of $1.2 billion to $5.5 billion below the current level. Scenarios 3 and 6 yield similar 2040 revenue deficits despite Scenario 6 having an accelerated zero-emission vehicle adoption rate and Scenario 3 having a decelerated zero-emission vehicle adoption rate. This illustrates the significant impact vehicle miles traveled can have on transportation revenue.

The Mineta Transportation Institute's low vehicle miles traveled trajectory is similar to the schedule outlined by the California Air Resources Board to meet the state's greenhouse gas emission goals. Additionally, the medium and high zero-emission vehicle projected adoption rates bracket the schedule controlled by the 2022 Advanced Clean Cars regulations. Consequently, as the state follows California Air Resources Board regulations and schedules, transportation revenue can be expected to fall between the results of Scenarios 1 and 2 (2040 annual revenue decline of approximately $6.8 to 8.5 billion). It is important to keep in mind that the fuel efficiency was held constant for the Mineta Transportation Institute scenarios. Any further improvements in internal combustion vehicle fuel efficiency will exacerbate the potential funding deficit.

Needs Assessment Analysis

The Commission performed statewide transportation revenue projections as tasked by Senate Bill 1121. Two scenarios were compared and included a baseline scenario, which assumes the California Department of Transportation revenue estimate would increase at a typical rate going into the future; and a needs assessment scenario, which aims at evaluating the effects of zero-emission vehicle adoption, associated improved fuel efficiency, and vehicle miles traveled reduction on state transportation revenues. Figure 13 illustrates the total transportation funding, including gasoline excise tax, diesel excise and sales taxes, Transportation Improvement Fee, and Road Improvement Fee revenues for the baseline and needs assessment scenarios.

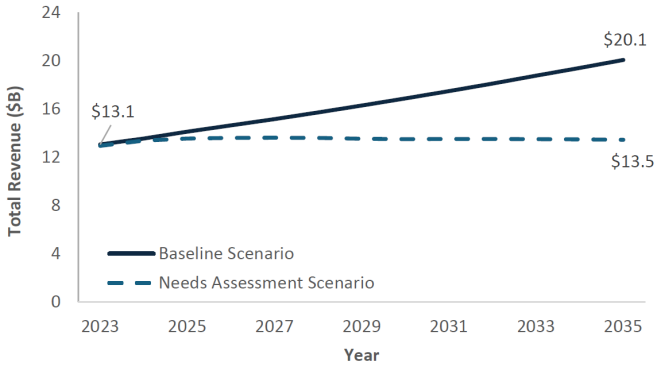


Figure 13. Needs assessment analysis.

The baseline scenario indicates an anticipated annual increase in funding, while the needs assessment scenario indicates only a slight increase in revenue over time. The gap between the 2 scenario funding projections represents the potential revenue loss over time, totaling $6.6 billion by Fiscal Year 2035 – 2036, or a total revenue decline of $31.1 billion from 2025 to 2035.

Revenue Impacts

As evidenced by the revenue estimates, the state is expected to see a reduction in transportation revenue due to the improved vehicle technology and associated improved fuel efficiency under the current funding structure. This outcome is expected given that an average internal combustion vehicle driver currently pays approximately $300 per year in gasoline excise tax, while a comparable zero-emission vehicle driver pays $118 in Road Improvement Fees.[55]

The exact revenue loss is difficult to predict and will vary depending on how quickly both the adoption rate of zero-emission vehicles and the degree to which fuel efficiency of internal combustion engines increases. Based on current studies, the state can expect to see revenue reductions in the range of $6 to $31 billion over the next 10 years (Table 15).

[55] https://www.dmv.ca.gov/portal/vehicle-registration/registration-fees/

Table 15. Summary of revenue studies.

Study	General Approach	10 Year Revenue Reduction
Needs Assessment Analysis	• Adoption of Advanced Clean Cars II/Fleet and improved fuel efficiency	• $31.1 billion
Legislative Analyst's Office	• 85% of new vehicle purchases as zero-emission vehicles by 2045 • 65% of new vehicle purchases as zero-emission vehicles by 2045 and improved fuel efficiency	• $13.2 billion • $29.9 billion
Mineta Transportation Institute	• Varied vehicle miles traveled • Varied rate of new vehicle purchases as zero-emission vehicles • Improved fuel efficiency	• $6.0 billion to $30.3 billion

Infrastructure Considerations

In July 2023, a joint statement of intent was announced in support of developing and expanding the electric vehicle charging infrastructure throughout the state of California.[56] The statement of intent outlines infrastructure expansion in step with the California Air Resources Board Advance Clean Cars II/Fleet regulations. The planning and development efforts include (1) energy supply and grid planning, (2) charging and fueling state infrastructure planning, and (3) charging and fueling station development. The statement of intent also establishes principles of cooperation and coordination for supporting equity, communication, sharing data and analysis, joint stakeholder engagement, joint planning, and joint solicitations amongst the agencies in support of zero-emission transportation infrastructure expansion.

Joint Statement Agencies

- California Air Resources Board
- California Department of General Services
- California Department of Transportation
- California Energy Commission
- California Governor's Office
- California Public Utilities Commission
- California State Transportation Agency
- California Transportation Commission

The Commission's Senate Bill 671 Clean Freight Corridor Efficiency Assessment quantified the infrastructure needed to support medium- and heavy-duty zero-emission vehicles.[57] It was noted funding should come from public and private sources. While some public funding exists, additional state and federal funding sources are needed for station development. Cost for building a single electric battery vehicle station is estimated to be $5 million to $9 million and $9 million to $13 million for a hydrogen fuel cell station. The 10-year (2025-2035) need to develop the initial medium- and heavy-duty zero-emission vehicle charging station network is estimated to be $10 billion to $15 billion.

Caltrans and the California Energy Commission are working to implement the National Electric Vehicle Infrastructure Program to interconnect fast charging stations along the Alternative Fuel Corridors. The

[56] https://ww2.arb.ca.gov/sites/default/files/2023-04/ZEV%20Infrastructure%20Joint%20Statement%20of%20Intent%204-20-23%20final.pdf.
[57] https://catc.ca.gov/programs/sb671.

nationwide program provides $5 billion nationwide, with approximately $384 million (over 5 years) for California.[58]

To further support the zero-emission infrastructure expansion, in February 2024, the California Energy Commission approved a $1.9 billion plan to support zero-emission light-duty charging infrastructure, truck and bus infrastructure, port infrastructure, emerging opportunities, and workforce development (Figure 14).[59]

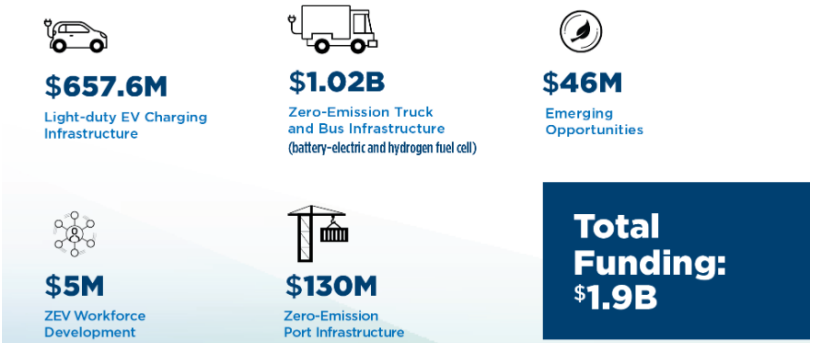


Figure 14. Clean transportation program investments (2023 – 2027).

[58] https://www.energy.ca.gov/programs-and-topics/programs/national-electric-vehicle-infrastructure-nevi-formula-program.

[59] https://www.energy.ca.gov/news/2024-02/cec-approves-19-billion-plan-expand-zero-emission-transportation-infrastructure

Chapter 6 Policy Recommendations

Government Code Section 14518, as added by Senate Bill 1121, requires the State and Local Transportation System Needs Assessment to provide recommendations for addressing any projected shortfall between revenues and needs over the 10-year assessment period. As discussed in Chapter 2, the Commission engaged with stakeholders in a series of workshops to identify first principles and policy recommendation scenarios, and to provide a preferred scenario.

Recommendations

First Principles

The report recommends utilizing the First Principles as seen in Figure 2 in conjunction with the recommended preferred scenario of a Phased-Implementation of a Sustainable Revenue Mechanism. The first principles are the building blocks for identifying important aspects of the statewide transportation system. Each principle is of equal importance to the statewide transportation system. Using the first principles approach helps to establish the policy objectives the Legislature should address when developing a more sustainable funding mechanism to replace the state fuel excise tax. While the Commission gave equal weight to these first principles in developing the Assessment's recommendations, the Legislature may choose to elevate specific priorities as it evaluates the recommendations.

Preferred Scenario - Phased Implementation of Sustainable Funding Mechanism

This report recommends implementing a sustainable revenue mechanism as a full replacement to the state fuel excise tax. This would help stabilize transportation funding and allow California to remain competitive and make progress toward achieving the state's safety, climate, equity, and economic goals.

The first focus of implementing a new sustainable funding mechanism should be to stop the loss of transportation revenues due to declining fuel consumption. This by itself will not allow California to meet all its transportation needs, as was the case when Senate Bill 1 passed. A significant shortfall would remain even if the projected revenue decline was halted, and funding stabilized. Additional revenues are needed to address the identified shortfall.

The preferred scenario would be to implement a phased-in approach for a sustainable funding mechanism. This would require legislative action. Indexing the sustainable funding mechanism to inflation would be critical to ensuring purchasing power for transportation needs do not erode. Importantly, the sustainable funding mechanism would be a replacement of the state fuel excise tax, which would ultimately be phased out.

Phasing in a sustainable funding mechanism is recommended because it allows time to address any potential challenges and provide clear steps on the transition to the chosen sustainable funding mechanism.

A critical step for transitioning away from the state fuel excise tax to another sustainable funding mechanism should include developing an educational outreach and engagement plan. Scaling the outreach will be important, along with identifying state agency partners that can distribute information to vehicle owners, such as the Department of Motor Vehicles. State agencies such as the California State Transportation Agency, California Transportation Commission, Department of Transportation, Department of Motor Vehicles, and the

California Department of Tax and Fee Administration would need to work together as the state moves towards the implementation of a sustainable fund source.

In preparation of the 2025 State and Local Transportation System Needs Assessment the following areas were identified for further study:

- **Tribal Transportation Needs**: The transportation needs of tribal communities are not as well documented as those of other communities. There is no existing mechanism for these needs to be aggregated and communicated to the state and there are resource challenges within tribal communities to identify transportation needs. These needs vary by tribal community and, in some cases, can be supported with existing state transportation programs. The Legislature should explore ways to solicit information on transportation needs in tribal communities statewide that recognizes the sovereignty and specific circumstances of individual tribes and provides technical assistance as needed within the process. This information could be used to further inform future State and Local Transportation System Needs Assessments.
- **Accessible Transportation Needs:** Many older adults and individuals with disabilities are unable to access or use private vehicles or conventional public transportation. Accessible transportation for those experiencing mobility challenges is critical to the health and welfare of these individuals. These needs and services are addressed across multiple sectors of government as well as private social service agencies. The Legislature should commission a study to supplement the needs identified in regional transportation plans and coordinated transportation plans to ensure all needs, including those provided by social service agencies that are beyond Americans with Disabilities Act are captured. The study should also evaluate the extent to which transportation agencies are able to obtain and utilize funding that can be used to increase the accessibility of public streets and transit
- **Climate Resiliency Transportation Needs:** The Legislature established the Local Transportation Climate Adaptation Program in 2022, funded with a combination of one-time state funds and federal formula funds from the Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT) Program. With the expiration of the one-time state funds, and the federal authorization for the federal PROTECT formula funds ending in federal fiscal year 2026, the program will be left without a funding source for new projects after the current funding cycle concludes.

  The Local Transportation Climate Adaptation Program funds critically needed resilience improvements, projects that enhance community resilience or evacuation routes, and projects that address at-risk coastal infrastructure. It is the only state transportation program dedicated solely to these purposes. With every passing year, California's transportation system is increasingly impacted by the effects of climate change. For example, the State Highway Operation and Protection Program has included major damage reservations of more than $1 billion to address emergency repair work necessitated in part by storm damage or coastal erosion. It is recommended that the Legislature identify an ongoing funding source to meet these growing needs and provide consistent funding levels once the existing state and federal funds are exhausted.

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Appendix A List of Participating Entities

Representative	Affiliation	Interim Report Public Draft Nov-23	Stakeholder Update Jan 24	Zero Emission Vehicle Revenue Impacts Feb 24	Regional Transportation Plans May June 2024	Policy Recommendation May Jun 2024
Roy Abboud	California Department of Transportation	●	---	---	---	---
Ofelia Abundez	Fresno County of Governments	●	---	---	---	●
Zak Accuardi	Natural Resources Defense Council	---	---	●	---	---
Ruchita Acharya	Not specified	●	---	---	---	---
Brooke Acosta	Placer County Transportation Planning Agency	●	---	---	●	---
Dennis Acuna	Riverside County	---	---	●	---	---
Heather Adamson	Association of Monterey Bay Area Governments	---	●	---	---	---
David Aguirre	Not specified	●	---	---	---	---
Priscilla Agyemang	Southern California Association of Governments	---	---	---	●	---
Bob Allen	Urban Habitat	---	---	---	---	●
Jose Alvarez	San Diego Association of Governments	●	---	●	●	●
James Anderson	California Department of Transportation	---	---	---	---	●
Dylan Ando	Orange County Transportation Authority	---	---	●	●	●
John Andoh	Not specified	●	---	---	---	---
Martha Armas Kelly	Not specified	---	---	---	●	●
Siamak Asnaashari	Not specified	●	---	---	---	---
Natalia Austin	Madera County Transportation Commission	---	---	---	---	●
Rob Ball	Kern Council of Governments	---	---	●	---	●
Shirin Barfjani	Not specified	●	---	---	---	---
John Barna	Anrab Associates	---	---	●	---	●
Nephele Barrett	Dow Associates	---	---	●	●	●
Troy Bartolmei	Not specified	●	---	---	---	---
Jerry Barton	El Dorado County Transportation Commission	---	---	●	●	●
Alyssa Begley	California Department of Transportation	---	---	---	---	●
Timonthy Bilash	Not specified	---	---	●	---	---
Steve Birdlebough	Not specified	---	---	---	---	●

Representative	Affiliation	Interim Report Public Draft Nov-23	Stakeholder Update Jan 24	Zero Emission Vehicle Revenue Impacts Feb 24	Regional Transportation Plans May June 2024	Policy Recommendation May Jun 2024
Hillary Blackerby	Santa Barbara Metropolitan Transit District	---	---	●	---	---
Michelle Boehm	Deloitte	●	---	---	---	---
Sabrina Bradbury	Not specified	●	---	●	---	---
R. Brady	Not specified	---	---	---	●	---
Clara Brotcke	Orange County Transportation Authority	●	---	●	---	---
Beth Burks	Humboldt County Association of Governments	---	---	---	---	●
Kaitlin C	Not specified	---	---	---	●	---
Joanna Capelle	Orange County Transportation Authority	---	---	●	---	---
Adriann Cardoso	Orange County Transportation Authority	---	---	---	---	●
Jamie Carone	San Bernardino County Transportation Authority	---	---	●	●	---
Catherine Carr	California Department of Transportation	---	---	---	---	●
Jared Carter	Madera County	---	---	---	---	●
Rick Carter	Placer County Transportation Planning Agency	---	---	---	---	●
Gerald Cauthen	Not specified	---	---	---	---	●
Jenny Chan	Southern California Association of Governments	---	---	---	●	---
Shalini Chandra	California Department of Transportation	---	---	---	---	●
Chonita Chew	Not specified	●	---	---	---	---
Randy Chinn	California Senate	●	---	●	---	---
Cindy Cho	Southern California Association of Governments	---	---	●	---	●
Yachun Chow	Not specified	●	---	---	---	---
Mehedi Chowdhury	California Department of Transportation	---	---	---	---	●
Kayley Clay	Kings County Association of Governments	---	---	---	●	---
Damon Conklin	League of California Cities	---	●	---	---	---
Julia Copper	Not specified	●	---	---	●	●
Mike Costa	Not specified	●	---	---	---	---
Amber Crabbe	San Francisco County Transportation Authority	---	---	●	---	---

Representative	Affiliation	Interim Report Public Draft Nov-23	Stakeholder Update Jan 24	Zero Emission Vehicle Revenue Impacts Feb 24	Regional Transportation Plans May June 2024	Policy Recommendation May Jun 2024
Melissa Cummins	Siskiyou County	---	---	●	●	●
John Cunningham	Contra Costa County	---	---	●	●	●
Tony Dang	City of Oakland	---	---	---	---	●
Natalie Daniel	California High Speed Rail	●	---	---	---	---
Bryan Davey	Sierra County	●	---	●	---	●
Lisa Davey-Bates	DBC Team	●	---	●	---	●
Stephani Davis	Merced County Association of Governments	---	---	---	---	●
Alex Davis	SCRRA Engineering	●	---	---	---	---
Frances Dea-Sanchez	California Transportation Commission	●	●	●	●	●
Anna Denecke	Not specified	●	---	---	---	---
Zack Deutsch-Gross	Transform California	---	---	---	---	●
Albee Dobson	California Department of Transportation	---	---	---	---	●
Keith Duncan	California Department of Transportation	●	---	●	---	---
Blake Dunford	Stanislaus Council of Governments	●	---	---	●	●
Loretta Ellard	DBC Team	---	---	●	---	●
Norman Emerson	Not specified	---	●	●	---	---
Edward Emery	Riverside County Transportation Commission	---	●	●	---	●
Billy Epps	Not specified	●	---	---	---	---
Alberto Esqueda	San Francisco Municipal Transportation Agency	---	---	---	---	●
John Estrada	San Diego Association of Governments	---	---	---	---	●
Shannon Falk Carlsen	Humboldt County	---	---	●	---	---
Jeff Findley	Madera County Transportation Commission	---	---	---	●	●
Ed Flickinger	Not specified	---	---	---	●	---
Chris Flores	Sacramento Regional Transit District	---	---	---	---	●
Alex Fong	Not specified	●	---	---	---	---
Elizabeth Forte	Merced County Association of Governments	---	---	---	---	●

Representative	Affiliation	Interim Report Public Draft Nov-23	Stakeholder Update Jan 24	Zero Emission Vehicle Revenue Impacts Feb 24	Regional Transportation Plans May June 2024	Policy Recommendation May Jun 2024
Garrett Franklin	California Department of Transportation	---	---	●	---	---
Kristina Gallagher	California State Association of Counties	---	---	●	●	---
Ivan Garcia	Butte County Association of Governments	---	---	●	---	●
Patrick Gilster	Not specified	●	---	---	---	---
Ben Giuliani	Tulare County	---	---	---	---	●
Paul Golaszewski	California Transportation Commission	●	---	●	---	●
Edgar Gonzales	California Department of Transportation	---	---	●	---	---
Darin Grossi	Tuolumne County	---	---	●	●	●
Gabriel Guitierrez	Not specified	---	---	---	●	---
Jillian Guizado	Not specified	---	---	---	●	---
Guadalupe Gutierrez	San Joaquin Council of Governments	---	---	---	---	●
Elisabeth Hahn	Stanislaus Council of Governments	---	---	---	●	---
Justin Hall	California Transportation Commission	●	---	●	---	---
Kaylon Hall	Sierra County	---	---	---	---	●
Samantha Harris	Contra Costa County	---	---	---	---	●
Zeenat Hassan	Disability Rights California	---	●	●	---	---
Paul Hierling	Association of Monterey Bay Area Governments	---	---	●	●	●
Waleed Hojeij	League of California Cities	---	---	---	---	●
Nina Hosseini	California Transportation Commission	---	●	●	---	●
Chris Houlemard	Not specified	●	---	---	---	---
Aaron Hoyt	Nevada County Transportation Commission	---	---	●	---	●
Jason Huang	Orange County Transportation Authority	---	●	●	●	●
Gwynne Hunter	California Transportation Commission	---	---	---	---	●
Greg Hurner	HGRA	---	---	●	●	---
Mike Hynes	CALSTART	---	---	●	---	---
Yoko Igawa	Foothills Transit	---	---	---	---	●

Representative	Affiliation	Interim Report Public Draft Nov-23	Stakeholder Update Jan 24	Zero Emission Vehicle Revenue Impacts Feb 24	Regional Transportation Plans May June 2024	Policy Recommendation May Jun 2024
Steven Ingoldsby	Tulare County Association of Governments	---	---	---	●	---
Rochelle Invian-Jayasiri	Not specified	●	---	---	---	---
Nicole Jepsen	California Department of Transportation	●	---	●	●	---
Mike Jones	California Department of Transportation	---	---	---	---	●
Kevin Kane	Victor Valley Transit Authority	---	---	---	●	---
Kenneth Kao	Bay Area Metro	●	---	---	---	●
Sarkes Khachek	Santa Barbara County Association of Governments	---	---	●	---	---
Mina Kim	Orange County Transportation Authority	---	---	---	---	●
Wendy King	California Department of Transportation	---	---	●	---	---
Danielle Kochman	San Diego Association of Governments	---	---	---	●	---
Justine Kokx	Inyo County	---	---	---	---	●
Janelle Kostlivy	Tuolumne County	---	---	---	---	●
Beth Kranda	Not specified	●	---	---	---	---
Michael Kuker	Shasta Regional Transportation Agency	---	---	---	---	●
Sandy Kushner	Air Products	---	---	---	---	●
Julia Lave Johnston	California Association of Councils of Governments	---	---	---	---	●
Jaimee Lederman	Southern California Association of Governments	---	●	●	---	---
Darrick Lee	California High Speed Rail	---	●	●	●	●
Alexis Leicht	Orange County Transportation Authority	●	---	---	---	---
Tamera Leighton	Del Norte Local Transportation Commission	---	---	●	---	●
Brent Lemon	Consor Engineering	---	---	●	---	---
Brandon Lesser	Orange County Transportation Authority	---	---	---	---	●
Adina Levin	Seamless Bay Area	---	---	---	---	●
Rebecca Light	California Transportation Commission	---	---	---	---	●
Krzysztof Lisaj	San Mateo County	---	---	●	---	---
Vincent Liu	Kings County Association of Governments	---	---	---	●	---

Representative	Affiliation	Interim Report Public Draft Nov-23	Stakeholder Update Jan 24	Zero Emission Vehicle Revenue Impacts Feb 24	Regional Transportation Plans May June 2024	Policy Recommendation May Jun 2024
Jose Luis Caceres	Stanislaus Council of Governments	---	---	---	●	---
Jess Manzi	Not specified	---	---	●	---	---
Kaleo Mark	Not specified	●	---	---	---	---
Peggy Martinez	Creative Inclusion	---	---	---	---	●
Michael Martinez	InductEV	---	---	---	---	●
Suzanne Martinez	San Diego Association of Governments	---	---	●	---	---
Martha Masters	Riverside County Transportation Commission	---	---	---	●	●
David Melko	Placer County Transportation Planning Agency	---	---	●	●	●
Charlotte Merkel	Humboldt County	---	---	●	---	●
Wendy Mitchell	Wendy Mitchell Consulting	---	---	---	---	●
Mehdi Moeinaddini	Shasta Regional Transportation Agency	---	---	●	---	●
Sharlan Montgomery Dunn	NCE	---	---	●	---	●
Jeannie Morvay-Clayton	Mariposa County	---	---	●	---	---
Amy Naranjo	Santa Cruz County Regional Transportation Commission	---	---	●	---	---
Brittany Navas	Not specified	●	---	---	---	---
Robert Naylor	Not specified	●	●	●	---	---
Mark Neuburger	California State Association of Counties	●	---	---	---	---
Adam Noelting	Bay Area Metro	---	---	---	---	●
Amber Novey	Laborers' International Union of North America	---	---	---	---	●
Benjamin O'Brian Hokanson	Not specified	---	●	---	---	---
Jacob O'Connor	Not specified	---	●	---	---	---
Michelle Overmeyer	Monterey-Salinas Transit	●	---	●	---	---
Raquel Pacheco	Kern Council of Governments	●	---	---	●	---
Joshua Pack	Butte County	---	---	●	---	---
Adrian Paniagua	San Diego Association of Governments	---	---	---	---	●

Representative	Affiliation	Interim Report Public Draft Nov-23	Stakeholder Update Jan 24	Zero Emission Vehicle Revenue Impacts Feb 24	Regional Transportation Plans May June 2024	Policy Recommendation May Jun 2024
Ally Parker	Not specified	●	---	---	---	---
Shashank Patil	Not specified	●	---	---	---	---
Laura Pennebaker	California Transportation Commission	●	●	●	●	●
Yesenia Perez	Greenlining Institute	●	---	●	---	---
Michael Petrik	Not specified	●	---	---	---	---
Robert Phipps	Fresno County of Governments	●	---	---	---	---
Linda Pierce	NCE	●	●	●	●	●
Michael Pimentel	California Transit Association	---	---	---	---	●
Laura Podolsky	Not specified	●	---	---	---	---
Meg Prince	Merced County Association of Governments	---	---	●	●	●
Shelly Quan	Southern California Association of Governments	---	---	---	●	---
Tamy Quigley	California Department of Transportation	---	●	●	---	---
Ben Raymond	Kern Council of Governments	---	---	---	●	---
Refugio Razo	Not specified	●	---	---	●	---
Martin Reyes	Los Angeles County	●	---	---	---	---
Mary Reyes	Not specified	---	---	●	●	---
Nydia Rivas	Los Angeles County	---	---	●	●	---
Theresa Romell	Bay Area Metro	---	---	---	---	●
Michael Rosson	Sacramento Area Council of Governments	---	---	---	●	---
Michelle Rousey	Not specified	---	---	---	---	●
Patti Royston	Nevada County	---	---	●	---	---
Sarah Saad	Trinity County	---	---	●	---	●
San Saeteurn	California Department of Transportation	---	---	---	---	●
Kathleen San	TRC Companies	---	---	---	---	●
Jared Sanchez	Cal Bike	---	---	---	---	●
Robert Sarmiento	Contra Costa County	---	---	●	---	---

Representative	Affiliation	Interim Report Public Draft Nov-23	Stakeholder Update Jan 24	Zero Emission Vehicle Revenue Impacts Feb 24	Regional Transportation Plans May June 2024	Policy Recommendation May Jun 2024
Barry Scott	SBC Global	●	---	---	---	●
Blossom Scott-Heim	Tuolumne County	---	---	---	---	●
Monica Segobia	California Department of Transportation	---	---	●	---	---
Matthew Shimizu	Fresno County of Governments	●	---	---	---	---
Denise Sifford	Orange County Transportation Authority	●	●	●	●	●
Jim Simon	Tehama County	---	---	●	---	---
Peter Skinner	San Mateo County Transit District	---	---	---	---	●
John Spetca	Not specified	---	---	---	●	---
Nick St Cook	Stanislaus Council of Governments	●	---	---	---	●
Connie Stewart	Cal Poly Humboldt	---	---	---	---	●
Dylon Stone	Madera County Transportation Commission	---	---	---	●	---
Dylan Stone	Not specified	●	---	---	---	---
Jennifer Synhorst	California Department of Transportation	---	---	---	---	●
Sui Tan	Bay Area Metro	---	---	●	---	●
Tanisha Taylor	California Transportation Commission	●	---	●	---	---
Patricia Taylor	Madera County Transportation Commission	---	---	---	---	●
Kena Teon	San Diego Metropolitan Transit System	---	---	---	---	●
Ruhama Tereda	National Coalition for a Civil Right to Counsel	---	---	---	---	●
Eric Thronson	Townsend Public Affairs	---	---	---	---	●
John Thurston	California Department of Transportation	---	---	---	---	●
Sean Tiedgen	Shasta Regional Transportation Agency	---	---	---	---	●
Maura Twomey	Association of Monterey Bay Area Governments	●	---	---	---	●
Kiana Valentine	Politico Group	●	---	●	---	---
Caesar Valle	Not specified	●	---	---	●	---
Barbara Vaughan Bechtold	Sacramento Area Council of Governments	---	●	●	---	---
John W.	Tulare County Association of Governments	---	---	---	●	●

Representative	Affiliation	Interim Report Public Draft Nov-23	Stakeholder Update Jan 24	Zero Emission Vehicle Revenue Impacts Feb 24	Regional Transportation Plans May June 2024	Policy Recommendation May Jun 2024
William Walker	Not specified	---	---	●	---	●
Jeanie Ward-Waller	Fearless Advocacy	---	---	---	---	●
Aaron Washco	Mono County	---	---	●	---	●
Laurie Waters	California Transportation Commission	---	---	---	---	●
Mark Watts	Transportation California's Legislative Advocate	---	---	---	---	●
Warren Whiteaker	Southern California Association of Governments	---	---	●	---	---
Benjamin Williams	California Transportation Commission	●	---	---	---	---
Kristine Williams	Enterprise Community Partners	---	---	---	---	●
Alison Winter	Ardurra Group, Inc.	---	---	●	---	---
Lana Wong	California Air Resources Board	●	---	---	---	---
Nancy Wong	Southern California Association of Governments	---	---	---	---	●
Mike Woodman	Nevada County Transportation Commission	---	---	●	---	---
Mark Yamarone	Southern California Association of Governments	---	---	---	●	---
Margot Yapp	NCE	●	●	●	---	---
Travis Yokoyama	San Joaquin Council of Governments	---	---	---	---	●
Najee Zarif	Not specified	●	---	---	●	---
Michael Zeller	Transportation Agency Monterey County	---	---	---	---	●
Louis Zhao	Orange County Transportation Authority	●	---	●	●	---

● Indicates webinar attendance; --- indicates did not attend webinar.

Appendix B Transit and Rail Estimated Needs

The results of the baseline analysis were supplemented with a more direct approach to estimating transit revenue vehicles and non-revenue service vehicles. A transit revenue vehicle is a mode of transportation that generates income for a transit agency through passenger fares. These vehicles include buses, heavy and light rail vehicles (including locomotives), ferries, cable cars, and other forms of public transportation. Non-revenue service vehicles include maintenance vehicles, such as trucks equipped for rail track or bus maintenance, utility vehicles for tasks like cleaning stations or removing debris from tracks, supervisor vehicles used by transit staff to oversee operations and respond to emergencies, and other support vehicles for transporting equipment, materials, or personnel.

Analysis Assumptions

There were several assumptions made for this analysis:

- Estimated costs exclude system expansion, operation, and maintenance costs.
- Rail electrification is not part of the California Air Resources Board Innovative Clean Transit Regulation[60]; therefore, it was excluded from the analysis.
- Vehicle replacement occurs at the end of the associated useful life and only for vehicles expected to be replaced during the plan period.
- Conversion to zero-emission buses assumes 25% more buses will be needed compared to conventional powered vehicles to account for range and reliability issues.
- Primary sources used in the analysis included the Federal Transit Administration National Transit Database for non-vehicle capital expenses. Revenue and service vehicle need estimates used the American Public Transportation Association vehicle procurement database for revenue vehicle replacement costs. Regional Transportation Plan or other sources were not used for the analysis.
- Non-vehicle asset management capital costs were based on the National Transit Database historical spending trends. Non-vehicle costs include administrative and maintenance facilities, transit stations, fixed guideways, communications, and fare equipment replacement costs. Using these spending trends potentially underestimates cost; however, data for non-vehicle asset management is not readily available for a statewide estimate.
- Electric vehicle maintenance facility expansion/conversion expenditures were not included. These can be significant, but an estimate for every transit operator was not available. However, they will be much lower than the vehicle replacement costs. The latter are included in the analysis.

Appendix C Climate Impacts

Sea Level Rise, Coastal Flooding, and Erosion

According to the California Natural Resources Agency & Ocean Protection Council's "State of California Sea-Level Rise Guidance 2024 Science and Policy Update," a statewide average of 0.8 feet of rise is projected in the next 30 years, while a range of 1.6 to 3.1 feet is expected by 2100, with even higher plausible amounts.[61] Rising sea levels pose a long-term threat near all coastal areas, particularly when compounded by geotechnical instability (in some cases, compounded by burn scars caused by wildfire events), general cliff retreat, and storm surge.

To illustrate the scale of this threat, the Metropolitan Transportation Commission/Association of Bay Area Governments and the San Francisco Bay Conservation and Development Commission estimated that protecting all portions of the Bay Area shoreline exposed to sea level rise and storm surge by 2050 will cost $110 billion; however, Bay Area governments only expect approximately $5 billion from existing federal, state, regional, and local funding programs, leaving a $105 billion funding gap.[36]

Impacts of sea-level rise:

- *Shortened pavement service life.*
- *Ineffective drainage systems, making water damage worse.*
- *Damage to other assets (e.g., communications systems, signs, signals, rest areas.*
- *Loss of stability and corrosion of bridge foundations.*

Table C1 presents various events resulting from sea level rise and the potential impacts these events may have on transportation infrastructure.[62]

Table C1. Potential impacts of sea level rise and flooding on transportation infrastructure.

Event	Potential Impact
Coastal road flooding	Disruption of traffic, delay of evacuation and emergency response, increased congestion, permanent breaks in the topological structure of the overall transportation network
Railway flooding	Disruption of traffic, delay, increased risk of hazardous material spill
Underground tunnels and subway flooding	Disruption and slowdown of subway traffic resulting in increased car, bus, and train commuting
Erosion of coastal roads and rails	Potential road slump or failure, potential railbed instability or failure
Bridge scour	Erosion of sediment from around bridge abutments or piers adds to increased maintenance, potential failure, and periodic bridge closures

The four general roadway and bridge adaptation strategies include protect, accommodate, retreat, and changes in policies or practices. While preferred alternatives/solutions range in complexity and scope, generally projects intended to address sea level rise tend to be extremely costly, relative to other climate stressors. For example, bridge replacements (accommodate) and highway realignments (retreat) will typically run up to, and potentially well over, $100 million at any given location.

[61] https://opc.ca.gov/2024/01/draft-slr-guidance-2024/

The projected costs to adapt roadways and bridges for sea level rise, storm surge, and cliff retreat from 2033 to 2100 is approximately $246.1 billion (Figure C1).

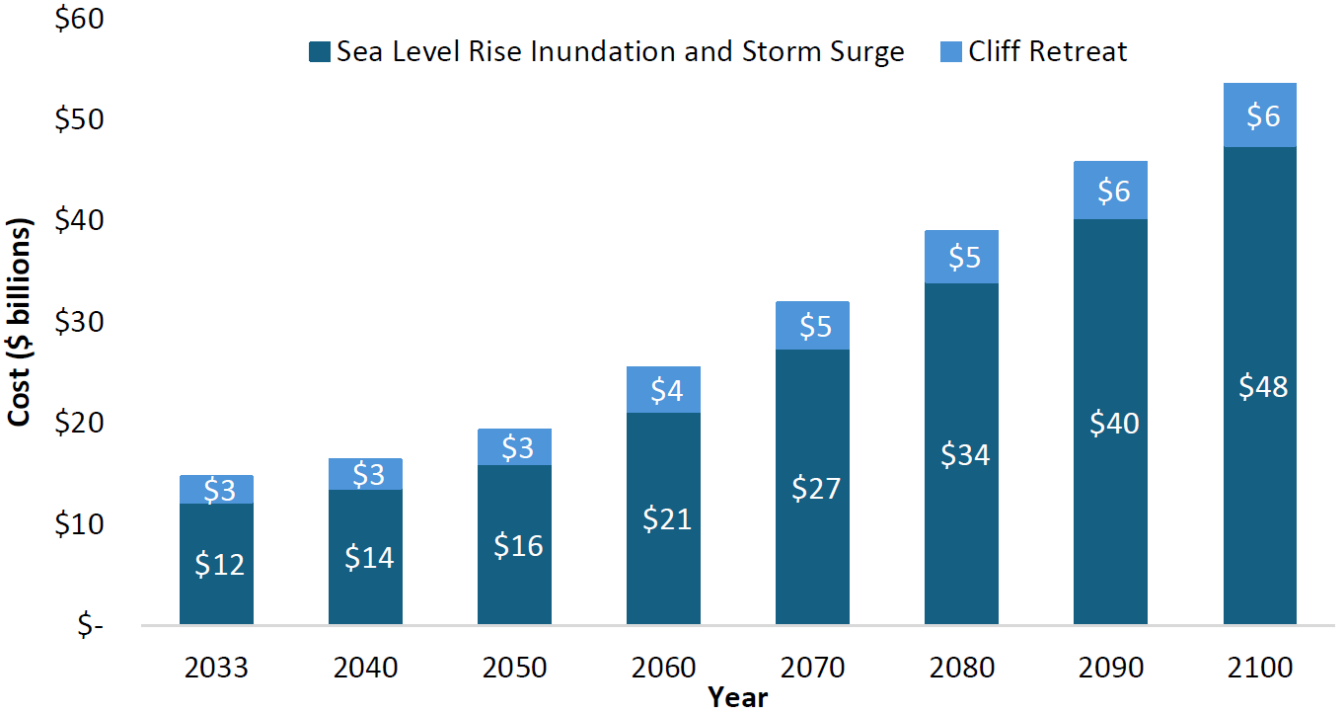

Figure C1. Adaptation costs for sea level rise, storm surge, and cliff retreat on state highways (adapted from the California Department of Transportation 2023).

Wildfires

The California Department of Transportation 2021 Vulnerability Assessment Statewide Summary Report describes the effect of shifting precipitation patterns and rising temperatures contributing to increased risk, severity, and extent of wildfires.[38] The National Oceanic and Atmospheric Administration determined climate change is altering ecosystems and their function, leading to increased area burned by wildfire.[62] Figure C2 shows the number of acres burned during the 20 largest fires in California history, grouped from 1900 – 1999, 2000 – 2019, and 2020 – 2022.[63] Over half of the total acres burned during California's 20 largest fires occurred between 2020 and 2022.

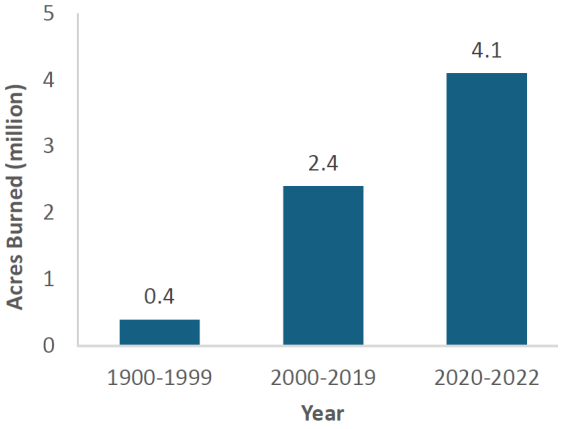

Figure C2. Acres burned by California's 20 largest wildfires.

[62] https://nca2018.globalchange.gov/

[63] https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/calfire-website/our-impact/fire-statistics/top-20-largest-ca-wildfires.pdf?rev=037e566cdfd540b9a9fe607b809b855c&hash=D7AC28D89B9F8FE36F3C7E5958CEE016

Landscapes impacted by recent wildfires see exacerbated flooding and landslides due to a lack of protective vegetation and a diminished capacity of the soil to absorb water causing additional evacuations, road closures, and damage. Areas within the California Department of Forestry and Fire Protection (Cal Fire) designated fire hazard severity zones are vulnerable to frequent damage.[64]

The statewide local and state highway systems are significantly affected by wildfires leading to cascading operational and safety impacts. For example, wildfire debris can litter roadways causing safety issues, clog culverts, and damage the undersides of bridges. These impacts may affect the capacity to facilitate safe and efficient evacuations and emergency response during disaster events, specifically the egress of vulnerable populations away from hazards, and the ingress of first responders to manage hazards. The California Department of Transportation is currently researching evacuation and emergency response operations and developing a corresponding prioritization framework to help identify locations on the state highway system with the most immediate improvement needs.

While many fires are preventable, some measures can be taken to prevent the generation and uncontrollable spread of wildfires and mitigate potential damage to transportation facilities and their surrounding communities. Typical measures include creating a buffer between assets and flammable vegetation, using fire and drought-resistant landscaping species, and selecting ember and heat-resistant materials.

Inland Flooding

Climate change is causing the variance between wet and dry periods to become more extreme, contributing to extended periods of drought followed by heavy storm events fed by “atmospheric rivers” from the Pacific Ocean. For example, the winter of 2016-17 brought significant precipitation following a historic drought, causing extensive flooding and approximately $1 billion in damage to the state highway system. Increasing storm intensity, combined with land use and landscape changes (i.e., due to wildfires), has increased the risk of infrastructure damage and loss from inland (or riverine) flooding. There are three main strategies to address inland flooding:

- Floodplain conservation and restoration (nature-based): restore wetland and riparian habitat within and surrounding floodplains, including slowing the flow of floodwaters, enabling groundwater recharge, and holding soil in place.
- Drainage improvements: culvert widening and upsizing, elevating road surfaces, installation of bioswales, construction of retention/detention ponds, and improving surface permeability.
- Accommodate: elevate roadways parallel to or transecting rivers and streams in at-risk flood zones.

Rising Temperatures

California is expected to experience increases in annual average maximum temperatures throughout the 21st century. These increases are expected to be greater in inland areas than in coastal areas. Additionally, more frequent, intense, and longer-lasting heat waves are expected.[65] Extreme heat poses health risks, to non-auto travelers, who may have limited access to travel options with air conditioning. Complete streets projects should

[64] https://www.fire.ca.gov/osfm/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones/fire-hazard-severity-zones-maps-2022
[65] https://lao.ca.gov/Publications/Report/4575

consider strategies to address extreme temperatures such as increasing street tree coverage to provide shade, use of cool pavement materials (where feasible), and transit shelters. Operational and safety strategies include protecting bike lanes to support comfortable travel at slower speeds (to avoid exhaustion) and decreasing transit service headways to prevent long waits at unsheltered transit stops and stations.

Figure C3. Example of concrete blowup.

For roadways, temperature increases cause asphalt and pavements to soften and expand, leading to premature rutting, potholes, oxidation, cracking, and raveling. Extreme heat can also cause blowups in concrete pavement (Figure C3).[66] Projected temperature increases have been estimated to add 3% to 9% to the cost of road construction and maintenance over 30 years. Extreme heat can cause railroad tracks to buckle and can place stress on bridge joints. Construction activities for transportation assets may also be limited by rising temperatures, especially in places with high humidity. To adapt to higher average temperatures and periods of extreme heat, changes may be needed in materials selection and landscaping options.

Droughts

Rising temperatures lead to a decline in snowpack, increased rates of melting and evaporation, and drier soils, all of which contribute to frequent and more intense droughts. Californian communities have historically depended on snowmelt for annual water supply in the spring and early summer, which is also when seasonal irrigation water demand increases. One statewide impact of droughts involves the over-pumping of groundwater to accommodate for the decreased water supply, which damages infrastructure from subsidence, or land sinking.[67] The variance between wet and dry years may become more extreme, leading to more dry years and more intense precipitation events when they do occur. Following more intense storms, communities must be prepared for increased flooding.

Transportation projects can help address this issue by adopting and implementing drought-resistant landscaping within rights-of-way, providing multiple functional and aesthetic benefits. Further, the California Department of Transportation uses smart irrigation controller technology to conserve water to the furthest extent possible.

[66] https://www.fhwa.dot.gov/asset/pubs/hif23010.pdf
[67] https://lao.ca.gov/reports/2022/4575/Climate-Change-Impacts-Crosscutting-Issues-040522.pdf

Table C1. Predicted 10- and 30-year average annual maximum temperature changes by county.

County	District	Predicted average temp 2025 (°F)	2035 10-year Change	2055 30-year Change	County	District	Predicted average temp 2025 (°F)	2035 10-year Change	2055 30-year Change
Alameda	4	71	1%	3%	Orange	12	76	1%	3%
Alpine	10	58	2%	6%	Placer	3	68	1%	4%
Amador	10	71	1%	4%	Plumas	2	63	1%	5%
Butte	3	74	1%	4%	Riverside	8	84	1%	3%
Calaveras	10	72	1%	4%	Sacramento	3	77	1%	3%
Colusa	3	76	1%	3%	San Benito	5	73	1%	4%
Contra Costa	4	74	1%	3%	San Bernardino	8	82	1%	3%
Del Norte	1	59	1%	3%	San Diego	11	77	1%	3%
El Dorado	3	67	1%	4%	San Francisco	4	66	1%	3%
Fresno	6	70	2%	4%	San Joaquin	10	77	1%	4%
Glenn	3	75	1%	3%	San Luis Obispo	5	72	1%	3%
Humboldt	1	63	1%	3%	San Mateo	4	68	1%	3%
Imperial	11	90	1%	3%	Santa Barbara	5	71	1%	2%
Inyo	9	76	2%	4%	Santa Clara	4	71	1%	4%
Kern	6	77	1%	3%	Santa Cruz	5	70	1%	3%
Kings	6	79	1%	3%	Shasta	2	69	1%	4%
Lake	1	70	1%	3%	Sierra	3	63	2%	5%
Lassen	2	63	2%	5%	Siskiyou	2	63	1%	4%
Los Angeles	7	76	1%	3%	Solano	4	76	1%	3%
Madera	6	71	2%	3%	Sonoma	4	72	1%	3%
Marin	4	72	1%	3%	Stanislaus	10	76	1%	4%
Mariposa	10	70	2%	5%	Sutter	3	78	1%	3%
Mendocino	1	68	1%	3%	Tehama	2	72	1%	4%
Merced	10	78	1%	4%	Trinity	2	64	1%	4%
Modoc	2	64	1%	4%	Tulare	6	69	2%	4%
Mono	9	60	2%	6%	Tuolumne	10	63	2%	5%
Monterey	5	73	1%	3%	Ventura	7	71	1%	3%
Napa	4	74	1%	3%	Yolo	3	77	1%	3%
Nevada	3	67	1%	4%	Yuba	3	76	1%	4%

Table C2. Predicted 10- and 30-year changes in average annual precipitation by county.

County	District	Predicted average precipitation 2025 (in.)	2035 10 year Change	2055 30 year Change	County	District	Predicted average precipitation 2025 (in.)	2035 10 year Change	2055 30 year Change
Alameda	4	20	-5%	-13%	Orange	12	15	-16%	-12%
Alpine	10	50	-5%	-12%	Placer	3	49	-2%	-11%
Amador	10	39	-6%	-12%	Plumas	2	48	-2%	-11%
Butte	3	46	-1%	-13%	Riverside	8	8	-21%	-9%
Calaveras	10	37	-6%	-11%	Sacramento	3	20	-3%	-13%
Colusa	3	25	-2%	-14%	San Benito	5	18	-12%	-14%
Contra Costa	4	21	-5%	-14%	San Bernardino	8	7	-19%	-12%
Del Norte	1	102	-3%	-9%	San Diego	11	16	-17%	-11%
El Dorado	3	47	-4%	-11%	San Francisco	4	24	-4%	-12%
Fresno	6	23	-14%	-13%	San Joaquin	10	15	-4%	-13%
Glenn	3	29	-3%	-14%	San Luis Obispo	5	18	-12%	-12%
Humboldt	1	77	-2%	-10%	San Mateo	4	30	-7%	-13%
Imperial	11	3	-30%	-9%	Santa Barbara	5	20	-14%	-14%
Inyo	9	9	-18%	-12%	Santa Clara	4	26	-9%	-14%
Kern	6	10	-15%	-12%	Santa Cruz	5	40	-9%	-14%
Kings	6	9	-16%	-14%	Shasta	2	51	-2%	-12%
Lake	1	46	-2%	-13%	Sierra	3	54	-1%	-11%
Lassen	2	19	-1%	-8%	Siskiyou	2	46	-1%	-12%
Los Angeles	7	17	-17%	-13%	Solano	4	22	-3%	-13%
Madera	6	28	-13%	-1%	Sonoma	4	51	-2%	-12%
Marin	4	39	-4%	-12%	Stanislaus	10	15	-9%	-13%
Mariposa	10	36	-11%	-13%	Sutter	3	21	-1%	-13%
Mendocino	1	60	-1%	-11%	Tehama	2	40	-2%	-12%
Merced	10	13	-11%	-13%	Trinity	2	63	-1%	-12%
Modoc	2	18	0%	-5%	Tulare	6	24	-16%	-13%
Mono	9	23	-12%	-13%	Tuolumne	10	46	-9%	-13%
Monterey	5	22	-12%	-13%	Ventura	7	22	-17%	-14%
Napa	4	36	-2%	-13%	Yolo	3	22	-2%	-14%
Nevada	3	56	-1%	-11%	Yuba	3	40	-1%	-12%

Table C3. Predicted 10- and 30-year change in acres burned by county.

County	District	Predicted total burn area 2025 (acres)	2035 10 year Change	2055 30 year Change	County	District	Predicted total burn area 2025 (acres)	2035 10 year Change	2055 30 year Change
Alameda	4	4,388	7%	5%	Orange	12	3,392	-19%	-11%
Alpine	10	4,043	13%	39%	Placer	3	9,776	6%	37%
Amador	10	4,909	6%	32%	Plumas	2	32,084	6%	16%
Butte	3	11,031	-16%	76%	Riverside	8	15,031	-13%	-7%
Calaveras	10	7,948	9%	28%	Sacramento	3	1,466	-13%	-18%
Colusa	3	5,714	-12%	-26%	San Benito	5	13,185	-7%	-12%
Contra Costa	4	2,873	8%	-8%	San Bernardino	8	15,867	-8%	-12%
Del Norte	1	11,029	-10%	1%	San Diego	11	18,814	-11%	-7%
El Dorado	3	12,198	13%	39%	San Francisco	4	107	-12%	-13%
Fresno	6	16,305	7%	69%	San Joaquin	10	2,719	-10%	-16%
Glenn	3	7,154	-14%	-21%	San Luis Obispo	5	28,213	7%	-10%
Humboldt	1	29,520	-33%	-22%	San Mateo	4	1,893	4%	83%
Imperial	11	484	-19%	-19%	Santa Barbara	5	26,418	4%	-17%
Inyo	9	8,667	-18%	-20%	Santa Clara	4	7,158	8%	4%
Kern	6	19,809	-8%	-17%	Santa Cruz	5	1,655	52%	56%
Kings	6	1,933	1%	-13%	Shasta	2	53,594	-36%	-2%
Lake	1	13,034	-12%	-17%	Sierra	3	10,650	11%	31%
Lassen	2	26,360	-4%	-20%	Siskiyou	2	104,236	-53%	-29%
Los Angeles	7	13,823	0%	-3%	Solano	4	2,417	-11%	-13%
Madera	6	7,536	23%	47%	Sonoma	4	51	-2%	-12%
Marin	4	1,775	26%	-4%	Stanislaus	10	5,984	-7%	-23%
Mariposa	10	10,116	30%	38%	Sutter	3	225	-11%	-26%
Mendocino	1	24,076	-22%	-6%	Tehama	2	24,987	-21%	4%
Merced	10	6,249	-7%	-19%	Trinity	2	42,415	-35%	-6%
Modoc	2	25,969	-15%	-24%	Tulare	6	14,651	12%	40%
Mono	9	9,051	18%	66%	Tuolumne	10	15,955	36%	57%
Monterey	5	26,970	0%	-3%	Ventura	7	17,704	-9%	-20%
Napa	4	5,256	-15%	-23%	Yolo	3	2,547	-17%	-26%
Nevada	3	10,089	0%	50%	Yuba	3	4,532	-16%	95%