Appendix 3
Strategies and Performance Measures for Achieving Success
APPENDIX 3 | STRATEGIES AND PERFORMANCE MEASURES FOR ACHIEVING SUCCESS

The policies and strategies outlined here are anticipated to achieve California’s goals in Chapter 4 for a more sustainable and equitable transportation system, achieve substantial greenhouse gas (GHG) emission reductions, conserve energy, and produce economic, consumer, and health benefits, creating better communities for Californians.

The performance measures outlined for each goal are a set of metrics carefully designed to support the California Transportation Plan 2040 (CTP 2040) policy framework. These metrics should be used throughout the State by transportation professionals to monitor progress toward desired performance outcomes. A subset of these measures has been forecast to the year 2040; the data comprise the technical output of the plan shown in Chapter 3 Analysis. The forecast represents a reasonable prediction of how each of the CTP 2040 alternatives will perform in creating jobs, supporting system performance, and reducing GHG emissions.

READING THIS APPENDIX

The information in this appendix is structured and labeled in a hierarchical format from Goals in Chapter 4. Each goal is defined and explained in terms of tools that potentially can be used to achieve it, and followed by a list of succinct policies, strategies, and performance measures.

- Goals are labeled “G” and numbered for easy identification (e.g., G1).
- Policies are prefixed by the goal they support (e.g., G1), are labeled “P” for “policy,” and are numbered for easy identification (e.g., G1-P1).
- Strategies are prefixed by the policy they support (e.g., P1), are labeled “S” for “strategy,” and are numbered for easy identification (e.g., G1-P1-S1).
- Performance measures (PM) are listed for each goal. Transportation professionals should use these measures to identify high-performance, cost-effective investments aligned with State and federal goals (e.g., PM1).

G1: IMPROVE MULTIMODAL MOBILITY AND ACCESSIBILITY FOR ALL PEOPLE

POLICIES (P)

G1-P1  Manage and operate an efficient integrated system.
G1-P2  Invest strategically to optimize system performance.
G1-P3 Provide viable and equitable multimodal choices, including active transportation.

**Strategies (S)**

P1-S1 Promote projects that are based on the mobility of people and freight rather than the throughput of vehicles.

P1-S2 Implement Active Transportation Demand and Management (ATDM) strategies such as dynamic pricing measures, dynamic lane use/shoulder control, dynamic routing, and dynamic ridesharing.

P1-S3 Implement programs to reduce vehicle trips while preserving personal mobility, such as employee transit incentives, telecommute programs and alternative work schedules, carsharing, parking policies, public education programs, and other strategies that enhance and complement land use and transit strategies.

P1-S4 Continue incremental improvements to the State’s intercity and commuter rail system, while providing for connectivity to a future high-speed rail (HSR) network, and local transit and tribal transit networks.

P1-S5 Establish methods for evaluating levels of service for all modes in support of an integrated, multimodal transportation system.

P2-S6 Focus on cost-effective strategies, such as intelligent transportation systems (ITS) that employ proven methods and technology to improve performance.

P2-S7 Identify multimodal funding that invests in multiple strategies to yield the highest results.

P3-S8 Provide safe, convenient, and continuous pedestrian and bicycle routes that interface with and complement a multimodal transportation system.

P3-S9 Expand, repair, and upgrade existing roadways to increase access for walking, bicycling, public transit use, and freight use.

P3-S10 Incorporate safe facilities for pedestrians, bicyclists and transit into roadway capacity and expansion projects.

P3-S11 Using a “Complete Streets” approach, plan transportation projects so as to integrate the needs of those traveling via diverse modes, while also being mindful of freight needs.

P3-S12 Simplify the environmental and permitting process to more easily integrate bike, pedestrian, and transit improvements into maintenance projects.

**Performance Measures (PM)**

PM1* vehicle miles traveled (VMT) per capita

PM2* Percent of congested freeway/highway VMT – Performance Measurement System (PeMS)

PM3* Mode-share travel to work

PM4* Congested arterial VMT (PeMS)

PM5* Bike and walk miles traveled

PM6* Non-work mode share
PM7* Freeway/highway travel time reliability: Federal Highway Administration (FHWA) buffer index (PeMS)
PM8* Transit/rail travel time reliability
PM9* Transit accessibility: housing/jobs within 0.5 miles of stop
PM10* Travel time to jobs (mean travel time to work)
PM11* Carbon dioxide (CO2) reduction per capita
PM12^ Multimodal travel mobility
PM13^ Multimodal travel reliability
PM14^ Multimodal service quality

* PMs identified in the Statewide Performance Monitoring Indicators for Transportation Planning Final Report (for more information, visit the Reference section of the CTP 2040 website: www.californiatransportationplan2040.org.)
^ PMs identified in Smart Mobility 2010 A Call to Action for the New Decade (for more information, visit the Reference section of the CTP 2040 website: www.californiatransportationplan2040.org.)

G2: PRESERVE THE MULTIMODAL TRANSPORTATION SYSTEM

POLICIES (P)
G2-P1 Apply sustainable (renewable and reusable resources) preventive maintenance and rehabilitation strategies.
G2-P2 Evaluate multimodal life-cycle costs in project decision-making.
G2-P3 Adapt the multimodal transportation system to reduce impacts from climate change.

STRATEGIES (S)
P1-S1 Use research, technology, innovative techniques, and new materials to extend the life of the multimodal system and to monitor defects so they can be addressed cost-effectively without risk to public safety.
P1-S2 Develop and implement a risk-based asset management plan, using cost-benefit analysis to prioritize investments.
P1-S3 Acquire sustainable funding for maintenance and preservation of the State transportation system.
P2-S4 Implement a strategic approach for assessing and prioritizing transit assets to bring the public transit system into good repair (Federal Transit Administration [FTA] FAST Act State of Good Repair and Asset Management).
P2-S5 Evaluate and enhance life-cycle cost tools to fit preservation needs.
P2-S6 Employ partnership planning with local governments to achieve equitable decision-making.
P2-S7 Implement pavement maintenance programs using best practices for all roads.
P2-S8 Preserve and maintain roads and transportation facilities in good repair.
P2-S9  Reduce the number of distressed roads and bridges.

P3-S10 Use available sea-level rise (SLR) tools to prioritize and mitigate impacts to the multimodal system.

P3-S11 Incorporate system impacts from climate change, risk, and vulnerability assessments into collaborative and proactive planning, design, construction, operations, and maintenance activities to provide affected agencies and freight partners with the ability to adapt and recover from rising sea levels.

**PERFORMANCE MEASURES (PM)**

PM1* Percent of distressed lane miles highway
PM2* Percent of distressed lane miles local roads
PM3* Percent of highway bridge lane miles in need of rehab/replacement
PM4* Percent of transit assets that have surpassed FTA useful life period

* PMs identified in the Statewide Performance Monitoring Indicators for Transportation Planning Final Report (for more information, visit the Reference section of the CTP 2040 website: www.californiatransportationplan2040.org)

**G3: SUPPORT A VIBRANT ECONOMY**

**POLICIES**

G3-P1 Support transportation choices to enhance economic activity.

G3-P2 Enhance freight mobility, reliability, and global competitiveness.

G3-P3 Seek sustainable and flexible funding to maintain and improve the system.

**STRATEGIES**

P1-S1 Develop and promote incentive programs designed to encourage efficient travel and utilization of active modes (e.g., Complete Streets).

P1-S2 Utilize technology to inform travelers of the best available travel options in terms of both time and cost.

P1-S3 Develop and promote efforts to improve reliability and efficiency through optimization of existing street and freeway capacity.

P2-S4 Develop and promote multimodal links between neighborhoods, job centers, and regional institutions centers.

P2-S5 Promote and negotiate cross-jurisdictional coordination to bring about improved efficiencies and connectivity, including at ports of entry (POE), for the movement of people, goods, services and information.

P2-S6 Research, develop, demonstrate, and deploy cost-effective technologies and operational strategies to expedite goods movement, improve safety, and reduce congestion.
P2-S7 Seek creation of national, State, and regional dedicated funding programs for freight transportation.

P3-S8 Research, develop, and propose transparent revenue sources that fully address current and future transportation system management needs.

P3-S9 Utilize reauthorization funding opportunities, such as Fixing America’s Surface Transportation Act (FAST Act), while advocating for policies consistent with the economic, environmental, and equity values of California.

P3-S10 Promote flexible funding for transportation problems that have significant public benefits, regardless of facility ownership and/or jurisdiction.

**PERFORMANCE MEASURES (PM)**

PM1* Travel time to jobs (mean travel time to work)

PM2^ Congestion effects on productivity

PM3^ Efficient use of system resources

PM4^ Network performance optimization

PM5^ Return on investment

* PMs identified in the Statewide Performance Monitoring Indicators for Transportation Planning Final Report

^ PMs identified in the Smart Mobility 2010 A Call to Action for the New Decade

**G4: IMPROVE PUBLIC SAFETY AND SECURITY**

**POLICIES (P)**

G4-P1 Reduce fatalities, serious injuries, and collisions.

G4-P2 Provide for system security, emergency preparedness, response, and recovery.

**STRATEGIES (S)**

P1-S1 Identify PMs and targets that guide Caltrans divisions and transportation stakeholders to the most effective safety strategies and countermeasures.

P1-S2 Improve and update the Strategic Highway Safety Plan (SHSP) and develop performance-based measures.

P1-S3 Continue to install and test positive train control (PTC) technology on all intercity and commuter passenger rail.

P1-S4 Invest in at-grade railroad crossing safety on over 10,000 at-grade (level) railroad crossings.

P1-S5 Improve outreach and education for Operation Lifesaver to prevent collisions, injuries, and fatalities on and around railroad tracks and highway rail grade crossings.
P1-S6  Improve outreach, early involvement and engagement for tribal, rural and elderly drivers, and pedestrian safety challenge areas.

P1-S7  Improve outreach and education on bicycle and pedestrian fatalities and serious injuries by providing expertise on bicycle and pedestrian safety practices, mobility aspects, and accessibility focusing on intersections and road and rail crossings.

P2-S8  Improve outreach, education, and implementation of the Crime Prevention through Environmental Design (CPTED) approach that deters crime and provides security through environmental design in transportation systems.

P2-S9  Improve airport and airline security, including the security of airport connectivity.

P2-S10 Improve outreach and education for local Emergency Operations Plan (EOP) coordination and resiliency best management practices.

P2-S11 Improve outreach and education in the National Response Framework and the Incident Command System (ICS), which is the systematic tool for the command, control, and coordination of emergency response.

PERFORMANCE MEASURES (PMs)

PM1*  Fatalities/serious injuries per capita

PM2*  Fatalities/serious injuries per VMT

PM3^  Multimodal travel reliability

PM4^  Design and speed suitability

* PMs identified in the Statewide Performance Monitoring Indicators for Transportation Planning Final Report (for more information, visit the Reference section of the CTP 2040 website: www.californiatransportationplan2040.org.)

^ PMs identified in Smart Mobility 2010 A Call to Action for the New Decade (for more information, visit the Reference section of the CTP 2040 website: www.californiatransportationplan2040.org).

G5: FOSTER LIVABLE AND HEALTHY COMMUNITIES AND PROMOTE SOCIAL EQUITY

POLICIES (P)

G5-P1  Expand collaboration and community engagement in multimodal transportation planning and decision-making.

G5-P2  Integrate multimodal transportation and land use development.

G5-P3  Integrate health and social equity in transportation planning and decision-making.
STRATEGIES (S)

P1-S1 Involve citizens, businesses, communities, community-based organizations, goods movement stakeholders, environmental justice (EJ) communities, Native American tribal governments, and institutions early in the transportation planning and decision-making process.

P1-S2 Design and implement public participation strategies to include those traditionally underrepresented and underserved, including low-income, the aging and the disabled, in the public planning and decision-making process.

P1-S3 Develop partnerships with schools to support increased use of public and transit options, walking, and bicycling among students and teachers (Safe Routes to School).

P1-S4 Incorporate community values and support context-sensitive solutions (CSS) for multimodal transportation facilities, creating sustainable infrastructure.

P2-S5 Encourage increased densities and mix of land uses, and other “smart growth” principles to support transit service, walking, and bicycling while accommodating goods movement.

P2-S6 Where appropriate, promote housing and land use development in coordination with multimodal transportation options; includes implementing the SMF principles at regional and local levels (including rural, suburban and urbanized settings).

P2-S7 Provide incentives for the most efficient use of land while being sensitive to regional, rural, and other community differences.

P2-S8 Promote incentives that reward employers who locate near transit or housing; and developers who build housing near employment centers.

P2-S9 Target funding toward existing communities–through strategies like HSR/transit-oriented, mixed-use development and land recycling–to increase community revitalization and the efficiency of public works investments and safeguard rural landscapes.

P3-S10 Develop models that integrate land use, transportation, health, and environmental issues.

P3-S11 Identify sustainability and equity indicators to enhance current transportation system PMs, such as access to public transit, safe transportation, recreation, healthy food, economic opportunities, and medical services.

P3-S12 Partner with stakeholders to educate the public about the health-related impacts of mobility and land use decisions, including near-roadway health, quality of life, and physical activity impacts, and the impacts of their travel choices.

PERFORMANCE MEASURES (PM)

PM1* Bike and walk miles traveled

PM2* Fatalities/serious injuries per capita

PM3* Transit accessibility: housing/jobs within 0.5 miles of stop

PM4* Residential and employment densities (new growth) by EJ and non-EJ areas

PM5* Housing/transportation affordability index

PM6* Acres of agricultural land changed to urban use
PM7*  CO2 reduction per capita  
PM8^  Support for sustainable growth  
PM9^  Equitable distribution of impacts  
PM10^  Equitable distribution of access and mobility  
* PMs identified in the Statewide Performance Monitoring Indicators for Transportation Planning Final Report (for more information, visit the Reference section of the CTP 2040 website: www.californiatransportationplan2040.org.).  
^ PMs identified in Smart Mobility 2010 A Call to Action for the New Decade (for more information, visit the Reference section of the CTP 2040 website: www.californiatransportationplan2040.org.).

**G6: PRACTICE ENVIRONMENTAL STEWARDSHIP**

**POLICIES (P)**

G6-P1  Integrate environmental considerations in all stages of planning and implementation.

G6-P2  Conserve and enhance natural, agricultural, and cultural resources.

G6-P3  Reduce GHG emissions and other air pollutants.

G6-P4  Transform to a clean and energy efficient transportation system.

**STRATEGIES (S)**

P1-S1  Identify and promote opportunities to retrofit or adapt facility designs to further enhance, minimize, and reduce the impact to the environment, such as the effects of climate change on facilities and natural ecosystems, including fragmentation for wildlife habitats and reduce impacts on water quality.

P1-S2  Link transportation planning decisions with resources and environmental planning to enhance and preserve the environment.

P1-S3  Incorporate mitigation and adaptation measures into transportation plans and projects early in the process.

P2-S4  Build partnerships and develop strategies for meeting State conservation goals to protect ecosystems, preserve large contiguous and viable tracts of habitat to offset adverse impacts, and determine the most valuable land for preserving and other strategies.

P2-S5  Encourage and facilitate partnerships that integrate conservation and infrastructure planning at regional scales such as, watershed planning, corridor management plans, and natural community conservation plans. Support projects such as the Essential Habitat Connectivity Project that guide future regional connectivity analysis, planning and implementation and continue to support advanced conservation planning and flexible funding to streamline these activities.

P2-S6  Pool mitigation funding for multiple projects to encourage integrated, large-scale mitigation and support new policies and legislation that promote earlier mitigation.
P2-S7 Establish a multi-agency consultation process for statewide and Regional Transportation Plan (RTP) development that minimizes impacts to natural resources and ecological systems (as required by FAST Act). This includes conducting early, frequent, and ongoing consultations with State, federal, tribal, and other resource entities responsible for natural resources, environmental protection, conservation, and historic and cultural preservation.

P2-S8 Provide guidance to enhance environmental stewardship and sustainability at the regional and local levels.

P3-S9 Support efforts to reduce GHGs, such as the California’s Cap-and-Trade Program, HSR, and zero and low emission vehicles.

P3-S10 Improve links between land use planning and climate adaptation planning by using the tools such as the previous California Regional Blueprint Program and Sustainable Communities Strategies (SCSs) to better integrate adaptation strategies into regional plans, general plans, and Local Coastal Programs (LCPs).

P4-S11 Ensure transportation systems, including multimodal options, are more efficient through smart land use, operational improvements, and ITS.

P4-S12 Support and encourage funding for zero-emission vehicle (ZEV) charging and infrastructure.

P4-S13 Support efforts to coordinate placement of alternative fuel/charging stations for effective freight movement.

**PERFORMANCE MEASURES (PM)**

PM1* Acres of agricultural land changed to urban use

PM2* CO2 reduction per capita

* PMs identified in the Statewide Performance Monitoring Indicators for Transportation Planning Final Report (for more information, visit the Reference section of the CTP 2040 website: www.californi atransportationplan2040.org).