

CHAPTER 7: SUSTAINABLE, ADAPTABLE, RESILIENT

GOAL 2: SUSTAINABLE, ADAPTABLE, RESILIENT

Implement regional transportation investments which provide context sensitive options, embrace emerging technologies, and greatly improve accessibility, adaptability, mobility, and climate emergency preparedness.

SUSTAINABLE

NEW TECHNOLOGIES IN TRANSPORTATION

While maintaining the current transportation network is a priority for EDCTC, we are also planning for a future in which technology will transform the way people move and live. This section provides a summary of federal guidance intended to prepare for new technologies and innovations that will define the future of transportation.

AUTONOMOUS OR SELF-DRIVING VEHICLES

Autonomous or self-driving vehicles are operated by various technologies that require little to no input from a human driver. These technologies include GPS navigation, sensors, optics, and other detection systems designed to avoid collisions. Autonomous vehicles have been tested in several forms around the United States and other parts of the world. Some in the industry believe the future of transportation will be driverless. However, many challenges will need to be overcome before full integration of autonomous vehicles can occur.



In 2019, both California State University Sacramento and the City of Rancho Cordova White Rock Corporate Campus tested Olli, the world's first co-created, 3D printed, self-driving shuttle developed by Local Motors. At each location, Olli transported passengers on short trips around the respective campuses. The pilot projects were deemed a success and demonstrated the potential of autonomous transportation in the future.

CONNECTED VEHICLE PROGRAM

The development of connected vehicles is being led by the federal government in partnership with state DOTs, regional transportation agencies, the Bureau of Industry and Security, and the auto industry. Vehicle-to-vehicle (V2V) technology consists of systems that enable vehicles to broadcast Basic Safety Messages (BSMs) - including speed, heading, brake status, and other information - using the radiofrequency spectrum, and to receive similar data from other equipped vehicles. When received in a timely manner, this information can help vehicle systems identify potential crash situations and deliver warnings to drivers.

V2V technology is distinct from “vehicle-resident” technologies (e.g., camera- and sensor-based systems) and would operate separately from, or in complement to, advanced driver assistance systems. V2V signals can be received around corners and physical obstructions, and in suboptimal weather and light conditions, without the line-of-sight limitations that affect vehicle-resident technologies.

The National Connected Vehicle Program will impact regional and local transportation agencies, in addition to Caltrans. Since 90% of California’s roadways are owned and operated by local agencies, including 58 counties and over 500 incorporated cities, it is important that EDCTC and partner agencies be aware of and plan for the implementation of connected vehicles.

Unlike connected vehicles, which are being developed collaboratively, automated vehicles are largely being developed independently by technology companies like Google, Tesla, and Delphi. These companies often seek to avoid dependence on transportation infrastructure. However, full implementation of vehicle automation and connected vehicle (CV) applications will likely require support from V2X technologies.

Title 23 USC. Section 518 requires the US DOT Secretary to establish guidance for V2V and vehicle-to-infrastructure (V2I) system deployment. Title 23 USC. Section 519 ensures funding for the development of Intelligent Transportation System (ITS) infrastructure, equipment, and systems.

PUBLIC HEALTH

The connection between transportation and public health is recognized by health advocates and transportation providers alike. While traditional focus areas include improving air quality and safety, recent efforts have expanded to address broader community needs, including the role of transportation in encouraging physical activity such as walking and biking.

Health studies show that increased physical activity is strongly associated with reduced risk of chronic diseases (e.g., heart disease, diabetes, certain cancers, and obesity), as well as improved mental health, better sleep, increased energy, and enhanced cognitive function. Transportation planning plays a vital role in identifying the active transportation projects that can deliver these health benefits.

Transportation planning efforts emphasizing public health can reduce injuries and fatalities among pedestrians, bicyclists, and motorists, contributing to improved community health and safety. Research suggests a multiplier effect: as streets are designed for walking and biking, more people are comfortable engaging in these activities, visibility improves, and collisions decrease. Increased foot and bike traffic can also deter crime by putting more “eyes on the street”.

Studies also show that people living in walkable neighborhoods with low traffic and high rates of walking, biking, and transit use tend to know more of their neighbors, have more frequent interactions, and are more socially connected.



Land use planning significantly affects public health by shaping transportation options and proximity to essential services. Well-designed plans promote healthier communities by encouraging walking, biking, and access to jobs, education, healthy food, recreation, worship, community activities, and healthcare. Poor planning can result in negative health outcomes like obesity and chronic stress.

The integration of land use, transportation and housing decisions can maximize active transportation opportunities and improve community health. While the negative impacts of poor planning can affect everyone, disadvantaged and underserved communities have historically been impacted most. A coordinated approach can improve public health outcomes and create livable, walkable, and accessible communities for all.

MICRO-MOBILITY

Micro-mobility refers to small, lightweight, human- or electric-powered vehicles used for transportation. These devices are alternatives to traditional transportation methods such as cars, trains, and buses. Examples include bicycles, electric-assist bicycles (e-bikes), electric scooters (e-scooters), electric skateboards, and velomobiles.



Micro-mobility services can be "dockless" or housed in well positioned docking stations in a central area. They typically rely on GPS and cellular connectivity for tracking. Users typically pay a base fee plus a per-minute rate. After a trip, the vehicle may be left for a company to pick up and/or returned to a docking station. Micro-mobility is a low-carbon transportation mode that enhances sustainability and provides a convenient option in areas where cars are less practical due to a lack of parking and congestion.

While bike and scooter and bike share programs have not yet fully penetrated rural or small markets, their growing popularity suggests they may expand into this area in the future.

SHARED MOBILITY

With the continued integration of smartphones, new shared mobility options have emerged alongside traditional forms such as public transit, carpooling, and vanpooling. These include ridesourcing, carsharing, and microtransit:

- **Ridesourcing** allows users to request a ride via a mobile app, which pairs them with a driver. Payments and feedback are handled within the platform. Companies like Uber™ and Lyft™, also called Transportation Network Companies (TNCs), are widely used in both urban and suburban areas. In rural areas such as El Dorado County, TNCs can offer vital services where traditional transit options are limited.
- **Carsharing** services allow users to rent a vehicle by the hour or day. Some programs require roundtrips, while others permit one-way rentals. Fees typically include fuel, insurance, maintenance, and parking (if the car needs to be picked up from or returned to a garage). Carsharing vehicles are usually distributed throughout a city or town, unlike centralized rental car locations.
- **Microtransit** is a flexible service that uses smaller transit vans or shuttle buses, often with dynamic routes and on-demand scheduling. Passengers request rides through an app and may be required to walk a short distance both to nearby pickup and drop-off points.

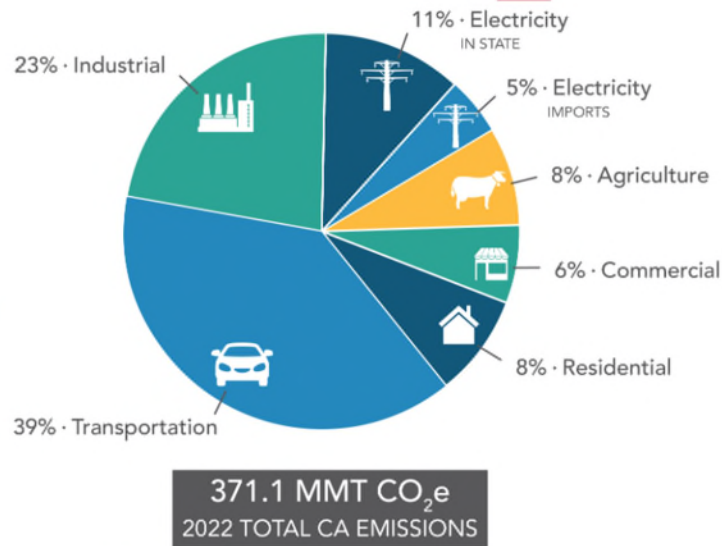
ADAPTABLE

GREENHOUSE GASES AND CLIMATE CHANGE

Various gases in the Earth's atmosphere, classified as greenhouse gases (GHGs), play a critical role in regulating the planet's surface temperature. Solar radiation enters the atmosphere, with some absorbed by the Earth's surface. The Earth then emits the remaining energy back toward space, but this energy shifts from high-frequency solar radiation to lower-frequency infrared radiation.

While GHGs are transparent to incoming solar radiation, they are highly effective at absorbing outgoing infrared radiation. This means that as GHG concentrations rise, more heat is trapped in the atmosphere, resulting in a warming effect known as the greenhouse effect. Human activity, particularly in the industrial, utility, transportation, residential, commercial, and agricultural sectors, is the primary source of GHG emissions contributing to climate change.

According to the California Air Resources Board, in 2022, transportation accounted for 39% of the state's total GHG emissions, making it the largest single contributor. Other major sources included the industrial sector (23%), electricity generation (16%, including both in-state and out-of-state sources), agriculture (8%), residential energy use (8%), and the commercial sector (6%).



SACRAMENTO REGIONAL CLEAN AIR PLAN AND CLIMATE LEGISLATION

The Sacramento Regional Clean Air Plan (State Implementation Plan, 1994) governs air quality management in Western El Dorado County, which is classified as a federal ozone nonattainment area.

Key Statewide Legislative Efforts for GHG Reduction:

1. Assembly Bill 32 (AB 32) – California Global Warming Solutions Act of 2006
 - o Requires statewide GHG emissions to be reduced to 1990 levels by 2020
 - o Mandates regulations to increase energy efficiency, expand renewable energy use, and promote cleaner transportation options
2. Senate Bill 375 (SB 375) – Sustainable Communities & Climate Protection Act
 - o Focuses on reducing GHG emissions from the transportation sector
 - o Requires regional transportation plans to align with state climate and air quality goals

Local Implementation:

EDCTC collaborates with the Sacramento Area Council of Governments (SACOG) and the El Dorado County Air Quality Management District (AQMD) to ensure all transportation projects comply with:

- State Implementation Plan (SIP)
- AB 32 and SB 375
- Air quality requirements of the RTP

The El Dorado County Air Quality Management District is responsible for enforcing air quality standards countywide, including in the City of Placerville.

RESILIENT

WILDFIRES AND FLOODING

Wildfire is the most significant threat to El Dorado County's population, property, and transportation infrastructure. The 2021 Caldor Fire, the largest in the County's history, burned 221,835 acres and forced the closure of US Highway 50 between Pollock Pines and South Lake Tahoe for approximately three months.

Seven of the eight largest wildfires in California history have occurred since 2020, highlighting the increasing frequency and intensity of wildfire events. These events underscore the vulnerability of El Dorado County's transportation system to climate-related hazards including wildfires, floods, extreme heat, landslides, and snowstorms. Such hazards can disrupt mobility, damage critical infrastructure, and block access to homes, jobs, schools, services, and recreation.

Rural communities are particularly vulnerable. Road closures can isolate entire communities, especially in remote areas where road work and maintenance activities are limited to summer months. Damage may go unrepaired for extended periods due to restricted access and challenging terrain. Vulnerable infrastructure includes:

- Roads and transit systems
- Active transportation facilities (e.g., trails and bike paths)
- Bridges located in moderate- to high-wildfire threat zones
- Structures at risk of flooding, mudslides, or other severe weather impacts

FIRE PREPAREDNESS AND TRANSPORTATION RESILIENCY

El Dorado County is proactively working to become a fire-adapted and resilient community. As part of these efforts, the El Dorado County Transportation Commission (EDCTC) completed the Greater Placerville Wildfire Evacuation Preparedness, Community Safety, and Resilience Study in 2024. This study focused on vehicle evacuation within the Greater Placerville area and investigated how surges in traffic during wildfire events can overwhelm the existing road network.

The study identified:

- Evacuation bottlenecks
- Route choices and their impact on travel time
- Strategies and infrastructure improvements to enhance emergency response

The Greater Placerville Wildfire Evacuation Preparedness Study recommends traffic signal optimization, strategic roadway enhancements, and public communication tools to ensure timely and coordinated evacuations in Very High Fire Hazard Severity Zone (VHFHSZ) areas.

FEDERAL

Clean Air Act

The Federal Clean Air Act (FCAA) was first signed into law in 1970 and substantially amended in 1977 and 1990. The FCAA forms the foundation of the national air pollution control effort and includes the following basic elements: national ambient air quality standards (NAAQS) for criteria air pollutants; hazardous air pollutant standards; state attainment plans; motor vehicle emissions standards; stationary source emissions standards and permits; acid rain control measures; stratospheric ozone protection; and enforcement provisions.

The US Environmental Protection Agency (USEPA) is responsible for administering the FCAA. The FCAA requires USEPA to set NAAQS for several harmful air pollutants based on human health and welfare criteria. Two types of NAAQS were established: primary standards, which protect public health, and secondary standards, which protect public welfare from non-health-related adverse effects such as visibility reduction.

STATE

Assembly Bill 32: Climate Change Scoping Plan

On December 11, 2008, CARB adopted its *Climate Change Scoping Plan* (Scoping Plan), which serves as a roadmap for achieving GHG reductions in California, as required by Assembly Bill (AB) 32, through subsequent regulations.

The Scoping Plan has been updated three times: 2013, 2017, and 2022. The 2022 Scoping Plan provides a sector-by-sector roadmap for California, the world's fifth largest economy, to achieve carbon neutrality by 2045 or earlier. The plan outlines a technologically feasible, cost-effective, and equity-focused path to meet the state's climate goals.

Earlier Scoping Plans focused on achieving GHG reduction targets by sector, including:

- Reaching 1190 emissions levels by 2020, and
- Reducing emissions to 40% below 1990 levels by 2030.

The 2022 update builds on those goals, targeting an 85% reduction in anthropogenic emissions below 1990 levels by 2045, and achieving carbon neutrality through both emissions reduction and carbon removal strategies.

Key measures in the 2022 Plan include:

- Reducing demand for liquid petroleum by 94%,
- Cutting total fossil fuel use by 86% by 2045 relative to 2022 levels, and
- Expanding carbon sequestration via the state's natural and working lands, including forests, shrublands, croplands, wetlands, and other ecosystems that cover 90% of California's 105 million acres.

The plan also addresses residual emissions from hard-to-abate sources such as cement production, internal combustion vehicles, and refrigerants, aiming to offset them through enhanced natural carbon storage and mechanical carbon removal technologies.

Overall, the Scoping Plan identifies the pathway to meet Senate Bill (SB) 32's target of reducing GHG emissions by at least 40% below 1990 levels by 2030.

Senate Bill 32

Passed in 2016, Senate Bill (SB) 32 sets the target of reducing GHG emissions to 40% below 1990 levels by 2030. It extends the targets established by AB 32, reinforcing California's commitment to climate leadership and providing a critical benchmark toward achieving the state's long-term goal of an 80% reduction by 2050.

Senate Bill 743

Senate Bill (SB) 743, passed in 2013, fundamentally changed the way public agencies evaluate transportation impacts under California Environmental Quality Act (CEQA). The bill directed the Governor's Office of Planning and Research (OPR) to identify new metrics for determining the significance of a project's transportation impacts – shifting away from traditional measures such as traffic delay and Level of Service (LOS).

The revised CEQA Guidelines, developed in response to SB 743, promote a more holistic evaluation of transportation impacts that better align with California's statewide goals, including:

- Infill development,
- Public health promotion through active transportation, and
- Reduction of GHG emissions.

The 2017 Update to the Climate Change Scoping Plan reinforced the importance of slowing Vehicle Miles Traveled (VMT) growth through more efficient land use and development patterns, identifying this as a key strategy in achieving the state's climate goals. would promote achievement of the state's climate goals.

Senate Bill 375: Sustainable Communities Strategy

Senate Bill (SB) 375, enacted in 2008, builds upon AB 32 by integrating land use, housing, and transportation planning to reduce GHG emissions from passenger vehicles. It requires regional transportation agencies to prepare a Sustainable Communities Strategy (SCS) as part of their Regional Transportation Plan (RTPs). The SCS must demonstrate how the region will meet its assigned GHG reduction targets while considering:

- Regional housing needs,
- Transportation demand, and
- Resource and farmland conservation, based on projected land use patterns.

SB 375 also amended CEQA to streamline environmental review for projects consistent with an adopted SCS that help reduce VMT and GHG emissions.

LOCAL

El Dorado County Air Quality Management District

The El Dorado County Air Quality Management District (AQMD) is a special district created by state law. It is the lead regional agency for air quality planning in the county and is responsible for enforcing local, state, and federal air pollution regulations. The AQMD develops strategies to improve air quality and ensure compliance with state and federal ambient air quality standards.

Sacramento Area Local Council of Governments

The Sacramento Area Council of Governments (SACOG) serves as the designated Metropolitan Planning Organization (MPO) for El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba counties. As the MPO, SACOG is responsible for developing the Metropolitan Transportation Plan (MTP) for the Sacramento Region.

The current plan under development, known as the Blueprint 2025, is the region's Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) and is anticipated for adoption in 2025. Covering the period 2025-2050, the Blueprint is a long-range transportation and land use plan that outlines a shared regional vision for a thriving, inclusive future- supporting a strong economy, healthy environment, and equitable mobility options for all residents.



Advancing the
Triple Bottom Line
through the Regional
Land Use and
Transportation Plan

The Blueprint 2025 is structured around a Triple Bottom Line framework, guided by three strategic pillars:

- Equity
- Economy
- Environment

These “Three “E’s” shape the plan’s goals, policies, strategies, and technical analyses, informing both stakeholder engagement and SACOG Board decision-making throughout the plan’s development.

A program-level Environmental Impact Report (EIR) is being prepared and will be certified to assess and disclose the potential environmental impacts of the 2025 Blueprint. The SCS component of the MTP/SCS includes policies and strategies to reduce GHG emissions from passenger vehicles, in alignment with regional targets established by the CARB pursuant to SB 375.

RTP ACTION PLAN PROJECTS AND PERFORMANCE MEASURES

Consistent with California Regional Transportation Plan Guidelines, EDCTC has developed Performance Measures for projects included in the RTP 2025-2045 Action Plan. The performance measures are tied to each goal of the Policy Element and demonstrate the connection between the Policy and Action Element, demonstrating the RTP’s support in advancing advance statewide goals for transportation, sustainability and climate adaptation. Performance Measures for **Goal 2: Sustainable, Adaptable, Resilient**, are as follows:

- **Measure 2.1; M5 and M6:** Projects meet performance measures if they are identified within the County Wildfire Preparedness and Resiliency Study and Map (M5) and/or Local Road Safety Plan (LRSP) maps and tables (M6)
- **Measure 2.2; M7 and M8:** Projects meet performance measures if they are located within areas falling below average VMT thresholds established under SB 743 guidelines (VMT Screening Map, see Chapter 6)

Table 7-1 includes a list of road and highway and system management and operations projects that best meet the performance measures for **Goal 2: Sustainable, Adaptable, Resilient**. It is notable that most of the proposed active transportation and transit projects also meet the performance criteria for Goal 2 due to their tie to sustainability in particular. The comprehensive RTP Project and Performance Measure List is included in **Appendix 6A**.

- Short-Range projects are displayed as 2025-2035.
- Long-Range projects are displayed as 2035-2045.
- Unconstrained Projects, which are not subject to the fiscal constraint of the RTP document as outlined in Chapter 13; The Financial Element, are listed as Beyond 2045.

TABLE 7-1: Sustainable, Adaptable, and Resilient Projects

PARTIAL LIST OF PROPOSED PROJECTS AND PERFORMANCE MEASURE CONSISTENCY (SEE APPENDIX 6A FOR COMPREHENSIVE LIST)						GOAL 2: SUSTAINABLE, ADAPTABLE, RESILIENT			
						Proposed Project Performance Criteria			
						2.1 Project is identified within the Wildfire Preparedness Study or Local Road Safety Plan (LRSP).	2.2 Project located within areas falling below average VMT thresholds established under SB 743 guidelines.	2.3 Project facilitating electrification through the installation of charging infrastructure.	
						Performance Reference*			
Lead Agency	Year	MapID	Project Type Category	Title	Description	M5	M6	M7	M8
City of Placerville	2025-2035	41	G- System Management, Operations, and ITS	US 50 Trip to Green Congestion Management and Resiliency Strategy	Along US 50 and at each of the three signalized intersections between Canal St and Bedford Ave, install intelligent transportation systems, barriers, and advanced warning signals to notify the motoring public when signals are held in a solid green phase.	Yes	No	Above Average	Yes
City of Placerville	2025-2035	42	B- Road & Highway Capacity	Western Placerville Interchanges Phase 2.3	Construct the westbound US 50 off-ramp to Ray Lawyer Dr, construct intersection improvements at US 50 Ramps/Ray Lawyer Dr and provide bicycle and pedestrian facility improvements along Ray Lawyer Dr within the project limits.	Yes	No	Below Average	Yes
City of Placerville	2025-2035	43	G- System Management, Operations, and ITS	Clay St/ Hangtown Creek Bridge and Cedar Ravine Intersection Improvements	Clay St. over Hangtown Creek, 150' north of Main Street: Replace 1 lane bridge with 2 lane bridge. Realign Clay St with Cedar Ravine and create a four way stop intersection.	Yes	No	Below Average	No
El Dorado County	2035-2045	39	B- Road & Highway Capacity	US 50/Silva Valley Pkwy Interchange - Phase 2	Final phase of US 50/Silva Valley Pkwy Interchange. Due to future growth in the area this project will be necessary to accommodate traffic projected for 2030. Project includes eastbound diagonal and westbound loop on-ramps to US 50.	No	No	Below Average	No

TABLE 7-1: Sustainable, Adaptable, and Resilient Projects (cont.)

PARTIAL LIST OF PROPOSED PROJECTS AND PERFORMANCE MEASURE CONSISTENCY (SEE APPENDIX 6A FOR COMPREHENSIVE LIST)						GOAL 2: SUSTAINABLE, ADAPTABLE, RESILIENT			
						Proposed Project Performance Criteria			
						2.1 Project is identified within the Evacuation Plan or Local Road Safety Plan (LRSP).	2.2 Project located within areas falling below average VMT thresholds established under SB 743 guidelines.	2.3 Project facilitating electrification through the installation of charging infrastructure.	
						Performance Reference*			
Lead Agency	Year	MapID	Project Type Category	Title	Description	M5	M6	M7	M8
El Dorado County	2035-2045	40	B- Road & Highway Capacity	Capital SouthEast Connector - E1	In El Dorado Hills, on White Rock Rd between Carson Crossing Dr and Windfield Way: widen from 2 to 4 lanes (Thoroughfare).	No	No	Below Average	No
El Dorado County/ Caltrans	Beyond 2045	Not Mapped	G- System Management, Operations, and ITS	US 50 Shoulder Hardening - Missouri Flat Rd to ¼ mile west of Cameron Park Interchange	Construct right hard-shoulder emergency evacuation lane on westbound US 50 from Missouri Flat Rd to ¼ mile west of Cameron Park Interchange	Yes	No	N/A	No
El Dorado County	2035-2045	Not Mapped	G- System Management, Operations, and ITS	Intelligent Transportation System (ITS) Improvements (Phase 2)	Minor ITS Improvement: Deployment of various ITS improvements along U.S. 50 and regionally significant corridors in the County. Includes: implementation of ITS projects listed and prioritized in El Dorado County. (See ELD19239 for Phase 1)	Yes	No	N/A	No

TABLE 7-1: Sustainable, Adaptable, and Resilient Projects (cont.)

PARTIAL LIST OF PROPOSED PROJECTS AND PERFORMANCE MEASURE CONSISTENCY (SEE APPENDIX 6A FOR COMPREHENSIVE LIST)						GOAL 2: SUSTAINABLE, ADAPTABLE, RESILIENT			
						Proposed Project Performance Criteria			
						2.1 Project is identified within the Evacuation Plan or Local Road Safety Plan (LRSP).	2.2 Project located within areas falling below average VMT thresholds established under SB 743 guidelines.	2.3 Project facilitating electrification through the installation of charging infrastructure.	
						Performance Reference*			
Lead Agency	Year	MapID	Project Type Category	Title	Description	M5	M6	M7	M8
El Dorado County	2035-2045	Not Mapped	G- System Management, Operations, and ITS	ITS Improvements - Phase 1	Identification of various Intelligent Transportation System (ITS) improvements along US 50 and regionally significant corridors in the County; projects may include upgrading all controllers, building the communications infrastructure, adding CCTVs, adding DMS, connecting all the signals. (See ELD19240 for Phase 2)	Yes	No	N/A	No

***Performance Reference:**

- M5: Evacuation Plan
- M6: Local Road Safety Plan Map
- M7: Vehicle Miles Traveled Screening Map
- M8: Electric Vehicle Charging Station Map