



## Director's Message

Greetings,

You may notice something has changed on this page.

Allow me to introduce myself: I am Laurie Berman, the recently appointed Director of Caltrans.

As director, I intend to work with you productively as an accessible and dependable partner. I will foster the innovation and maintain the reforms adopted by my predecessor, Malcolm Dougherty, that have so expertly positioned Caltrans for success as California makes the most significant investment in transportation in generations.

As you can imagine, a great deal has changed since my days as junior civil engineer in the 1980s. Back then, few would have believed that cars would drive themselves, electric vehicles would become a viable alternative or that smartphones would have changed the way we get to the airport.

Of course, no one would have predicted the enormous backlog of deferred maintenance that would build up during decades of stagnant or declining revenue. Or that climate change would become a major factor in transportation planning and design.

SB 1, the Road Repair and Accountability Act, not only provides resources, of course. It also raises the bar on transparency and accountability, while encouraging partnerships at every level.

And I doubt anyone would have guessed that in 2017 we would get a funding and reform package robust enough to sustain a decade of desperately needed improvements.

SB 1, the Road Repair and Accountability Act, not only provides resources, of course. It also raises the bar on transparency and accountability, while encouraging partnerships at every level.

And since being a good partner involves being a good listener, I want to ask for your opinion right now.

Please take a minute with our quick online Stakeholder Survey. And encourage your colleagues to do the same.

The [survey](#) will run until April 15. Once we've analyzed the results, we'll share them here in the *Mile Marker*, just as we do with the rest of our performance measurements. It's available

at [www.surveymonkey.com/r/CTPartner](http://www.surveymonkey.com/r/CTPartner).

Looking forward to working with you,

Laurie Berman  
Director of Caltrans

**Cover:** The Thomas Fire approaches State Route 150 in Ojai, Ventura County, obscuring the sun and casting a smoky glow over the landscape. Wildfires will be a more frequent event in some parts of California as the effects of climate change unfold through the century, according to new Caltrans study. Photo by Bob Kilpatrick, Caltrans Maintenance Superintendent, District 7

# Caltrans MileMarkers



## Safety and Health

Provide a safe transportation system for workers and users, and promote health through active transportation and reduced pollution in communities.

Fatalities	2014	2015	Goal
Auto Fatalities per 100 Million Miles	0.71	0.74	Less than 0.5
Pedestrian Fatalities	227	234*   +3.1%	Reduce 10% Annually
Bicycle Fatalities	16	30*   +87.5%	Reduce 10% Annually

*Most recent available data*

Programmed vs. Allocated Active Transportation Funds to Date			
	Fiscal Year	% of Programmed Funds Allocated	Goal
First Call for Projects	2014-15	99%	100%
	2015-16	88%	
Second Call for Projects	2016-17	86%	100%
	2017-18	20%*	
	2018-19	N/A	

*\* Fiscal year to date*

Other Safety and Health Markers	Previous Reporting	Most Recent	Goal
Percentage of Active Transportation Projects Awarded Within Six Months	60%   2017-18, Q1	57%   2017-18, Q2	100%
Employee Work-Related Injuries/Illnesses per 200,000 Hours Worked #	7.69   2017-18, Q1	5.29   2017-18, Q2	4.5
Number of Injuries For Autos, Bicycles and Pedestrian Modes of Travel	74,490   2014	82,838   2015*	Reduce 5% Annually
Worker Fatalities in Work Zones	2   2016	1   2017	0 Per Calendar Year

*An average of the most recent five years of collision data up to 2013. Includes Cal/OSHA reportable and non-reportable injuries/illnesses. Incident rate represents 12 months of data for each quarter.*

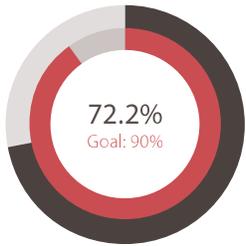
# Performance Goals



## Stewardship and Efficiency

Money counts. Responsibly manage California's transportation-related assets.

Percentage of Transportation Management System Units in Good Condition



Goal	90% by 2020
July-Sept. 2017	73.1%
Oct.-Dec. 2017	72.2%

Planned Projects Delivered in Fiscal Year

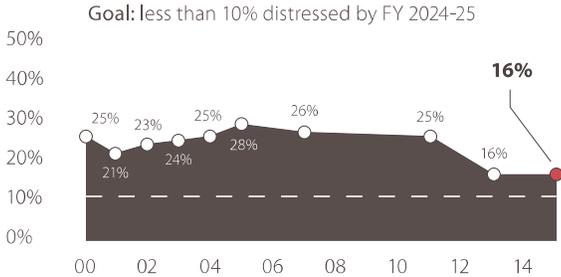


Goal	100%
2015-16	98%
2016-17	97%

Percentage of Bridge Deck Area in Good or Fair Condition



Pavement Health Index



Information Technology Projects	2017-18, Q1	2017-18, Q2	Goal
Advantage System Uptime	100.00%	100.00%	99% by 2020
Caltrans Network Uptime	99.37%	99.63%	99.5% by 2020
Response to Employee IT Requests Within Two Hours	37.7%	39.7%	40% by 2020

Annual Percentage of Research Projects With Implementable Solutions	2015-16	2016-17	2020 Goal
Caltrans Research	50%	61%	75%
University Transportation Centers (UTC) Research	20%	28%	40%
National Cooperative Research	10%	25%	20%

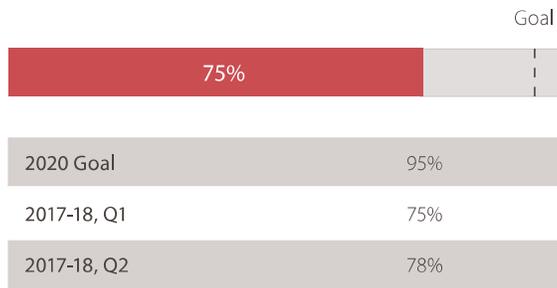
# Caltrans MileMarkers



## Stewardship and Efficiency

Money counts. Responsibly manage California's transportation-related assets.

### Encroachment Permits Approved or Denied Within 30 Days



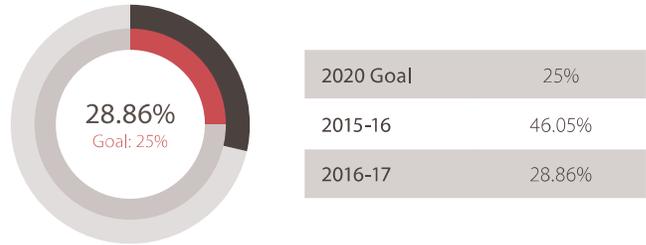
### Percentage of Online Single-Trip Permit Requests Handled in Less Than Two Hours



### Federal Funds Used in Year of Availability (Annually)



### Contract and Procurement Dollars Awarded to Small Businesses Annually



Other Stewardship and Efficiency Markers	2015-16	2016-17	2020 Goal
Americans with Disabilities Act (ADA) Expenditures Programmed (Annually)	\$39.8 Million	\$40.7 Million	\$35 Million
Number of Lane Miles of State Highway System Relinquished (Through 2020)	52.85 Lane Miles	88.44 Lane Miles	150 Lane Miles
Contract and Procurement Dollars Awarded to Disabled Veteran Business Enterprises Annually	5.07%	3.30%	5%

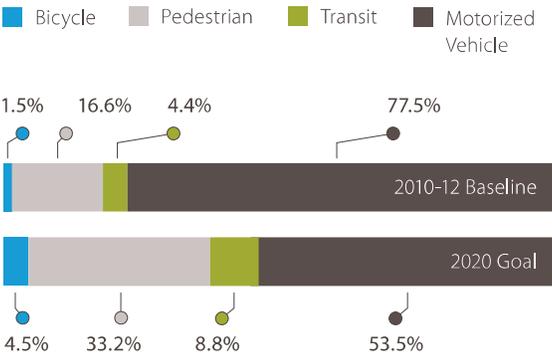
# Performance Goals



## Sustainability, Livability and Economy

Make long-lasting, smart mobility decisions that improve the environment, support a vibrant economy, and build communities, not sprawl.

### Percentage of Trips



### Vehicle Miles Traveled Per Capita, Statewide Average

Year	VMT Per Capita	% Change from Baseline
2010 Baseline	8,779	-
2015	8,701	-0.9%
<b>Goal</b>	By 2020, 15% lower than 2010 baseline	

### Greenhouse Gas Emissions from Caltrans Operations (in metric tons)

Year	GHG Emissions (metric tons)	% Change from Baseline
2010 Baseline	217,485	-
2016	129,168	-40.6%
<b>Goal</b>	By 2020, 15% lower than 2010 baseline	



## System Performance

Utilize leadership, collaboration and strategic partnerships to develop an integrated transportation system that provides reliable and accessible mobility for travelers.

Complete Streets Implementation	Previous Reporting	Most Recent Reporting	Goal
Percentage of Projects That Include Complete Streets Features	28%   2017-18 (through Q1)	27%   2017-18 (through Q2)	68% by 2020
Number of Complete Streets Features on State Highway System	1,855   2017-18 (through Q1)	1,862   2017-18 (through Q2)	1,613 by 2020
Percentage of Fully Implemented High-Focus Action Items From Action Plan 2.0	71%   2017-18 (through Q1)	72%   2017-18 (through Q2)	100% by 2018

Other System Performance Markers	Previous Reporting	Most Recent Reporting	2020 Goal
Accurate Reporting of Traveler Information (Travel Times, Construction Activity, Incidents, and Adverse Weather)	94.0%   2015-16	93.9%   2016-17	85%
Provide Real-Time Multimodal System Information Available to the Public (Number of Corridors)	3   2017-18, Q1	3   2017-18, Q2	13
Completed Corridor Implementation Plans	4   2017-18, Q1	4   2017-18, Q2	3
Number of Corridors With Integrated Corridor Management Implementation	2   2017-18, Q1	2   2017-18, Q2	5

# Caltrans MileMarkers



## System Performance

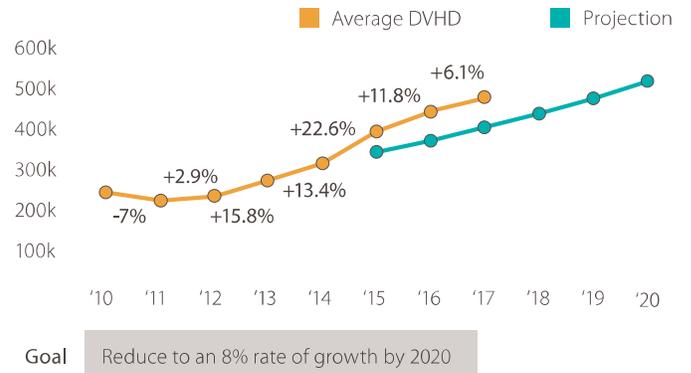
Utilize leadership, collaboration and strategic partnerships to develop an integrated transportation system that provides reliable and accessible mobility for travelers.

### Travel Time Reliability

R Reliable    M Moderately Reliable    U Unreliable

	Baseline	2017-18 (Q1)	2017-18 (Q2)	2020 Goal
Highway 57	U	M	U	
I-110	M	M	M	One-tier improvement from baseline
I-80	U	U	U	
I-210	M	M	U	

### Average Growth in Daily Vehicle Hours of Delay (DVHD) vs. Projection



### Average All-Stations On-Time Performance for Intercity Rail

	2017-18, Q1	2017-18, Q2	Goal
Capitol Corridor	95.2%	91.2%	90%
Pacific Surfliner	79.3%	81.7%	90%
San Joaquin	79.2%	80.8%	90%

### End Station On-Time Performance for Intercity Rail

	2017-18, Q1	2017-18, Q2	Goal
Capitol Corridor	92.6%	90.3%	90%
Pacific Surfliner	64.0%	76.0%	90%
San Joaquin	77.0%	79.3%	90%

### Daily Vehicle Hours of Delay (Top Four Integrated Corridors)

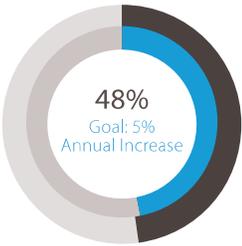
	2017-18, Q1 (Year Over Year)	2017-18, Q2 (Year Over Year)	Goal
Highway 57	Goal Met	Goal Met	Less Than 6% Increase Annually
I-110	Goal Not Met	Goal Not Met	Less Than 6% Increase Annually
I-80	Goal Met	Goal Met	Less Than 6% Increase Annually
I-210	Goal Not Met	Goal Not Met	Less Than 6% Increase Annually



## Organizational Excellence

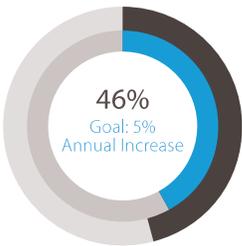
Be a national leader in delivering quality service through excellent employee performance, public communication and accountability.

### Stakeholders Who Gave Positive Feedback About the Mile Marker in Annual Survey



Goal	5% annual improvement from 2015 baseline
2016	External: 54% Internal: 49%
2017	External: Data Pending Internal: 48%

### Stakeholders Who Feel That Department Communication, Professionalism, and Service Levels Have Improved



Goal	5% annual improvement from 2015 baseline
2016	External: 46% Internal: 37%
2017	External: Data Pending Internal: 46%

Other Organizational Excellence Markers	2016	2017	Goal
Employees Who Indicate That They Work in a Positive Environment	57%	57%	5% annual increase
Abusive Conduct Prevention Trainings Provided Per Year	81%	85%	100% every 2 years
Caltrans Employees Who Agree That Employees are Encouraged to Try New Ideas	47%	49%	75% 2016 goal, then achieve and maintain through 2020
External Survey Respondents Who Said Caltrans Doing a Good or Excellent Job in Meeting Their Needs	61%	Data Pending	75%
Caltrans Employees Who Rate Caltrans Management as Open and Honest in Communications	51%	46%	5% annual increase
Mile Marker Publications Produced on Quarterly Schedule	4	4	4
Positive Responses to Ethics Questions on Employee Survey	81%	84%	5% annual increase
Increase in the Number of Partners Who Agree or Strongly Agree That Caltrans is a Collaborative Partner	50%	Data Pending	75% 2016 goal, then maintain or improve through 2020
Increase in Employees Serving on Research and Policy Committees to Further National Engagement	44	43	7% increase for 2016, then maintain or improve through 2020
Documented LEAN 6 Sigma Process Improvements (Cumulative)	36	23	30 internal improvements by 2016 with 15 each subsequent year
Number of Caltrans Employees Trained as LEAN 6 Sigma Green Belts and Black Belts	14	17	Train 10 yearly

# Program Gives Contractors Larger Role

Reviews Positive on Trial Construction Process Intended to Reduce Costs, Delays

An alternative contracting method for Caltrans to bring construction projects in on time and within budget is continuing to show promise, according to the Department's annual report on the Construction Manager/General Contractor (CMGC) Pilot Program.

The update was submitted to the Legislature, which approved expanding the trial program in 2016 and 2017 to include more projects. Caltrans can now embark on 22 CMGC projects in total, including at least 10 with construction costs of \$10 million or higher.

The CMGC method of project delivery, used on a trial basis by Caltrans since 2013, brings a contractor into the process much earlier than the traditional design-bid-build method for developing highway improvement projects, where the contractor is hired after the design plans and specifications have been finalized by Caltrans.

Through the CMGC Pilot Program, Caltrans hires a construction manager/general contractor to provide input during the project's design process. The construction manager provides input on the design, scheduling, and other project-specific details as a way to lower costs and head off potential construction problems and delays.

At an agreed-on point in the process (typically 90 percent design completion), Caltrans and the

construction manager negotiate a price for the construction of the project or a portion as specified. A contract is executed for construction services, and the construction manager then becomes the project's licensed prime contractor, and assumes much of the risk for the accuracy and constructability of the project. An independent estimator participates in the negotiation to help ensure that the agreed price is fair and reasonable.

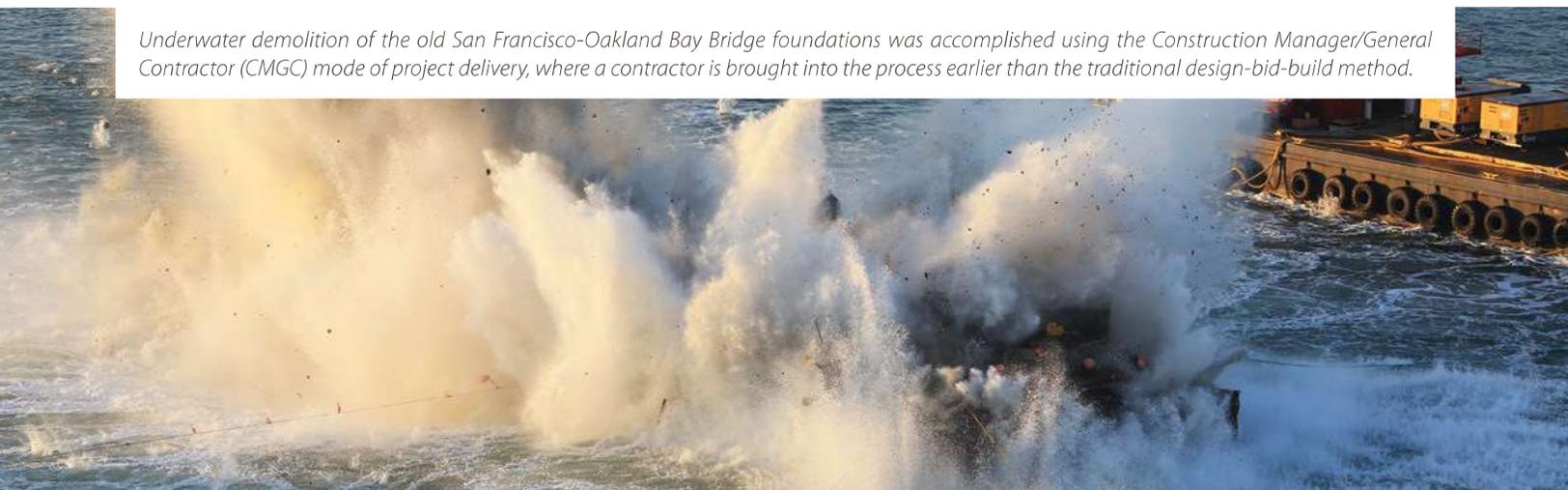
To date, almost all the authorized projects have been assigned and are in various stages of design/planning/construction. Other planned projects are being identified by Caltrans as suitable for the CMGC process.

Two of the initial construction contracts have been completed, with positive results. On the first stage of the Fresno Highway 99 Realignment project and the Highway 140 Ferguson Slide Restoration (just outside Yosemite National Park), each was completed on time and below budget allocations.

Caltrans project teams are assigned to each project to assess the CMGC method, and input is also being sought from industry on the practice.

*Source: Annual Progress Report, Construction Manager/General Contractor Pilot Program Report*

*Underwater demolition of the old San Francisco-Oakland Bay Bridge foundations was accomplished using the Construction Manager/General Contractor (CMGC) mode of project delivery, where a contractor is brought into the process earlier than the traditional design-bid-build method.*





Caltrans photo by Scott Lorenzo

*This new, self-propelled hoist has a reach of 83 feet and allows maintenance workers to safely inspect and repair bridges, or perform emergency tree trimming in all types of weather. It can be operated by a driver or remotely, and allows repairs in areas that crews have a hard time reaching.*

## Keeping Workers Out of Harm's Way

Advances in Equipment, Techniques Protect Roadside Maintenance Crews

**M**aintenance and construction workers spend more time alongside freeway traffic in one day than most of us will in a lifetime.

In 2017, one Caltrans worker died on the job — a toll collector whose booth was struck by a suspected drunken driver. There were 1,195 Caltrans employees injured on the job last year, including work zones, statistics show. On-the-job injuries have steadily decreased — a total of 22.3 percent — since 2013, and safety-first remains paramount with Caltrans.

Today, a new generation of highway maintenance equipment is giving Caltrans new tools that can save lives and reduce injuries on the state highway system — Caltrans' top two listed objectives in its 2015-2020 Strategic Management Plan.

Caltrans has been placing an emphasis on finding ways to keep work crews away from the flow of traffic, where they can still do their jobs at a safe distance or from the protection of their vehicles.

Landscape maintenance and certain road repairs offer the best opportunity for safety enhancements. Increasingly, workers no longer have to clamber out

A new generation of highway maintenance equipment is giving Caltrans invaluable new tools that can save lives and reduce injuries on the state highway system.

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of their trucks and manually trim trees and bushes, maintain steep slopes, fill potholes only feet away from speeding traffic, or work in dimly lit conditions.

Caltrans' Maintenance Division is already using or testing:

- Large multiuse trimmers, with extendable arms and an array of blades, that travel the highway paring back the thousands of oleander bushes and vegetation, cutting branches from trees, and trimming around guardrails. One of the large trimmers takes the place of chainsaw-carrying work crews. Caltrans is renting two of these "tool carriers," which can shave three miles of roadside shrubbery in a day. A barrier vehicle usually trav-

els behind for added safety.

- Remote-controlled mowers that can climb slopes of up to 60 degrees. These machines can navigate a cloverleaf interchange, or squeeze between sound walls, and have a track width that extends from 54 inches to 70 inches for better stability on steep hillsides.

The remote-controlled mowers are about the size of a large garden tractor, and are equipped to handle attachments such as a stump cutter and a loader bucket. They are designed for relatively confined spaces, and are highly maneuverable. Caltrans owns four of these mowers, and is testing a version known as a Green Climber. They can be operated from up to 1,000 feet away.

- A “pothole patcher” mounted on a truck chassis that mixes the patch material, cleans out the pothole to be repaired, and, with the help of a boom on the front, repairs the hole.

In January, maintenance workers were trained on the motorized pothole patcher, which reduces

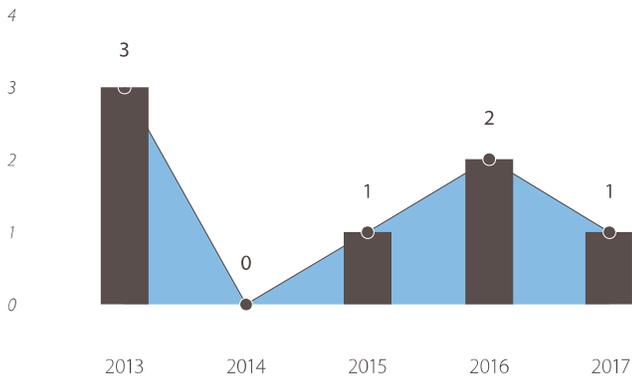
the number of employees exposed to traffic and minimizes the number of full lane closures during these maintenance activities. Between January and September 2017, Caltrans received more than 6,400 service requests related to potholes.



Caltrans photo by Gilbert Mohtes Chan

Remote-operated flagging devices such as this one on State Route 89 perform the same work as humans without exposing them to traffic.

### Caltrans Work Zone Fatalities



Caltrans photo by Steven Hellon

Drums are larger and more visible than traffic cones and not knocked over as often, offering more protection at a construction job site.

District	Location Of Fatality	Fatality Type	Classification	2013	2015	2016	2017
2	Freeway/Highway	Death by Illness	Equipment Operator II	–	–	1	–
	Freeway/Highway	Struck By Object	Equipment Operator II	2	–	–	–
3	Freeway/Highway	Motor Vehicle Collision	Highway Maintenance Worker	1	–	–	–
4	Highway Structure/Bridge	Struck By Motor Vehicle	Toll Collector	–	–	–	1
7	Freeway/Highway	Struck By Motor Vehicle	Electrician I	–	–	1	–
HQ	Freeway/Highway	Motor Vehicle Collision	Transportation Engineer	–	1	–	–

A driver is required in the cab of the patching vehicle, and two trucks trail behind for protection.

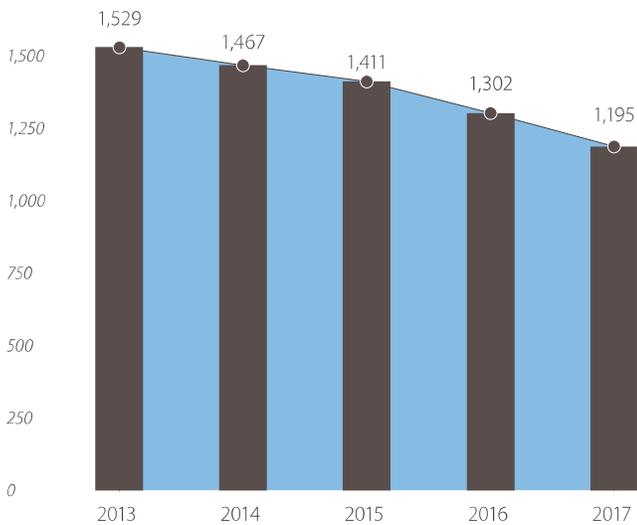
- Remote-operated flagging devices that, like their human counterparts, signal drivers to “slow” and “stop.” The operators stand a safe distance away, and don’t have to worry about inattentive drivers hitting them.

Caltrans has been testing two types of automated flagger: a Remotely Operated Safety Attendant

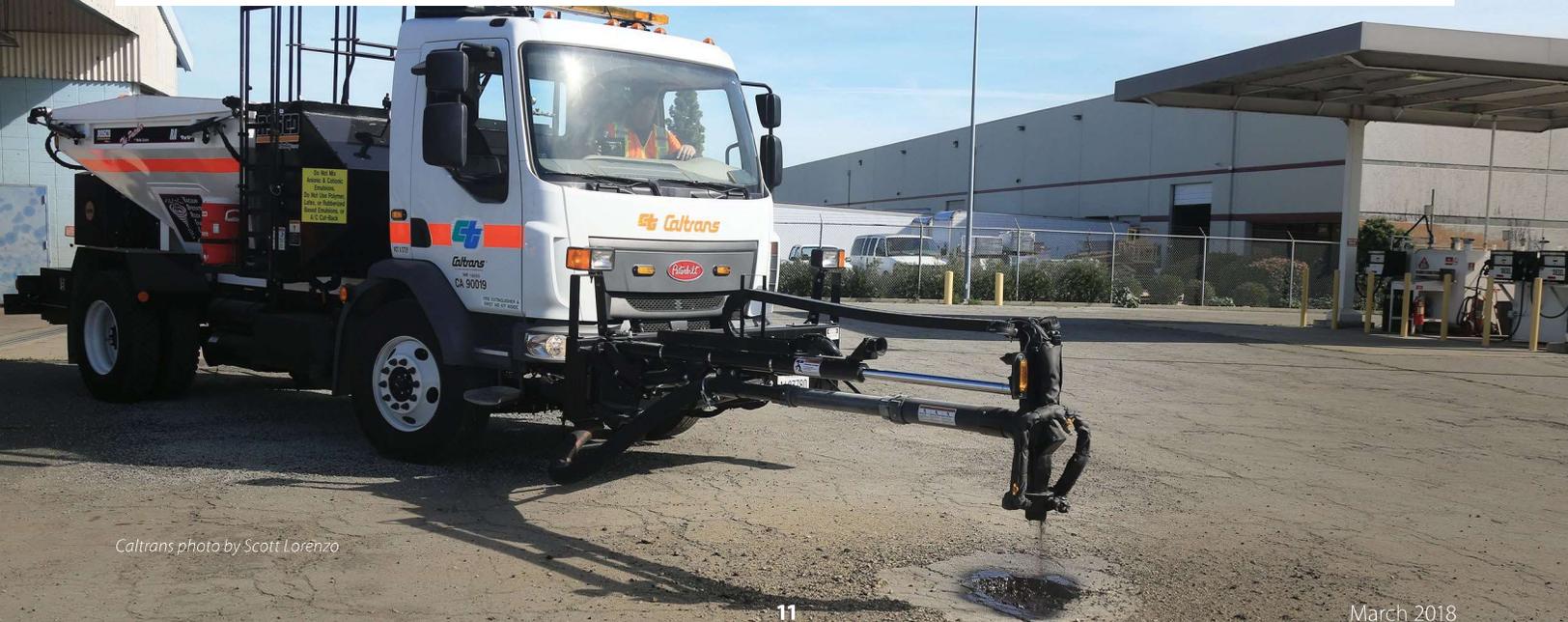
(ROSA) with a “stop” and “slow” sign mounted on a pedestal with sounds and light alerts, and a trailer-mounted version with a remotely controlled mechanical arm that raises and lowers a gate to direct traffic through work zones. These automated flaggers enhance the visibility of the work zone.

- Increased visibility also is the motivation behind the testing of “halo lights” affixed to helmets that make workers more visible at night and in bad weather.

### Caltrans Five-Year Injury Report



Below, a pothole patcher mounted on a truck body. Because it is motorized, the patcher reduces the need for workers on a busy roadway, and fewer full-lane closures are required for maintenance activities. Repairing potholes is among the leading service requests submitted by the public.



These lights reflect off the workers' vests and come with a flashing strobe feature. Caltrans' workers who tested the lights overwhelmingly liked them.

- Maintenance workers were trained in January on a self-propelled personnel hoist with a reach of 83 feet that enables them to inspect and repair bridges, and perform emergency tree trimming in all weather conditions.

In another safety-related move, the Department recently repurposed two crew carrier vans that transport safety-related equipment and supplies such as vests, rain gear, gloves, goggles, hard hats, sunscreen, mosquito repellent and electrolyte drinks to workers in the field.

Two vans are in use in Districts 7 (Los Angeles and Ventura counties) and 11 (San Diego and Imperial counties), and every district will receive a safety van over the next two months. **MM**

*Sources: Theresa Drum, Safety and Training Liaison, Maintenance Division; Dale Greep, Statewide Equipment Manager, Division of Maintenance; Gregory Tollison, Assistant Statewide Equipment Manager, Division of Maintenance; Shanna Everts, Office Chief, Office of Health and Safety, Division of Safety & Management Services; Erin Gallup von Tersch, public information officer.*

## Caltrans Builds In Safety for Construction Projects

Caltrans has taken many steps and developed procedures to make construction work zones safer for field staff, contractors and the public.

Those measures include:

- **Vehicle speed feedback signs** — Trailers can be stationed at a work zone to alert motorists of their speed.
- **Temporary rumble strips** — Portable raised strips are placed transversely across a road to reduce speeds.
- **Automated Work Zone Information Systems (AWIS)** — Changeable Message Signs tied to sensors in work zones. Messages are updated to alert motorists of changing traffic conditions. AWIS has been used in District 3 (Sacramento/Marysville area) and District 7 (Los Angeles/Ventura counties) and District 11 (San Diego and Imperial counties) for longer-term projects.
- **Training** — Classes keep employees updated on new policies and procedures. For example, field staff recently was provided an online training course on silica exposure. Silica is dust generated by grinding and drilling that can occur on job sites. These small dust particles can be a health hazard under certain conditions.

Other measures:

- Improved reflective sheeting will be used as backing for all temporary construction area signs.
- For longer duration closures, traffic drums can be used instead of cones. The drums are larger and more vis-



*Vehicle Speed Feedback Signs such as this one on I-5 are stationed at work zones to remind motorists how fast they are driving.*

ible, and are not knocked over as often, offering workers more protection from passing traffic.

- Using temporary striping in work zones instead of flexible road tabs (temporary markers). The striping is more visible. Caltrans specifications still allow for tabs to be used on short duration work.

*Source: Deborah Yost, Acting Office Chief of Safety, Insurance & Special Projects, Division of Construction*

# Communities Can Breathe Easier

## Higher Cap-and-Trade Proceeds Likely to Fund More Low-Carbon Transit Projects

California is investing in cleaner and more accessible transit opportunities through Caltrans' Low Carbon Transit Operations Program (LCTOP), aided by a boost in auction proceeds from California's "Cap-and-Trade" Greenhouse Gas Reduction Fund.

In 2017-18, about \$100 million is expected to be allocated through LCTOP for projects that continue California's effort to cut greenhouse gas emissions, and improve mobility, with a priority on serving disadvantaged communities.

To qualify for approval, project proposals must describe how greenhouse gas emissions will be curbed. Caltrans works closely with the California Air Resources Board (CARB) to estimate greenhouse gas emissions before funding is authorized.

The nearly \$100 million to be allocated would almost triple last year's \$34 million award, and is likely to help fund larger projects. The carbon reduction program has awarded \$133 million to 353 projects over the last three years.

In 2016-17, 85 percent of the money distributed through the program benefited disadvantaged communities. There were 125 [projects](#) throughout the state that received funds in the past fiscal year.

LCTOP was established by Senate Bill 862 in 2014, and is one of several state programs funded through auction proceeds from CARB's Cap-and-Trade Program, created under Assembly Bill 32 to reduce greenhouse gas emissions attributed to climate change.

Approved LCTOP projects can expand or start new bus or rail services, or improve intermodal transit facilities. Other eligible projects can finance equipment acquisition, fueling, and maintenance and other costs to operate these services or facilities.

Among the allocations for projects approved in 2016-2017:

- Almost \$6 million to the Los Angeles County Met-



*Visalia Express offers six round-trips daily between the Central Valley city and Fresno. The V-Line service has received \$583,772 since 2014 from Caltrans' Low Carbon Transit Operations Program.*

ropolitan Transportation Authority to add service to six new stations that extend light rail transit operations in the San Gabriel Valley.

- \$3.7 million to San Francisco Municipal Transportation Agency to expand service on Route 9R San Bruno Rapid Line.
- \$255,000 to the city of Modesto to improve the downtown transit center to increase the safety and comfort of Modesto Area Express public transit customers.
- \$243,290 to Santa Cruz Metropolitan Transit District to purchase one zero-emission, battery-electric public transit bus and related charging infrastructure to replace one diesel-fueled bus. This project will benefit the disadvantaged communities within Watsonville by reducing environmental impacts associated with public transit buses operating in the community.
- \$42,739 to the city of Davis to install 12 bicycle lockers available to people using a prepaid smart card. **MM**

*Source: Amar Azucena Cid, Branch Chief, Caltrans Low Carbon Transit Operations Program*



The California Transportation Commission, left, recently approved a \$111 million slate of “active transportation” projects intended to give travelers more non-motorized transportation choices, as well as help communities lower greenhouse gas emissions that threaten the health of residents.

# SB 1 Benefits Flowing to Local Projects

## State Commission Steers Gas Tax Revenue To Safer, Less Polluting Travel Options

The California Transportation Commission in December and January awarded grants totaling \$111 million for projects that promote bicycling and walking through the Active Transportation Program.

The Commission took these steps because of funding made available through the Road Repair and Accountability Act of 2017, or Senate Bill 1.

The funds went to 10 Metropolitan Planning Organizations throughout the state, and included “active transportation” projects that make it safer for children to walk and bike to school, and benefit disadvantaged communities.

One of the largest distributions was \$5.6 million to San Diego Association of Governments to extend a trail corridor in Vista and improve roadway crossings for pedestrians. A Fresno County project, awarded \$245,000, will add sidewalks, curb ramps and gutters in the Biola community.

In addition, the Commission, in December, awarded nearly \$32 million in planning grants to

The funds ... make it safer for children to walk and bike to school, and benefit disadvantaged communities.

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support local agencies’ efforts to create more environmentally friendly communities, combat the effects of climate change, and reduce greenhouse gases.

Sustainability grants went to support 43 local and regional multimodal transportation and land-use planning projects. These grants support programs that help achieve the state’s greenhouse gas reductions of 40 percent and 80 percent below 1990 levels by 2030 and 2050, respectively.

Additionally, \$7 million in Adaptation Planning grants were awarded to 21 projects throughout California. These grants are awarded to local and regional governments to help protect transportation

assets in the face of climate change and extreme weather events. SB 1 will provide a total of \$20 million over three years for this grant program.

Senate Bill 1 will invest about \$54 billion over the next decade to fix roads, freeways and bridges, and puts more money toward transit and safety. The new law also directs \$100 million in additional funding each year for the Active Transportation Program,

and will provide more than \$270 million in planning grants for local communities over 10 years.

*Sources: Caltrans Public Information Office; California Transportation Commission meeting agendas, Dec. 6-7, 2017; Jan. 31-Feb. 1, 2018.*

## Help Coming to Connect, Protect Communities

### Some examples of Sustainable Community Grants

- **\$292,149 to the San Francisco Municipal Transportation Authority for the Bayview Community-Based Transportation Plan.** A lack of transportation options in this neighborhood creates significant obstacles to reach jobs, schools, grocery stores, and other important destinations. The plan calls for significant improvements to the transportation network.
- **\$600,000 to the San Bernardino County Transportation Authority for a sidewalk connectivity plan.** The plan builds upon an existing non-motorized transportation plan.

### Among the Climate Adaptation Planning grants

- **\$649,500 to San Mateo County for climate vulnerability and mainstreaming resilience planning.** The grant will assess countywide climate change impacts and identify vulnerable transportation infrastructure. San Mateo County will develop tools, templates, strategies and resources to assist local jurisdictions with adaptation work. Residents vulnerable to climate change will be identified and asked to participate in the planning process.
- **\$359,756 to California Tahoe Conservancy toward development of a climate adaptation strategy for the Lake Tahoe Basin.** The project will focus on transportation issues as part of a larger interagency climate vulnerability assessment and adaptation strategy for the Lake Tahoe Basin. The basin is home to a num-



*The San Francisco Municipal Transportation Authority will get money to improve the Bayview community's transportation options.*

ber of low-income and transit-dependent communities expected to benefit from hazard mitigation and emergency evacuation maps.

- **\$354,000 to Los Angeles Bureau of Street Services for urban cooling strategies in certain neighborhoods.** How to dissipate urban heat islands in residential neighborhoods serviced by the Metro Orange Line Sherman Way Station is the focus of this project. It's intended to benefit working-class residents in parts of the San Fernando Valley who walk or bike through the project area, and it could be a model for a citywide strategy.



EXIT 93  
San Ysidro  
Road  
1/2 MILE

# Extreme Weather, the New Normal

## Report, First in Series, Assesses Risks to Highway System from Changing Climate

Earlier springs, hotter summers and more volatile winters will affect desert highways differently than coastal roads, so Caltrans is analyzing the potential effects of climate change on one regional transportation network at a time.

The Department's first [Climate Change Vulnerability Assessment](#) explores predicted climate challenges specific to the San Francisco Bay Area as the century progresses. It focuses on roads, bridges, drainage systems and traffic components that may be susceptible to damage in Caltrans' regional District 4, made up of nine Bay Area counties.

Studies are underway to examine risks in all of the state's 16 climate zones. The assessments for each of Caltrans' 11 other regional districts will identify specific locations along the State Highway System that may be impacted by rising sea levels and larger storm surge, more frequent wildfires, changing precipitation patterns and higher temperatures linked to climate change.

The report's findings are supported by extensive geographic mapping and an interactive application for public use that shows potentially affected locations and the climate model results.

The Bay Area, already feeling the effects of climate change, will be under more pressure as the century unfolds, according to the assessment's projections. As global temperatures warm and sea levels rise, major parts of the transportation system could be overwhelmed without significant infrastructure improvements.

Among the findings:

- Destructive storm surges — a rise in sea level that occurs during intense storms — will threaten more than 100 miles of Bay Area roads by the end of the century.
- More intense rain storms will likely flood low-lying routes like Highway 37 in Marin, Sonoma and Solano counties and Highway 12 in the Napa area.
- Rising temperatures will increase the likelihood of wildfires in the forested eastern edges of the region — where catastrophic blazes erupted last October.

The 2016-17 storm season in California offered a glimpse of the strain that extreme weather events can put on the State Highway System in the Bay Area. Flooding, landslides and coastal erosion caused nearly \$390 million of damage in District 4, nearly a third of the statewide tally of almost \$1.4 billion that's still being tabulated months later.

*Left: A massive mudslide came roaring down a Santa Barbara-area hillside in early January and spewed tons of mud, trees, cars, pieces of houses and other debris onto US 101. The Montecito slide claimed 21 lives. Extreme weather events are predicted to become more common in the state.*

## Contending with rising waters

The Bay Area has felt the creep of climate change for some time. Sea level, which has been measured at the Presidio tidal gauge in San Francisco since 1854, has risen 7.6 inches in the last 100 years, a rate expected to accelerate.

If the sea rise continues, State Route 37 — one of the lowest-lying highways in California — will be under water. This major east-west highway across the northern edge of San Francisco/San Pablo Bay connects Vallejo on Interstate 80 to Novato on US Highway 101.

Surrounded by marshes and farmland that provide important habitat to endangered species, Highway 37 is barely above water level and has only slight protection against flooding.

The sea has already begun to overtake the corridor, especially during king tides (occasional very high tides)

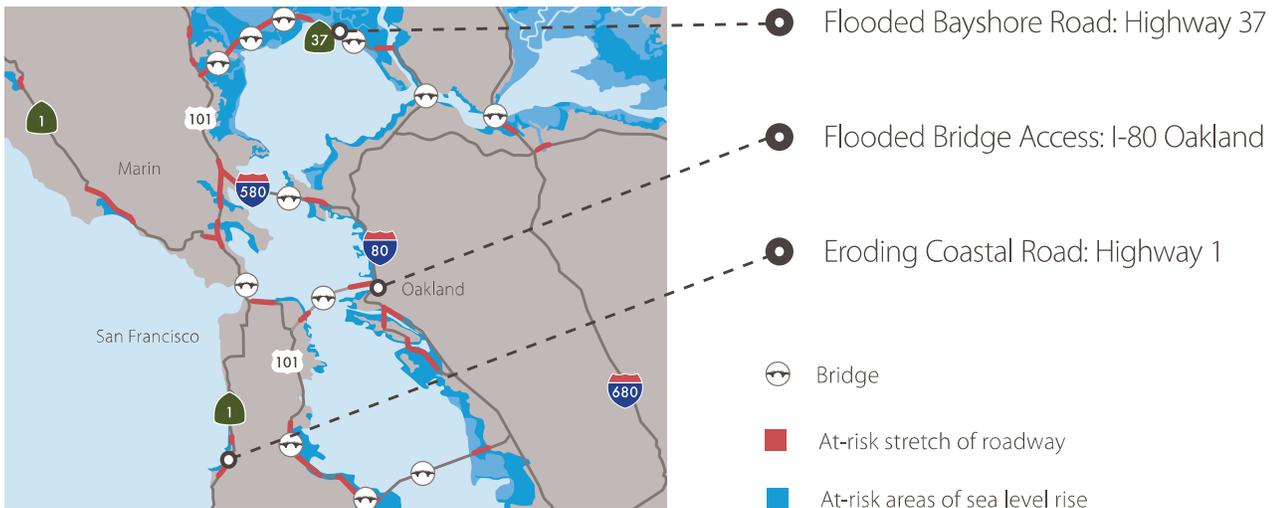
and storm surges, requiring its shutdown. It's expected that these events will happen more frequently and last longer. It would take a 24-inch rise in sea level to permanently put SR 37, in its present configuration, under water.

The Climate Change Vulnerability Assessment also notes the susceptibility of Highway 101, particularly near Corte Madera Creek in Marin County, Highway 1 in Marin, and Interstate 80 in Oakland.

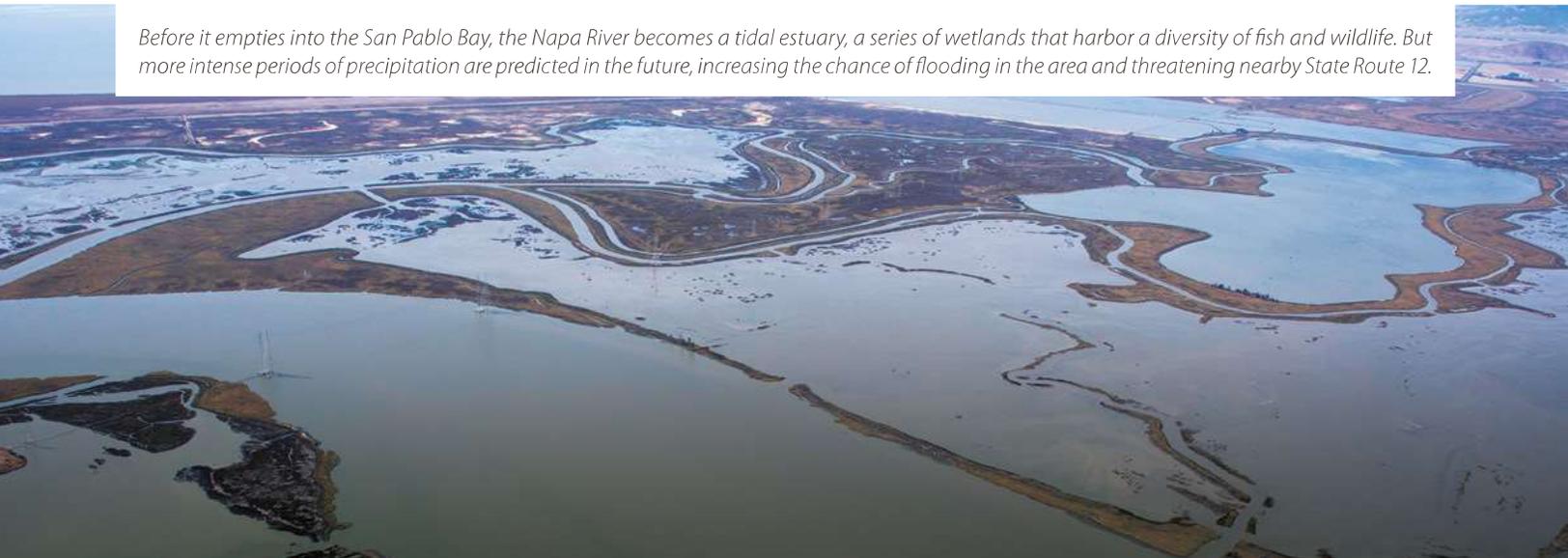
Sea level rise also threatens aging levees in the Delta. Collapse there could damage highways, inundate farmland and allow salt water to infiltrate one of the largest freshwater supplies in the state.

On a statewide scale, more than 800 miles of coastline renders California vulnerable to sea level rise. Roads, homes, power plants and water treatment facilities all are at risk of inundation by 2050.

### Roads at Risk to Sea Level Rise in the Bay Area



*Before it empties into the San Pablo Bay, the Napa River becomes a tidal estuary, a series of wetlands that harbor a diversity of fish and wildlife. But more intense periods of precipitation are predicted in the future, increasing the chance of flooding in the area and threatening nearby State Route 12.*





On US 101 north of Ventura, travelers braved flames and choking smoke as wildfires charred the area in late fall 2017 — usually well past the fire season. Because of changing weather patterns, parts of the state will be more susceptible to destructive blazes, according to a Caltrans report.

## Increased threat of wildfires

The Tubbs and Nuns fires in Sonoma County, and the Atlas fire in Solano and Napa counties, represent three of the most destructive wildfires in recorded California history — with a combined 143,000 acres burned, 7,800 structures damaged or destroyed, and 29 lives lost.

About 42 miles of the highway system were within the areas impacted by the October 2017 wildfires. Various roadways were closed over 16 days as the fires raged, including US 101, and State Routes 121, 29, 128, and 12. Highway repairs in District 4 after the fires were extinguished cost \$14.4 million.

Hillsides denuded by wildfire are especially vulnerable to erosion and pose a heightened risk of mudslide during

heavy rains. The report concludes that by 2085, almost 14 miles of roadway in District 4 (portions of Santa Clara, Solano and Napa counties) would be more vulnerable to wildfires — with Highway 130 in Santa Clara County at most risk.

Wildfires have become a top concern for agencies such as Caltrans. California’s fire seasons are expected to enter a more dangerous cycle of intense periods of precipitation, fueling plant growth, followed by prolonged droughts — a recipe for disastrous wildfires fed by dried-out vegetation.

## Higher temperatures

Heat waves have buckled pavement and strained the electrical grid in parts of California. Elevated temperatures, dry vegetation and ground conditions could affect roadways, foundations, retaining walls and bridge joints.

Much of the Bay Area enjoys cooler coastal air, but inland eastern areas could experience as much as a nine-degree rise at the height of heat waves by midcentury, according to the report.



Caltrans photo by Lelia Charli Harris

The Thomas Fire in Ventura County last December destroyed road signs and guardrail, and toppled trees onto the highway.

### Miles of Roadways in Moderate to High Wildfire Exposure Areas (estimated)

County	Miles		
Santa Clara	1.0	2.8	4.0
Solano	—	4.0	7.5
Napa	—	1.4	2.4
	2025	2055	2085

## Economic impacts of climate change

Road closures pose major implications for the economic health of the area, which depends on a stable transportation system. The Bay Area is a major freight hub, with the nation's fifth most active container port (the Port of Oakland) and several specialized seaports; two of the most active air cargo airports in the western U.S. (San Francisco International Airport and Oakland International Airport); major rail lines and rail terminals; freight distribution centers and warehouses; and highways that carry some of the highest volumes of trucks in California, according to the [Metropolitan Transportation Commission](#) (MTC), the transportation planning, financing and coordinating agency for the nine counties in the Bay Area.

Caltrans coordinated with various state and federal agencies and academic institutions for this study. Consultant WSP (formerly WSP/Parsons Brinckerhoff) worked with Caltrans staff to produce the document.

## Lawmakers, Caltrans proactive on climate change

The assessments represent the latest in Caltrans' series of actions on the climate change front. The Department has taken numerous steps to reduce its greenhouse gas emissions in the areas of maintenance, materials used,

project planning activities, and facilities, as described in its 2013 report, [Caltrans Activities to Address Climate Change](#). Caltrans also developed the [Guidance on Incorporating Sea Level Rise](#) document for use by Caltrans Planning staff and Project Development Teams as a strategy to protect California's transportation infrastructure.

Caltrans maintains a dedicated Climate Change Branch under its Division of Transportation Planning, and features a [webpage](#) about climate change on its website.

State lawmakers set the precedent with Assembly Bill 32 — the California Global Warming Solutions Act of 2006 — that established with a broad program that gave the state power to regulate, and reduce, greenhouse gas emissions in California. The Legislature took the climate change fight further with a pair of bills that required state agencies such as Caltrans to prepare and take into account climate change impacts as part of their overall transportation strategy, and in all phases of project development project delivery, maintenance and continued investments in transportation assets.

Gov. Edmund G. Brown Jr. issued an Executive Order in 2015 that climate change be considered in all state investment decisions using life cycle accounting methods, among other related actions.

The [Road Repair and Accountability Act of 2017](#) (Senate Bill 1) also includes funds for climate change mitigation. SB 1 allots \$20 million over three years to local and regional agencies for adaptation planning for a warming climate, awarded on a competitive basis.

The next steps in Caltrans' climate change response will be to plot a strategy for the future. After identifying the transportation elements at risk from climate changes or severe weather incidents, the Department can then develop repair/replacement cost scenarios, loss of use estimates, and response priorities. Reports are now being prepared that explore the best way to achieve long-term highway system resiliency.

The District 4 summary assessment, more extensive technical report and interactive mapping application can be accessed on the district's [website](#). **MM**



The Montecito mudslide looked like an impenetrable mess at first, but Caltrans and first responders had US 101 open in two weeks.

**Sources:** *Climate Change Vulnerability Assessment*; Reza Navai, Assistant Division Chief, Division of Transportation Planning; Julia Biggar, Climate Change Branch Chief; Tracey Frost, Supervising Transportation Planner; Dillon Miner, associate transportation planner



Near Pacifica on Highway 1, the Tom Lantos Tunnels project bypassed an unstable cliffside known as Devil's Slide that frequently buried the highway in rock. Two 1,000-foot bridges shown here being constructed connect the north portal of each tunnel to Highway 1. The tunnels opened in 2013.

## Projects Planned, Built to Withstand Climate Shift

**A** changing climate was a major factor in the design and engineering of a pair of major projects on the Northern and Southern California coastline.

The North Coast Corridor is a long-term collaborative effort involving Caltrans and local agencies to upgrade the transportation system in San Diego County. Over its expected 40-year lifespan, the project proposes additional lanes on Interstate 5, coastal rail and transit improvements, more environmental protections and coastal access.

Consultants prepared a sea level analysis as part of the massive San Diego-area project. It noted that large amounts of beach and wetlands along the shorelines of Del Mar and Oceanside could erode by 2050. The report also said a combination of river and sea level rise could, on occasion, be enough to exceed design guidelines for several bridges.

In the analysis, consultants said that designs for bridges and other infrastructure should consider, if necessary, appropriate adaptation strategies.

In Northern California, the Tom Lantos Tunnels between Montara and Pacifica in San Mateo County bypass a stretch of Highway 1 near a steep and unstable cliff known as Devil's Slide. For years, the roadway was repeatedly buried by tons of rock, prompting costly repairs

The recently released Climate Change Vulnerability Assessment advocates adaptive design, which considers the uncertainties associated with a changing climate.

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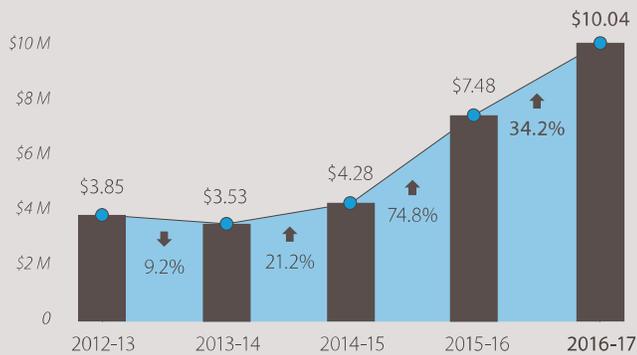
and long periods of detours. Rather than continue to fight the natural forces, Caltrans decided to bypass the area prone to slides by tunneling, creating a new, more stable passageway.

The recently released [Climate Change Vulnerability Assessment](#) advocates adaptive design, which considers the uncertainties associated with a changing climate. Toward that end, the report recommends adopting a Federal Highway Administration model called the "Adaptation Decision-Making Assessment Process," or ADAP.

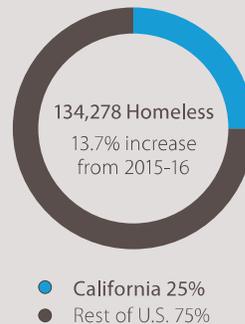
ADAP incorporates broader economic social costs, as well as the future climate conditions, into the design decision-making process. The Caltrans assessment suggests that folding adaptive design into its design and construction processes will enable Caltrans to create a durable, resilient transportation system that can absorb adverse weather events associated with climate change.

# California Homelessness

**Encampment Cleanup Costs** *In millions of dollars*



**Homeless Population**  
2016-17



**California Unsheltered**  
2016-17



## Cost To Clean Up Homeless Camps Climbs

Nearly \$30 Million Spent Since 2012 as State Property Under Growing Pressure

The number of people reported as homeless in California surged over the last year, and that increase is reflected in what Caltrans spent cleaning up homeless encampments along the State Highway System.

Caltrans estimated that the cleanup bill reached \$10.04 million in fiscal year 2017. Crews encountered about 7,000 homeless camps on rights of way of the state's 254 highways. The cleanup amount was 34.2 percent higher than the previous year, and involved all 12 Caltrans regional districts. Since 2012-13, Caltrans has spent about \$29.2 million cleaning up homeless sites.

Statewide, the homeless population increased 13.7 percent in 2016-17 to 134,278, or about 25 percent of the national total, an annual report by the U.S. Department of Housing and Urban Development said.

Homelessness is a problem throughout the country, but is more visible in California where HUD reported 68.2 percent of the homeless population lives in unsheltered locations such as streets and parks. That is the highest percentage in the country.

In 2017, more than 5,600 reports of homeless encampments were submitted by the public through Caltrans' Customer Service Response system. Only reports of potholes (7,075) and graffiti (6,034) exceeded that.

The encampments have the potential to damage highway infrastructure, create community blight, and

pose public health and safety risks.

A typical cleanup takes days, not hours, beginning with a notification posted at an identified site at least 72 hours prior to the start. In some cases where partnerships exist with local agencies, Caltrans employees are accompanied by homeless advocates or social workers, and at least one peace officer, as advocates attempt to help inhabitants find more suitable housing and other necessary services.

On the day of a cleanup, Caltrans workers are escorted by state or local law enforcement as they remove the litter, waste, and a wide variety of personal items left behind. Caltrans workers label, bag and store items at maintenance facilities for at least 90 days. Unclaimed items are disposed of after 90 days.

The Department is now working with officials in San Francisco, Oakland and San Jose to allow those cities to locate transitional shelters within state rights of way. Caltrans also has created statewide program manager position to guide its response to homeless issues that occur on state property. Homeless liaison positions are being established as well in several regional districts to manage and mitigate encampment impacts. ■

*Source: Caltrans Division of Maintenance; Office of Strategic Management*

# Standing Tall for Ethical Behavior

Caltrans Program Stresses Employee Awareness, Offers Advice and Training

Caltrans is committed to accountability and transparency on the part of its work force and in its actions, and makes high ethical standards a priority in its 2015-2020 Strategic Management Plan.

Caltrans encourages employees to report any ethical dilemma or questionable behavior they may encounter. For several years, Caltrans' Ethics Program has offered a range of services to employees, from reporting a situation they're uncomfortable with to training sessions that reinforce personal and professional integrity.

Caltrans formalized its ethics awareness procedures as part of establishing an Office of Risk Management in 2014. A multi-faceted program was then developed. Today it offers:

- A 24-hour, multilingual help line for all employees. It's accessible by toll-free phone or online, and is staffed by a specialist vendor contracted by Caltrans.
- An "Ask Ethics" email address where employees can seek guidance on ethical issues in the workplace, or pose questions about situations.
- An online information page where employees can learn about ethics training classes, report questionable situations, or review policies on subjects that can generate complaints.

The help line has received 898 complaints from September 2014, when the service began, through the end of December 2017. A total of 864 complaints, or 96 percent, of the complaints have been closed.

Complaints ranged from harassment, disruptive behavior, and human resources-related issues (i.e. hiring, merit issues, promotions, or perceived favoritism) to alleged instances of fraud, conflict of interest, or misuse of state resources involving time, vehicles or equipment.

Each complaint or inquiry is considered on a case-by-case basis. Complaints alleging more serious violations are investigated and may result in a more formal probe.



Caltrans photo by Scott Lorenzo

As part of its Ethics Program, Caltrans developed an information webpage and a help line for employees with questions or concerns.

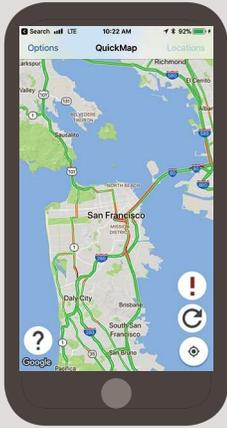
The Ethics Program is now part of Caltrans' newly established Independent Office of Audits and Investigations, which was created by the Road Repair and Accountability Act of 2017 (Senate Bill 1) and is led by the Inspector General. The Inspector General will report to the Governor, Legislature, and California Transportation Commission at least annually and is charged with ensuring Caltrans and outside entities that receive state and federal transportation funds are spending that money efficiently.

Caltrans takes its pledge of transparency and high ethical behavior very seriously. In its 2015-20 Strategic Management Plan (SMP), the Department lists ethics and risk management as one of the key ways of achieving organizational excellence.

A performance target was established in the SMP that calls for a 5 percent annual increase in the number of employee survey respondents who say they're aware Caltrans makes available ways to report incidents of unethical behavior. In 2015, 79 percent of those responding answered positively. The rate rose to 81 percent in 2016, and 84 percent last year. **MM**

Source: Independent Office of Audits and Investigations

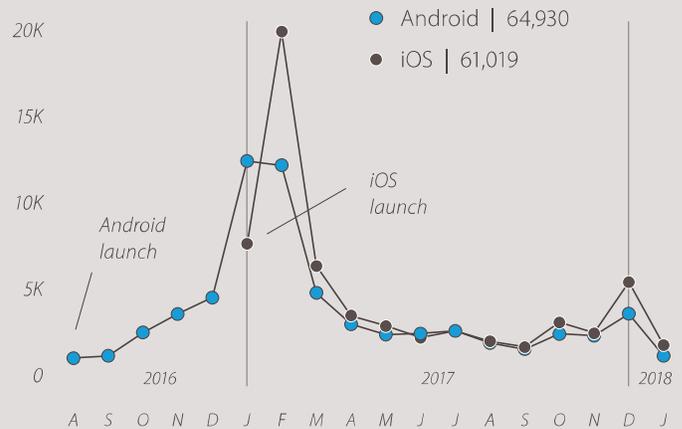
# QuickMap



## In the Right Direction

Caltrans' QuickMap has been steadily gaining users and offering California travelers an expanded look at road conditions. The apps for Android and iOS operating systems have quickly caught on, and new real-time features continue to be added.

## Downloads by Platform



## QuickMap Enhances Road Trip Experience

Caltrans' Mobile Application, Gaining Users, Adds Snowplow Location Feature

Caltrans continues to improve its popular [QuickMap](#) mobile application, which displays real-time traffic information to help travelers make smart decisions before they take to the road.

In December 2017, the Department added icons showing the location and heading of snowplows working on California highways. Although snow has been in scarce supply this season, that information will prove helpful to drivers heading over mountain passes in future winters.

QuickMap improves transportation system performance by providing travelers with accurate, real-time information about road conditions, a goal of Caltrans' 2015-2020 Strategic Management Plan.

In the year following its May 2011 debut on Caltrans' website, QuickMap received about 20,000 visits per month. Last year, the monthly average topped 52,000.

QuickMap apps for Android and iOS operating systems were released in 2016 and 2017, respectively. As of Jan. 2, 2018, the Android app had been downloaded 64,930 times since its release in September 2016.

The iOS app had 61,019 downloads since its release in January 2017 — an average of more than 5,000 downloads per month.

QuickMap uses a Google Maps application infused with information supplied by Caltrans and other sources. The app displays the user's enabled location on a map, and offers a choice of real-time features that include traffic speed, road closures, California Highway Patrol incidents, chain controls, location of fires, electric sign messages, Waze traffic and incident alerts, live traffic cameras, wait time at the San Ysidro border crossing and, now, locations of snowplows.

A new layer — boundaries of counties — is set to be released in the near future. Caltrans also is working on adding a layer marking roadside rest areas.

As a reminder, QuickMap should not be used while driving. **MM**

*Sources: Ed Lee, data processing manager, Mobile & Web, Information Technology Solutions; Patrick Olsen, public information officer, External Affairs*

# Caltrans Reaches Out to Vendors

## SB 1 Opens Opportunities for Small, Disadvantaged, Veteran-Owned Firms

Caltrans is actively courting small businesses, disadvantaged business enterprises, and disabled veteran business enterprises to bid on available contracts, and is using various outreach methods to get the word out.

Dozens of workshops, meetings and training sessions have been held throughout the state, and many more are scheduled. This extensive effort will help meet mandates of Senate Bill 1, the Road Repair and Accountability Act of 2017.

The law requires the Department to develop a plan by January 2020 to increase by up to 100 percent the dollar value of contracts awarded to small businesses, disadvantaged business enterprises (DBEs), and disabled veteran business enterprises (DVBEs). In fiscal year 2016-17, small businesses were awarded almost \$500 million in Caltrans contracts, DBEs received \$264.5 million, while DVBEs won \$47 million in contracts.

To meet the 2020 goal, [Caltrans' Office of Business and Economic Opportunity](#) (OBOE) is presenting "Doing Business with Caltrans: Getting Started" workshops, and providing training for prime contractors and subcontractors statewide.

The OBOE webpage features a calendar of events, as well as links to SB 1 information, mentoring and networking opportunities, certification requirements, the DBE database and educational materials.

The office is reaching out to DBEs that have not been awarded Caltrans contracts before, and is sponsoring programs that increase apprenticeship opportunities for women and minorities in the ironworker and cement mason trades. The goal is to expand representation of these individuals in the labor force, and increase their participation in Caltrans' contracts.

There will also be procurement fairs held around the state that provide a forum for small businesses to meet face-to-face with Caltrans buyers and contract managers, and learn about upcoming opportunities



Caltrans photo by Scott Lorenzo

Workshops such as this one in 2017 are one way that Caltrans tries to attract businesses interested in landing state contracts.

to sell goods and services to Caltrans.

Caltrans also is preparing a series of videos targeted for small and disadvantaged businesses that seek contracts with the state. The video spots will be posted on the OBOE webpage, Facebook, Twitter and YouTube.

Even before SB 1, Caltrans has been committed to increasing the dollar amount of contracts and procurements awarded to the wider business community.

In its 2015-2020 Strategic Management Plan, the Department pledged to award at least 25 percent of its contract and procurement dollars to small businesses as part of its overall performance goals for the organization.

Caltrans far exceeded that target in 2015-16, with small businesses winning 46 percent of all contracts and procurements offered. That rate declined to 28.7 percent in 2016-17, but still beat the Strategic Management Plan's 2020 goal. In the category of disadvantaged business, Caltrans met the 5 percent contract/procurements awards target in 2015-2016 and achieved a 3.3 percent rate in 2016-2017. **MM**

Sources: Anna M. Silva, Office Chief, Training and Outreach Branch, Office of Business and Economic Opportunity; Office of External Affairs



Caltrans photo by Scott Lorenzo

Aviation Safety Officer Phillip Miller uses a 'clinometer' to examine the runway at Benton Airpark in Redding. He's checking for holes in the pavement and confirming angle and runway designator markings. Over time, these markings must be changed due to shifting of magnetic poles.

# Highway or Flyway, Inspections Needed

## Caltrans Works With Feds to Ensure Airport, Hospital Heliport Infrastructure Safe

In addition to its State Highway System oversight, Caltrans also makes sure California's 243 state-permitted, public-use airports and 167 special-use hospital heliports undergo regular permit and safety-compliance inspections.

In the 2016-17 fiscal year, Caltrans' Division of Aeronautics' staff inspected 198 of the airports and 131 hospital heliports.

Aviation safety officers check to ensure the facilities meet state and federal design standards. They're evaluated for obstructions to navigable airspace, markings, lighting, signage, pavement condition, and a host of other operational safety conditions.

Aeronautics staff work closely with the Federal Aviation Administration (FAA), airport sponsors and heliport owners to ensure infrastructure of public-use airports and hospital heliports are in satisfactory-to-good condition.

Public-use airports include commercial service airports, which provide scheduled flights and goods movement, and general aviation airports, which support business flights, agriculture, recreation, flight

Inspections play a key role in determining where scarce resources derived from an excise tax on aviation fuels can be invested.

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training, law enforcement, fire suppression, medical transport, and light aircraft manufacturing and maintenance.

These safety inspections play a key role in determining where scarce resources derived from an excise tax on aviation fuels can be invested. Inspection results are shared with the FAA and the facility owners, and are used for programming future airport improvement projects.

Airport pavement, like highway pavement, deteriorates over time. Preventive maintenance saves money, since pavement repair and preservation costs less than replacement.

Airport Pavement Management System (APMS) surveys for general aviation airports are typically conducted every five years, and are usually funded

by FAA grants administered by Caltrans' Division of Aeronautics. The Division was recently awarded a \$1.2 million grant by the FAA to conduct APMS surveys at 84 airports in California during the next two years.

Over the last fiscal year, Caltrans awarded 52 grants for a total of \$4 million to fund pavement

projects, as well as to leverage federally funded Airport Improvement Program grants to maintain runways and other critical infrastructure at general aviation airports throughout the state.

*Source: Caltrans Division of Aeronautics*

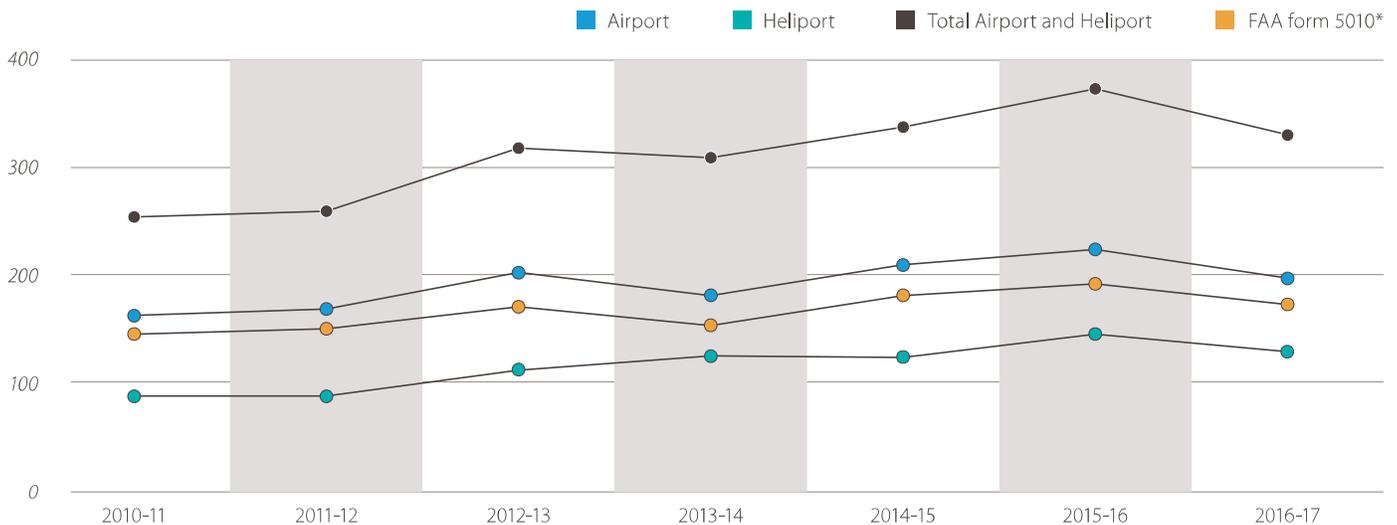
### Caltrans Aviation by the Numbers

-  **2** State-owned aircraft
-  **243** Public use airports
-  **167** Hospital Heliports
-  **6** State Aviation Safety Officers



*Airport pavement deteriorates over time, so inspectors with Caltrans' Division of Aeronautics perform regular checkups to ensure infrastructure at more than 400 facilities in California meets standards.*

### Aviation Safety Inspections



Type	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Airport	164	170	203	182	210	225	198
Heliport	90	90	114	127	126	147	131
Total AP and HP	254	260	317	309	336	372	329
FAA form 5010	147	152	172	155	182	193	174

*\* 5010s contain aeronautical data on public-use airports*

# Permits Ensure Shippers Pull Their Weight

Caltrans Closely Monitors Oversize/Overweight Loads for Safety, Road Impacts

Caltrans issued more than 115,000 permits for certain oversized and overweight loads in the last fiscal year, and processed more than nine out of 10 of them in two hours or less, a measure of efficiency highlighted in the Department's Strategic Management Plan.

Big loads or vehicles on the state highway system require special consideration. Caltrans' [transportation permit system](#) ensures such loads move only on roads and bridges that can accommodate their unusual weight or dimensions.

Caltrans responds to a variety of permit requests. Each is handled with the same three goals in mind: 1) find the quickest, safest route for the hauler, 2) protect the public that will be traveling on the same highways as a particular extra-legal load, and 3) prevent damage to highway infrastructure.

The integrity of the permit system depends on the vigilance of about 40 Caltrans employees in Sacramento. They monitor ever-changing conditions, including restrictions from construction work, lane closures, weight and/or height detours, or other limitations that could determine whether a particular road can accommodate a special load.

A single-trip application is the most common kind of permit issued to allow for oversize/overweight loads. A permit applicant must submit to Caltrans a description of the load, the dimensions, what kind of hauling equipment is being used, as well as the origin and destination. These key pieces of information are reviewed to determine whether the permit can be issued.

The route is then checked in a Caltrans database to ensure all road and structure conditions are satisfactory for the travel of a particular load. This database is maintained daily to ensure all highway vertical and horizontal clearances, and weight ratings, are accurate for safe routing.

Based on that information, a specific route is



Photo courtesy of NASA/Bill Ingalls

*The space shuttle Endeavour was transported via Interstate 405 and local roads to its home at the California Science Center in Los Angeles in 2012. Permits to haul the massive load were obtained.*

plotted between a shipper's trip origin and destination, ensuring that a particular load can travel on roads with the proper carrying capacity and free of certain physical restrictions. Other travel limits, such as forbidding night driving or requiring pilot cars, can be added to a permit.

Because of road conditions can change quickly, the single-trip permit is only valid for seven days.

For organizations familiar with the California Vehicle Code and routes where goods can be shipped legally, Caltrans offers an online version of the single-trip permit — STARS (Single-Trip Application and Routing System). STARS allows trucking companies, construction firms, manufactured home builders, the military and other frequent shippers a fast, easy way to complete the permit process — in under two hours for most online applications.

STARS is very popular and comprised about 73 percent of all 158,324 transportation permits processed in 2016-17.

[Caltrans' Office of Commercial Vehicle Operations](#) also gives details on [legal truck access](#), over-length bus and motorhome restrictions, pilot car use, motorsports trailer hauling restrictions, and other overweight/oversize topics on its web pages. **MM**

It's that two-hour window that serves as a performance measure of how well Caltrans is performing in this permit area. That goal was met almost 95 percent of the time in 2017, reaching the target set in the updated 2015-2020 Strategic Management Plan.

STARS is very popular and comprised about 73 percent of all 158,324 transportation permits processed in 2016-17. However, those seeking a permit can apply manually and submit documents via fax machine, or call the permits office during regular business hours for help. Those applications typically take slightly longer to process, usually four to six hours if sent by fax.

In addition to the single-trip permit, Caltrans also issues annual, repetitive and variance-type permits.

To discuss new ideas on permit-related issues, Caltrans and the California Highway Patrol meet quarterly with industry representatives such as the California Trucking Association as members of the [California Transportation Permit Advisory Council](#).

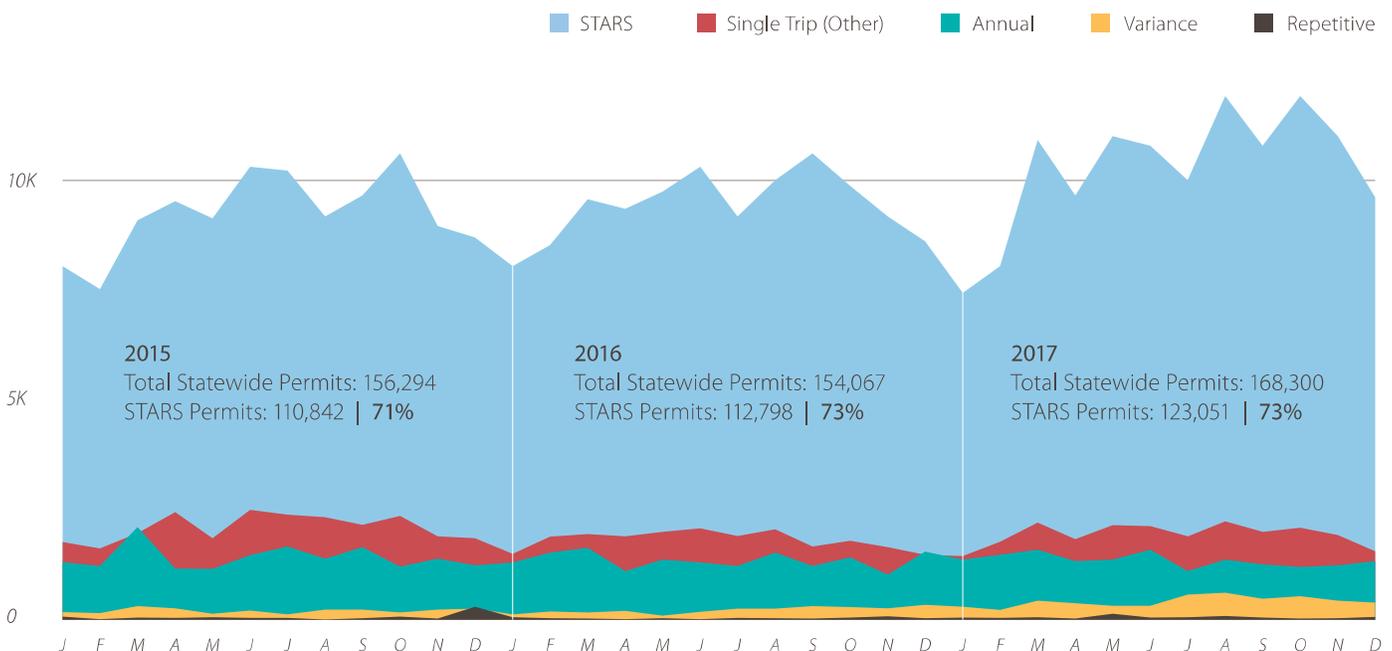
*Sources: Kien Le, Chief, Office of Commercial Vehicle Operations, Division of Traffic Operations; John F. Holzbauser, Branch Chief, Transportation Permits Policies and Compliance Branch*



Caltrans photo by Ed Andersen

*Before hauling special-sized loads, truckers must carry and follow a Caltrans-approved permit that gives route directions that avoid restricted roads and bridges en route to their destination.*

## Permit Applications



Caltrans photos by Thomas Ritter



As part of its I-5 Rosecrans Avenue/Bloomfield Interchange Project, Caltrans elevated the interstate and constructed this new undercrossing at Bloomfield that rejoins parts of Norwalk that had been cut off by the original I-5 construction in 1954. This photo was taken in 2016.

# Key Piece of I-5 Makeover in L.A. Complete

## Project Widens Freeway, Reworks Interchange, and Reconnects City of Norwalk

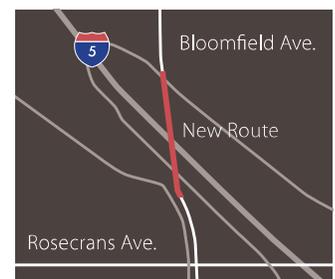
Caltrans and its partners recently celebrated the completion of another critical link in a multi-stage Interstate 5 corridor project in Southern California.

During the ribbon cutting ceremony, community members and local leaders gathered under the I-5 (Santa Ana Freeway) [Rosecrans Avenue / Bloomfield Interchange Project](#) that features numerous improvements to that highway segment, and also rejoins two sections of the city of Norwalk that were separated by I-5's construction in 1954.

Reconstruction of this interchange is a key part of the \$1.9 billion I-5 South Corridor joint project to widen I-5 between I-605 (San Gabriel River Freeway) and the Orange County line. This stretch of interstate traverses, intersects, and impacts the cities of Norwalk, Santa Fe Springs, Downey, Cerritos and La Mirada. Caltrans is working with federal and Los Angeles transportation agencies to improve the corridor.

"I-5 is the backbone of our interstate system in California and it carries the goods and services that

### Project Spotlight



support our economy," said Caltrans Director Laurie Berman. "Expanding I-5 and adding HOV lanes in a densely populated area like Southern California allows us to improve mobility and air quality. This project also reflects our commitment to reconnect community routes when rebuilding our freeway interchanges."

This is the third of six segments along the I-5 South Corridor widening project to reach comple-

tion. Funded by federal, state and local sources, this \$180 million segment reconnects two sections of Norwalk east and west of I-5 and Santa Fe Springs by re-establishing through access on Bloomfield Avenue under I-5.

In 1954, the construction of I-5 through this neighborhood blocked local traffic on Bloomfield at the interstate. By elevating lanes of I-5 in the new interchange, local traffic on Bloomfield can now cross under I-5 in both directions, creating a significant local alternate route that will alleviate congestion on parallel city streets.

Bloomfield Avenue under I-5 was reconstructed with two lanes in each direction, adding a median, traffic signals and a colorful sunrise tile mural, which the Interstate 5 Consortium Cities Joint Powers Authority commissioned from a local artist, on the walls of the undercrossing.

Rosecrans Avenue was rebuilt and reconfigured to accommodate easier and safer access at the wider on- and off-ramps connecting Rosecrans to I-5, with a matching tile mural along the undercrossing walls. Drivers can access on- and off-ramps to northbound and southbound I-5 from either direction of Rosecrans Avenue with traffic signals. They can also exit from either northbound or southbound I-5 to either direction of Rosecrans Avenue.

The project also widens one mile of I-5 from Shoemaker Avenue to Silverbow Avenue and adds one High Occupancy Vehicle Lane (HOV or car pool lane) and one general purpose lane in each direction. The Shoemaker, Rosecrans, and Bloomfield Avenues bridges at I-5 were reconstructed to accommodate the widened freeway, and a new pedestrian overcrossing was built at Silverbow Avenue.

“Our transportation network doesn’t just move Angelenos from place to place — it powers our economy forward, connects our communities and gives our region a shared sense of identity,” said L.A. Mayor Eric Garcetti, Metro’s Board Chair.

Completion of this interchange from groundbreaking to the ribbon cutting ceremony took almost five years.

The project also includes wider freeway shoulders, concrete median barriers, improved ramp designs, realignment to Firestone Boulevard, and interchange modifications at the Rosecrans and Bloomfield Avenue undercrossings.



*A rebuilt Rosecrans Avenue crosses under Interstate 5 in Norwalk. Also reconstructed, Bloomfield Avenue, at top, intersects Rosecrans.*

Another special feature of this project is the construction of an underground Austin Vault sand filter, which removes pollutants from runoff water. Other benefits of the reconstructed interchange and bridges include:

- Improving the overall traffic circulation along the I-5 South Corridor
- Reduced emissions through use of HOV lanes
- Improving traffic flow on nearby frontage roads
- Enhancing safety
- Accommodating future traffic demands and increasing capacity

Along with the Los Angeles County Metropolitan Transportation Authority (Metro), the Joint Powers Authority and the Federal Highway Administration (FHWA), Caltrans has worked closely with all five of the local community governments along this corridor to minimize construction impact and maximize integration of Caltrans interchanges with local roadways and traffic.

Working together, Caltrans and FHWA have made it a priority to reconnect local communities in this manner whenever possible as freeway interchanges are rebuilt.

The lead contractor on this project was Flatiron Corporation, and the project was completed on time and on budget. **MM**

*Source: Marc Bischoff, public information officer, Caltrans District 7*

# Program Gives Contractors Larger Role

Reviews Positive on Trial Construction Process Intended to Reduce Costs, Delays

An alternative contracting method for Caltrans to bring construction projects in on time and within budget is continuing to show promise, according to the Department's annual report on the Construction Manager/General Contractor (CMGC) Pilot Program.

The update was submitted to the Legislature, which approved expanding the trial program in 2016 and 2017 to include more projects. Caltrans can now embark on 22 CMGC projects in total, including at least 10 with construction costs of \$10 million or higher.

The CMGC method of project delivery, used on a trial basis by Caltrans since 2013, brings a contractor into the process much earlier than the traditional design-bid-build method for developing highway improvement projects, where the contractor is hired after the design plans and specifications have been finalized by Caltrans.

Through the CMGC Pilot Program, Caltrans hires a construction manager/general contractor to provide input during the project's design process. The construction manager provides input on the design, scheduling, and other project-specific details as a way to lower costs and head off potential construction problems and delays.

At an agreed-on point in the process (typically 90 percent design completion), Caltrans and the

construction manager negotiate a price for the construction of the project or a portion as specified. A contract is executed for construction services, and the construction manager then becomes the project's licensed prime contractor, and assumes much of the risk for the accuracy and constructability of the project. An independent estimator participates in the negotiation to help ensure that the agreed price is fair and reasonable.

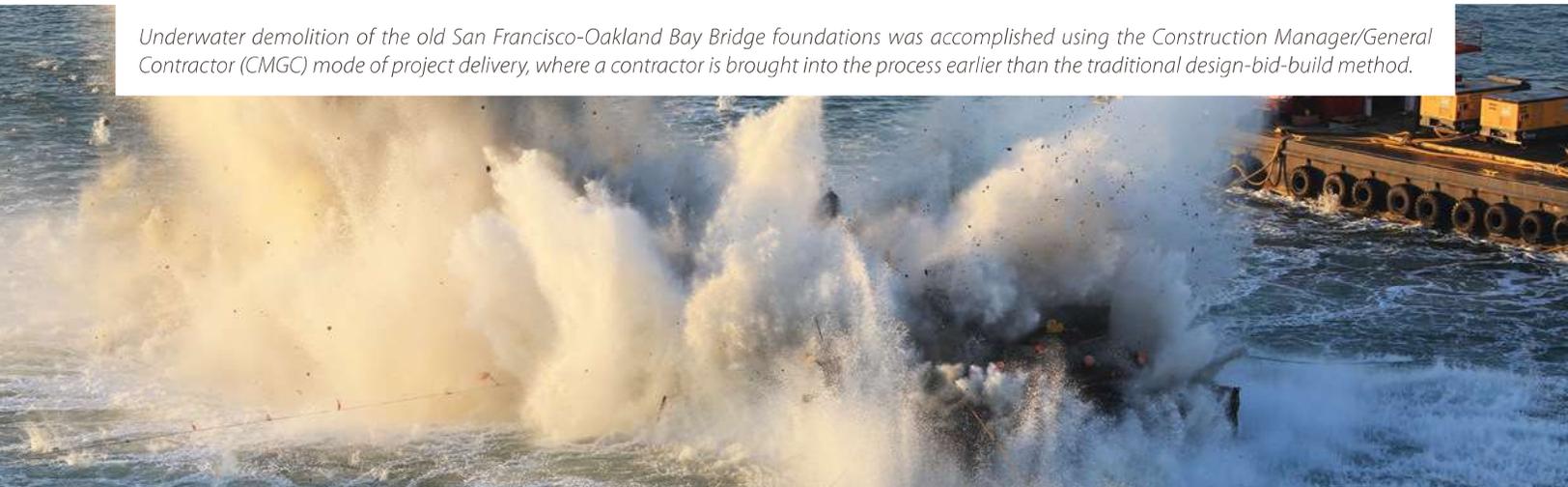
To date, almost all the authorized projects have been assigned and are in various stages of design/planning/construction. Other planned projects are being identified by Caltrans as suitable for the CMGC process.

Two of the initial construction contracts have been completed, with positive results. On the first stage of the Fresno Highway 99 Realignment project and the Highway 140 Ferguson Slide Restoration (just outside Yosemite National Park), each was completed on time and below budget allocations.

Caltrans project teams are assigned to each project to assess the CMGC method, and input is also being sought from industry on the practice.

*Source: Annual Progress Report, Construction Manager/General Contractor Pilot Program Report*

*Underwater demolition of the old San Francisco-Oakland Bay Bridge foundations was accomplished using the Construction Manager/General Contractor (CMGC) mode of project delivery, where a contractor is brought into the process earlier than the traditional design-bid-build method.*



# From the Archives

*In April 1963, the Vincent Thomas Bridge spanning the main Los Angeles Harbor channel was nearing completion. The cable-suspension bridge, painted a distinctive green, was named after the longtime area assemblyman who championed its building. Today, the Vincent Thomas Bridge is part of State Route 47, feeding into the I-110 Harbor Freeway. It originally was built for \$21 million, and underwent earthquake retrofitting in 1980.*

