



CALIFORNIA TRANSPORTATION
Journal



2011 ISSUE 2 - ANNUAL REPORT

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State of California

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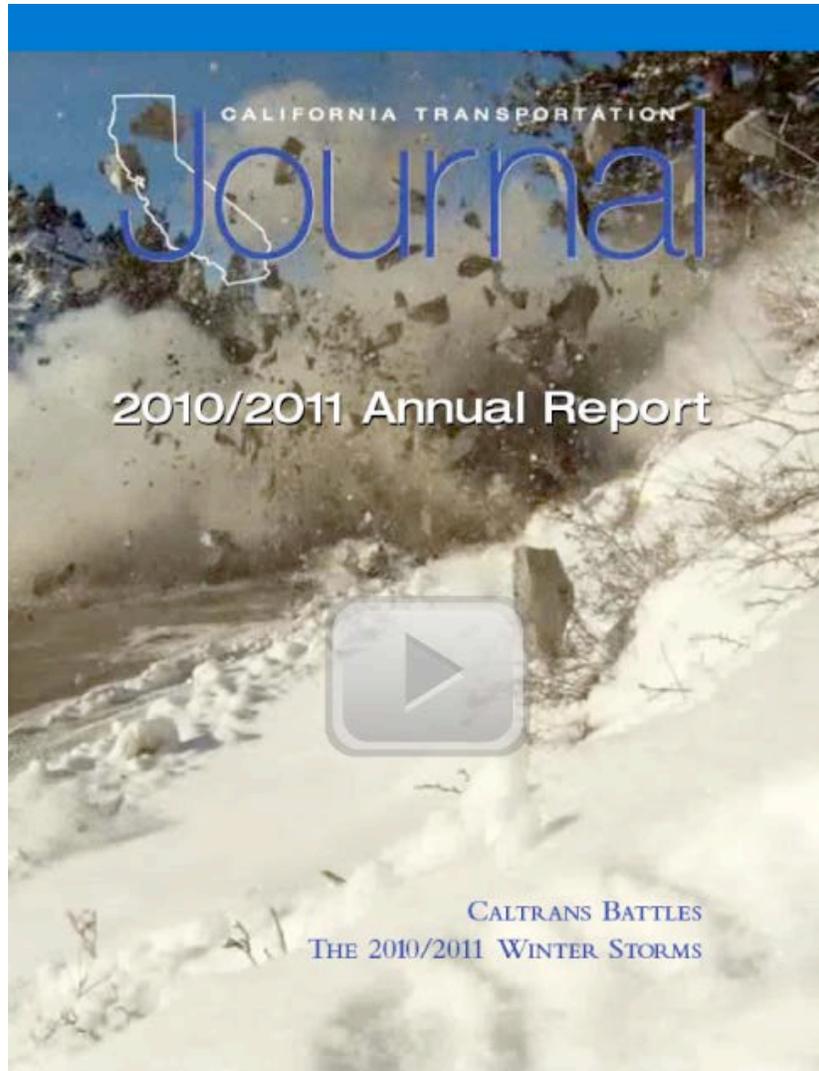
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Cover Photo: Nature plastered a thick overlay of snow across the Sierra Nevada this winter. Caltrans plowed, pounded and pulverized its way through the snow, clearing a pathway for travelers. Video provided by Mark Matus, Caltrans Video Services.

Click on the arrow to the left to view the video.



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Message from the Caltrans Director

The 2010/2011 fiscal year has been full of extraordinary challenges. During historic winter storms, the Sierra Nevada was buried under near-record snowfall, clogging highways and throwing down the gauntlet to Caltrans maintenance forces. In the state's lower elevations, roads eroded, leaving residents and businesses stranded until the Department could repair the damage.

Still, we got the work done. Major highways east of Sacramento bore the brunt of the winter storms, which dropped some 730 inches of snow, just short of the record 780 inches set in the 1951-52 season. Maintenance workers, 200 of them, struggled to keep passes open on Interstate 80 and U.S. Highway 50, only to see snow begin to accumulate as soon as it was cleared.

Meanwhile, the winding State Route 1 along California's scenic central coast experienced several landslides and road closures that kept Caltrans maintenance workers busy for months. Caltrans was having one of its busiest seasons ever along the Big Sur.

Then winter storms caused three disruptions on SR-1 at Rocky, Limekiln, and Alder creeks. A 150-foot section of the southbound SR-1 at Rocky Creek collapsed, shutting the roadway between Carmel and Big Sur. Crews stabilized the area and detoured traffic. A \$2.5 million temporary fix opened the highway to controlled traffic by mid-April, but a permanent repair will take a year or more and require a new 700-foot roadbed on either side of the collapse.

The highway was also closed briefly at Limekiln Creek. Then a third closure occurred in mid-April at Alder Creek. Caltrans was able to open the Alder Creek portion by June 9, earlier than expected.

Every Caltrans district had challenges. The Bay Area and northern coast faced a tsunami (a result of an earthquake in Japan) that hit harbors and shorelines, while the Stockton area patched a weather-caused sinkhole on Highway 99 and saw 46 feet of snow on SR-88 near Caples Lake. The Inland Empire suffered some \$21 million in damage to SR-330 in the San Bernardino Mountains, and Orange County struggled with flooding along the usually sunny Pacific Coast Highway (SR-1) at Huntington Beach.

Other challenges affected the Department, such as lower than-expected bond sales for highway projects, and the aftermath of the Great Recession. Caltrans worked with fewer employees than last year (21,508 versus 22,212), so we did more with less. Still, Caltrans had more than 700 ongoing construction contracts valued at nearly \$11 billion, and Recovery Act and Proposition 1B projects continued to provide jobs at a time that the state economy needed it most.

On a more somber note, I am sad to report that four Caltrans workers died in service to the public during the year, bringing to 178 the number of employees who have died on the job since 1924. The number of fatalities was a sharp increase from previous



Caltrans District Websites



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- [District 3](#) Marysville
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years, and three of them came in barely six weeks (during May and June).

In their wake, I called an immediate halt to routine or regularly scheduled maintenance activities that could be deferred so that staff could participate in safety stand-down activities. You can read more about these fatalities and the Department's attempts to protect workers in the Safety section of this annual report.

Despite setbacks, the Department continued work on one of its signature projects, the self-anchored suspension span (SAS), the largest bridge of its kind in the world at 2,078 feet long and the construction of its elegant 525-foot tall tower. The full span is scheduled for completion in 2013 when it will replace the venerable but aging San Francisco-Oakland Bay Bridge.

Other important construction went on throughout the state. Caltrans moved forward on bringing Highway 99 up to freeway standards the length of the Central Valley. The Los Angeles area continued widespread rehabilitation work on its world-famous freeway system. The Inland Empire completed part of its I-215 widening project. And the Bay Area made big progress on its tunneling project at the Caldecott Tunnel, and at the Presidio Parkway improvement project.

Caltrans also mentored Eureka middle school students who were interested in engineering careers. The Monument Middle School in Rio Dell won recognition from the Garrett Morgan Symposium, named for a pioneer in transportation engineering. The students' science project was "Algae: Fuel of the Future."

North coast forces also completed the Alton Interchange, which has been a long-time goal for both Caltrans and the community. Caltrans District 9, east of the Sierra Nevada, opened the Manzanar/Independence Project, which turned 11 miles of U.S. Highway 395 into a four-lane expressway that is expected to reduce collisions on the high-desert motorway.

In summary, the annual report tells Caltrans' story over the past fiscal year. It's been an inspiring 12 months. Caltrans overcame obstacles, worked as a good steward of the taxpayers' money, functioned as the premier state transportation department in the nation, and served as an engine of growth for California's economy. Congratulations and thank you to all who helped make it possible!

A handwritten signature in blue ink, appearing to read "Mark D. Dwyer".

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Mother Nature Roughs up California, but Caltrans Weathers the Blows



A half-buried freeway marker on Interstate 80 became a sign of the times last winter as record-setting snow fell on the Sierra Nevada and Caltrans highways.

Mother Nature gave California a serious hammering this past winter, with stiff winds hurling near-record amounts of snow on the Sierra Nevada, emptying buckets of water on the lowlands, and throwing in a tsunami on the state's northern coast. But through it all, the California Department of Transportation (Caltrans) worked tirelessly to keep the highways clear and traffic moving — to the public's appreciation.

"I know your crews were pushed to their limits to keep the roads in good shape. From our perspective, they did an awesome job ..." – Sierra at Tahoe Snowsports Resort, John A. Rice

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Things got bad enough that in April Governor Edmund G. Brown Jr., issued an emergency proclamation for 19 counties following storms that pummeled California. They included, Amador, Butte, Contra Costa, Del Norte, Humboldt, Madera, Mariposa, Mendocino, Monterey, San Luis Obispo, Santa Barbara, Santa Cruz, Sierra, Stanislaus, Sutter, Trinity, Tuolumne, and Ventura counties.

Every Caltrans district received some pounding, especially during a two-week period of late winter bluster, but some got more than their fair share. For example, District 3 Director Jody Jones informed Sacramento headquarters in late March that "as of 6 a.m., we have had 709 inches of snowfall (on Interstate 80) at Donner Summit so far this year. The record is 780 inches set in 1951. That was the year a passenger train got stuck up there," Jones wrote, recalling a stranded luxury train, the Southern Pacific's "City of San Francisco."



Caltrans snow-clearing equipment and a brave traveler slice their way like a sharp knife through a thickly iced birthday cake in the high Sierra Nevada countryside.

District 3's (Marysville) famed Sierra Snowfighters endured serious pounding while clearing snow on the I-80 and U.S. Highway 50 corridors. More than a dozen storms

contributed to a winter with near-record snowfall. Along I-80, 740 inches of snow were measured on the Donner Summit's Castle Peak (elevation, 7,239) — the second highest ever recorded at that spot. Most of it fell between March 14 and 28. Average summit snowfall is 430 inches.



The storied Sierra Snowfighters should have been awarded a graduate degree for their efforts this winter at Kingvale U maintenance station, perched 6,100 feet above sea level on I-80.

"We had 12 rotary plows working in tandem all night — going back and forth and they couldn't keep it cleared." District 3 Director Jody Jones

District 3 used more than 300 pieces of equipment, and 200 dedicated employees worked through blizzard conditions, plowing snow and performing avalanche control to maintain safe road conditions for traveling motorists. The severe winter storm, with high winds and snow accumulation of up to 18 inches in foothill communities, contributed to power outages that shut down government offices, schools and businesses in some areas for as long as three days.

Jones wrote to Sacramento headquarters on March 25: "We were able to open I-80 to vehicles (no trucks) about noon today. It had been closed all night due to zero visibility. We had 12 rotary plows working in tandem all night — going back and forth and they couldn't keep it cleared. The westbound lanes are above the eastbound lanes, and we are having to move the snow twice because there is nowhere to put it. We are clearing the westbound lanes by pushing/blowing the snow onto



the eastbound lanes and then pushing/blowing it again over the side. The snow was falling so heavily that as soon as they finished, it was snowed over again."

Caltrans crews would have done their best regardless of who was watching, but it's always nice to receive a little positive feedback. For example, John A. Rice, general manager of Sierra at Tahoe Snowsports Resort, wrote to Bill Netto, a maintenance supervisor in South Lake Tahoe: "With the sheer volume of snow we experienced this past winter, I know your crews were pushed to their limits to keep the roads in good shape. From our perspective, they did an awesome job managing the snowfall and potential avalanche conditions on Highway 50."



In early spring, travelers faced near "white out" conditions in the mountains. On March 25, 2011 I-80 closed and Caltrans worked all night to clear snow from the road.



A Caltrans snow blower, framed by clear blue sky, slices through a deep bank of snow.

Mark Treiber, a permanent resident of South Lake Tahoe, added: "The Caltrans crews in our area have been darned near heroic. Awesome job! [It's] difficult to understand how they do so much snow removal in such a short amount of time."

Meanwhile, as District 3 was defending itself against heavy blows to mountain passes, its Structures Maintenance engineers on March 24 concluded that scouring had become critical on piers under the 10th Street Bridge, which crossed the storm-swollen Sacramento River. This was a critical link on State Route 20 (SR-20) between Yuba City and Marysville. And it was one more three-aspirin headache during a winter full of such challenges.

The North Region Office of Surveyors answered the call. Within hours, surveyors gathered up their equipment and went to work. They had to design and fabricate brackets to fasten laser targets to the bridge structure to aid the surveying process, establish control of the situation and set up equipment.

All work was done during a rain storm and 40 mph winds. Making matters worse, office support was unavailable because District 3's headquarters had suffered a power outage. Despite challenges and

within hours, the crew installed equipment and began monitoring the bridge for dangerous movement. Monitoring continued around the clock for 11 days with surveyors taking measurements every two hours. Due to their efforts, the bridge stayed open to the more than 40,000 vehicles that use it every day.

Meanwhile, District 10 (Stockton) contended with some brutal opposition of its own. Braving hostile weather, crews battled large boulders, damaged roads, flooding, avalanches, extreme snow, white-out conditions, potholes, rocks, mud, and debris slides. And that doesn't include a nasty sinkhole on Highway 99 discovered during a stormy Friday afternoon.

The winter produced the second-highest recorded snowfall for SR-88 in the Caples Lake area. By the end of winter, the level stood at a tad over 555 inches, some 2.4 feet short of the record 584 inches recorded in the winter of 1982-83. Despite those numbers, from November 30 through March 27, crews kept Carson Pass open 97 percent of the time



More than snow fell this winter along Highway 88 during a controlled avalanche in Carson Pass.

and Carson Spur clear 87 percent. They performed a controlled avalanche at 2 a.m. and led caravans of travelers through these operations, allowing them to reach their mountain homes safely.

Meanwhile, SR-140, an all-weather route into Yosemite National Park, had its own problems. Some 30 slides occurred during the height of the winter season in the Merced River Canyon. District 10's crews fought during the day to clear the road and open traffic to one-way control.

However, work was forced to stop at nightfall. The California Highway Patrol closed the area after dark because steep, rain-soaked canyon walls sloughed off debris that made driving unsafe in the gloom. Caltrans brought in additional crews to remove the tons of debris that fell onto the road.

A crew was dispatched to remove numerous trees and limbs that fell or threatened to fall onto the road. Caltrans' efficient use of resources ensured the heavily traveled route was ready to greet spring visitors heading to Yosemite's magnificent waterfalls and spectacular spring flora.

The weather situation was just as dire in parts of southern and central California. District 8 (San Bernardino) faced its greatest winter challenges along SR-330 in the San Bernardino Mountains, running 14 miles north from Highland into Running Springs. On



Mud and water cover SR-140 in Mariposa County

December 21, as the southland was experiencing one of the most devastating storms in more than 20 years, District 8 maintenance crews were conducting routine inspections along the serpentine SR-330.

Several locations were cause for concern. Inspections continued through the night until early morning when maintenance crews

began to escort motorists through the route due to debris and slides – eventually closing the route because of dangerous conditions.

The next morning crews came upon a large slide on SR-330. They quickly mobilized separate contractors, and began repairs at three locations with major damage, as well as several other sites nearby. The cost for Mother Nature's rampage: approximately \$21 million.

District 8 and its contractors reopened the roadway in June to commuter traffic during peak hours. Contractors conducted all work behind barricades and posted flaggers at the three locations with major damage to ensure the safety of Caltrans and contract workers, and the commuting public.



Torrents of rain caused three major landslides on SR-330, keeping Caltrans busy for months.

District 5 (San Luis Obispo) was having one of its busiest seasons ever along the Big Sur coast, including several construction projects worth tens of millions of dollars, and preventive maintenance in response to the major Big Sur fire in summer 2008. Then on March 16, District 5 was hit with a new set of challenges along the scenic coastline. A 150-foot section of the southbound SR 1 at Rocky Creek collapsed, shutting down the entire roadway between Carmel and Big

Sur.

Crews worked to stabilize the area, detour traffic and secure the area to ensure public safety. A contractor hired within a week of the damage began a \$2.5 million emergency fix. The road is now open to controlled traffic, but a permanent repair will likely take a

year or more and require a new 700-foot roadbed on either side of the collapse.

A week later, a slide south of Big Sur at Limekiln Creek dumped tons of rock and mud on the roadway, closing Highway 1 for a few days and temporarily isolating the community. When it was cleared on March 27, another slide struck at Alder Creek, and the highway there was closed until June 9, opening in time for the summer tourist season.



A rain soaked hill caused a mudslide on Highway 1 at Limekiln Creek in Monterey County. A contractor's loader was hit and damaged by a large boulder in the event but caused no injuries as a result.

Through it all, Caltrans District 5 maintenance crews, engineers, planners, traffic managers and information officers worked long hours to manage the closure, respond to traveler/resident issues and design temporary and permanent repairs. All three road sections are now open thanks to the district's hard work.

In perhaps the oddest winter event of all, District 1 (Eureka) sparred not merely with rain and snow, but with a rare tsunami, resulting from a spring earthquake in Japan. The tsunami, or "harbor wave" in Japanese, also did significant damage in Santa Cruz to piers and small craft.

District 1 (Eureka) has participated since 2008 in the Emergency Alert System, which attempted to prepare the area for a tsunami. The practice exercise scheduled for March 23 was trumped and turned real on March 11, and crews in Del Norte County assisted with tsunami-related road closures in addition to responding to several slip outs and erosion issues along U.S. Highway 101. Ironically, the District learned enough during the emergency response to cancel the planned exercise for later that month.

In addition to winter weather issues listed above, there were less dramatic, but still significant problems.



A lush hillside next to Highway 101 wound up covering four lanes of roadway.

In Humboldt County, Highway 101 north of Garberville was closed for almost five days due to a massive mudslide that covered all four lanes of the highway. In the Fresno area, District 6 dealt with rockslides and local flooding that closed SRs 41, 168, 178

and 198.

Also in Orange County, District 12 had a wet and busy winter. A succession of winter storms hammered Orange County and kept District 12 Maintenance crews scurrying for much of the season – with flooding on SR-1 in Huntington Beach, and stretches of southbound I-405.

In summary, despite the worst punches winter could throw, Caltrans weathered the storm and kept travelers and goods moving throughout the state.

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Safety: Provide the Safest Transportation System in the Nation for Users and Workers.

Caltrans Builds for Safety, Works to Keep Employees, Public Secure

Caltrans is concerned about the safety both of its employees who work on the state transportation network, as well as the traveling public who use the system for convenience, business and recreational travel. This year, the Department made that concern manifest through a number of strategies, ranging from research and innovation to public awareness campaigns and improved highways and rail systems across the state.



Danger is inherent in many Caltrans jobs, and highway construction and maintenance are among the most dangerous occupations in the United States. One-hundred-seventy-eight (178) Caltrans employees have died on the job since 1924, when record keeping began.

The most recent fatality was Richard Gonzalez, a Caltrans Equipment Operator II, who was killed June 20 by a vehicle while he was working on a litter crew on I-15 in San Diego County. Mr. Gonzalez, 52, of San Ysidro, was the third work-related fatality in less than seven weeks.

In the wake of Mr. Gonzalez's death, Acting Director Malcolm Dougherty called an immediate halt to all routine or regularly-scheduled maintenance activities that could be deferred so staff could participate in mandatory safety stand-down activities.

Other fatalities this year included Jaime Obeso, 53, a Maintenance Lead Worker in District 11, who was hit by an errant vehicle in June while working on I-8 near the Sunbeam Safety Roadside Rest Area in Imperial County. Mr. Obeso was a 22-year veteran of Caltrans.

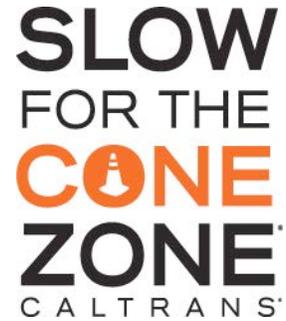
Stephen Palmer, Sr., a 64-year-old Caltrans landscape maintenance worker in the San Diego area, died in May after being struck on the job by a trolley near a station in National City. Mr. Palmer, who began work for Caltrans in 2007, was a member of the Imperial Landscape Crew, based in San Diego.



This past year was difficult for the Caltrans family, which suffered four employee fatalities. Family and friends paid tribute to the fallen during the annual Workers Memorial at the State Capitol.

All three deaths had a particular poignancy given that their deaths followed closely after more than a thousand employees honored fallen Caltrans workers in April at the 21st Annual Workers Memorial at the State Capitol.

Also killed, in November 2010, was Maintenance Lead Worker Gary Smith from the Chico area. Mr. Smith was struck and killed by a motorist while performing



Be sure to check the links within the Safety story to read more in-depth about Caltrans' efforts in Green Technology.

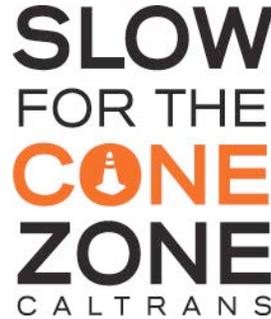
Family and friends paid tribute to the fallen during the annual Workers Memorial at the Capitol in April.

traffic control for a detour around an earlier fatal crash. The errant driver was

arrested for suspicion of driving under the influence.

Workers aren't the only ones at risk. Approximately 85 percent of people killed in highway work zones are drivers and passengers. Nationally, on average, more than two work zone fatalities occur every day or about once every 10 hours. In addition, on average, more than of 84 work zone injuries occur every day — one every 13 minutes.

The good news is that Caltrans has made strides through its Slow for the Cone Zone public awareness campaign launched in 1999. California work zone fatalities have declined 48.2 percent from 1999 to 2009, compared to a drop of just 21.9 percent nationally. California work zone fatalities, as a percentage of all California traffic fatalities, have been reduced to less than half what they were a decade ago, despite substantial increases in construction work zones. In 1999, 3.15 percent of all traffic fatalities in California were in work zones. The percentage has fallen steadily to 1.9 percent in 2009.



A similar regional effort is taking place in the San Diego area, where Caltrans District 11 has launched the Safe Driving on 76 Is No Accident public awareness campaign, which addressed the increase in traffic collisions along the mostly rural highway. During 2004, eight traffic collisions resulted in 16 deaths between I-5 and east of I-15.

The California Highway Patrol (CHP) has stepped up its enforcement and Caltrans has installed more and larger traffic signs along the route. Caltrans, the CHP, and the Oceanside Police Department have joined forces to educate drivers about safe driving practices along the highway.

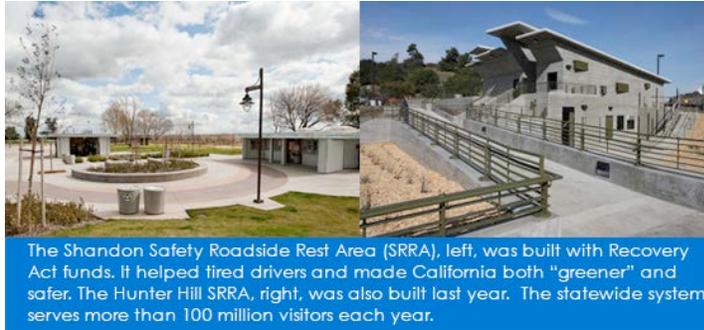
As a result of such efforts in California and elsewhere, safety is also improving nationally. In 2009, there were 679 fatalities and more than 30,000 injuries in work zones across the nation. By comparison, during the previous three years there was a yearly average of 853 fatalities. Safety consciousness is making a difference.

Faced with such potential hazards, Caltrans is committed to ensuring that safety is designed and built into all its transportation facilities. Through March, Caltrans has advanced 42 safety projects worth \$195 million to the ready-to-list milestone, and 55 projects worth \$222 million were awarded through the same date.

The Department is also working to protect employees and drivers through the "Construction Code of Safe Practices" (COSP), published last August. The COSP is part of the Caltrans Accident Prevention and Safety Program and complies with requirements of the California Division of Occupational Safety and Health (Cal/OSHA) construction safety orders.

The COSP defines standard safety practices for Caltrans staff and its consultants involved with inspecting construction activities and operations. To help field staff identify proper safety references, checklists for various construction operations were developed. Each checklist provides a list of the safety requirements related to a specific operation and the corresponding safety references, such as Standard Specifications, Standard Plans, Cal/OSHA Title 8 safety orders, and the California Manual on Uniform Traffic Devices.

This concern for public safety has manifested itself in a number of projects over the fiscal year.



The Shandon Safety Roadside Rest Area (SRRRA), left, was built with Recovery Act funds. It helped tired drivers and made California both "greener" and safer. The Hunter Hill SRRRA, right, was also built last year. The statewide system serves more than 100 million visitors each year.

Most people don't think of roadside rest stops as a strategy for safety. However, the facilities are officially called Safety Roadside Rest Areas (SRRAs), and Caltrans re-constructed nine SRRAs in partnership with the CHP and Department of Rehabilitation (DR). Each of the new SRRAs which in aggregate cover 75 percent of the state's highway system, is designed to comply with the American with Disabilities Act (ADA), along with other state standards.

The SRRAs make up an important safety component on the highway system. They provide areas where travelers can safely stop, rest, and manage travel needs. Integrated with such features as truck stops, commercial services, and vista points, the rest area system gives travelers the opportunity for a break when they need it most — usually between large towns and at entrances to major metropolitan areas. The SRRRA system serves more than 100 million visitors each year.

As part of the State Highway Operations and Protection Program (SHOPP), the SRRRA rehabilitation effort aims to reduce highway facility life-cycle costs. To minimize the need for recurring maintenance activities, SRRAs are designed to withstand heavy use over many years.

Many other Caltrans projects were designed to make the state transportation network safer. For example, Caltrans completed the SR-12 Roadway Rehabilitation and Widening Project, as an answer to a troubled stretch of state highway in the Sacramento-San Joaquin River Delta region.



The SR-12 Roadway Rehabilitation and Widening Project saved time and money. It accelerated delivery, and provided safety improvements on a corridor that had a history of incidents.

The project's safety improvements included standard-sized lanes and shoulders, and better sight distances on a two-lane road across rolling, rural terrain between Rio Vista and Suisun City. A median-rumble strip and channel grooves were added to reduce head-on collisions by alerting motorists from crossing to the opposite lane. The eight-foot standard shoulders provided areas for emergency vehicles, and the new road provided drivers with standard stopping distances.

Even the final paving strategy had an eye to safety. It occurred over a two-week daytime period instead of two months of night work, which saved time and money, accelerated delivery, and provided safety improvements on a corridor with a history of incidents.

In the Los Angeles area, Caltrans District 7 employed an innovative safety technique on the Sepulveda Boulevard on-ramp to the Century Freeway (I-105). The high-friction surface treatment is intended to keep drivers safe even in the rain.

The district, encompassing Los Angeles and Ventura counties, is also wrapping up a safety project on the venerable Pasadena Freeway (SR-110, or Arroyo Seco Parkway, the first freeway in the nation) from the Golden State Freeway (I-5) in Los Angeles to Glenarm Street in Pasadena. Begun in 2009, the project is replacing metal barriers and chain link fencing with concrete median and side barriers, and is adding new lighting.



The Arroyo Seco Parkway (SR 110) in Pasadena is among the oldest freeways in the nation. It got a serious "safety makeover," including new median and side barriers, fencing and lighting.

In the Inland Empire, Caltrans District 8 is making motorists safer through the SR-86 (South)/Coachella Valley-Airport Boulevard Interchange Project, a \$7.23 million project that spans SR-86. The highway carries heavy traffic, intersects Airport Boulevard at ground level, and has a history of violent and often fatal traffic collisions. The project replaces a ground-level intersection with one that carries Airport Boulevard traffic over SR-86.

The state highway once marked the eastern boundary of the Coachella Valley, but no longer. Growth on the eastern side of the expressway made this project necessary. Many growers in the area have equipment yards along the "old Highway 111," which parallels SR-86, and the new interchange will help growers move through the area more safely and efficiently.

The 11-mile stretch of highway is the main traffic and goods movement corridor in the agricultural Coachella Valley and a major North American Free Trade Agreement (NAFTA) route. The highway, which carries an average of 3,800 tractor-trailers a day, distributes crops regionally. The 18-month project began in April with completion scheduled for late 2012.

In the northern and more rural half of the state, Caltrans District 1 built an interchange at SR-36 and U.S. 101 near Fortuna. The Alton Interchange Project converted more than two miles of expressway to freeway by removing seven at-grade crossings and constructing frontage roads and an overcrossing. This project decreased the collision rate by making turns and merges easier for drivers to negotiate.

The Manzanita Chute project in northeast California has improved safety on SR-44 east of Redding near the entrance to Mount Lassen Park. It was initiated due to a concentration of 25 collisions and a crash rate that was 5 1/2 times higher than the statewide average for similar roadways. The "shovel ready" Recovery Act project widened shoulders and lanes, added a soft, four-foot median barrier, and a truck climbing lane.

In the Redding area, Caltrans District 2 also established a safety team that addressed strategies on transportation projects that had an above-average number of collisions. The results were significant. Between 1990 and 2008, the fatal collision rate for all highways in the district decreased by an average of 12 percent.

Caltrans is more than just highways, and its Division of Rail is helping protect the public while aboard or near the state's intercity railroad system. Amtrak California — a service of Caltrans, Union Pacific, the Capitol Corridor Joint Powers Authority (CCJPA), and Operation Lifesaver — is spreading the safety message. Between January and May 2010 alone, 35 Californians were killed at rail crossings. Another 86 Californians lost their lives in 2009, and there has been a 43 percent increase in pedestrian trespassing on California railroads from 2009 through May 2010.

To observe Railroad Safety Month in California, Robin Potter, whose son was killed while playing on railroad tracks near his home, shared her story at a press



Robin Potter's son died last year on railroad tracks near his home.

conference at the California State Railroad Museum in Old Sacramento. The safety month was established to raise awareness about proper safety around California's railroad tracks and highway-rail grade crossings.



Robin Potter's son died last year on railroad tracks near his home. She advocated for Railroad Safety Month at a gathering at the California State Railroad Museum in Old Sacramento.

Caltrans also has a vigorous research and innovation program that strives to protect employees and the public through better ideas for the transportation community.

For example, the Department developed a guardrail system that uses crumb rubber modifier concrete (CRMcrete) for weed control and to keep workers off the roadway. This system is durable, less expensive, and provides an environmentally friendly alternative for disposing of scrap tires.

Weeds growing beneath metal beam guardrails are unsightly and, more importantly, can lead to large brush or wild land fires and frequent maintenance. Caltrans currently uses asphalt concrete (AC) or Portland cement concrete (PCC) which is durable, but costly to install. The alternative, CRMcrete, is cheaper, and consists of scrap tire rubber that is added to PCC. Weed control efforts are reduced, leading to less worker exposure to speeding vehicles.

Another innovation is the Low-Profile Barrier. Many municipalities want to plant trees along state highways and in medians to create a more pleasant driving experience. However, the practice is prohibited due to the potential hazard of motorists colliding with trees near the travel way. Caltrans is developing a non-proprietary, permanent, low-maintenance, low-profile barrier that can be used in these low-speed highways, allowing for tree planting. The results benefit motorists both in safety and highway aesthetics.

The barrier is being tested according to Federal Highway Administration (FHWA) requirements. Once testing is completed and approved, the FHWA will list the barrier for use in California and throughout the nation. Deployment is expected in the summer of 2012.

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Mobility: Maximize Transportation System Performance and Accessibility

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& Housing Agency

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Caltrans Moves Ahead in Spite of Recession Doldrums

Despite the effects of the recent Great Recession, the resulting tight state budget, and challenges in selling state bonds, Caltrans has moved forward with one of its primary responsibilities – transportation mobility.

All districts advanced mobility. The Bay Area's District 4 delivered several high-occupancy toll (HOT) lanes and high-occupancy vehicle (HOV) lanes on the region's freeway system. The HOVs, better known as carpool lanes, are open to vehicles carrying a specified number of passengers and certain low-emission vehicles.

The HOT lanes allow solo drivers to use the carpool lane for a fee. These lanes, built on an existing transportation corridor, help increase mobility in regions where they have been placed, and give commuters a new travel choice.

Caltrans opened its first HOT lanes in Northern California, on a 14-mile stretch of southbound I-680 from Pleasanton to Milpitas. A joint effort between Caltrans, the Metropolitan Transportation Commission, and the Alameda County Transportation Authority, the I-680 Express Lane is the first of a network of express toll lanes planned for the Bay Area.



In quick succession, the Oakland-based district opened the U.S. 101 Widening Project in Sonoma County. The \$120 million improvement created new HOV lanes on U.S. 101 in Windsor. In March, Caltrans completed the U.S. 101 HOV Gap Closure, which now provides uninterrupted carpool service through the corridor in densely populated Marin County.

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Former Caltrans Director Cindy McKim and other officials broke ground on a widening project in San Jose that will improve a chronic bottleneck on U.S. 101.

Caltrans also broke ground on the \$45.7 million U.S 101/Tully Road Widening Project in San Jose, which will add southbound lanes on U.S. 101 between Story Road and Tully, eliminating a chronic bottleneck and short merge. It will modify the Tully interchange to a partial cloverleaf, and replace the Tully Road overcrossing with a new, wider structure to improve traffic.

The district also opened the new westbound I-580 northbound/U.S.101 connector ramp in San Rafael. The \$10 million project expanded the ramp from one lane to two, eliminating a chronic congestion point.

In Los Angeles and Ventura counties, the freeway is king. Caltrans District 7 is giving I-5 an extreme makeover from one side of LA County to the other. Against this backdrop, the Department (with the Los Angeles County Metropolitan Transportation Authority) is investing hundreds of millions of dollars in improvements to I-5 over the next five years.

In the San Fernando Valley between the Ventura Freeway (SR-134) and the Ronald Reagan Freeway (SR-118), carpool lanes are being built, interchanges modified, and railroad tracks relocated on I-5. Several of the projects are funded in part by the Recovery Act. This section of the freeway is particularly important as it connects major employment centers in Santa Clarita and the San Fernando Valley with greater Los Angeles. About a quarter of a million people travel this part of I-5 every day — and traffic is increasing as the population swells.

The first San Fernando Valley I-5 corridor improvement projects began construction last summer with an HOV lane in either direction between the Hollywood Freeway (SR-170) and SR-118, a total of 3.4 miles in each direction. This improvement is also widening four under crossings and reconstructing the mixed-flow connector for a direct HOV connector between I-5 HOV lanes and SR-170 HOV lanes. Damaged sections of pavement will also be repaired. The project, which is expected to wrap up in summer 2015, will cost \$140.2 million, with \$31.2 million provided by the Recovery Act.

Other San Fernando Valley I-5 improvement projects which began this year include HOV lanes between SR-170 and Buena Vista Street. The \$69.2 million project will build 4.4 miles in either direction of HOV lanes, construct sound walls, repair damaged pavement and realign the Hollywood Way on- and off-ramps. In February 2011, construction began on HOV lanes from SR-134 to Magnolia Boulevard which are expected to be completed in 2014.

East of Los Angeles, Caltrans District 8 — which encompasses the Inland Empire — began construction on the \$25.5 million Ramon Road/Bob Hope Drive Interchange Improvement. This is the first of six interchange projects along I-10 in the Coachella Valley. Other projects are being constructed at Palm Drive/Gene Autry Trail, Indian Canyon Drive, Date Palm, Monterey Avenue and Jefferson Street.

This project, which received \$23.5 million in Recovery Act funds, will add a new I-10 interchange just west of the existing Ramon Road interchange, extend Bob Hope Drive to Varner Road with a new eight-lane bridge over I-10, and add new on- and off-ramps.

The new Bob Hope Drive Overcrossing will reflect the Native American heritage of the area through aesthetic treatments and a design derived from baskets woven by Cahuilla Indians. Palm trees on the columns add to local aesthetics. Along with other I-10 corridor projects, this interchange project will protect the desert environment and conserve habitat for endangered species through the Coachella Valley Multiple

Species Habitat Conservation Plan.

In the extreme south of California, Caltrans District 11 (San Diego and Imperial counties) are increasing the use of technology to improve commutes for motorists. The most noticeable application was the expanded use of ramp meters to manage traffic better and reduce congestion.

North San Diego County area saw 10 new ramps in as many miles on SR-78, due to an increasing demand on the route. Four new meters were installed along I-5 in the vicinity of Oceanside. On I-805 in South San Diego County, a new meter will move traffic through one of the busiest interchanges in the region. As a result, commute times are improving.

Caltrans District 3 (Marysville) which serves Sacramento and surrounding areas, opened the SR-70 East Nicolaus Bypass in September, a year ahead of schedule. The \$82 million project widened eight miles of SR-70 from two to four lanes and included a new alignment bypassing the town of East Nicolaus and removing the lone stop sign left on a heavily traveled route that connects



The East Nicolaus Bypass (SR-70) was completed a year earlier than expected in September. The \$82 million project removed the lone stop sign remaining on a route connecting Marysville and Sacramento.

Marysville to Sacramento. The project also included a new full freeway interchange at East Nicolaus, and a new highway over crossing at Cornelius Avenue.

The new alignment resulted in better travel speeds and mobility for some 16,000 daily commuters. Economic benefits include jobs, productivity gains, and reduced travel time, resulting in increased economic activity.

Although Caltrans urban districts have higher traffic counts, and more funds for transportation projects, several rural districts completed mobility enhancing projects with less fanfare, but nonetheless earned the gratitude of drivers who experienced the projects' benefits.

For example, U.S. 395 in Caltrans District 9 (Bishop) runs for hundreds of miles along a margin east of the Sierra Nevada from near Topaz to Tehachapi. One of the district's goals has been to upgrade the U.S. 395/SR-14 Corridor to four lanes, a process that started in 1955. In 1998, Caltrans began partnering with local transportation commissions to fund projects along the corridor.



A total of 11 miles of U.S. 395 was converted to a four-lane expressway with a median. The project also added sidewalks and historically correct lighting in the community of Independence.

The Manzanar/Independence Four-Lane Project opened to traffic in September, 2010. It converted 11 miles of two-lane conventional highway into a four-lane expressway with a median. It also provided sidewalks that met Americans with Disability Act (ADA) standards, as well as historically accurate lighting in the community of Independence.

This project improved safety and increased mobility through a four-lane divided expressway that will greatly reduce head-on collisions on U.S. 395, the most frequent type of fatal incident on rural highways. It also lessened the amount of seasonal congestion on the highway due to recreational trips to Mammoth Lakes, Yosemite National Park, and Lake Tahoe.

The increased number of lanes allows faster traffic to pass trucks and recreational vehicles without risking traffic collisions. As a result of the separated travel lanes in either direction, the district can reroute traffic for maintenance or incidents without closing the expressway.

Across California's mid section and along the Pacific Ocean, Caltrans District 5 (San Luis Obispo) began work in May on the \$165 million improvement of the U.S. 101/Prunedale Improvement Project (PIP), the largest in the district's history: The area is the main gateway into the Monterey Bay area from Northern California.

In addition to heavy visitor and tourist traffic, the corridor is a key route for the agricultural and trucking industry in the Salinas Valley as well as a commuter route in and out of San Benito and Santa Clara counties. The projects will enhance safety and mobility by improving several intersections and upgrading the highway to freeway status. Funded by the State Transportation Improvement Program (STIP), it will create several hundred jobs in the Monterey Bay Area. It is scheduled for completion in late 2014.

This past year District 5, surpassed \$400 million in ongoing construction for the first time. In addition to the PIP, several large projects are under construction including the U.S. 101 Milpas Improvements in Santa Barbara, the U.S. 101 Rehabilitation in northern San Luis Obispo (SLO) County and the SR-46 widening in eastern SLO County.

In Caltrans District 10, covering San Joaquin and Stanislaus counties, the construction season brought two projects worth more than \$100 million to the busy I-5 in Stockton. These projects will improve regional and interregional mobility and traffic circulation, reduce congestion, increase pavement life, and add the first HOV lane in San Joaquin County.

The \$23 million replacement project will exchange 3,345 slabs in a section from north Stockton to the San Joaquin/Sacramento County line. The \$77 million project will add HOV lanes, widening the freeway from six lanes to eight. The projects will create jobs in an area struggling with high unemployment.



Caltrans/District 12 used state-of-the-art "Go Green" technology in its new Transportation Management Center, which is intended to tame Orange County's burgeoning traffic volume.

In Orange County, the Caltrans District 12 Transportation Management Center (TMC) unveiled a state-of-the-art detection system that will help improve mobility throughout the county. The system's functions include wireless communications, solar power, and comprehensive remote performance monitoring. Leased lines and fiber-optic cables can be damaged easily or covered by mud and debris. However, using this system offers greater reliability over the traditional transportation monitoring systems.

It's a savvy approach that serves the public well. The new system collects, transmits, integrates, and shares transportation data. The system illustrates the Caltrans commitment to improve mobility in Orange County and across the state. It adheres to the national Intelligent Transportation Systems (ITS) standards, and also uses proven "Go Green" technologies. The traffic detection system helps tame the overwhelming volume of traffic data necessary in a Traffic Management Center or traveler information systems.



Caltrans moved ahead with the California State Rail Plan and Service Development Plans on several rail routes, which will help reduce vehicle congestion and harmful emissions.

Caltrans also improved mobility through non-highway strategies. For example, the Department awarded a contract to complete the California State Rail Plan and Service Development Plans for the Los Angeles-San Diego (LOSSAN), San Joaquin and proposed Coast Daylight passenger rail routes.

Federal law requires states to produce comprehensive rail plans to develop a fully integrated rail system, including proposed high-speed rail, existing intercity and commuter rail, and freight rail. The plan will position rail as a key component in a multi-modal transportation system, which connects rail with other transportation modes.

The plan will also help Caltrans achieve the goals of the Global Warming Initiative (AB 32 and SB 375) by increasing rail ridership, reducing single-occupant vehicles, and trimming congestion and greenhouse gas emissions.

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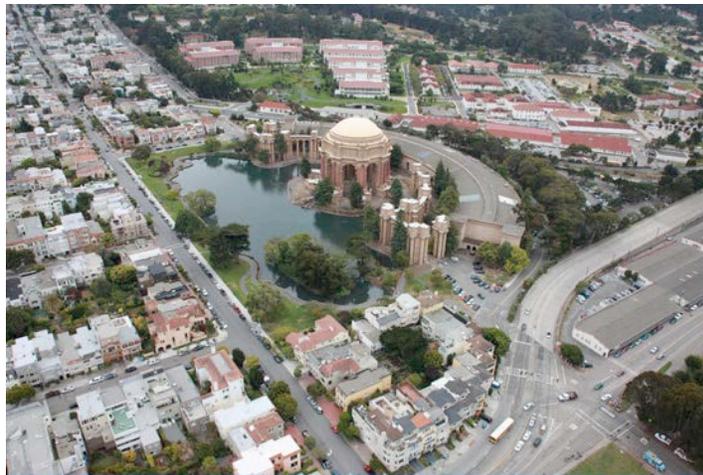
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Delivery: Efficiently Deliver Quality Transportation Projects and Services.

Caltrans Faces Challenges, but Makes Progress Delivering Projects

Despite the effects of the Great Recession and reductions in the Department's staff, project delivery moved ahead significantly on some of the state's largest transportation construction projects. The Recovery Act of 2009 paid big dividends on such projects as the I-405 in Southern California and the Presidio Parkway and Caldecott Tunnel in the San Francisco Bay Area.



The Palace of Fine Arts in San Francisco lies adjacent to the public-private Presidio Parkway project, designed as an elevated, six-lane highway south of the Golden Gate Bridge.

During the year, 669 contracts were awarded for construction valued at nearly \$3.5 billion. By the end of the fiscal year, nearly 90 percent of California's transportation projects funded by the Recovery Act had been awarded to contractors. In fact, California received more Recovery Act dollars for transportation than any other state, nearly \$2.6 billion for 982 highway, street, rail and port infrastructure projects. Of those, more than 850 have been awarded — meaning construction and jobs are bound to follow. As a result, many important transportation improvements were either completed or reached milestones across the state this year.

Work continued on the \$1.3 billion I-405 Sepulveda Pass Project, a 10-mile carpool lane project that began in 2009. When completed in spring 2013, the project will stretch along the I-405 (San Diego Freeway) from the I-10 (Santa Monica Freeway) to U.S. 101 (Ventura Freeway). It is one of the busiest freeways in the United States, and when completed it will improve traffic flow for area commuters.

Caltrans also had several Recovery Act "firsts" during the year.

In November, Caltrans District 4 (San Francisco Bay Area) completed the first Recovery Act transportation project to break ground in California: a resurfacing of a 50-year-old section of I-80 in the Fairfield area. Approximately 200,000 commuters and truckers use the east-west route every day. Caltrans expects to invest more than \$1 billion in the corridor that connects the Bay Area to the Nevada state line just west of Reno.

Then in December, Caltrans District 12 completed the first Recovery Act highway improvement in Orange County — a \$65 million widening project to relieve congestion

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Be sure to check the link within the Delivery story to read more in-depth about Caltrans' latest efforts building the iconic San Francisco - Oakland Bay Bridge

and uncork a chronic traffic bottleneck on SR-91. The project constructed a new lane on six miles of eastbound SR-91 between SR-241 in Orange County and SR-71 in Riverside County. The need was great, given that daily traffic on this section reaches as high as 300,000 vehicles. The \$23.7 million project (\$19.5 million from the Recovery Act) cost 40 percent less than the original cost estimates — saving taxpayers millions of dollars.

Three months later, in March, officials opened the \$14 million I-805 southbound Auxiliary Lanes Project in San Diego, which enabled 130,000 commuters a day to travel more efficiently between SR-54 and Bonita Road. In addition to auxiliary lanes, the project widened the Bonita Road undercrossing and added ramp meters. The federal government contributed \$9 million, making the I-805 section the first Recovery Act project to be completed in San Diego.

Caltrans also began construction in March on the \$90 million I-805/Carroll Canyon Road Extension Project. The project, which received \$52 million from the Recovery Act, will complete a 10-mile HOV lane and help reduce congestion in the area. Completion is scheduled for late 2012 or early 2013.

Caltrans District 4, met major milestones on the [San Francisco-Oakland Bay Bridge](#) and the Caldecott Tunnel.



A worker is dwarfed by billowing yellow material that is used to line the Caldecott Tunnel, thereby waterproofing the two bores against natural liquid drainage.

Caltrans and the San Francisco County Transportation Authority (CTA) developed an innovative public-private partnership for Presidio Parkway, to design, build, finance, operate, and maintain an elevated, six-lane highway south of the Golden Gate Bridge in San Francisco.

Despite challenges, and surprises, including the discovery of a plant

that was thought to be extinct, Caltrans continued work on Doyle Drive (part of the Presidio Parkway Project). The Franciscan Manzanita was discovered during preliminary work in the former Presidio Army Base and threatened to derail the schedule. Relocation of the plant was a success due to intense work by state and federal agencies and local stakeholders. All worked under a critical time line to find a remedy to further the \$1 billion roadway construction project while protecting the environment.

The existing Doyle Drive structure is close to several historic buildings on the Presidio. Early tests showed these buildings could be harmed by pile-driving 12-foot wide columns required to support the new structure. As a result Caltrans and its subcontractor opted for an innovative engineering solution that built the structure without causing any damage to surrounding buildings.

Last July, construction began on the Presidio Parkway Project's second major contract, the \$116 million Battery Tunnel along with a temporary bypass. The Recovery Act provided \$46 million to move the project forward.

Caltrans District 7 (Los Angeles) delivered 17 major projects in the State Highway Operations and Protection Program (SHOPP) valued at \$705 million. Ten were pavement rehabilitation, five are bridge deck preservation and two are median barrier upgrades. Significant pavement rehabilitation is taking place on the Ventura Freeway (U.S. Highway 101) in Los Angeles and Ventura counties; the Long Beach Freeway (I-710); Pomona Freeway (SR-60); Antelope Valley Freeway (SR-14); Orange Freeway (SR-57), and Golden State Freeway (I-5) in Los Angeles County.

In March, Caltrans broke ground on new bus/carpool lanes on the Golden State Freeway between SR-170 (Hollywood Freeway) and Buena Vista Street in Burbank. The \$69.2 million project was financed in part (\$39.3 million) by the Recovery Act. The project will build almost nine miles (4.4 miles in either direction) of new bus/carpool lanes, and repair pavement on one of the most heavily travelled freeways in California.

Bridge deck preservation is taking place on I-5, the Century Freeway (SR-105), the

Foothill Freeway (I-210), the San Gabriel River Freeway (I-605) and SR-110.

In the nearby Inland Empire, Caltrans completed Phase II of the I-215 Widening Project in September. Begun in late 2007, the project consists of four phases — of which, the first two are now completed. Phase III, led by the San Bernardino Associated Governments (SanBAG), and Phase IV, directed by Caltrans, are well underway and scheduled for completion in early 2013.

Because the I-215 is a major goods movement corridor, Caltrans and SanBAG needed to ensure that businesses and public were informed about construction. Caltrans District 8 (Riverside and San Bernardino counties) developed monthly partnering meetings with businesses and residents, including the city of San Bernardino, the Chamber of Commerce, and emergency personnel.

Phase IV, led by Caltrans, has \$81 million in Proposition 1B funding. Caltrans, SanBAG, and the FHWA worked with elected officials to secure funding for the final two phases, which will support jobs and bolster the local economy. The project will increase capacity, cut congestion and improve air quality.

Meanwhile District 11 (San Diego) opened nearly 14 new miles of roadway this year. Located near the U.S./Mexico border, and a major commercial hub for the region, SR-905 opened nearly three-miles of a six-lane freeway in November. The project stretches from Siempre Viva Road west to Britannia Boulevard.



A ceremonial Botts Dot lies on the pavement of Interstate 905 as part of an opening ceremony for the interstate. The highway will help facilitate international trade between the U.S. and Mexico.

In a related project, Caltrans in April began the next construction phase of the \$611 million SR-905 Project in Otay Mesa, which will widen the connector ramp from westbound SR-905 to northbound I-805 from one lane to two.

When completed in 2012, the route will play a critical role in moving goods and services between California and Mexico. Total imports for 2010 exceeded \$36 billion with more than four million trucks projected to use Baja California ports of entry by 2020. The project is entirely funded by the Recovery Act.

The second of three projects on the SR-78/111-Brawley Bypass Project in Imperial County opened to commuters in March. The three-mile long, four-lane freeway received \$80 million from Proposition 1B. The project is designed to direct traffic around Brawley, reducing congestion and the cost to maintain Main Street, which currently experiences heavy traffic.



A six-lane section of State Route 52 in Santee is one of several highways opened in San Diego and Imperial counties. They will help reduce congestion on regional freeways and arterials.

The SR-52 Sunny Side Gateway was completed this spring, opening a 3.5-mile section of six-lane freeway in Santee. This final link connects 17-miles of SR-52 from SR-67 to I-5. Construction began in 2008 and cost approximately \$520 million — paid for with the TransNet half-cent sales tax, as well as state and federal funds. The

improvements are expected to reduce traffic on I-8, as well as reduce congestion on local arterials.

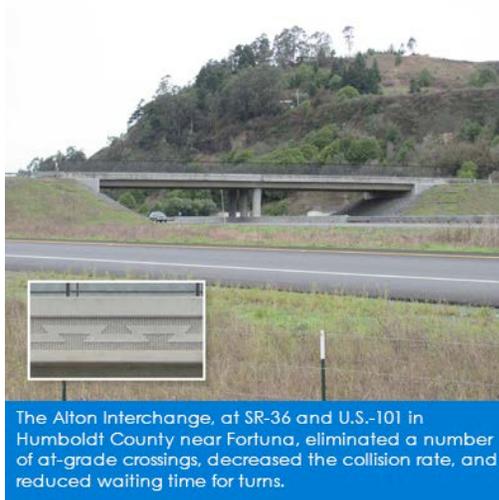
This spring, Caltrans District 3 (Marysville) removed damaged and deteriorated rock walls along U.S. 50 at Echo Summit and is working to replace them with barriers that meet modern safety standards. Caltrans placed electronic message signs at key spots in the Central Valley and foothill locations to redirect travelers on their way to Lake Tahoe and other Nevada destinations. The \$3 million project was funded in part (\$1.9 million) by the Recovery Act.

Other more rural areas of the state also delivered significant projects to the state's transportation system. For the first time ever, District 5 (San Luis Obispo) surpassed \$400 million in ongoing construction. In addition to the Prunedale Improvement Project (See entry under [Mobility](#)) several large projects are under construction including the U.S. Highway 101 Milpas Improvements in Santa Barbara, the U.S. Highway 101 Rehabilitation in northern SLO County, and the SR-46 widening in eastern SLO County.

Caltrans District 1 (Eureka) began work on the Alton Interchange, at SR-36 and U.S. 101 in Humboldt County near Fortuna. The project has been a goal of Caltrans and the

community for many years. It converted more than two miles of expressway to freeway by removing seven at-grade crossings and constructing frontage roads and an overcrossing. The project decreased the collision rate and reduced waiting time for turns.

In neighboring District 2, the \$66 million Dana to Downtown widening and reconstruction of SR-44 between downtown Redding and I-5 was completed nine months ahead of schedule and under budget. This project added congestion-reducing lanes on SR-44, replaced a bridge across the Sacramento River, added an on-ramp from Dana Drive to westbound SR-44, and reconstructed the Sundial Bridge Drive Interchange. The project also included a bicycle and pedestrian walkway connecting east and west Redding, and incorporated aesthetic treatments that highlight the natural beauty of the area.



The Alton Interchange, at SR-36 and U.S.-101 in Humboldt County near Fortuna, eliminated a number of at-grade crossings, decreased the collision rate, and reduced waiting time for turns.

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Stewardship: Preserve and Enhance California's Resources and Assets.

Caltrans Employees Offer Others a Helping Hand

Stewardship is a broad category that covers a wide range of issues such as aiding small businesses, exporting emergency technology to nations coping with disaster; and preserving the natural world.



Caltrans replaced a rock wall from the 1930s with a reinforced concrete barrier on mountainous SR-50 at Echo Summit. The \$7 million project was funded through the Recovery Act.

This year, for example, Caltrans continued its commitment to aiding small and disadvantaged businesses to obtain state contracts. And in March, a federal court ruled that the Department was on the right track.

A U.S. District Court affirmed that the Caltrans Disadvantaged Business Enterprises (DBE) program is "clearly constitutional." The Department implements the DBE program as a condition of receiving \$3 billion in federal transportation funding annually. The program is intended to level the playing field for disadvantaged and small businesses competing for public contracts.

In 2005, the Ninth Circuit Court of Appeals provided new guidance to states on implementing DBE programs (*Western States Paving vs. Washington State Department of Transportation*). In response, Caltrans conducted a study to identify the existence and scope of discrimination, if any, in California's highway transportation contracting industry.

Completed in 2007, the study identified disparities in contracts awarded to African-American, Asian Pacific-American, and Native American firms, as well as businesses owned by women. To address those disparities, Caltrans proposed using both race-neutral and race-conscious means in its contracting. In 2009, the Federal Highway Administration (FHWA) approved the proposal, which includes an overall goal of 13.5 percent DBE involvement.

The ruling followed a suit filed in 2009 by the Pacific Legal Foundation (on behalf of the Associated General Contractors of San Diego) asking the court to declare Caltrans' DBE program unconstitutional.

While the suit was pending, Caltrans continued its outreach to Small Business (SB),

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- [District 2](#) Redding
- [District 3](#) Marysville
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Disabled Veteran Business Enterprise (DVBE) and DBEs. This effort — consisting of more than 80 events with nearly 8,000 attendees — focused on procurement and contracting opportunities with the state, workshops, and business networking.

The Department held events throughout the state to facilitate networking and subcontracting opportunities to SB, DVBE and DBE firms. Through a contract with the Los Rios Community College District, Caltrans provided supportive services to DBE companies. The services consisted of free, one-on-one counseling; online training; technical assistance; and marketing and outreach services to firms seeking transportation-related construction contracts.

As a result of such efforts, Caltrans met and exceeded the SB participation goal of 25 percent and DVBE goal of 3 percent in fiscal years 2008-09 and 2009-10. In FY 2009-10, Caltrans contracted nearly \$400 million with SBs and DVBEs.

In a related development, Caltrans was named by the readers of Diversity/Careers in Engineering & Information Technology magazine as among the nation's top performing companies to institute key elements of diversity in the workplace. This is the second year in a row Caltrans was granted the honor.

State Office Buildings in Los Angeles and Marysville Certified as "Green"



Two Caltrans district offices, in Los Angeles (below) and Marysville (above), were honored with the Leadership in Energy & Environmental Design (LEED) for incorporating green technology.

Two district headquarters have furthered California's energy and environmental goals, and have been awarded the Leadership in Energy & Environmental Design (LEED) certification by the U.S. Green Building Council.

The District 7 facility in Los Angeles earned the Green Building Council's LEED Gold certification while District 3 headquarters in Marysville earned LEED Silver certification. Both certifications are for existing building maintenance and operations.



By **'greening'** its buildings, Caltrans shows its intent to reduce its impact on the environment.

To date, approximately 50 state buildings have achieved LEED certification. For a complete list of LEED certified state facilities, [read more](#).

In yet another example of stewardship, technology developed by Caltrans and the United States Geological Survey (USGS) helped set priorities for bridge inspections during the earthquake crisis last March in Japan, as well as in nuclear power plants around the world.

The ShakeCast software application uses ground sensors to analyze earthquake-shaking data in relation to the performance characteristics of bridges or other structures. This allows responders to set priorities for inspections within minutes of an earthquake.

The International Atomic Energy Agency (IAEA) used ShakeCast to monitor the potential for damage to nuclear facilities in Japan following this spring's earthquake. The IAEA also uses ShakeCast to monitor 196 nuclear power plants around the world.

Following a tremor, one of Caltrans' most critical tasks is to assess the condition of bridges and roadways. In the past, inspection teams had difficulty setting priorities because they lacked precise information about where the worst shaking and greatest damage had occurred.

Caltrans recently executed a new three-year contract with the USGS to continue the development of ShakeCast. The new version will incorporate improved bridge models and will include an assessment of soil liquefaction and landslide hazards to post-earthquake roadways.

California residents have experienced increased noise due to larger volumes of traffic on its State Highway System (SHS). Caltrans is addressing the noise and environmental impact with its **quieter bridge decks** design.

On the environmental front, Caltrans began work this year on a restoration of the Otis R. Johnson Wilderness Park, a seven-acre oasis in Fort Bragg that offers shady walking trails through native plant species.

The project included streambed restoration of habitat and stabilization of mature redwoods, replaced a footbridge, and installed boulders and wood debris to protect the stream bank. It removed invasive plants and restored native species. Completion is scheduled for next year.

A \$66 million construction project on SR-44 between downtown Redding and I-5 was completed while respecting the environment. The project added lanes that would have encroached on the wetland. As a mitigation effort, Caltrans built a wall to protect the wetland, and saved enough space for a bike/pedestrian path. The wetland is open to the public for enjoyment and education.

In the Los Angeles area, Caltrans District 7 helped to preserve infrastructure by removing debris and litter from its right-of-way at a cost of \$13 million. Caltrans swept 31,875 lane miles, picking up 11,500 cubic yards of debris, disposing of almost 17,000 cubic yards of litter, removing 256 homeless camps, and cleaning up 267 spills. In addition, Caltrans covered 2,980 square feet of graffiti in the area at a cost of nearly \$2 million.



In the "it-could-only-happen-in-California" category, Caltrans District 10 based in

Stockton gave a hand to the San Joaquin Valley's grape harvest. The problem was unstable peat soil that added to **pavement deterioration** on SR-12 from I-5 to near the Rio Vista Bridge. Major maintenance has been required over the years to preserve this important two-lane interregional route.

The work could not be done safely at night, making a daylight closure necessary. So, last August the stretch of highway was closed for three days from 7 a.m. to 4 p.m. to allow for maintenance activities — saving both time and money.



Caltrans used an innovative strategy — that saved time, money and part of the grape harvest — during work on SR-12, in the vicinity of the Rio Vista Bridge

After reaching out to the San Joaquin Valley Farm Bureau, Caltrans set a date and time for the three-day closure — which ensured the work would not disrupt the area's grape harvest and delivery to Napa Valley processors. The closure allowed crews to perform multiple maintenance activities on the highway both efficiently and safely. And the innovative plan prevented 15 days of one-way traffic control, which had been expected to cause 90-minute delays or more.

In another example of stewardship, Caltrans restored some 15 acres of

vernal pool wetlands for future mitigation needs on 198 acres along SR-41 in Madera County. The construction not only provided dollars to a locally owned small business, but was the achievement of years of negotiations with resource agencies.

The Caltrans team forged partnerships with resource agencies to craft a development plan with a minimum of hurdles, while addressing future mitigation needs and preserving habitat for sensitive vernal pool species. As a result, Caltrans received recognition from the U.S. Fish and Wildlife Service. Besides improving relations with resource agencies, the mitigation project is expected to become a model for streamlining project delivery for years to come.

Caltrans also got a "thumbs up" for its work on two mitigation sites near San Diego. The Del Mar Auxiliary Lane Mitigation Project, begun in 2005, not only followed state and federal environmental law, but was a plus for birds, wetlands and those who enjoy the natural world.

Located on I-5 near the San Dieguito River, this project stabilized eroded slopes that could potentially affect wetland habitat. Three locations totaling a quarter of an acre needed repairs to failed culverts that allowed sediment to fill the wetlands. Caltrans excavated the area and replanted it with appropriate vegetation. The salt marsh, now restored, provides nesting and foraging habitat for black-necked stilts, song sparrows, and other bird species.



Caltrans/District 11 became a good friend to avian wildlife, human visitors, and the natural environment through projects that restored wetlands in the San Diego area.

Another San Diego-area mitigation project is next to the Carmel Valley Restoration and Enhancement Project at the I-5/SR-56 interchange. This project, which was started in 2002, mitigated construction effects on about half an acre of wetland, which in turn required creation of an acre of new wetland habitat at the site.

Due to the high salt content of the soil, vegetation cover was lower than anticipated. The U.S. Army Corps of Engineers requested additional plantings. When completed, the site received sign-off from the California Department of Fish and Game, California Coastal Commission, and the U.S. Army Corps of Engineers.

Meanwhile, on the arid edge of the Inland Empire, Caltrans began erecting a new Colorado River Bridge on SR-62 in a remote area of San Bernardino County. The Department also forged links with the state of Arizona and the Colorado River Indian Tribes (CRIT) Reservation.

The bridge, which was narrow, heavily scoured and obsolete, was a vital link between California and Arizona. One of only a few Colorado River crossings, the span enabled a large influx of local, commercial and recreational travelers during spring and summer, causing traffic delays.

In cooperation with the Arizona Department of Transportation, Caltrans began work to replace the 76-year-old bridge with a \$26 million modern structure, which will move commercial and recreational traffic more readily. Work is expected to take 2 ½ years.

Caltrans worked diligently to respect the rights and the wishes of the CRIT residents as well as meeting current construction standards. Given the remote location of the project, a number of cooperative agreements were put into effect, outlining law enforcement, fire and emergency medical services.

Caltrans is the construction lead agency on the project. Arizona and California each contributed \$13 million towards the project.

Caltrans also published its "Complete Intersections: A Guide to Reconstructing Intersections and Interchanges for Bicyclists and Pedestrians" this past year. The publication gives direction on implementing the Caltrans Complete Streets policy. The guide is intended to improve safety and mobility for bicyclists and pedestrians at intersections and interchanges.

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Service: Promote Quality Service Through an Excellent Workforce.

Caltrans Extends a Thank You to Those Who Served

Many Caltrans employees provided service not only to the Department, but to their fellow citizens and the world around us. These acts range from project oversight to training, and from protecting the environment to special projects that assist citizens in ways that we might not think about automatically. The service section of the Caltrans Annual Report is a tribute to the long hours and commitment that Caltrans employees have given this year to help others — often without recognition.

Some examples:

The \$54.8 million Tudor Bypass, a new four-lane expressway that serves some 17,000 commuters, opened on SR-99 south of Yuba City. Even as the bypass was being completed, construction engineers from Caltrans District 3's north region thought about recycling the old highway for other projects. Instead of hauling away excess base material to the landfill, engineers stockpiled it for use on a future interchange on Highway 99 at SR-113. Such "out of the box" thinking could save taxpayers substantial future costs.

Caltrans District 7 (Los Angeles and Ventura counties) also provided public service — in an otherwise thankless job. Caltrans spent roughly \$13 million in litter and debris removal this fiscal year in that area alone — some \$3 million more than last year. Crews swept 31,875 lane miles, picked up 11,500 cubic yards of debris, disposed of 16,983 cubic yards of litter, and cleaned up 267 spills. In addition, workers removed more than 2,980 square feet of graffiti.

Also, staff in Los Angeles worked closely with the California Film Commission and the CHP to assist the commercial film industry — issuing more than 600 film permits this year.

In the high desert country east of the Sierra Nevada, Caltrans District 9 (Bishop) helped complete the Padre Point Visitor Area. It is one of three locations for scenic viewpoints and visitor facilities that Caltrans and the Death Valley National Park have worked to create. These facilities are designed for traffic safety improvements and protecting natural features.

Two locations, Zabriskie Point and Mesquite Flat Sand Dunes, already have been constructed with state and federal funding. Padre Point Visitor Area is the third and last location originally identified.

Padre Point on SR-190, within the park, is a heavily visited scenic viewpoint.



Caltrans works with other agencies to test ADA-compliant equipment that could be used on state property.



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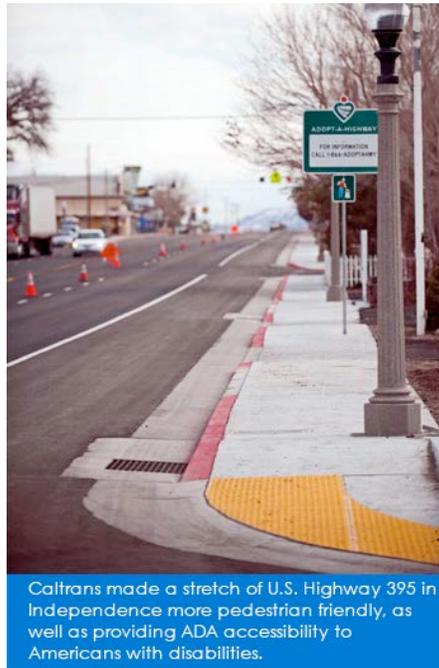
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However, cars parking on a gravel turnout have damaged the area's sensitive environment. The turnout had no defined entrance or exit points, and it caused gravel to be tracked onto the highway as vehicles entered and exited.

In addition to furthering public safety, the project helped protect the natural environment, enhanced the visitor experience by providing ADA-compliant sidewalks and accessible viewing areas with interpretive displays and other visitor amenities.

In another mostly rural and scenic part of the state, Caltrans District 2 (based in Redding) helped to move the components for 44 wind turbines destined for the Hatchet Ridge Wind Farm near Burney on SR-299, east of Redding.



Caltrans made a stretch of U.S. Highway 395 in Independence more pedestrian friendly, as well as providing ADA accessibility to Americans with disabilities.

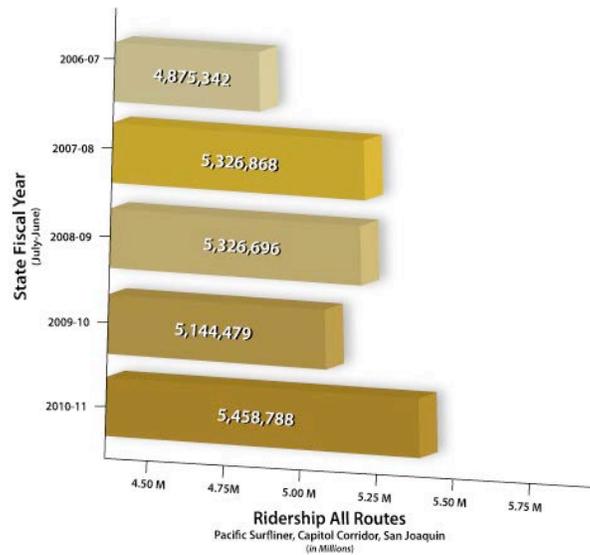
Seven large parts, some as long as 185 feet, were delivered each day on separate, oversize trucks, and escorted by the CHP. The heaviest part of the wind turbine was the generator, which weighed 245,000 pounds. Transports began in the early mornings, and ran every day except weekends and holidays through the beginning of August.



Caltrans had a major role in the transport of new and massive turbines used by a northern California wind farm in Burney, east of Redding.

Since the trucks came from various directions, many routes in the district were affected by the presence of these long, slow loads. Caltrans took the lead in public outreach for this project. The Caltrans District 2 public information office prepared a communication plan and began a robust public outreach campaign to inform local residents, truckers and travelers.

Hundreds of miles south of Redding, Caltrans had a role in helping the San Diego Padres begin their 2011 season. Downtown San Diego welcomed a new pedestrian railroad crossing bridge in April — paid for in part by Caltrans — just in time for the Padres' opening game. The bridge, just south of Petco Park, is at Park Boulevard and Harbor Drive and spans railroad and light rail tracks, as well as a major four-lane divided highway. The \$26 million cost was borne jointly by local and state agencies.



The Caltrans-sponsored San Joaquin route attracted a million passengers during the year, making it the fifth most popular corridor on the Amtrak system. The Pacific Surfliner route was the second-busiest in the country, while the Capital Corridor was the third most-traveled in the United States.

In other examples of service:

Due to changes in the Americans with Disabilities Act (ADA), and other legal requirements, Caltrans developed field guidelines for temporary pedestrian facilities through Caltrans construction zones. Training was provided to personnel responsible for developing, approving and implementing work zones, including temporary routes for public use.

This allowed districts and transportation partners to deliver, on schedule, a record number of transportation projects in their delivery contracts for the fiscal year, as well as projects funded by the Recovery Act.

In addition, Caltrans completed a “plain language” conversion of its specifications and standard special provisions. The clarity provided by these rewritten contract documents will speed project delivery by making projects easier to document, construct and administer.

Caltrans District 8 (San Bernardino) completed Phase II of its I-215 Widening Project this year. The lead agencies, Caltrans and San Bernardino Associated Governments (SanBAG), needed to inform businesses and the public about upcoming construction. The two agencies developed monthly partnering sessions with businesses and residents. These included task force meetings with the city of San Bernardino and members of the Chamber of Commerce, as well as emergency personnel. Caltrans and SanBAG also published a monthly newsletter focusing on completions and upcoming projects.

Caltrans District 12’s \$57 million SR-91 Eastbound Lane Addition, the first Recovery Act transportation project in Orange County, won the Orange County Engineering Council (OCEC) Project Achievement Award. After receiving \$47.9 million from the Recovery Act, the project was completed in a year and ahead of schedule.

The project added a new lane on six miles of eastbound SR-91, between SR-241 and SR-71, clearing a critical bottleneck in the main goods transportation arterial between Riverside and Orange counties.

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2010-11 Fiscal Year Highlights

The 2010-11 Budget Act authorized \$12.5 billion in expenditures and 20,955 personnel years (PY). This was a decrease of \$467 million in expenditures and 618 PYs when compared to the enacted 2009-10 Budget.

Of the \$12.5 billion authorized in expenditures, approximately \$2.2 billion represented Proposition 1A and 1B appropriations. Proposition 1A, passed in 2008, provided funding for both high-speed and intercity rail service. Proposition 1B is the \$19.9 billion transportation bond approved by voters in 2006. Also included was a decrease of \$77.4 million and 642 personnel year equivalents to the Department's Capital Outlay Support program for the delivery of capital outlay projects, and a reduction of \$7.4 million and 63.7 PYs to the Planning program to remove funding for the development of project initiation documents.

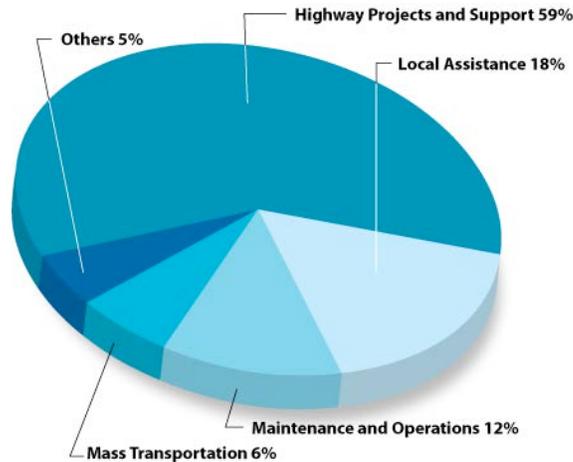
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Where the Money Goes



Although the Department experienced significant cuts to the Capital Outlay and Planning programs, there were increases of up to \$57.3 million in the Equipment program, \$50 million in the Maintenance program, and \$100.2 million in the Rail program from the **Recovery Act**. Passed in 2009, the Recovery Act provided \$2.6 billion for transportation in the state.

Proposition 22

Passed by the voters in November 2010, Proposition 22 prohibits borrowing, lending or diverting revenues that are dedicated to funding transportation improvement projects and services. Based on its current implementation, Proposition 22 has affected transportation funding as follows:

- Prohibits loans from excise and sales taxes on fuel, but the proposed language eliminates protections for weight fee revenues.
- Protects local transit funding by redirecting 50 percent of the state portion of sales tax on fuels deposited in the Public Transportation Account (PTA) to State Transit Assistance (STA).
- Eliminates any transfers from the PTA to any other fund in the State Treasury.

Weight Fee Swap

The 2011-12 Governor's Budget brought forward the Weight Fee Swap proposal from the December special session. Weight fees were previously protected by Article XIX of the State Constitution, but lost their protection with the passage of Proposition 22 in November 2010. In March 2011, Assembly Bill 105 authorized transfers of weight fee

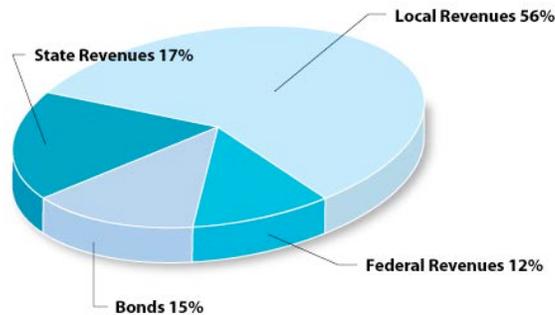
revenues from the State Highway Account (SHA) to the General Fund (GF) for transportation debt service and loans. This provides most of the GF relief originally planned in the fuel tax swap and preserves GF resources for vital statewide programs. In return, excise tax which would have gone to the GF prior to Proposition 22, will now be transferred to the SHA to fund transportation.

The Governor's Budget included \$1.5 billion in loans and debt service payments which affected the SHA in fiscal year 2010. This included \$227 million in GF loans from the SHA, \$544 million in debt service from the Motor Vehicle Fuel Account (MVFA), and \$736 million in GF loans from the MVFA.

Re-enactment of Fuel Tax Swap

The 2011-12 Governor's Budget proposed the re-enactment of the fuel tax swap. In March 2011, AB 105, which re-enacted the fuel tax swap, was passed. Re-enactment provided additional funding for the maintenance, rehabilitation and preservation of the State Highway System (SHS). This bill also required all additional increases to the state portion of sales tax on diesel fuel (i.e. 1.87 percent in 2011-12) to be redirected from the PTA to STA. Combined with other existing statutes, STA receives almost 75 percent of the sales tax on diesel revenues, with the PTA retaining the remaining 25 percent. Conversely, funding for mass transportation and rail projects could decrease and current projects may need to be delayed due to a loss of funding specific to these programs.

Where the Money Comes From



Federal Funds Management

In Federal fiscal year 2010-11, Caltrans successfully:

- Obligated \$3.3 billion from the Federal Highway Trust Fund.
- Requested \$491 million to obligate against additional available projects through the August redistribution process.
- Used \$208 million in toll credits in lieu of state matching funds, which offered some relief to the already stressed SHA.

Proposition 1B

During state fiscal year 2010-11, a total of \$575 million was allocated to fund Proposition 1B bond projects. The December 2010 bond sale yielded \$1.29 billion of bond funding for Proposition 1B transportation projects, and \$101 million for Positive Train Control projects under the Proposition 1A high-speed rail bond.

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Safety: Provide the Safest Transportation System in the Nation for Users and Workers.

Caltrans Builds for Safety, Works to Keep Employees, Public Secure

Caltrans is concerned about the safety both of its employees who work on the state transportation network, as well as the traveling public who use the system for convenience, business and recreational travel. This year, the Department made that concern manifest through a number of strategies, ranging from research and innovation to public awareness campaigns and improved highways and rail systems across the state.



Danger is inherent in many Caltrans jobs, and highway construction and maintenance are among the most dangerous occupations in the United States. One-hundred-seventy-eight (178) Caltrans employees have died on the job since 1924, when record keeping began.

The most recent fatality was Richard Gonzalez, a Caltrans Equipment Operator II, who was killed June 20 by a vehicle while he was working on a litter crew on I-15 in San Diego County. Mr. Gonzalez, 52, of San Ysidro, was the third work-related fatality in less than seven weeks.

In the wake of Mr. Gonzalez's death, Acting Director Malcolm Dougherty called an immediate halt to all routine or regularly-scheduled maintenance activities that could be deferred so staff could participate in mandatory safety stand-down activities.

Other fatalities this year included Jaime Obeso, 53, a Maintenance Lead Worker in District 11, who was hit by an errant vehicle in June while working on I-8 near the Sunbeam Safety Roadside Rest Area in Imperial County. Mr. Obeso was a 22-year veteran of Caltrans.

Stephen Palmer, Sr., a 64-year-old Caltrans landscape maintenance worker in the San Diego area, died in May after being struck on the job by a trolley near a station in National City. Mr. Palmer, who began work for Caltrans in 2007, was a member of the Imperial Landscape Crew, based in San Diego.



This past year was difficult for the Caltrans family, which suffered four employee fatalities. Family and friends paid tribute to the fallen during the annual Workers Memorial at the Capitol in April.

All three deaths had a particular poignancy given that their deaths followed closely after more than a thousand employees honored fallen Caltrans workers in April at the 21st Annual Workers Memorial at the State Capitol.

Also killed, in November 2010, was Maintenance Lead Worker Gary Smith from the Chico area. Mr. Smith was struck and killed by a motorist while performing traffic control for a detour

Shandon SRRA Offers Rest to Tired Drivers and a Little 'Green' Help for Mother Nature



The Shandon Safety Roadside Rest Area (SRRA), one of nine that Caltrans reconstructed this year, was a Recovery Act stimulus project that not only helps tired drivers but gives Mother Nature a "green" boost to keep California's water a little cleaner. Construction was completed in February.

To obtain a waste discharge permit, Caltrans [developed an advanced wastewater treatment system](#) design that meets new regulatory standards, Leadership in Energy and Environmental Design (LEED) criteria, and has a low operation and maintenance cost.



The rest area includes wastewater treatment, septic tanks, a re-circulation pump system, gravel filter, and a subsurface wetland designed to treat the water in an environmentally safe manner. The treatment system was constructed and installed making use of passive

during the annual Workers Memorial at the Capitol in April.

around an earlier fatal crash. The errant driver was

arrested for suspicion of driving under the influence.

Workers aren't the only ones at risk. Approximately 85 percent of people killed in highway work zones are drivers and passengers. Nationally, on average, more than two work zone fatalities occur every day or about once every 10 hours. In addition, on average, more than of 84 work zone injuries occur every day – one every 13 minutes.

The good news is that Caltrans has made strides through its Slow for the Cone Zone public awareness campaign launched in 1999. California work zone fatalities have declined 48.2 percent from 1999 to 2009, compared to a drop of just 21.9 percent nationally. California work zone fatalities, as a percentage of all California traffic fatalities, have been reduced to less than half what they were a decade ago, despite substantial increases in construction work zones. In 1999, 3.15 percent of all traffic fatalities in California were in work zones. The percentage has fallen steadily to 1.9 percent in 2009.

A similar regional effort is taking place in the San Diego area, where Caltrans District 11 has launched the Safe Driving on 76 Is No Accident public awareness campaign, which addressed the increase in traffic collisions along the mostly rural highway. During 2004, eight traffic collisions resulted in 16 deaths between I-5 and east of I-15.

The California Highway Patrol (CHP) has stepped up its enforcement and Caltrans has installed more and larger traffic signs along the route. Caltrans, the CHP, and the Oceanside Police Department have joined forces to educate drivers about safe driving practices along the highway.

As a result of such efforts in California and elsewhere, safety is also improving nationally. In 2009, there were 679 fatalities and more than 30,000 injuries in work zones across the nation. By comparison, during the previous three years there was a yearly average of 853 fatalities. Safety consciousness is making a difference.

Faced with such potential hazards, Caltrans is committed to ensuring that safety is designed and built into all its transportation facilities. Through March, Caltrans has advanced 42 safety projects worth \$195 million to the ready-to-list milestone, and 55 projects worth \$222 million were awarded through the same date.

The Department is also working to protect employees and drivers through the "Construction Code of Safe Practices" (COSP), published last August. The COSP is part of the Caltrans Accident Prevention and Safety Program and complies with requirements of the California Division of Occupational Safety and Health (Cal/OSHA) construction safety orders.

The COSP defines standard safety practices for Caltrans staff and its consultants involved with inspecting construction activities and operations. To help field staff identify proper safety references, checklists for various construction operations were developed. Each checklist provides a list of the safety requirements related to a specific operation and the corresponding safety references, such as Standard Specifications, Standard Plans, Cal/OSHA Title 8 safety orders, and the California Manual on Uniform Traffic Devices.

This concern for public safety has manifested itself in a number of projects over the fiscal year.

processes to accomplish nitrogen removal. It can also be adapted to conditions found at any SRRA, maintenance station, or truck scales.



The project is being monitored periodically to ensure compliance with Regional Water Quality Control Board requirements. Information obtained will be used to design future wastewater treatment systems (that have nitrogen limits). Preliminary information shows the system to be successful.



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New Non-Skid Treatment Gains Traction on LA's Sepulveda Ramp

Most ramps in the Los Angeles area perform their roles perfectly, gently shuttling motorists on and off freeways without incident. But then there is the Sepulveda Boulevard on-ramp to the eastbound Glenn Anderson Freeway (I-105). This ramp cannot meekly do its job like its brethren. It's the problem child of the bunch, the ramp that has arguably prompted more angry phone calls to Caltrans than any other. But to be fair, it's not the ramp's fault.

Closing ramps is not something Caltrans does lightly, particularly when the ramp in question is one of the key exits near Los Angeles International Airport, the busiest in the western United States. Last October, a temporary fix was implemented to reduce closures. "We restriped the ramp to one lane to keep speeds down and eliminate unsafe passing. We'll restripe it back to two lanes after the high-friction surface treatment (HFST) project," said Yunis Ghausi, Senior Transportation Engineer in Los Angeles.

The HFST project, the first in District 7, should change everything.

This treatment, also known as anti-skid surfacing, is composed of tough, abrasion-resistant aggregate material bonded to the pavement surface using an epoxy-resin. The resulting surface is rough, hard and durable and increases the coefficient of friction. For the benefit of non-engineers, that's a thin, super-gripping layer that prevents cars from skidding, especially in wet weather.

"When the project is complete, the expected friction on the

during the annual Workers Memorial at the Capitol in April.

around an earlier fatal crash. The errant driver was

arrested for suspicion of driving under the influence.

Workers aren't the only ones at risk. Approximately 85 percent of people killed in highway work zones are drivers and passengers. Nationally, on average, more than two work zone fatalities occur every day or about once every 10 hours. In addition, on average, more than of 84 work zone injuries occur every day — one every 13 minutes.

The good news is that Caltrans has made strides through its Slow for the Cone Zone public awareness campaign launched in 1999. California work zone fatalities have declined 48.2 percent from 1999 to 2009, compared to a drop of just 21.9 percent nationally. California work zone fatalities, as a percentage of all California traffic fatalities, have been reduced to less than half what they were a decade ago, despite substantial increases in construction work zones. In 1999, 3.15 percent of all traffic fatalities in California were in work zones. The percentage has fallen steadily to 1.9 percent in 2009.

A similar regional effort is taking place in the San Diego area, where Caltrans District 11 has launched the Safe Driving on 76 Is No Accident public awareness campaign, which addressed the increase in traffic collisions along the mostly rural highway. During 2004, eight traffic collisions resulted in 16 deaths between I-5 and east of I-15.

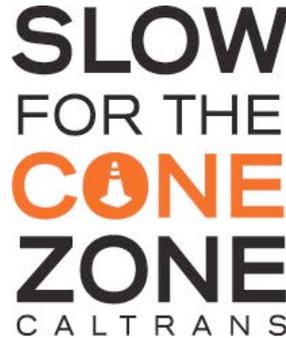
The California Highway Patrol (CHP) has stepped up its enforcement and Caltrans has installed more and larger traffic signs along the route. Caltrans, the CHP, and the Oceanside Police Department have joined forces to educate drivers about safe driving practices along the highway.

As a result of such efforts in California and elsewhere, safety is also improving nationally. In 2009, there were 679 fatalities and more than 30,000 injuries in work zones across the nation. By comparison, during the previous three years there was a yearly average of 853 fatalities. Safety consciousness is making a difference.

Faced with such potential hazards, Caltrans is committed to ensuring that safety is designed and built into all its transportation facilities. Through March, Caltrans has advanced 42 safety projects worth \$195 million to the ready-to-list milestone, and 55 projects worth \$222 million were awarded through the same date.

The Department is also working to protect employees and drivers through the "Construction Code of Safe Practices" (COSP), published last August. The COSP is part of the Caltrans Accident Prevention and Safety Program and complies with requirements of the California Division of Occupational Safety and Health (Cal/OSHA) construction safety orders.

The COSP defines standard safety practices for Caltrans staff and its consultants involved with inspecting construction activities and operations. To help field staff identify proper safety references, checklists for various construction operations were developed. Each checklist provides a list of the safety requirements related to a specific operation and the corresponding safety references, such as Standard Specifications, Standard Plans, Cal/OSHA Title 8 safety orders, and the California Manual on Uniform Traffic Devices.



ramp will be very high — among the highest in the district," said Materials Engineer Kirsten Stahl.

This capital improvement project is a quick one, taking less than a week and costing about \$134,000. It's relatively simple to apply the non-skid surface, but it's also fairly fussy in terms of acceptable weather conditions. It must be at least 50 degrees to proceed and very dry.

"The first thing we did was clean the pavement to get rid of all the oil and dirt," said Resident Engineer Mashhur Ali. Once the pavement is dry, a thin layer of epoxy-resin — about an eighth of an inch — mixed with aggregate was applied to the surface. Once the mixture cured (it takes about two hours), the ramp was restriped.

Total project duration: about three or four days. Benefit to Caltrans and motorists: shorter stopping distances, greater traction, better vehicle control, reduced collision rates, happier motorists, and fewer angry phone calls. In short, it's a fast, simple project that will enhance safety and reduce ramp closures.

Although thus far limited in use, it's gripping the Caltrans imagination. "It's still in an evaluation phase, and there seem to be issues getting the correct type of aggregate," said Stahl, referring to the typical aggregate used for HFST projects.

Caltrans staff will be watching the Sepulveda ramp closely to see how the LA area's first HFST performs. Additional locations may be identified for similar treatments in the future.

This concern for public safety has manifested itself in a number of projects over the fiscal year.



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Delivery: Efficiently Deliver Quality Transportation Projects and Services.

Caltrans Faces Challenges, but Makes Progress Delivering Projects

Despite the effects of the Great Recession and reductions in the Department's staff, project delivery moved ahead significantly on some of the state's largest transportation construction projects. The Recovery Act of 2009 paid big dividends on such projects as the I-405 in Southern California and the Presidio Parkway and Caldecott Tunnel in the San Francisco Bay Area.



The Palace of Fine Arts in San Francisco lies adjacent to the public-private Presidio Parkway project, designed as an elevated, six-lane highway south of the Golden Gate Bridge.

During the year, 669 contracts were awarded for construction valued at nearly \$3.5 billion. By the end of the fiscal year, nearly 90 percent of California's transportation projects funded by the Recovery Act had been awarded to contractors. In fact, California received more Recovery Act dollars for transportation than any other state, nearly \$2.6 billion for 982 highway, street, rail and port infrastructure projects. Of those, more than 850 have been awarded — meaning construction and jobs are bound to follow. As a result, many important transportation improvements were either completed or reached milestones across the state this year.

Work continued on the \$1.3 billion I-405 Sepulveda Pass Project, a 10-mile carpool lane project that began in 2009. When completed in spring 2013, the project will stretch along the I-405 (San Diego Freeway) from the I-10 (Santa Monica Freeway) to U.S. 101 (Ventura Freeway). It is one of the busiest freeways in the United States, and when completed it will improve traffic flow for area commuters.

Caltrans also had several Recovery Act "firsts" during the year.

In November, Caltrans District 4 (San Francisco Bay Area) completed the first Recovery Act transportation project to break ground in California: a resurfacing of a 50-year-old section of I-80 in the Fairfield area. Approximately 200,000 commuters and truckers use the east-west route every day. Caltrans expects to invest more than \$1 billion in the corridor that connects the Bay Area to the Nevada state line just west of Reno.

Then in December, Caltrans District 12 completed the first Recovery Act highway improvement in Orange County — a \$65 million widening project to relieve congestion and uncork a chronic traffic bottleneck on SR-91. The project constructed a new lane



San Francisco-Oakland Bay Bridge

As the Bay Bridge draws closer to its grand opening in 2013, milestones continue to add up. The announcement of the Oakland Touchdown Detour marked the first time the project has discussed the official bridge opening, as the detours are being built to accelerate construction and achieve seismic safety sooner.

Progress continues to move ahead elsewhere on the bridge. Crews erected the entire 525-foot-tall single tower for the self-anchored suspension span (SAS), most of the suspension bridge's 28 deck segments were placed during the past year, and construction began on the superstructure of the Yerba Buena Island Transition Structure.



The SAS is the transformative element of the San Francisco-Oakland Bay Bridge (SFOBB), and one that will make it a new

on six miles of eastbound SR-91 between SR-241 in Orange County and SR-71 in Riverside County. The need was great, given that daily traffic on this section reaches as high as 300,000 vehicles. The \$23.7 million project (\$19.5 million from the Recovery Act) cost 40 percent less than the original cost estimates — saving taxpayers millions of dollars.

Three months later, in March, officials opened the \$14 million I-805 southbound Auxiliary Lanes Project in San Diego, which enabled 130,000 commuters a day to travel more efficiently between SR-54 and Bonita Road. In addition to auxiliary lanes, the project widened the Bonita Road undercrossing and added ramp meters. The federal government contributed \$9 million, making the I-805 section the first Recovery Act project to be completed in San Diego.

Caltrans also began construction in March on the \$90 million I-805/Carroll Canyon Road Extension Project. The project, which received \$52 million from the Recovery Act, will complete a 10-mile HOV lane and help reduce congestion in the area. Completion is scheduled for late 2012 or early 2013.

Caltrans District 4, met major milestones on the [San Francisco-Oakland Bay Bridge](#) and the Caldecott Tunnel.



A worker is dwarfed by billowing yellow material that is used to line the Caldecott Tunnel, thereby waterproofing the two bores against natural liquid drainage.

Caltrans and the San Francisco County Transportation Authority (CTA) developed an innovative public-private partnership for Presidio Parkway, to design, build, finance, operate, and maintain an elevated, six-lane highway south of the Golden Gate Bridge in San Francisco.

Despite challenges, and surprises, including the discovery of a plant

that was thought to be extinct, Caltrans continued work on Doyle Drive (part of the Presidio Parkway Project). The Franciscan Manzanita was discovered during preliminary work in the former Presidio Army Base and threatened to derail the schedule. Relocation of the plant was a success due to intense work by state and federal agencies and local stakeholders. All worked under a critical time line to find a remedy to further the \$1 billion roadway construction project while protecting the environment.

The existing Doyle Drive structure is close to several historic buildings on the Presidio. Early tests showed these buildings could be harmed by pile-driving 12-foot wide columns required to support the new structure. As a result of innovative engineering by Caltrans and its sub-contractor opted for cast in drilled hole pilings, surrounded by steel casings, which are secured in place by a high-powered oscillator. Eventually, a subcontractor designed an oscillator in Germany specifically for the project. All the piles were installed through the year with no damage to surrounding buildings and no delay to the project.

Last July, construction began on the Presidio Parkway Project's second major contract, the \$116 million Battery Tunnel along with a temporary bypass. The Recovery Act provided \$46 million to move the project forward.

Caltrans District 7 (Los Angeles) delivered 17 major projects in the State Highway Operations and Protection Program (SHOPP) valued at \$705 million. Ten were pavement rehabilitation, five are bridge deck preservation and two are median barrier upgrades. Significant pavement rehabilitation is taking place on the Ventura Freeway (U.S. Highway 101) in Los Angeles and Ventura counties; the Long Beach Freeway (I-710); Pomona Freeway (SR-60); Antelope Valley Freeway (SR-14); Orange Freeway (SR-57), and Golden State Freeway (I-5) in Los Angeles County.

In March, Caltrans broke ground on new bus/carpool lanes on the Golden State Freeway between SR-170 (Hollywood Freeway) and Buena Vista Street in Burbank. The \$69.2 million project was financed in part (\$39.3 million) by the Recovery Act. The project will build almost nine miles (4.4 miles in either direction) of new bus/carpool lanes, and repair pavement on one of the most heavily travelled freeways in California.

global icon. The SAS is the largest bridge of its kind anywhere in the world (2,078 feet long). Crews have worked hard to bring this vision to reality. This year, 12 more deck sections have been placed, bringing the total to 24 out of 28. These deck sections vary from 559 tons to 1,669 tons, and in length from 60-feet up to 229-feet.



Workers have also erected the single, 525-foot tall SAS tower, which is composed of four separate pentagonal legs, each made of five vertical sections or lifts, connected by shear link beams. The faceted forms of the tower legs are tapered and slender to enhance their appearance and to allow light to permeate through the interior of the tower. The tower's placement closer to the west end of the SAS creates a distinctive asymmetrical design, of 1,263 feet from the east end and 607 feet from the west. This means that the single mile-long main cable will present a sharper angle on the west side but a more sloping appearance on the east.

Oakland Touchdown



Just west of the Toll Plaza, nestled against the shoreline, the Oakland Touchdown (OTD) will introduce westbound drivers to the new East Span as it carries traffic from I-80 onto the sweeping side-by-side decks of the Skyway. For drivers from San Francisco, this section will carry them from the Skyway into the East Bay. The project involves building the east- and westbound roadways and a new

Bridge deck preservation is taking place on I-5, the Century Freeway (SR-105), the Foothill Freeway (I-210), the San Gabriel River Freeway (I-605) and SR-110.

In the nearby Inland Empire, Caltrans completed Phase II of the I-215 Widening Project in September. Begun in late 2007, the project consists of four phases — of which, the first two are now completed. Phase III, led by the San Bernardino Associated Governments (SanBAG), and Phase IV, directed by Caltrans, are well underway and scheduled for completion in early 2013.

Because the I-215 is a major goods movement corridor, Caltrans and SanBAG needed to ensure that businesses and public were informed about construction. Caltrans District 8 (Riverside and San Bernardino counties) developed monthly partnering meetings with businesses and residents, including the city of San Bernardino, the Chamber of Commerce, and emergency personnel.

Phase IV, led by Caltrans, has \$81 million in Proposition 1B funding. Caltrans, SanBAG, and the FHWA worked with elected officials to secure funding for the final two phases, which will support jobs and bolster the local economy. The project will increase capacity, cut congestion and improve air quality.

Meanwhile District 11 (San Diego) opened nearly 14 new miles of roadway this year. Located near the U.S./Mexico border, and a major commercial hub for the region, SR-905 opened nearly three-miles of a six-lane freeway in November. The project stretches from Siempre Viva Road west to Britannia Boulevard.

In a related project, Caltrans in April began the next construction phase of the \$611 million SR-905 Project in Otay Mesa, which will widen the connector ramp from westbound SR-905 to northbound I-805 from one lane to two.



A ceremonial Botts Dot lies on the pavement of Interstate 905 as part of an opening ceremony for the interstate. The highway will help facilitate international trade between the U.S. and Mexico.

When completed in 2012, the route will play a critical role in moving goods and services between California and Mexico. Total imports for 2010 exceeded \$36 billion with more than four million trucks projected to use Baja California ports of entry by 2020. The project is entirely funded by the Recovery Act.

The second of three projects on the SR-78/111-Brawley Bypass Project in Imperial County opened to commuters in March. The three-mile long, four-lane freeway received \$80 million from Proposition 1B. The project is designed to direct traffic around Brawley, reducing congestion and the cost to maintain Main Street, which currently experiences heavy traffic.



A six-lane section of State Route 52 in Santee is one of several highways opened in San Diego and Imperial counties. They will help reduce congestion on regional freeways and arterials.

The SR-52 Sunny Side Gateway was completed this spring, opening a 3.5-mile section of six-lane freeway in Santee. This final link connects 17-miles of SR-52 from SR-67 to I-5. Construction began in 2008 and cost approximately \$520 million — paid for with the TransNet half-cent sales tax, as well as state and federal funds. The

electrical substation, in addition to extensive relocation of underground utilities.

Originally, the second phase of construction needed to wait until westbound traffic began flowing on the new East Span, because that traffic is currently in the path of the OTD's eastbound lanes. This would have created a six- to eight-month lag between opening the west- and eastbound lanes of the new East Span. Engineers have devised a new plan that will allow the bridge to open earlier than expected to drivers in either direction.

By realigning the existing eastbound and westbound lanes just west of the Bay Bridge toll plaza, crews can finish the OTD eastbound lanes sooner than expected. Eastbound and westbound traffic can start traveling on the new bridge at the same time. The eastbound alignment change took place on Memorial Day weekend in 2011, with the westbound change scheduled for early 2012.



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This year, for example, Caltrans continued its commitment to aiding small and disadvantaged businesses to obtain state contracts. And in March, a federal court ruled that the Department was on the right track.

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Caltrans Gives an Energetic Thumbs up for Solar Power



Caltrans is using Clean Renewable Energy Bonds (CREB) to fund environmentally friendly solar projects on its own facilities. The CREB program, authorized in the federal Tax Incentives Act of 2005, is intended to encourage energy conservation, and to increase the use of alternative energy sources. The CREB program is administered by the Internal Revenue Service.

The Department became aware of the program mere weeks before the application's due date. However, Department staff used satellite imagery and as-built plans to identify candidate sites for photovoltaic (PV) systems, and submitted 94 CREB applications of which 93 were approved.

The Department then began collecting additional data for each site assuming the PV installations would be on the roofs of existing Department buildings. This included the age of the roof at the time of planned installation, structural soundness, long-term retention of the complex, and analysis of the utility energy data.

The result was a legislative package approving 70 sites totaling \$19.9 million. Sites included maintenance stations,

more than 80 events with nearly 8,000 attendees — focused on procurement and contracting opportunities with the state, workshops, and business networking.

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State Office Buildings in Los Angeles and Marysville Certified as "Green"



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By **'greening'** its buildings, Caltrans shows its intent to reduce its impact on the environment.

To date, approximately 50 state buildings have achieved LEED certification. For a

equipment shops, transportation management centers, materials labs, truck inspection facilities, toll plaza buildings, office buildings, and safety roadside rest areas.



CREB funding was a first for the state, and Caltrans was the only state agency in California to apply for the program. A funding process needed to be developed to use the CREB bond funds for construction of the PV systems. In cooperation with the State Treasurer's Office, the Department of Finance, and the Legislature, a successful process was developed. The IRS required CREB bonds be sold by June 2009, and all construction completed by November 2011. The Department has completed its goal.

Caltrans developed expedited project schedules and delivery plans. The Department sought to encourage participation by Small Business and Disadvantaged Business Enterprises, and Caltrans held a contractor outreach session to attract a maximum number of projects under \$250,000.

To date, of the 70 scheduled sites, 54 have reached completion and are generating power. The current projected energy production is for 2.4 megawatts of solar power. The panels have a life expectancy of 25 years or more. They will be an important factor in Caltrans meeting its energy conservation goals as set in Governor's Executive Order S-20-04, and to support state renewable power, electric grid demands, energy conservation, and climate change mandates.

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Quieter Bridge Decks in California Even with Population Increases

California's population density has increased substantially in the last two decades causing increased volumes of traffic on the State Highway System (SHS). Urban residents in particular have complained about the noise and environmental impact from the SHS.

At highway speed, most of the noise is generated where the tire and pavement meet. Engineers throughout the world have been researching methods to reduce highway noise beyond building sound barriers. Methods include improvement of the roadway pavement types and textures to reduce tire/pavement noise.



Caltrans has recently issued "Bridge Deck Surface Texture" for use on all new bridge contracts approved after January 2011. The new specification requires bridge decks to be surface textured.

During the year, Caltrans completed a pilot project for each method. The pilot projects verified the expected tire noise, the friction requirement, and constructability. Longitudinal texturing has resulted in as much as a 10dB (decibel) reduction of tire noise compared to the previous standard method, transverse texturing. For reference, a 10dB decrease is perceived as 1/2 of the noise to the human ear.

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The FHWA considers 5dB as the threshold criterion for funding a sound wall project.

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Repairing Storm Damage of a Levee — No Problem with New Technique

For thinking "outside the box," Caltrans District 4 (representing the Bay Area) won its first Green California Leadership Award for work on SR-84 in Solano County, a levee road in an environmentally sensitive area that was in dire need of paving repair.

In the winter of 2006, a severe storm caused tremendous damage to the surface of SR-84. This segment is on Ryer Island, three miles east of Rio Vista in the California Delta, and is built atop a levee. The highway is an important conduit for local residents, tourists and agricultural goods.



Caltrans used recycled pavement to repair the storm-damaged highway. The original strategy was to remove the top eight feet of the levee's embankment on the flood zone side only. Then replace it with reinforced earth and repave the entire three miles of highway with asphalt concrete.

However, this solution proved unacceptable given environmental constraints and the fact that the roadway was on a levee under jurisdiction of the Central Valley Flood Protection Board, which was concerned that work would damage the levee. Moreover, it would be logistically impossible to get the materials to the island.

Removing and hauling the existing materials would be nearly impossible given the

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As a result of such efforts, Caltrans met and exceeded the SB participation goal of 25 percent and DVBE goal of 3 percent in fiscal years 2008-09 and 2009-10. In FY 2009-10, Caltrans contracted nearly \$400 million with SBs and DVBEs.

In a related development, Caltrans was named by the readers of Diversity/Careers in Engineering & Information Technology magazine as among the nation's top performing companies to institute key elements of diversity in the workplace. This is the second year in a row Caltrans was granted the honor.

State Office Buildings in Los Angeles and Marysville Certified as "Green"



Two Caltrans district offices, in Los Angeles (below) and Marysville (above), were honored with the Leadership in Energy & Environmental Design (LEED) certification for incorporating green technology.

Two district headquarters have furthered California's energy and environmental goals, and have been awarded the Leadership in Energy & Environmental Design (LEED) certification by the U.S. Green Building Council.

The District 7 facility in Los Angeles earned the Green Building Council's LEED Gold certification while District 3 headquarters in Marysville earned LEED Silver certification. Both certifications are for existing building maintenance and operations.



By **'greening'** its buildings, Caltrans shows its intent to reduce its impact on the environment.

To date, approximately 50 state buildings have achieved LEED certification. For a

amount of materials involved. Added to that, the main access in and out of the site was via ferry crossing, over Cache Slough from Rio Vista to Ryer Island, and had a weight limit that materials hauling would surely exceed. The third challenge stemmed from U.S. Fish and Wildlife Service requirements. Due to the presence of endangered Delta Smelt, the planned toe of the levee slope was judged to be too close to the water.

With only a few months until the delivery date, the project team either had to find a fast solution or face not delivering the project. This would have resulted in losing the badly damaged highway in the next winter season, so failure was not an option.

The district project development team met in the field and consulted with headquarters materials and research experts. The decision ultimately was to use a Cold Foam In-Place strategy that recycled the existing roadbed and placed a hot mix asphalt layer over the recycled material and to repair the severe areas of failed slopes with synthetic reinforced earth.

This eliminated the need for deep excavation or removing part of the levee. It also circumvented the need for hauling tons of materials off the island. And it limited the impact to fish, such as the endangered Delta Smelt.



This innovative method allowed Caltrans to complete the job without unduly disturbing the levee.

The road reconstruction process was fast, cost-effective and an alternative to more traditional methods of rebuilding asphalt roadways. It used existing pavement that was aged, cracked or deteriorated.

Moreover, it saved both time and money. Taxpayers got a break of more than \$2.4 million. The project, originally estimated to take more than six months,

complete list of LEED certified state facilities, [read more](#).

In yet another example of stewardship, technology developed by Caltrans and the United States Geological Survey (USGS) helped set priorities for bridge inspections during the earthquake crisis last March in Japan, as well as in nuclear power plants around the world.

The ShakeCast software application uses ground sensors to analyze earthquake-shaking data in relation to the performance characteristics bridges or other structures. This allows responders to set priorities for inspections within minutes of an earthquake.

The International Atomic Energy Agency (IAEA) used ShakeCast to monitor the potential for damage to nuclear facilities in Japan following this spring's earthquake. The IAEA also uses ShakeCast to monitor 196 nuclear power plants around the world.

Following a tremor, one of Caltrans' most critical tasks is to assess the condition of bridges and roadways. In the past, inspection teams had difficulty setting priorities because they lacked precise information about where the worst shaking and greatest damage had occurred.

Caltrans recently executed a new three-year contract with the USGS to continue the development of ShakeCast. The new version will incorporate improved bridge models and will include an assessment of soil liquefaction and landslide hazards to post-earthquake roadways.

instead took only 45 days. Residents and visitors to the island were minimally affected and had access to their destinations even during project work.

The Green California Leadership Award was presented to Caltrans in April at a reception at the Green California Summit and Exposition at the Sacramento Convention Center. The annual event is the year's largest gathering of green advocates from the public and private sectors in "greening" the Golden State.

California residents have experienced increased noise due to larger volumes of traffic on its State Highway System (SHS). Caltrans is addressing the noise and environmental impact with its **quieter bridge decks** design.

On the environmental front, Caltrans began work this year on a restoration of the Otis R. Johnson Wilderness Park, a seven-acre oasis in Fort Bragg that offers shady walking trails through native plant species.

The project included streambed restoration of habitat and stabilization of mature redwoods, replaced a footbridge, and installed boulders and wood debris to protect the stream bank. It removed invasive plants and restored native species. Completion is scheduled for next year.

A \$66 million construction project on SR-44 between downtown Redding and I-5 was completed while respecting the environment. The project added lanes that would have encroached on the wetland. As a mitigation effort, Caltrans built a wall to protect the wetland, and saved enough space for a bike/pedestrian path. The wetland is open to the public for enjoyment and education.

In the Los Angeles area, Caltrans District 7 helped to preserve infrastructure by removing debris and litter from its right-of-way at a cost of \$13 million. Caltrans swept 31,875 lane miles, picking up 11,500 cubic yards of debris, disposing of almost 17,000 cubic yards of litter, removing 256 homeless camps, and cleaning up 267 spills. In addition, Caltrans covered 2,980 square feet of graffiti in the area at a cost of nearly \$2 million.



Mitigation was required following construction of SR-44 between Redding and I-5. Caltrans was glad to build a wall to protect sensitive wetland, plus making room for a new bike/pedestrian path.

In the "it-could-only-happen-in-California" category, Caltrans District 10 based in Stockton gave a hand to the San Joaquin Valley's grape harvest. The problem was unstable peat soil that added to **pavement deterioration** on SR-12 from I-5 to near the Rio Vista Bridge. Major maintenance has been required over the years to preserve