

PDQ

APRIL 2014

PROJECT DELIVERY QUARTERLY

Construction • Design • Engineering Services •
Environmental • Project Management • Right of Way



Sustainability and Project Delivery

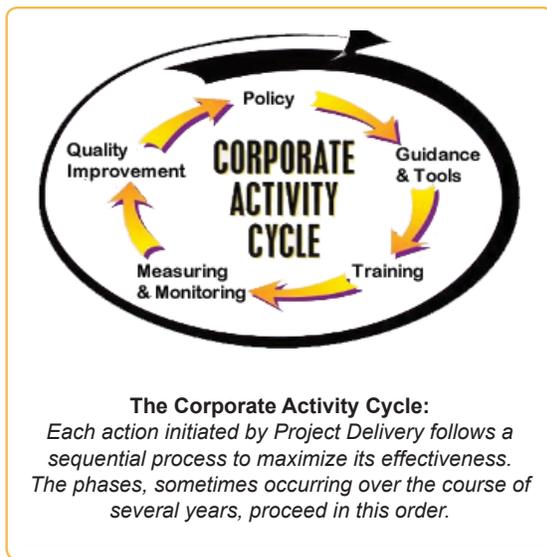
I am pleased to present the April 2014 issue of *Project Delivery Quarterly* (PDQ). In this issue we focus on how Project Delivery demonstrates a commitment to sustainability principles in our projects and day-to-day practices.

The last issue of the PDQ focused on the importance of partnerships to Project Delivery's continued success. The last few months have brought a surge of partner and stakeholder interest in seeing refinements to the Caltrans business model to reflect 21st century solutions to mobility and sustainability challenges.

Every agency and department within the state has a role to play in preserving the vitality of California's environment, economy and local communities. Caltrans, and Project Delivery, are eager to identify additional opportunities to promote sustainability within the transportation system.



Periodic evaluation of products and processes is a recognized segment of the “Corporate Activity Cycle” which has long been a part of Project Delivery’s business model. It is standard practice for Project Delivery to periodically evaluate the need for quality improvements, and develop any needed refinements to policies, guidance, and training. Subsequent measuring and monitoring of the improvements helps Project Delivery assess how well the improvements are meeting their intended purpose.



Evaluating how we can further incorporate sustainability principles into our projects and processes follows this process as well. The goal is to optimize Project Delivery and Departmental functions and effectiveness, and to provide a superior transportation system for all users. To that end, the Division of Design recently released the memorandum titled “Design Flexibility in Multimodal Design” dated April 10, 2014. The memorandum reaffirms that Caltrans is committed to providing flexibility that maintains the safety and integrity of the state highway system and local streets and roads under the jurisdiction of cities and counties. The memo highlights existing design flexibility in current guidance, outlines the positive steps already taken to emphasize the importance of multimodal design, and recognizes the value of other guidance in supporting planning and design decisions made by state and local decision makers statewide. Supporting design flexibility for multimodal travel is

a crucial step in promoting sustainable transportation options in California.

The *Highway Design Manual* (HDM) was revised last month to include new intersection control guidance in coordination with the recently released Division of Traffic Operations *Intersection Control Evaluation* (ICE) policy directive. These changes supersede *Design Information Bulletin (DIB) Number 80: Roundabouts*.

As Caltrans evaluates opportunities to further implement sustainability principles, we will also document and demonstrate the numerous sustainability best practices already in place within Project Delivery. The effort will demonstrate that Project Delivery has the technical expertise and flexible standards to meet one of our primary goals - to help the state adapt to a shifting transportation environment. I fully agree with John Bulinski, District 2 Director, who recently stated that the Department will “prove that we have the necessary skills and abilities to shift our focus to be more visionary toward a transportation system that is innovative and sustainable.”

In the next few months, I will provide updates about some of the existing and upcoming efforts to further incorporate sustainability principles into Caltrans activities. I look forward to sharing news about the progress of recently formed teams that will address recommendations from the State Smart Transportation Initiative’s review of Caltrans, and other efforts to measure our performance.

In this issue of the PDQ, I am pleased to share some of the many laudable sustainability initiatives that are already underway in Project Delivery.

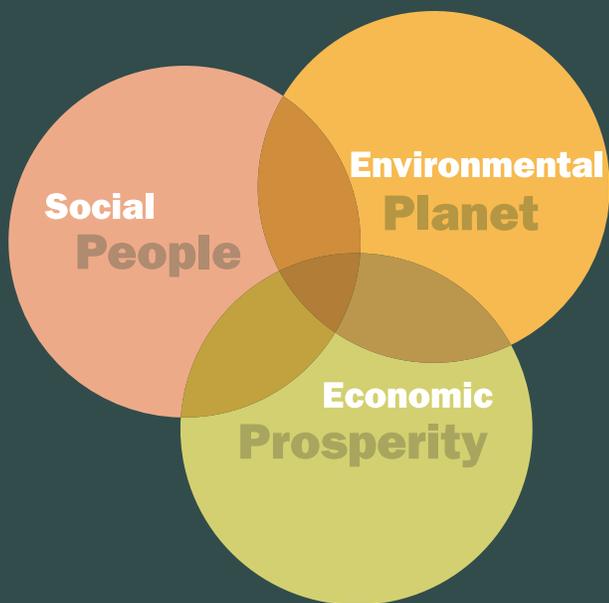
Thank you for your steadfast dedication to state service, and for your commitment to helping Project Delivery grow and succeed.

—Karla Sutliff
 Project Delivery Deputy Director
 (Chief Engineer)

Sustainability Principles

A sustainable transportation system

balances stewardship of **social, environmental** and **economic** resources for the long-term public good.



● **Social Sustainability** involves stewardship that improves the safety, health and quality of life for workers, travelers and communities. Caltrans promotes Social Sustainability in the following areas:

- Worker and Traveler Safety
- Active Transportation
- Workforce Development
- Supporting Livable Communities

● **Environmental Sustainability** entails complying with legal mandates, and proactive stewardship decisions and actions to improve ecological health and resiliency. Caltrans promotes Environmental Sustainability in the following areas:

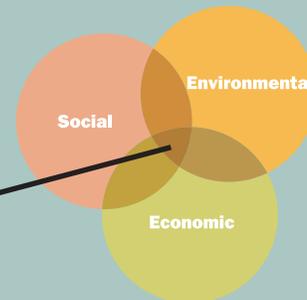
- Ecosystem Preservation
- Climate Change Adaptation
- Low Impact Development
- Reducing Greenhouse Gas Emissions

● **Economic Sustainability** includes stewardship that yields prudent life-cycle fiscal investments and management of physical assets; and accountability to taxpayers for project costs and delivery schedules. Caltrans promotes Economic Sustainability in the following areas:

- Transportation Asset Management
- Value Analysis
- Life-Cycle Cost Analysis
- System Performance and Preservation
- Innovative Financing
- Relinquishments

Implementing Sustainability Principles

Achieving stewardship that balances all three areas of sustainability requires **Strategic Innovation** and **Effective Partnerships** with stakeholders.



Leading the way



Strategic Innovation is necessary to meet evolving sustainability challenges. Caltrans has long employed the Corporate Activity Cycle (see page 2 for more information), to inspire strategic innovations and continual improvement of best practices. Areas in which Caltrans employs Strategic Innovation to achieve sustainability targets includes:

- State-of-the-Art Technologies and Tools
- Travel Forecasting and Analysis
- Travel behavior and systems modeling
- Refinement of Guidance, Tools and Processes
- Research and Data Collection

All hands on deck



Effective Partnerships are essential to meet the most pressing sustainability challenges. Caltrans can be an influential and effective partner in meeting state and federal sustainability goals such as reducing greenhouse gas emissions, linking land-use with transportation facilities using smart mobility principles, and making meaningful strides in promoting public transit and active transportation. Caltrans employs Effective Partnerships to meet sustainability goals with the following partners, stakeholders and activities:

- California State Transportation Agency (CalSTA)
- The California Transportation Plan
- The California State Rail Plan
- Self-Help Counties Coalition
- MPO & RTPA Coordination (SB 375- Sustainable Communities Strategies)
- National Participation with Federal Transportation Entities
- Collaboration with California Departments, Agencies and Programs

Sustainability Principles in Project Delivery

Project Delivery implements the five Sustainability Principles in the following areas:

- **Social Sustainability**-The article on page 9 details the Division of Environmental Analysis' success with the Caltrans Section 106 Programmatic Agreement, which upholds the National Historic Preservation Act.

The January 2014 issue of the PDQ included an article about *Main Street, California*, a guide for incorporating livability and sustainability principles on state highway main streets (to benefit local communities and the transportation system).

- **Environmental Sustainability**- The Division of Engineering Service's article on page 11 highlights how partnering earned the Caltrans Philip Raine Safety Roadside Rest Area a LEED Platinum Certification, a prestigious "green-building" award.

- **Economic Sustainability**- The Division of Right of Way and Land Surveys article on page 13 describes how successful partnerships contribute to the Division's laudable achievements in the area of sustainable fiscal, asset and resource investments.

The January 2014 issue of the PDQ included an article about how the Division of Engineering Services provides guidance on the importance of sustainable investment strategies in *California Bridges and Structures Strategic Direction*.



- **Strategic Innovation**-The Division of Design is committed to continual quality improvements and innovation. See page 2 of this PDQ to read more about the recent Highway Design Manual updates; and the release of the memorandum titled "Design Flexibility in Multimodal Design" dated April 10, 2014, which promotes flexible decision making to promote multimodal travel.

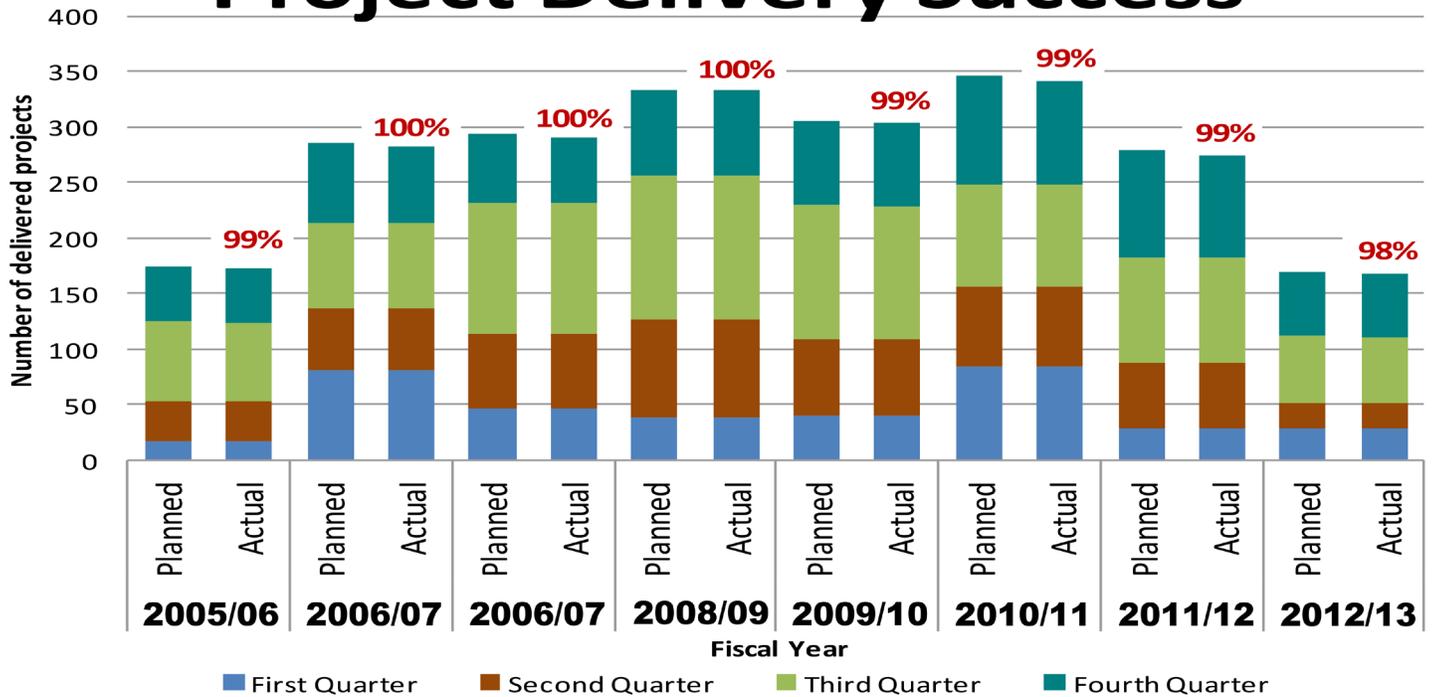
The January 2014 issue of the PDQ included an article about the deployment of Project Resource and Schedule Management (PRSM), an innovative tool that promotes economic sustainability principles by dramatically streamlining resource and project management.



- **Effective Partnerships**- Project Delivery's article on page 7 describes how effective partnerships led to the Caltrans Drought Action Plan. The Drought Action Plan promotes environmental sustainability by detailing immediate and long-term strategies to conserve water throughout the state.

The January 2014 issue of the PDQ included an article highlighting the Division of Construction's "Excellence in Partnering" awards, and the Division's long-standing commitment to promoting safety and economic sustainability principles.

Project Delivery Success



Project Delivery continues to deliver completed projects on time and within budget— key components of sustainable fiscal investment.

Partnering for Sustainability: Caltrans Drought Action Plan

Although recent storms boosted the Sierra snow pack and water runoff into reservoirs, state officials say it's not enough to end drought conditions in California.

Governor Jerry Brown formally declared a statewide drought on January 16, 2014, calling on all Californians to immediately reduce water use by 20%. The governor's action underscores the severity of the dry conditions throughout the state. Many key reservoirs are at record low levels, with statewide storage at 66% of average; and the state's critical snow pack is almost non-existent. An unusually warm April reduced the Sierra snow pack to just 18% of normal, suggesting that the summer snow melt runoff will

offer little relief.

The formal drought declaration demonstrates that the state is prepared to channel resources and assistance to the areas in greatest need this year. Additionally, the drought proclamation spurred the Department to raise public awareness of the drought. A very successful campaign using the State Highway System changeable message signs was kicked off statewide on February 11th as part of the Department's comprehensive Drought Action Plan.

As the California Department with the greatest water use, we have a challenging year ahead of us that will require leadership, effective water management, and the active engagement of Caltrans employees. We all must do our part to save water. While Caltrans recognizes the need for all Californians to use water wisely to maximize supplies this year, and also to protect water reserves in case drought conditions continue next year, Project Delivery is uniquely poised to assist.

"Caltrans has been and must continue to be a

leader in wise water management and water use efficiency," Keith Robinson, Principal Landscape Architect said. "Reducing water use has been standard practice for Caltrans for many decades, going back to the drought of 1976. But, given the severity of the drought this year, and the impacts starting to be felt across the state's economy, it is imperative that we step up conservation and water management efforts now. Caltrans has historically responded to conservation needs because it is the right thing to do. And due to the cost of water, water conservation also makes good business sense. It is time once again for us to work together to implement prudent actions to further reduce water consumption."

Project Delivery has been working in partnership with the Divisions of Maintenance and Administration since January to evaluate Departmental water consumption, identify opportunities for conservation and implement strategies and actions to immediately reduce water use. Caltrans is tracking local drought conditions and is implementing regionally specific actions.

Conservation Efforts

Caltrans is part of an effort that includes more than 500 statewide entities including local communities, State Departments and water purveyors that have already implemented water conservation actions, and are actively identifying additional strategies for further reducing water consumption. Director Dougherty kicked off our drought response with his February 6th memo, challenging the Department to meet the goal of 50% reduction in water consumption, much greater than the 20% required by the Governor's Drought Proclamation. The Director's memo was followed up by guidance memos from Project Delivery and Maintenance, all of which set in motion a coordinated and comprehensive Drought Action Plan. The Department's water use is in three

primary areas: irrigation of highway landscaping, building operations, and construction activities.

Caltrans has installed drought tolerant roadside planting for years, yet still, 75% of our water use is for landscape irrigation. To meet the Director's water conservation goal, the plan had to address irrigation practices and includes the following actions which when implemented will help us meet the 50% reduction goal:

Immediately reduce landscape water by modifying irrigation practices. Within two weeks of the Director's challenge, all irrigation controllers on the State Highway System were adjusted by District Maintenance personnel, in consultation with Landscape Architecture staff, to be at 50% of previous application rates. This one action has the potential to save up to 8 billion gallons of water annually. Key to the long term success of this strategy will be to ensure that water use does not significantly affect the health of highway planting. Caltrans is committed to retain the \$1.5B investment in roadside planting, much of which was installed as mitigation for highway construction.

Install new smart technology. The Department is investing over \$30M to upgrade irrigation system to smart controller technology which will water plants only when the plants need it and will shut off the system if there is a break in the irrigation lines.

Restrict new planting that is not essential. Every District has evaluated each current and planned project that includes planting to determine if it is essential, and therefore cannot be postponed until after the drought conditions ease. This was a significant effort to identify planting work; evaluate the need for the planting; consult with local cities and counties for their input; and to confirm with water purveyors that they can supply water to planting.

Let's not forget about the other 25% of Caltrans water use, which occurs in building operations and construction activities. In these areas there are fewer opportunities to reduce consumption, but every bit helps. So the Drought Action Plan includes the following:



Update plumbing fixtures to highly efficient models. A review of existing facilities is underway and some districts have already begun to change out faucets, toilets and other plumbing components.

Water conservation during construction activities. Substitute the use of water for dust control activities to chemical dust palliatives or use recycled water in lieu of potable water where available.

Individually and in partnership with various Divisions, Project Delivery has already had a hand in reducing Caltrans water use. Continued collaboration within Project Delivery and partnerships with Maintenance and Administration, as well as with local stakeholders, Caltrans will meet the needs of a thirsty state and ensure that we are using water in the most efficient manner possible.

Please visit Project Delivery online:
<http://www.dot.ca.gov/hq/projdev/>

Sustainable Solutions: The New Caltrans Section 106 PA

Programmatic Agreements (PAs) are increasingly touted as the best new thing for streamlining

environmental compliance. Caltrans though has long been a leader in promoting environmental and social sustainability principles through the use of PAs, and has excelled in partnering with regulatory agencies to simplify review of routine projects. For cultural resources compliance, the Caltrans Section 106 PA has among the broadest delegations in the nation.

Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effects of their undertakings upon historic properties and afford the Advisory Council on Historic Preservation (ACHP) and the State Historic Preservation Officer (SHPO) an opportunity to comment. Historic properties are buildings, structures, objects, sites, and districts that are eligible or listed on the National Register of Historic Places. Such properties vary from the Golden Gate Bridge to stone arch bridges to archaeological sites bisected by the state right of way. Caltrans complies with this law by following the provisions of our Section 106 PA.

In 1995, Caltrans and FHWA entered into the first major PA for the seismic retrofit program which delegated substantial responsibility to Caltrans staff. Due to the success of that delegation, Caltrans entered into a statewide PA with FHWA in 2004 that covered the entire Federal-aid Highway Program, including Local Assistance. Due to the professional expertise of Caltrans cultural resource staff, FHWA, ACHP and the SHPO were confident that further delegations would be met with similar success.

Caltrans negotiated with FHWA, SHPO, and ACHP to streamline submittals and delegate routine decision-making to Professionally Qualified Staff in the Districts. The PA does not free Caltrans from doing the work required to comply with the law; rather it streamlines the SHPO's role and adds predictability to project schedules. Caltrans'



success in implementing the Section 106 PA proved important when SAFETEA-LU offered the opportunity for Caltrans to take on NEPA responsibilities. Since Caltrans had excelled with one aspect of the environmental arena, FHWA was willing to delegate further authority. Many of the internal controls implemented under the Section 106 PA were rolled into the NEPA Assignment implementation.

Today Caltrans is entering into a new, updated Section 106 Programmatic Agreement that delegates even more responsibilities to Caltrans. This First Amended PA went into effect January 1, 2014 and will last for 10 years. With the continued vigilance and professionalism of our cultural resources staff, Caltrans will continue to maintain the high quality that we have come to be recognized for nationwide.

Above: Vince Mammano (FHWA), Carol Roland-Nawi (SHPO), and Malcolm Dougherty (Caltrans) signing the PA.

Please visit the Division of Environmental Analysis online:
<http://www.dot.ca.gov/hq/env/>

Innovation and Sustainability: Caltrans Receives LEED® Platinum Certification for Philip Raine Safety Roadside Rest Area

The Philip Raine Safety Roadside Rest Area (SRRA) in District 6 is an excellent example of a first-class project delivery by Caltrans and its partners. Located just north of the City of Tipton on State Route 99, the Philip Raine SRRA received the prestigious Leadership in Energy and Environmental Design (LEED) Platinum certification from the US Green Building Council. The SRRA joins the exclusive list of 120 other buildings in California that have received the coveted LEED Platinum certification, and also represents the first LEED project developed by Caltrans.

LEED utilizes a green rating system that awards points for credits related to the sustainable design, construction, operation and maintenance of buildings. Achieving enough credits gives a building its rating from the lowest level of certification up through silver, gold, and the highest level platinum. Designers throughout the world voluntarily pursue LEED certification to demonstrate the sustainability and “greenness” of their buildings. The Philip Raine project achieved a noteworthy 53 out of 69 LEED points possible based on a number of green design and construction features.

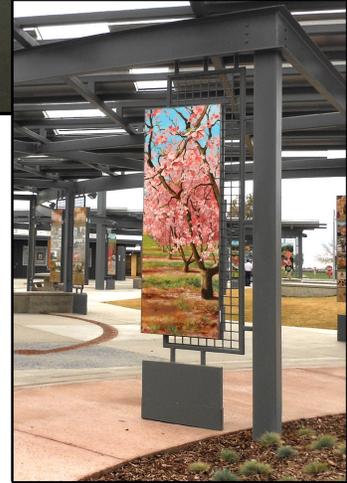
Historically, Caltrans SRRA designs include low-energy lighting and ventilation, self-contained water and sewage systems, durable building materials, and elements architecturally arranged to create a facility with a theme fitting the region. For Philip Raine, additional “green” features were incorporated in the design as a result of workshops and an international design competition sponsored by Caltrans and the Great Valley Center (an organization devoted to

the betterment of the Central Valley). The objective of the competition was to design a rest area with sustainable features, and to incorporate regional themes/local history into interpretive features and site amenities. Following the competition, the Phillip Raine Project Study Report identified a goal to achieve a minimum LEED Silver certification for the project.

District personnel, HQ Landscape Architects, and DES designers collaborated to create a sustainable and innovative design at the Philip Raine SRRA. Caltrans prepared the project plans and a consultant was retained to prepare the project specifications. Coordination meetings were held every 3 to 4 weeks to discuss project features, LEED credit requirements, address issues, and assign action items to keep this unique project on track. Throughout the design process, the team worked hard to meet LEED credit requirements and push the project to the next level – the gold certification. During the construction phase, Caltrans construction, the Contractor, and the LEED Manager worked closely together to acquire additional construction credits—ultimately advancing the project to the highest certification level possible—platinum.

The sustainable site features incorporated into the Phillip Raine SRRA included cleaning up existing hazardous materials, infiltrating storm water onsite (with detention basins and pervious concrete), landscaping with drought-tolerant native plants, reducing building heat island effect and reducing night time light pollution. Landscaping plant choices and high efficiency irrigation and plumbing fixtures





led to substantial water savings (estimated to be over 10 million gallons saved annually). Energy related features included high-efficiency lighting and HVAC units, day lighting of interior spaces, reduction in well pump operation (from water use reduction), on-site shade canopy with photovoltaic panels, thorough commissioning of all energy using systems, and purchasing green power. Sustainable material features included reusing the building skeleton, sending construction waste to recyclers instead of the landfill, and incorporating regional materials (those within 500 miles of the project) and materials with recycled content. Healthy indoor air quality was emphasized in design and construction by eliminating dust, moisture, and contaminants from the interior spaces of the facility. The design incorporates architectural and site design themes and interpretive displays that

inform the public of the sustainability concepts employed at the facility and exhibit the history of transportation in the region.

Through a collaborative effort between District 6, the Landscape Architecture Program, DES Engineers and Architects, Caltrans construction, and the Contractor, the project was able to achieve the highest LEED certification available - "LEED Platinum." This project epitomizes what is possible with good communication and positive attitudes. The entire project team deserves kudos for their hard work, perseverance, and dedication to completing this project and achieving the goal.

Please visit the U.S. Green Building Council website to see a LEED scorecard for the Philip Raine SRRA project:
<http://www.usgbc.org/projects/philip-raine-srra>

Division of Right of Way and Land Surveys



Sustainable Investments: Where the Project Meets the Property

The Division of Right of Way and Land Surveys (RW&LS) collaborates with others as a standard business practice to best deliver transportation projects both on and off the State Highway System. Partnering and economic sustainability principles are integral to all of the Division's functions. In fact, Right of Way agents have a dual fiduciary responsibility, meaning that both the taxpayer and the property owner are equally represented with regard to compensation for project required property rights and entitlements.

Land surveyors provide information that is the foundation of much of the work performed by the Project Development Team (PDT). Land surveyors partner with design engineers to provide information about the existing topography and terrain in a project area using maps and digital models. Land surveyors provide right of way agents with information about the rights associated with particular parcels through maps and boundary analysis, and they prepare the maps and legal descriptions for acquisitions and disposals. To facilitate construction activities surveyors set construction stakes that relate the engineer's design plan to the real world. Right of Way and Land Surveys partners throughout the project delivery process with property owners, utility companies, railroads, local, state, federal and tribal governments as well as each of the other divisions in Caltrans.

As a result of RW&LS partnering activities over the past year, the Division acquired 1,027 parcels, delivered 503 R/W certifications, plus acceptance or approval of hundreds of certifications for local

public agencies. Through the effective management of Caltrans real property assets, over \$43,332,000 in revenues accrued to the State Highway Account. Land Surveys partnering activities with the National Geodetic Surveys resulted in production of guidelines for anticipating the impact of sea level rise on the transportation system, and to update the Datums chapter of the Caltrans Surveys Manual, which is used by many public and private surveyors in California and around the world.

Enactment of the Buy America provisions of MAP 21 created challenges in partnering with local Utility Companies related to the purchase of utility relocation materials. The Buy America issue required an urgent response since more than nine billion dollars in transportation projects were indefinitely stalled because utility companies could not in good faith sign agreements containing Buy America provisions. The Division's immediate response included enlistment of Headquarters and District staff, members of the Legal Division, and assignment of a project manager. Outreach to utility companies, manufacturers and local public agencies smoothed the transition that followed. The team's efforts spearheaded a nationwide appeal to the Federal Highway Administration (FHWA), allowing a five month implementation window, during which time utility companies and transportation agencies could establish practices and locate compliant sources for utility relocations. These steps proved successful.

Upcoming partnering activities for the Division include local public agency participation in Right of Way Local Programs Functional Council, and meetings with two of California's main railroad partners. Land Surveys is providing ongoing right of way engineering support and guidance to the California High Speed Rail Authority. We look forward to the successful outcome of these liaisons as we strive to become ever more efficient and effective in our delivery of transportation projects in California.

Please visit the Division of Right of Way and Land Surveys online:
www.dot.ca.gov/hq/row/

**Project Delivery wishes to congratulate
Rick Land on his retirement.**





Caltrans Project Delivery is made up of several functional areas, which all provide a core purpose in solving transportation problems. Under the leadership of the Chief Engineer and the 12 District Directors, the functions of Project Management, Environmental Analysis, Design, Right-of-Way and Land Surveys, Engineering Services, and Construction work together to conceive, design, and build highways, bridges, and other transportation facilities for the traveling public.

<http://www.dot.ca.gov/hq/projdev/>

CALIFORNIA DEPARTMENT OF TRANSPORTATION
PROJECT DELIVERY QUARTERLY