



2012 CELEBRATION EVENT
*Engineering
Excellence
Awards*

MONDAY, NOVEMBER 7, 2011
HISTORIC BROWN PALACE HOTEL
DENVER, COLORADO


ACEC

AMERICAN COUNCIL OF ENGINEERING COMPANIES
of Colorado

2012 Engineering Excellence Awards

*Thank you for being a part of our celebration
that pays tribute to the year's best engineering achievements
by Colorado engineers.*

2012 ACEC/CO ENGINEERING EXCELLENCE AWARDS

THESE AWARDS ACKNOWLEDGE THE SIGNIFICANT ROLE
ACEC/CO MEMBER FIRMS REPRESENT IN CREATING SAFE,
SUSTAINABLE INFRASTRUCTURE THAT ENHANCES QUALITY OF LIFE
IN COLORADO AND ACROSS THE GLOBE.

NOVEMBER 7, 2011
HISTORIC BROWN PALACE HOTEL, GRAND BALLROOM
DENVER, COLORADO

2012 Engineering Excellence Awards

Grand Conceptor Award

This Award is only given when one project in the entire field receives very high scores from the judges – well above the other entries compared to all submittals.



2012 Engineering Excellence Awards

Elwha River Restoration, Port Angeles, WA
URS Corporation

Grand Conceptor Award

Client: City of Port Angeles and Clallam County, Washington



The ACEC/CO *Grand Conceptor Award* was presented to URS Corporation for the “Elwha River Restoration” project, located in Washington state. This award is only given when one project in the entire field receives very high scores from the judges – well above the other entries compared to all submittals. The Elwha River Restoration began with the passage of the Elwha River Ecosystem and Fisheries Restoration Act in 1992, determining that the river be restored to its natural condition and ecosystem.

Accomplishing this task required the removal of two obsolete hydroelectric dams originally constructed in the early 1900s. When the dams were removed, 18 million cubic yards of sediment trapped behind the dams would be released, impacting the water quality of the current water users – which would cause a major detrimental impact to water quality and wildlife.

To mitigate the impending water quality issues and protect threatened fish species, URS Corporation served as the multidisciplinary consultant for the planning, design, construction support and startup of a fish-friendly surface water intake structure and two major water treatment plants.

The completion of these projects by URS between 2001 and 2010 now ensures clean water supply for the City of Port Angeles, Washington, the Lower Elwha Klallam Tribe (LEKT) and the threatened and endangered fish species during and after dam removal, a paramount importance in advancing the vision of a fully restored Elwha River.

2012 Engineering Excellence Awards

Georgetown Water Treatment System Improvements
Georgetown, CO
Frachetti Engineering, Inc.

Engineering Excellence Award

Client: Town of Georgetown, Colorado



In 2008, Georgetown's drinking water system was in trouble. With water filter technology from the 1960s, the system was no longer able to provide reliable treatment and water storage for the town's 1,100 residents and 1,500 daily visitors.

With an extremely limited budget, the Town planned to have Frachetti Engineering, Inc. make small, incremental improvements over many years. However, using innovative approaches, Frachetti exceeded its client's expectations by applying progressive strategies and was able to provide Georgetown with critical replacement membrane filters, a robust and low maintenance intake screen, and construction of a new, secondary water tank, as well as other comprehensive improvements that will meet the Town's needs for many decades to come. Delivering the comprehensive scope of work was made possible by Frachetti assisting the Town with efforts to obtain American Recovery and Reinvestment Act Funds to cover most of the total project expenses. Georgetown now has safe and reliable drinking water for its residents and visitors.

Mount Carmel Church Renovation, Trinidad, CO
CTL/Thompson, Inc.

Engineering Excellence Award

Client: Kip Hampden, Inc.



CTL/Thompson, Inc. helped to lead its client through the critical first stages of this unique project, an approximately \$7 million renovation of the historic Mount Carmel Church in Trinidad, Colorado. Originally built in 1907, the church is to be transformed into a health and wellness center for the community.

The renovation required a full basement beneath the original structure to accommodate the addition of a wellness center adjoining the chapel.

CTL provided the geotechnical design criteria for a foundation system that would ensure the historical church would stand its ground for another century. During the process, CTL reinforced the church through a temporary soil nail wall and micropile underpinning to install a new base, a technique that is not used very often but proves highly effective for projects of this nature.

2012 Engineering Excellence Awards

Gold Camp Tunnel Repair & Historical Renovation
Shannon & Wilson, Inc.

Engineering Excellence Award

Client: Teller County Public Works Department



The Colorado Springs and Cripple Creek District Railway was an operating railroad from 1901 to 1920 and was subsequently converted into an automobile toll road, Gold Camp Road, in 1924. Of the nine original tunnels along the railroad, only one remains in use today by local residents and tourists for access into the mountains from Colorado Springs. When the tunnel was becoming progressively deformed and unstable, Teller County was faced with either permanently closing the popular tourist route, or applying 20 percent of its annual road budget to a single project.

Teller County received a grant from the State Historical Fund to keep the road open with one key condition – they must preserve the historical character of the tunnel, including the original exposed timber supports. Shannon & Wilson provided geotechnical expertise and designed a repair for the tunnel that involved constructing and salvaging the existing timbers, re-supporting the roof of the tunnel and reconstructing the original timber frame using as many of the original timbers as possible. Now both the integrity of the structure and its historic pedigree are preserved for new generations to explore.

4th Street Bridge, Teller County, CO
FIGG

Engineering Excellence Award

Client: Colorado Department of Transportation



Colorado's new record-setting highway span sits at the center of the 4th Street Bridge as a gateway to historic downtown Pueblo. The bridge, designed for the Colorado Department of Transportation by FIGG crosses 28 sets of active heavy rail tracks in the Pueblo Rail Yard and the Arkansas River. To span the 28 tracks, a single long span was required, resulting in the state's longest highway span of 378 feet. Another long span bridge preserves the river with no piers in the water.

To maintain busy rail yard operations during construction, FIGG developed a unique design and construction solution – building from above using balanced cantilever construction. Project aesthetics were selected by the community and the bridge opened to traffic in December 2010, an impressive six months ahead of schedule.

2012 Engineering Excellence Awards

Woodmen Road/Academy Blvd. Interchange
Colorado Springs, CO
URS Corporation

Engineering Excellence Award

Client: City of Colorado Springs, Colorado



The most difficult portion of the extensive Woodmen Road Corridor Improvement project was the Woodmen Road and Academy Boulevard Intersection. The need to improve this at-grade intersection was critical as more than 100,000 cars a day pass through this vibrant commercial and residential center. Two past improvement initiatives had failed to pass, which meant in order to have this vital improvement initiative implemented, achieving stakeholder buy-in would require not only a design that would fit into a small interchange footprint, but also a commitment to public involvement. A 300-foot wide, inverted single-point urban interchange with skewed ramp configurations was the best option to fit the small footprint, improve traffic flow, and minimize disruption to the highly developed area. Stakeholders used a model-home approach to select aesthetic treatment options to express the community's style. By being sensitive to community needs, the URS team developed a true partnership with the City and trust from the community. URS provided a solution to the puzzle that the City had been struggling with for more than 25 years.

Delta Wastewater Effluent River Diffuser, Delta, CO
URS Corporation

Engineering Excellence Award

Client: City of Delta, Colorado



To meet the requirements of a new permit for discharging wastewater effluent into the Gunnison River, The City of Delta faced several treatment plant upgrades and costly improvements. In addition to the discharge permit, the presence of threatened and endangered fish species compelled a diffuser to meet river water quality requirements.

URS Corporation designed and launched Delta's new wastewater effluent river diffuser with enhanced dispersion to meet Gunnison River water quality standards.

The new diffuser eliminates the need for additional expensive treatment processes. This unique project was completed two and a half years before deadline and was \$364,000 under budget. The innovative processes utilized for the project and the significant time and budget savings have inspired others to consider similar approaches to pending infrastructure improvements.

2012 Engineering Excellence Awards

Georgetown Wastewater Treatment System Upgrade
Georgetown, CO
Frchetti Engineering, Inc.

Honor Award

Client: Town of Georgetown, Colorado



The towns of Georgetown and Silver Plume, as well as numerous downstream communities have an essential connection – their mutual reliance on water resources in Upper Clear Creek. At the top of watershed, the Georgetown wastewater treatment facility was at the end of its life and unable to meet upcoming water quality standards. With limited funding, Georgetown planned to make only incremental repairs and improvements. But with the assistance of Frchetti Engineering, the Town was able to receive funding to pursue long-term improvements and innovative solutions. Advanced, sustainable technologies were implemented to meet the many challenges of limited space, cold and hard-to-treat wastewater and strict water quality standards.

Lassen Volcanic National Park Water Treatment Plant, Mineral, CA
Hatch Mott MacDonald

Honor Award

Client: National Park Service



Heavy spring and fall rain in Lassen Volcanic National Park, California, often resulted in water turbidity violations and State-ordered boiled water notices at the Park's headquarters water treatment plant. Hatch Mott MacDonald was selected to evaluate treatment alternatives that would allow the Park to consistently comply with State regulations and to eliminate water quality related shutdowns. Ultimately, microfiltration was identified as the preferred treatment technology and a new water treatment facility was designed by HMM. The new facility maintains a small footprint in a sensitive environment and made sustainable use of the existing water treatment plant structure.

Edwards Wastewater Treatment Plant Solids Improvements, Edwards, CO
Tetra Tech, Inc.

Honor Award

Client: Eagle River Water and Sanitation District



The first generation Auto-thermal Thermophilic Aerobic Digestion, or ATAD, system at the Waste Water Treatment plant in Edwards, Colorado, was installed in the 1990s and was plagued with problems including strong odors, high recycle loads and difficult operation. Tetra Tech collaborated with Eagle River Water and Sanitation District to design and build the first, next-generation ATAD facility that uses a mixing and air control system that maintains a truly aerobic environment that eliminates production of odor compounds. The ATAD process treats the solids to produce a completely sustainable "Class A" biosolids product in which 100 percent can be reused as fertilizer.

2012 Engineering Excellence Awards

Improvements at the Grand Canyon, Grand Canyon National Park, AZ
HDR Engineering, Inc.

Honor Award

Client: Central Federal Lands Highway Division



Grand Canyon National Park is a treasured natural wonder with more than 4.5 million visitors every year. Mather Point and the visitor center on the south rim is a popular place for visitors to begin their experience. Thanks to HDR that experience has now greatly improved. In relocating the road, constructing parking lots, and adding shuttle facilities, the HDR team creatively used the available land to guide vehicles, tour buses and shuttles into designated areas to improve flow and reduce traffic congestion. The team used cost-effective methods including recycling and reusing of materials. These improvements created a safer, more intuitive and accessible experience or one of the greatest sights in the world.

Berry Biodiversity Conservation Center, Laramie, WY
M-E Engineers, Inc.

Honor Award

Client: Malone Belton Abel, P.C.



M-E Engineers provided the mechanical, plumbing, electrical and technology infrastructure engineering for the Berry Biodiversity Conservation Center – a 38,000 square foot LEED Gold certified laboratory for the University of Wyoming. The university challenged the design team with providing a state-of-the art research facility that would be flexible enough for the constantly changing needs of its staff and reflect the mission of environmental conservation.

This project is a great example of tailoring MEP design to the specific project and location. Every site has characteristics that provide opportunities to save energy. For the Berry Center, the site allowed for the first floor to be built into the ground to provide greater insulation. Also, the cool dry climate was optimal for using natural ventilation systems, rather than mechanical refrigeration. Because M-E was able to think “out of the box,” the Owner’s request, the users’ comfort and the environmental benefits of dramatically lowered energy use were all accomplished in an elegant and creative manner.

2012 Engineering Excellence Awards

RMA National Wildlife Refuge Visitor Center, Commerce City, CO
URS Corporation

Merit Award

Client: Commerce City, Colorado



In keeping with its mission to “conserve, protect and enhance fish, wildlife and plants for the American people,” the U.S. Fish and Wildlife Service wanted an eco-friendly, multi-purpose Visitor Center that would serve as a gateway to the Rocky Mountain Arsenal National Wildlife Refuge and as a center for learning about conservation. URS helped create this vision by designing a LEED certified facility with every element of the building design assessed for sustainability. URS Corporation designed a state-of-the-art geothermal heating and cooling system that included heat recovery technology and also provided a 58 Kilowatt solar system. Interpretive signs throughout the building highlight energy efficient technologies and sustainable practices that were utilized.

Elmer’s Twomile Greenway, Boulder, CO
Centennial Engineering, Inc.

Merit Award

Client: City of Boulder, Colorado



The City of Boulder needed to address several issues with the Elmer’s Twomile Greenway, including short- and long-term flood mitigation, water quality enhancement, protection and restoration of wetland habitats, and improvements to pedestrian and bicycle mobility and safety. Despite the difficult technical challenges due to a narrow work zone between high-density residential and commercial properties, Centennial Engineering successfully addressed the listed objectives and delivered. The project removed over 50 structures from the floodplain to mitigate long-term flood potential and reduced immediate flood hazard by separating the creek and irrigation flows.

Thermal Shield Cooling System Upgrades, Location Confidential
Merrick & Company

Merit Award

Client: Confidential



Merrick was contracted to redesign the cooling system for a 20-MW thermal test reactor for a confidential client. The client owns and operates a test reactor that generates neutrons that can be used for a variety of research programs. The reactor’s radiation shield had a cooling system that had developed leaks in its plumbing. Merrick’s engineers and designers were responsible for the complete upgrade of a new Thermal Shield Plumbing System that moves water through the cooling loop using a vacuum rather than pressure pump that was used in the original configuration.

2012 Engineering Excellence Awards

Barrenlands, Bombs and Boundary Surveying
Yuma, Pima & Mariposa Counties, AZ
Merrick & Company

Merit Award

Client: US Army Corps of Engineers, Mobile District



The Barry M. Goldwater Range and Luke AFB, located close to Phoenix Arizona, is the second-largest aviation training range in the U.S. Despite 70 years as a military reservation, a boundary survey was never performed on this massive tract. In 2010, Merrick signed a task order to survey and monument the 1.05 million acres of land. The challenges required creative project planning and execution. The rough terrain and long distances traveled mandated Merrick to use various transportation methods including all-terrain vehicles, horseback, four-wheel drive truck, hiking and helicopter. The active bombing range required coordination with military operations.

Enhancing Airfield Safety with LiDAR Technology, Dobbins ARB, GA
Merrick & Company

Merit Award

Client: Dobbins Air Reserve Base, Georgia



A major concern for airfield operations is the identification, location, and mitigation of obstacles posing safety hazards to aircraft during approach, landing, taxi, take-off and departure. Past methods used visual surveys to identify safety violations. Merrick's 3D geospatial data and remote sensing approach was the "first of" used by Dobbins Air Reserve Base in the congested Atlanta airspace. This approach reduced data collection time, decreased safety issues, and increased reliability of obstruction analysis. Dobbins' Chief Engineer stated, "The enhanced accuracy of location, height, and extent of obstacle violations coupled with the 3D visualization capability will provide a vast improvement in airspace situational awareness."

Las Vegas Street Wastewater Treatment Facility Alternative Disinfection Project
Colorado Springs, CO
Camp Dresser & McKee, Inc.

Merit Award

Client: Colorado Springs Utilities



Operated by Colorado Springs Utilities, the Las Vegas Wastewater Treatment Facility has provided wastewater treatment and water reclamation for the Colorado Springs area since the 1930s. Anticipating future stringent water quality standards and criteria, Utilities evaluated options for improving the treatment process and finding disinfection alternatives. CDM utilized innovative methods to design and construct the largest ultraviolet wastewater disinfection system in the State of Colorado. Implementation of UV disinfection means that a gaseous chlorine system, with its associated public safety risks, has now been eliminated.

2012 Engineering Excellence Awards

City of Aurora Wastewater Lift Station and Interceptor, Aurora, CO
Hatch Mott MacDonald

Merit Award

Client: City of Aurora, Aurora Water



The City of Aurora faced the challenge of providing wastewater service for two developments located at the boundary of their service area. Providing service would require four miles of interceptors, force mains and a new lift station. Hatch Mott MacDonald identified the most cost-effective solution by planning and designing a new wastewater lift station to pump its wastewater from and adjacent wastewater district joint interceptor and convey it to Aurora's existing collection system. Collaboration of the service providers will mitigate risks of sanitary sewer overflows to the popular Cherry Creek State Park. Aurora will save between \$2 - \$4 million in capital project costs through implementation of Hatch Mott MacDonald's design.

History Colorado Center, Denver, CO
MKK Consulting Engineers, Inc.

Merit Award

Client: Cushman & Wakefield of Colorado



The building housing the Colorado History Museum was undersized and outdated. To preserve the artifacts and history within, a new structure was needed. Facing strict requirements for spaces housing such delicate artwork and artifacts, MKK creatively applied existing technology to achieve their many objectives and provide a highly energy efficient structure. The team also applied an all-encompassing energy management system to provide real-time control of all of the buildings systems and energy usage. MKK designs use everyday equipment in unique ways to serve a variety of spaces while staying within the allocated budget.

Edwards Interchange Upgrade, Unincorporated Edwards County, CO
Felsburg Holt & Ullevig

Merit Award

Client: Eagle County, Colorado



A fresh approach to the Edwards Interchange Upgrade was used to resolve the traffic congestion faced by Edwards, Colorado, a popular mountain community in Eagle County. The terrain, marked by steep grades and other constraints, compelled the stakeholders and the Felsburg Holt & Ullevig design team to think beyond the usual signalized intersections. They realized that roundabouts presented a more flexible, far less expensive and sustainable solution. Felsburg Holt & Ullevig's innovative design of three multi-lane and one single-lane roundabouts alleviated traffic congestion at the Edwards interchange – and now successfully serves those who live, work and play in the Edwards area.

2012 Engineering Excellence Awards

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