

## **ACE AGE Awards Submission 2018 Entry Form**

**Category:** Category 8: Best Building Project - General Contractor (Under \$10M)

**Contractor:** PCL Construction Services, Inc., Kimberly Boshart, kmboshart@pcl.com

**Project Name:** Boulder Civic Area

### **Project Description:**

In the heart of Boulder, Colorado, renovations are complete on the downtown historic Civic Area Park. The green space served the city well as the home of the farmer's market, festivals, and recreational activities. In 2015, the Boulder City Council adopted the new Civic Area Master Plan, which delineated a long-term vision to transform the civic area into a space that reflects the community's shared values and diversity, while also providing opportunity for people to gather, eat, learn, deliberate, and innovate. PCL Construction was hired to help bring the City's vision to reality.

The Civic Area Park is located across Boulder Creek creating a connection between the University of Colorado Boulder and the downtown Boulder area. Reconstructing the entire 13-acre area with grade changes, the project overall included sandstone concrete bike paths, rain gardens, and decomposed granite walkways. A primary 'spine' was created across a Signature Bridge over Boulder Creek connecting the North and South sides of the park, creating a commuter trail from Arapahoe Street to Canyon Boulevard. Most significantly, a Nature Play component was included as a playground for children. This play area includes various playground equipment, such as a wood tree house, rope bridge, stacked wood climbing structure, slide hill, and water play elements.

New earthen mounds and wetland buffers changed the existing landscape of the park and provided enhanced views of the creek from custom cordwood benches made of wood repurposed from the trees that were removed during the demolition process. These salvaged trees undergo a nine-month drying process to achieve a required moisture content necessary for the fabrication process.

The project was delivered back to the City of Boulder ahead of schedule and on budget.

### **Excellence in Project Execution and Management/Team Approach:**

A teamwork approach was on display throughout the Boulder Civic Area project. The construction involved intensive coordination with the City of Boulder and the public to minimize disruption and maintain accessibility through the much-used Boulder Creek Path. Additional challenges revolved around working in a designated 100-year floodplain on both sides of Boulder Creek.

A potentially significant challenge arose around existing conditions. The documents showed an existing electrical line running through the project at a location around one of the two new pedestrian bridge abutments. Within the first month of the project, PCL determined during locates that the utility did conflict with construction and would need to be relocated. The City contacted Xcel Energy but the relocation could not occur for six months. If the project team waited for utility relocation, it could have resulted in a two-month schedule delay

PCL and its subcontractors evaluated the original project phasing with an eye towards resequencing the excavation and working around the existing utility while allowing for the required public access through the project site. The solution eliminated the need for an extended schedule by creating a horizontal bore for the new utility routing underneath Boulder Creek. This partnership contributed to a project that was completed ahead of its original schedule and installation expectations were met, a mock-up was completed for several scopes including the cordwood seat walls (described below), stabilized decomposed granite, and colored and textured concrete. The mock-ups allowed for pre-installation review and approval of these scopes, thereby establishing the standard for final product installations

Given the project's location in a 100-year-old flood zone where much of the land lies within the high hazard zone and conveyance zones, meeting final grade elevations took on higher importance to ensure installations met the no-rise condition design. Laser scanning was utilized on the project to assist in quality control which resulted in all final grades meeting the specified requirements.

#### **Construction Innovations/State-of-the-Art Advancement:**

Several trees removed from the park were salvaged and introduced back into the park in a unique way. Due to restrictions on the wood species leaving Boulder County, a solar kiln was constructed on site to dry the wood to a required moisture content. From there, a local artisan

placed the salvaged wood logs inside mortar and steel framing to serve as benches for the public. These benches, called cordwood benches, are located along a new decomposed granite path and provide a spot for visitors to relax and enjoy the park. Additional larger sections of the salvaged trees were dried in a similar manner and installed as log benches throughout the park.

The site's location within a Floodplain required floodplain modeling during design to ensure grade elevations did not increase effects to the surrounding area in the event of a flood. These design grades were a critical component to the final installations meeting Owner requirements. PCL utilized 3D laser scanning during construction as another layer of its quality management system to help guarantee final grades matched design grades.

The project is in a high-trafficked area near the heart of downtown Boulder. Creative planning and phased logistics allowed the public to safely participate in regular activities while construction occurred, and provided opportunities for the public to feel engaged in the construction process. Phase changes were communicated early and often through graphic representations issued electronically to City Employees, CU and the public through the City's Communications Department. When the bridge was placed, the media and public watched the installation from the other side of the construction fence.

### **Environmental/Safety:**

The project site is split by Boulder Creek and not only resides in the 100-year floodplain, but the majority of the site also fell into High Hazard and Conveyance zones. As such, environmental requirements took on a higher level of importance. Additional Advanced control measures such as on-site storage areas being limited to small flood shadow areas; tethered, break-away site fencing; not allowing any on-site fuel or chemical storage; and rigorous storm water inspections were implemented to mitigate impacts to the project and the surrounding area in the event of a flood.

PCL's safety program was utilized through the duration of the Boulder Civic Area project. This program is more than adhering to the rigorous compliance, inspection, and documentation requirements of a safety manual. PCL's safety program creates a culture where all workers are empowered to care for their own safety, workers look out for one another, management is

engaged in and committed to the safety of all workers, and safety is measured on behaviors, not just statistics.

The program's core revolves around conducting a Job Hazard Analysis (JHA) prior to the start of any major scope of work, completing a Pre-Job Safety Instruction (PSI) at the start of each task and after break, and conducting rigorous daily inspections. While these efforts promote pre-planning and hazard awareness, our team also focuses on worker engagement and building a culture of safety. The team implemented an "Adopt-A-Crew" safety program and focused on our readiness reviews before each scope of work started.

The "Adopt-A-Crew" program aligns PCL personnel with a targeted subcontractor to help them prepare and discuss their daily PSI with their crews. This on-the-ground level of involvement illustrates management's commitment to safety and provides an informal setting for the workers to ask questions, ultimately bridging the gap between management and individual workers to enable effective communication.

Readiness review meetings were conducted with each subcontractor at each scope of work to ensure field leaders understood the work and the associated risks involved. Each subcontractor would walk PCL through their work plan and JHA to ensure alignment. Any areas for improvement were addressed immediately instead of when the workers showed up ready for work. PCL's strong safety culture propelled the team to achieving an excellent safety record.

**Excellence in Client Service and/or Contribution to Community:**

For a project to successfully contribute to the community, the community needs must play a significant role in the early planning and design process. The Boulder community was engaged throughout the process and provided feedback that helped shape many different aspects of the design. With key engagement, innovative ideas came naturally and reflected wider community values.

Integrating Boulder Creek into the design was important to the community. This was accomplished through dynamic grading to create meaningful gathering spaces and creek

approaches. The design team incorporated sustainable and resilient design practices that respected the project's location in a significant floodplain with existing wetlands and tree canopies.

**Photos:**









