

Category: Best Building Project – General Contractor (\$40 - \$70 Million)

Contractor: Saunders Construction

Project Name: City Park Golf Course Redesign

Balance can be defined as a condition where different elements are equal or in the correct proportions. The City Park Golf Course (CPGC) Redesign project is a story of balance – one where the six major elements all had to be considered equally.

As one of four projects in the *Platte to Park Hill Program*, the \$45-million, 136-acre CPGC project focuses on flood prevention and improved water quality in northern Denver. CPGC lies in the middle of a flood plain known as the Montclair Basin. It is one of the few places in Denver where storm water gets trapped with no adequate system to detain and channel it, resulting in thousands of homes suffering devastating damage during flood events. To resolve the flooding issues while maintaining its original purpose, the Saunders team delivered an updated 18-hole golf course with a full driving range; excavated and graded over 300,000 cubic yards of dirt for storm water detention and treatment accommodating up to a 100-year flood event; preserved over 250 trees and planted 750 new trees; constructed a new, modern clubhouse and maintenance facility on track to achieve LEED gold certification; and replaced vital 85-year-old underground civil infrastructure.

Solutions of Special Projects: Work on CPGC started during procurement with a design-build lump sum proposal. Not yet awarded the project, the Saunders team knew the hard work to understand all six major elements of the project was important to deliver a solution-packed proposal. Months before the proposal deadline, the team including the Saunders preconstruction and construction staff, golf course architect and contractor, clubhouse architects, civil and structural engineers, landscape architects, and community outreach consultants met numerous times in “big room” meetings to develop a plan including drawings, estimates, schedules and approaches that they would have to execute just four months later.

Saunders was awarded the project in July 2017 and started work on November 1. To meet the compressed design timeline, the team split and divided bid packaging, with a total of 17 design

packages. These packages included the individual designs for sanitary sewer, excavation and grading, water detention, golf course layout, vertical structures, tree reforestation, landscaping and several others. This meant that design progression – requiring approval of over 10 stakeholders and third-party quality assurance reviews – was being completed incrementally while construction was ongoing.

The 2018-2019 winter and spring seasons were some of the coldest and snowiest in recent years with the last measurable snowfall on May 21 and 48 inches of total seasonal snowfall. Grass seed needs 3-4 months of consistent 60-degree Fahrenheit or higher evenings in order to properly germinate. This weather created a challenge to complete the planting of CPGC's turf. The team used sod where feasible and additional staffing for seeding operations to meet the schedule.

Excellence in Project Execution and Management/Team Approach: The CPGC project is unique to any other construction project as it has both a significant horizontal and vertical scopes. This required a specialized team in horizontal and vertical design and construction respectively.

It was imperative for the team to effectively partner and balance the sometimes-competing priorities of the stakeholders including, but not limited to, the internal City of Denver departments of Public Works, Parks and Recreation, Golf, Wastewater Management, Forestry, Public Health and Environment, as well as external organizations of Denver Water, First Tee of Denver, Historic Denver, Denver Zoo, and Denver Museum of Nature and Science. The project team hosted two monthly stakeholder coordination meetings, one for horizontal and one for vertical work, to ensure open dialogue and enable decision making.

The team also worked collaboratively with the Design Working Group (DWG), comprised of individuals representing various community organizations, neighborhood associations and the golfing community. Established by the City, the DWG forum helped define design requirements to benefit the entire community. The DWG provided design input on golf routing layout, finishes of the clubhouse, location of new trees, and the interpretive exhibits that represent CPGC's

history. Saunders ensured all lead design team members were present at the meetings to facilitate streamlined discussion with the DWG members.

Construction Innovations/State-of-the-Art Advancement: Saunders deployed the use of drone LIDAR technology for measuring the existing tree canopy and the site topography. This data was essential in understanding the tree size, location and health. The team then determined what trees to cut down and the exact placement of tree protection, required to be 1.5 times the size of the canopy. Understanding the existing topography allowed engineers to accurately determine the total size and depth of the excavation.

CPGC's clubhouse is one of the only in Denver with a structural Cross Laminated Timber (CLT) roof panel and rafters. The City wanted the beautiful CLT wood grain exposed without any obstructions of mechanical equipment and electrical lines typical of exposed ceilings. This required extensive use of building information modeling (BIM) to develop the means and methods of constructing the roof. The team constructed the roof out of standard sequence with the structure first, mechanical equipment second and the roof last. Rough in of electrical and low voltage systems are sandwiched between the metal roof panel and the CLT ceiling. Additionally, all of the mechanical and plumbing lines run below grade through the golf cart storage basement. All embeds were modeled prior to construction ensuring proper location prior to the placement of the cast-in-place concrete slab.

Environmental/Safety: With 136 acres of massive excavation, three new vertical structures, protection of over 250 trees, and the replacement of major water utilities underneath 23rd Avenue and York Street – safety had to be at the forefront of every effort. Planning the work entailed subcontractor safety coordination meetings and comprehensive site logistics plans including designed hauling routes. These haul routes included details on traffic direction, authorized vehicles and times of use. The team used daily pre-huddle meetings to raise awareness of unique safety hazards including trenches, concrete structural forms, tree protection and large excavation equipment. Equipped with a comprehensive plan and on-site training, the team worked 200,000 manhours without a single lost time incident.

CPGC's primary environmental benefit is the ability to detain storm water during a 100-year while using innovative techniques to ensure downstream water quality. Saunders and the civil engineers devised a complex system that detains the water and slowly releases it in better condition than when it came in. Water quality features include a 2,000-lineal-foot water treatment channel and a 2,200-cubic-foot trash vault – the first ever built of this size and function. This trash vault channels the water out of existing pipe, collects the debris and conveys clean water back into the system.

The existing trees were vitally important to the City and community. The team developed a tree protection plan using chain link fences and signage to prevent equipment from hitting the trees, and each tree was hand watered weekly. A healthy, responsible reforestation plan that complies with the City's forestry guidelines includes 760 new trees. The new tree species were picked specifically for their resilience to environmental stresses.

Additional environmentally-friendly features include LEED gold certification and a roof-mounted photovoltaic system on the maintenance facility. The golf course irrigation uses non-potable water and high-tech sprinkler heads that are pre-programmed to water only when necessary. Each individual sprinkler head can be controlled by a mobile device, enabling area-specific watering.

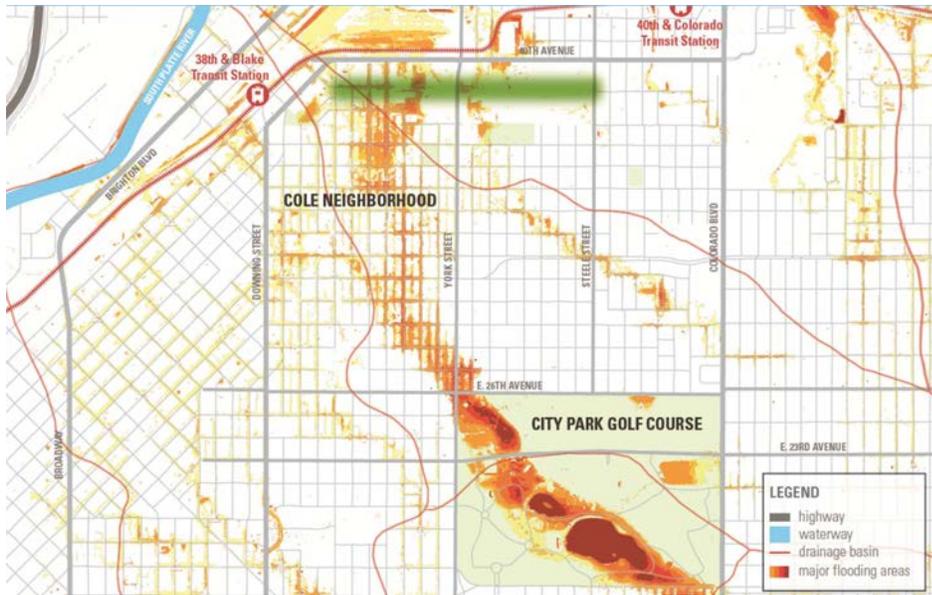
Excellence in Client Service and/or Contribution to Community: Starting in 2016, the City undertook a robust public outreach effort, with some controversy. The contract outlined a public information program to help the City promote the benefits of the project and continue open communication with the tuned in community. Saunders did not hesitate and partnered with the City to continue the public outreach efforts.

With a locally-based community outreach consultants and Saunders' internal marketing and communications team, the outreach strategy included many public engagement forums, monthly website updates, fact sheets and collaterals, door-to-door flyer distribution, news media coordination, hotline calls and emails, one-on-one meetings with locals, and a community giving program called "Art of Community." Renowned artist Darrell Anderson worked with 15 local

schools to create art from trees removed from CPGC. The program culminated with a jury of the work created, prizes for the top artwork, and the grand prize winner's piece is displayed in the new clubhouse. All-in-all, Saunders' public outreach effort included:

1. Sending 22,700 email blasts
2. Distributing 20,100 door hangers
3. Hosting 8 public and design workgroup meetings with over total 260 attendees
4. Responding to over 90 hotline calls or emails
5. Monitoring and coordinating 105 pieces of news media coverage
6. Donating cut down trees to the Denver Zoo for habitat exhibits, Denver Parks and Recreation for mulch, and several local artists
7. Accommodating numerous site tours for City staff, professional association conferences and the news media
8. Working with the Denver Police Department for an active shooter training in the former clubhouse prior to demolition

The project delivered by the Saunders design-build team now effectively functions to reduce flood risks in nearby neighborhoods, while ensuring CPGC continues to be one of Denver's crown jewels for years to come.



City Park Golf Course: Photo 1



City Park Golf Course: Photo 2



City Park Golf Course: Photo 3



City Park Golf Course: Photo 4



City Park Golf Course: Photo 5



City Park Golf Course: Photo 6 (LiDAR scan)



City Park Golf Course: Photo 7



City Park Golf Course: Photo 8



City Park Golf Course: Photo 9