

SOUTHERN DELIVERY SYSTEM

MONTHLY REPORT



The Southern Delivery System (SDS) is a regional project to bring water from the Arkansas River to Colorado Springs, the City of Fountain, the Security Water District, and the Pueblo West Metropolitan District. Phase 1 of this multi-phase project includes all of the components necessary to begin delivering water to the partner communities by 2016. This report summarizes accomplishments from the start of construction to June 2015, plans for July 2015, and key performance details for Phase 1.

Water Treatment Plant & Finished Water Pump Station



Last concrete pour for sedimentation basins

and energize (turn on power to) the electrical building at the finished water pump station.

Accomplishments: Completed filling the 10-million-gallon raw water storage tank for testing; began filling the 7-million-gallon finished water storage tank and finished water pipe for testing; completed roof installation over maintenance bays and continued roofing activities over operation areas; began final piping connection to Finished Water 1A pipeline; completed pouring concrete for all sedimentation drying beds; and finished tunneling under Marksheffel Road and began installation of carrier pipe; approximately 86 percent of construction is complete through June at the water treatment plant. **Upcoming:** Complete filling the 7-million-gallon finished water storage tank and finished water pipe for testing; finish drywall installation in upper level of control room; complete installation of waterproofing barrier on top of the finished water tank;

Raw Water Pump Stations



Juniper Pump Station construction

Accomplishments: Completed all 25 welded joints on the 66-inch diameter pipe, passed all weld and pipe inspections, and completed installation of medium and low voltage power cables at Juniper Pump Station; began filling the forebay tank (regulates fluctuation of water) for testing and finished the walls and tile floor in the communications room at Williams Creek Pump Station; and completed the connections to North Pipeline 1C and 2A and continued installation of metal wall panels at Bradley Pump Station; approximately 89 percent of construction is complete through June for all three pump stations. **Upcoming:** Run all motors at full speed for testing and continue installation of brick veneer at Juniper Pump Station, begin installation of exterior metal wall panels and continue installation of conduit in electrical room at Williams Creek Pump Station, and complete forebay tank testing and finish the floor in the communications room at Bradley Pump Station.

Commissioning & Startup

SDS staff worked with Colorado Springs Utilities Water Operations staff to evaluate the readiness for commissioning and testing of the south section of the SDS pipeline in June. These activities included reviewing procedures for pipeline fill operations and developing a protocol for checking appurtenances and valve positions (e.g. blow-off valves, air-release valves) in preparation for planned testing of the Juniper Pump Station in July. In addition to checking appurtenances, valve positions, and general readiness of the pipeline for filling and testing, the team collaborated to safely drain a section of the pipeline that held water from earlier testing. The draining operation was carefully managed to stay in compliance with all permit requirements. As part of commissioning and startup planning, a workshop will be held in early July to coordinate between SDS and Colorado Springs Utilities Water Operations staff regarding the fill plan, health and safety plan, environmental considerations, operational coverage, and response capability prior to the start of pipeline fill and pump testing.



Water Operations staff preparing for commissioning and testing

SPOTLIGHT

Planning, Partnerships Make 50-mile Water Pipeline Successful

The following is an excerpt from *Municipal Sewer & Water*, written by Jim Force, that was published June 22, 2015. To read the entire article, go to: http://www.mswmag.com/online_exclusives/2015/06/planning_partnerships_make_50_mile_water_pipeline_successful

Keys to success

Value engineering, innovative purchasing arrangements, and extensive public outreach have been the keys to success, according to (John) Fredell and SDS public outreach manager Janet Rummel. The measures are expected to bring the project in at more than \$150 million (\$156 million) under the original budget of nearly \$1 billion.

Fredell is proud of the value engineering approach taken on all aspects of the project and has examples to prove his point. “We got ideas from many people on how to scrub this project and make everything more efficient,” he says. “We looked for ways to do things better, smarter, faster.”



One result was rejection of the original plan to double-lap weld all pipe section joints, reserving the stronger welds for critical areas under roadways and at other stress points. The majority of the welds are single lap, and were performed in situ by welders who crawled up inside the pipeline to make the welds. The change has resulted in a 10 to 20 percent reduction in the cost of each section of pipe, as well as less disruption at the surface.

The new water treatment plant in Colorado Springs, scheduled for 50 mgd with the potential to expand capacity to 100 mgd, is another example. “The initial design had processes located in different buildings all around a campus,” Fredell says. “We re-designed it to have all the processes under one roof. It’s not only cheaper, but operators don’t have to go outside and walk from building to building to have access.”

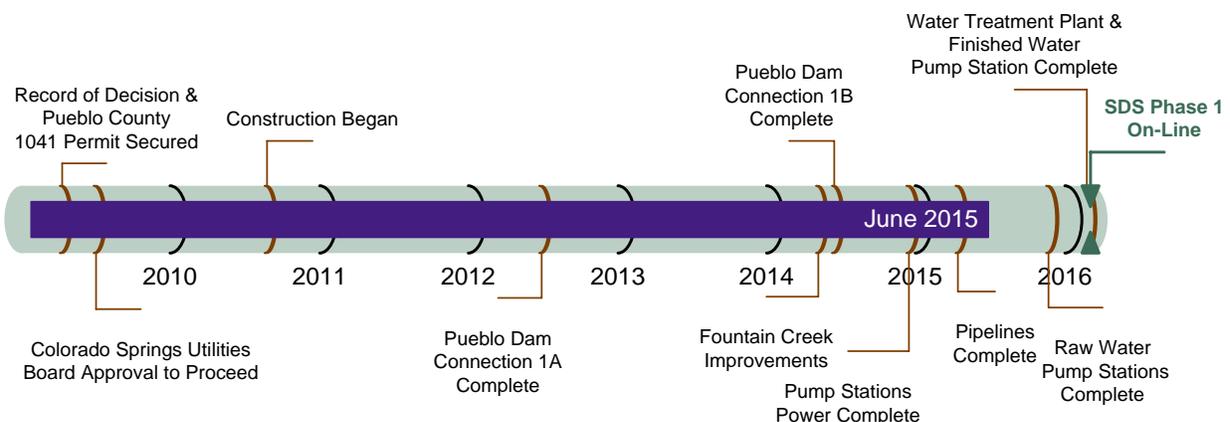
Operators also had a hand in equipment selection. “We visited an identical plant in Salt Lake City, and our operators reviewed the equipment and made some good suggestions and modifications for our plant,” Fredell says. Operator suggestions on the filtration design have won approval from regulators and will improve efficiency and save money.

The same with pump stations, where changing contractors and getting more aggressive reduced projected costs from nearly \$100 million to \$76 million.

Schedule Summary

The timeline below summarizes the schedule for completing Phase 1 of the SDS. Colorado Springs Utilities anticipates completing Phase 1 as planned, with full operation beginning by 2016.

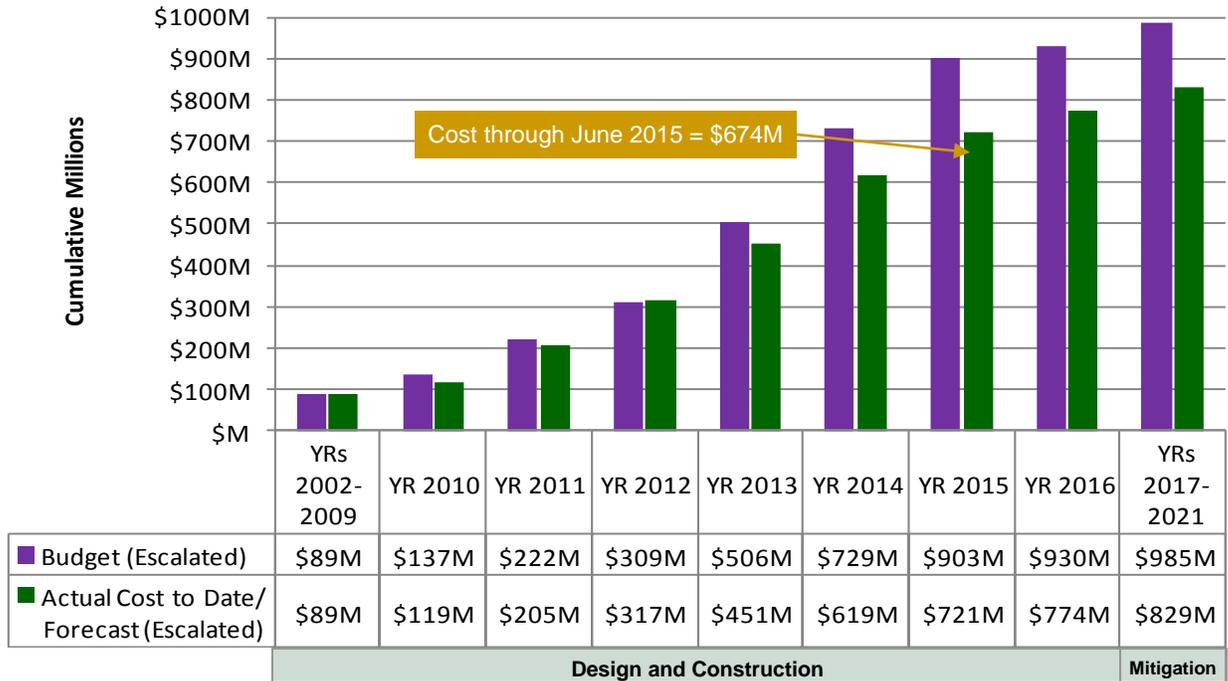
Figure 1 – Schedule Progress for Major SDS Phase 1 Projects



Cost Summary

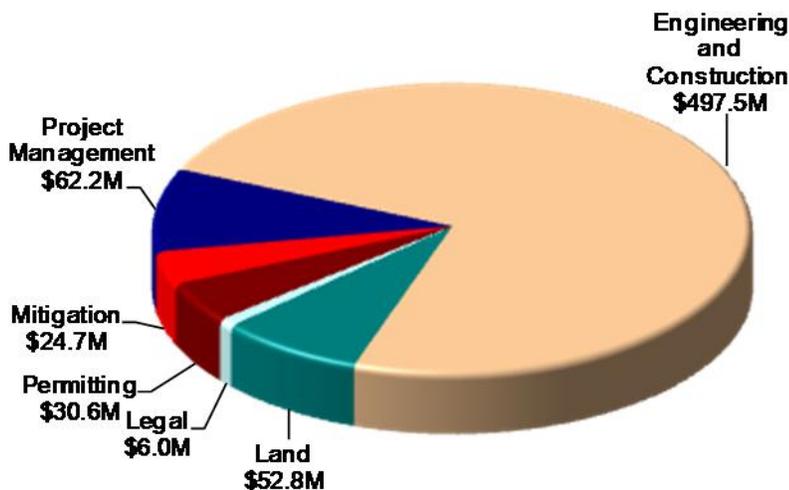
Figure 2 shows the budget for Phase 1, actual costs through June 2015, and forecasted costs for Phase 1. **Figure 3** shows the distribution of the actual costs. Key financial details are summarized below. The budget used to measure progress was established by the Colorado Springs Utilities Board in July 2009 and is \$880 million in April 2009 dollars. Accounting for actual and currently projected escalation in the cost of labor, materials, and equipment, the same 2009 budget equates to \$985 million after all direct project costs (including mitigation) are paid through 2021.

Figure 2 – Phase 1 Budget Progress – Actual Costs through June 2015



Design and construction \$ values include actual and projected cost escalation as measured by Engineering News-Record's national Construction Cost Index. Monetary mitigation payment \$ values (2017 through 2021) include cost escalation as measured by the U.S. Bureau of Labor Statistics Producer Price Index for finished goods. Periodic index forecasts by IHS Global Insight applied.

Figure 3 – Distribution of Phase 1 Direct Costs through June 2015 (\$674M Total)



Key Financial Details

- The budget for Phase 1 is \$985 million, including actual and projected escalation, while the current cost forecast is \$829 million. The project is currently forecasting completion approximately \$156 million below budget. These anticipated savings are accounted for in current water rates and plans for bond issuance.
- Cumulative actual costs to date are \$674 million, with a majority expended on engineering and construction, permitting, land, and management activities.
- Forecasted costs for 2015 are \$102 million with a cumulative expenditure of \$721 million by the end of 2015.

Figure 4 – Phase 1 Projects Status Map



- 9 Finished Water Pipeline (FW)**
Complete: FW1A, FW1B, FW3 (Garney Construction)
Focus: Maintenance
- 8 SDS Water Treatment Plant (WTP) and Finished Water Pump Station (FWPS)**
Ongoing: McCarthy Building Companies, Inc. is constructing the WTP and FWPS located at Marksheffel Rd. and U.S. Highway 24.
Focus: Filling finished water storage tank, pouring concrete, continuing roofing activities, and beginning connection to FW1A
- 7 North Pipeline (N)**
Complete: S4B/N1A/N1B (HCP Constructors), N1C/N2A (Layne Heavy Civil, Inc.)
Ongoing: Garney Construction is finalizing closeout of N2B – a 3.2 - mile pipeline connecting N2A to the WTP.
Focus: Completing administrative closeout activities
- 6 Upper Williams Creek Reservoir (UWCR)**
Ongoing: UWCR is a 30,500 acre-foot raw water storage reservoir that will be developed as part of a future SDS phase and will be located near Bradley Pump Station.
Focus: Acquiring remaining land parcels
- 5 Bradley Pump Station (BPS)**
Ongoing: Archer Western Construction, LLC is constructing BPS located in the city of Colorado Springs approximately ¼ mile south of Bradley Rd. and 1.5 miles east of Marksheffel Rd.
Focus: Completing pipeline connections and installing electrical equipment and doors
- 4 Williams Creek Pump Station (WCPS)**
Ongoing: Archer Western Construction, LLC is constructing WCPS located in El Paso County 6 miles south of Squirrel Creek Rd. and 5 miles east of Interstate 25.
Focus: Continuing installation of conduit and installing the flow meter
- 3 South Pipeline (S)**
Complete: S1 (HCP Constructors), S2 (Garney Construction), S3 (Layne Heavy Civil, Inc.), S4A East/West (Garney Construction)
Ongoing: Garney Construction is constructing S4A Central – a 1.4 - mile pipeline that tunnels under Interstate 25, two railroads, and Fountain Creek and extends from west of Interstate 25 to east Hanover Rd.
Focus: Completing administrative closeout activities
- 2 Juniper Pump Station (JPS)**
Ongoing: Archer Western Construction, LLC is constructing JPS located in Lake Pueblo State Park near the base of Pueblo Dam.
Focus: Installing and testing pipe, energizing the building, and installing power cables
- 1 Pueblo Dam Connection (PDC)**
Complete: PDC1A (ASI Constructors)
Ongoing: Garney Construction is finalizing closeout of PDC1B – a 0.3-mile pipeline that connects the new outlet works (PDC1A) at Pueblo Dam to JPS and the Pueblo West Pump Station.
Focus: Completing administrative closeout activities

Visit www.SDSwater.org for additional information.