

# 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 two-phase project includes all of the components necessary to begin delivering water to the partner communities by April 2016. This report summarizes accomplishments from this year, SDS construction facts, plans for the next year, and key performance details.

### Pipeline Construction in 2013

#### ■ Pueblo Dam Connection 1B

In August, Garney Construction began construction of Pueblo Dam Connection 1B – a 0.3-mile raw water pipeline section that will connect the new 90-inch-diameter turn out at Pueblo Dam to the future Juniper Pump Station. Major achievements include more than 4,000 feet of total rock trenching and installation of 300 feet of 90-inch-diameter pipe.

#### ■ South Pipeline 1

In February, HCP Constructors completed construction of South Pipeline 1 – a 4.3-mile raw water pipeline section from Juniper Pump Station near Pueblo Dam north and northeast to Highway 50. With this section completed and connected to South Pipelines 2 and 3, the SDS pipeline is continuous from Juniper Pump Station across Pueblo County.

#### ■ South Pipeline 4A East/West and North Pipeline 1C/2A

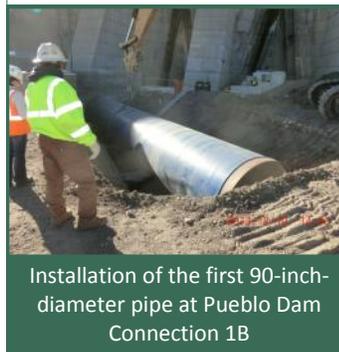
In December, Garney Construction completed construction of South Pipeline 4A East and West – a 7.5-mile raw water pipeline section that starts at the El Paso/Pueblo County line and extends north to Interstate 25 and from Hanover Road north to the south end of South Pipeline 4B. In December, Layne Heavy Civil, Inc. also completed construction of North Pipeline 1C and 2A – a 6.1-mile raw water pipeline section extending from North Pipeline 1B near Peaceful Valley to 1 mile south of Highway 94. Major achievements of both pipelines include construction crossing high-pressure gas lines, electric transmission lines, and several roadways. With these sections completed, 42.5 miles of pipeline is installed.

#### ■ South Pipeline 4A Central

In October, Garney Construction began construction of South Pipeline 4A Central – a 1.4-mile raw water pipeline section that tunnels under Interstate 25, two railroads, and Fountain Creek and extends from west of Interstate 25 to east of Hanover Road. Major achievements include completing the design, mobilizing for construction, and starting construction of the launch shaft by driving steel sheet piles into bedrock to create stable walls for the 85-foot-deep vertical shaft.

### Facility Construction in 2013

#### ■ Water Treatment Plant and Finished Water Pump Station



Installation of the first 90-inch-diameter pipe at Pueblo Dam Connection 1B

In March, McCarthy Building Companies, Inc. began construction of the water treatment plant and finished water pump station located at Marksheffel Road and Highway 24. Major achievements include excavation of more than 1 million cubic yards of earth, placement of 33 percent of the total rebar and 30 percent of the total concrete, as well as a total of 110,000 man hours worked on the project.

#### ■ Raw Water Pump Stations

In September, Archer Western Construction, LLC began construction of all three raw water pump stations. Major achievements include the completion of mass excavation at Bradley and Williams Creek pump stations and significant progress at Juniper Pump Station. Colorado Springs Utilities constructed the power supplies for Bradley and Williams Creek pump stations. An SDS Business Appreciation Event was also hosted at Lake Pueblo State Park in October



Driving sheet piles at South Pipeline 4A Central

recognizing local business participation and the start of construction for Juniper Pump Station and installation of the last section of pipeline in Pueblo County.



Excavator with breaking hammer at Juniper Pump Station

### SPOTLIGHT

#### SDS Construction Facts

- The average dimensions of a stick of pipe for the project is 66-inches in diameter and 50 feet long. It will take more than 5,000 sticks of pipe to build the pipeline.
- It takes an average of two weeks to manufacture one stick of pipe.
- The water treatment plant will use enough rebar to fill 54 rail cars or a train half-a-mile long.

- The amount of revegetation for the SDS construction area is enough to plant 676 football fields.
- The pumps at the water treatment plant and the three pump stations have enough horsepower to power five F-18 fighter jets or 405 Priuses.
- The volume of water that can be held in the raw water pipeline and raw water tanks is approximately 185 acre-feet (60 million-gallons). This is enough water for 550 families of four for one year.



John Fredell  
SDS Program Director

## 2014 - A Critical Year for the SDS Program

2013 was a year of major progress for the SDS Program. More than 42 miles of the approximately 50-mile pipeline has been installed, construction began on the 90-inch-diameter pipeline that will connect Pueblo Dam to the SDS pipeline, and excavation is underway on the vertical shaft for the one-mile tunnel under I-25 and Fountain Creek. Work on the three raw water pump stations and water treatment plant continues to progress as these facilities begin to take shape. While the team has made tremendous progress, John Fredell, SDS Program Director, recognizes there is still much work to be done. "With some of the most significant work ahead of us, 2014 will be critical," Fredell said. "We have a dedicated team focused on moving the project forward safely and responsibly." SDS is currently on schedule to deliver water to the project partners by April 2016 and is forecasting completion at nearly \$90 million below budget.

## Upcoming Work & Challenges in 2014

Below are a few examples of the critical work and challenges for 2014 and beyond.

### Completion of Pueblo Dam Connection to SDS Pipeline

- Garney Construction expects to complete installation of the 72-inch and 90-inch-diameter pipelines that will connect Pueblo Dam to the SDS pipeline.

### Completion of Pipeline Construction from Pueblo Dam to the Water Treatment Plant

- South Pipeline 4A Central: Garney Construction expects to complete excavation of the launch shaft, tunneling, and installation of carrier pipe that will create a continuous pipeline from Juniper Pump Station, across Pueblo County, and into El Paso County to Highway 94.
- North Pipeline 2B: Construction is planned to start in April and is the last section of raw water pipeline that will move untreated water from Pueblo Dam to the water treatment plant.
- Finished Water 3: Garney Construction will begin construction in February, planning work near busy roadways including Constitution Avenue and Powers Boulevard; at completion, this section will deliver high-quality drinking water to Colorado Springs customers.

### Completion of Several Structures at Water Treatment Plant and Finished Water Pump Station

- McCarthy Building Companies, Inc. plans on completing the following concrete structures: Raw Water Storage Tank, Main Process Building, Finished Water Storage Tank and Pump Station, and Electrical Building. The plant will treat up to 50 million gallons of water per day (mgd) upon completion.

### Completion of Fountain Creek Improvements

- Fountain Creek is an essential component of Colorado Springs' water infrastructure. The SDS' ongoing mitigation will improve the creek's health over current conditions. Wildcat Construction Company anticipates completing improvements to the creek in March and planting wetlands as early as April.

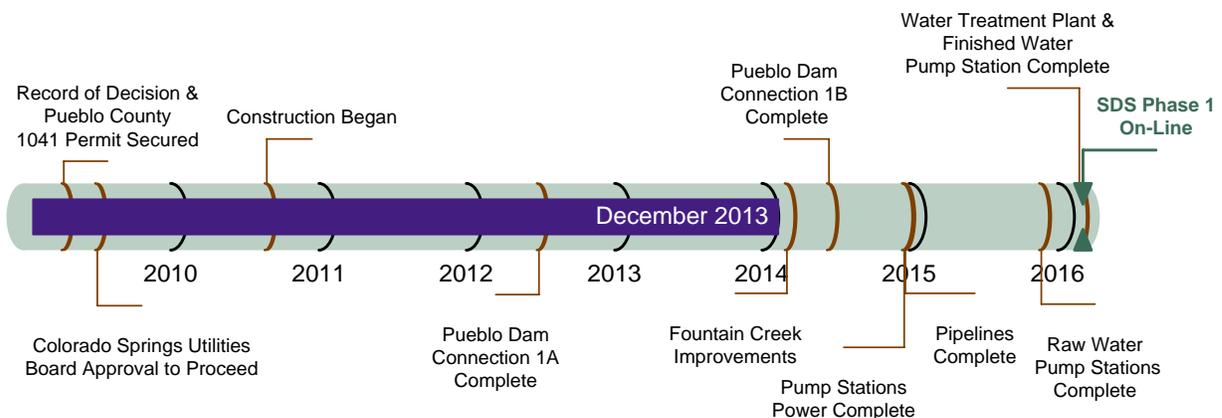
### Construction Continues at Raw Water Pump Stations

- Archer Western Construction, LLC expects to acquire and test the pumping equipment; test and install the hydraulic surge tanks; and construct and test the forebay tanks at Bradley and Williams creek pump stations. When complete, the pump stations will have full capacity to transport up to 50 mgd.

## Schedule Summary

**Figure 1** summarizes the schedule for completing Phase 1 of the SDS. This timeline shows the planned sequence for completing each of the core projects within Phase 1 and highlights major activities for the next 12 months. Colorado Springs Utilities anticipates completing Phase 1 as planned, with full operation beginning by April 2016.

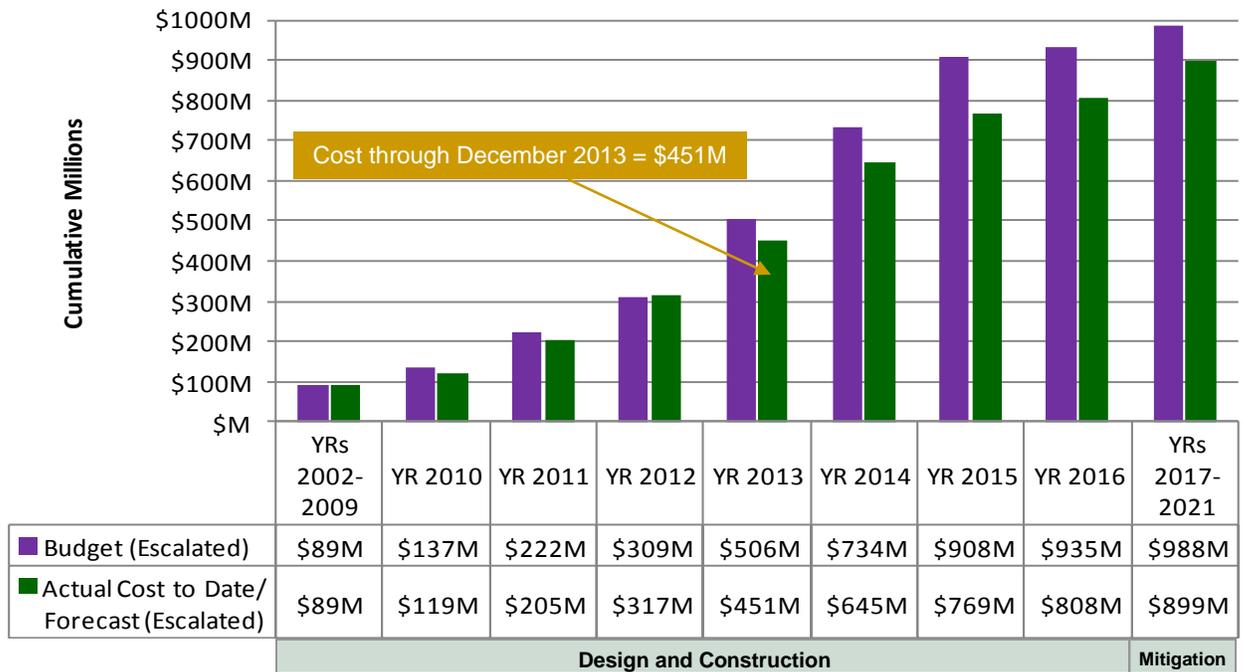
*Figure 1 – Schedule Progress for Major SDS Phase 1 Projects*



## Cost Summary

**Figure 2** shows the budget for Phase 1, actual costs through December 2013, and forecasted costs for Phase 1. Actual costs to date are consistent with achieving planned construction progress and on time completion. **Figure 3** shows the distribution of the actual costs. Key financial details are summarized below. The budget that is 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 \$988 million after all direct project costs (including mitigation) are paid through 2021. The approved and previously estimated water rate increases to pay for SDS Phase 1 already include these anticipated costs.

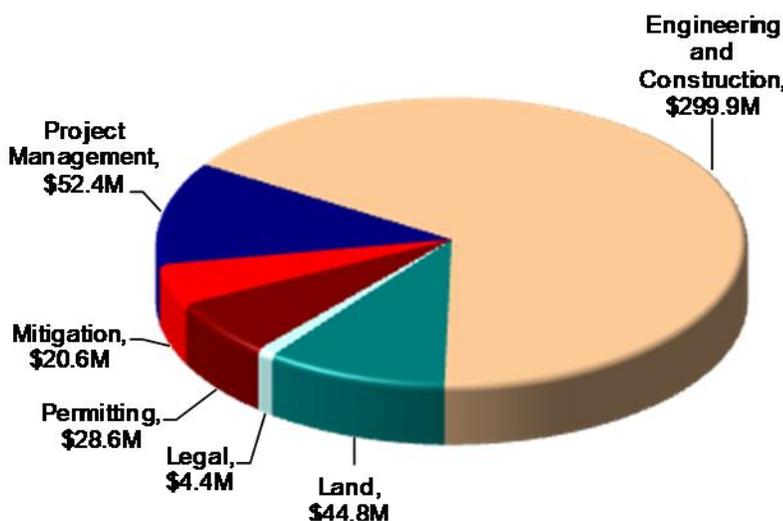
*Figure 2 – Phase 1 Budget Progress – Actual Costs through December 2013*



All \$ values in millions (M) and reflect direct project costs.

Budget and forecast \$ values include actual and projected cost escalation as measured by the Engineering News-Record's national Construction Cost Index (for design and construction through 2016), U.S. Bureau of Labor Statistics Producer Price Index for finished goods (for monetary mitigation payments in 2017 through 2021), and periodic forecasts by IHS Global Insight.

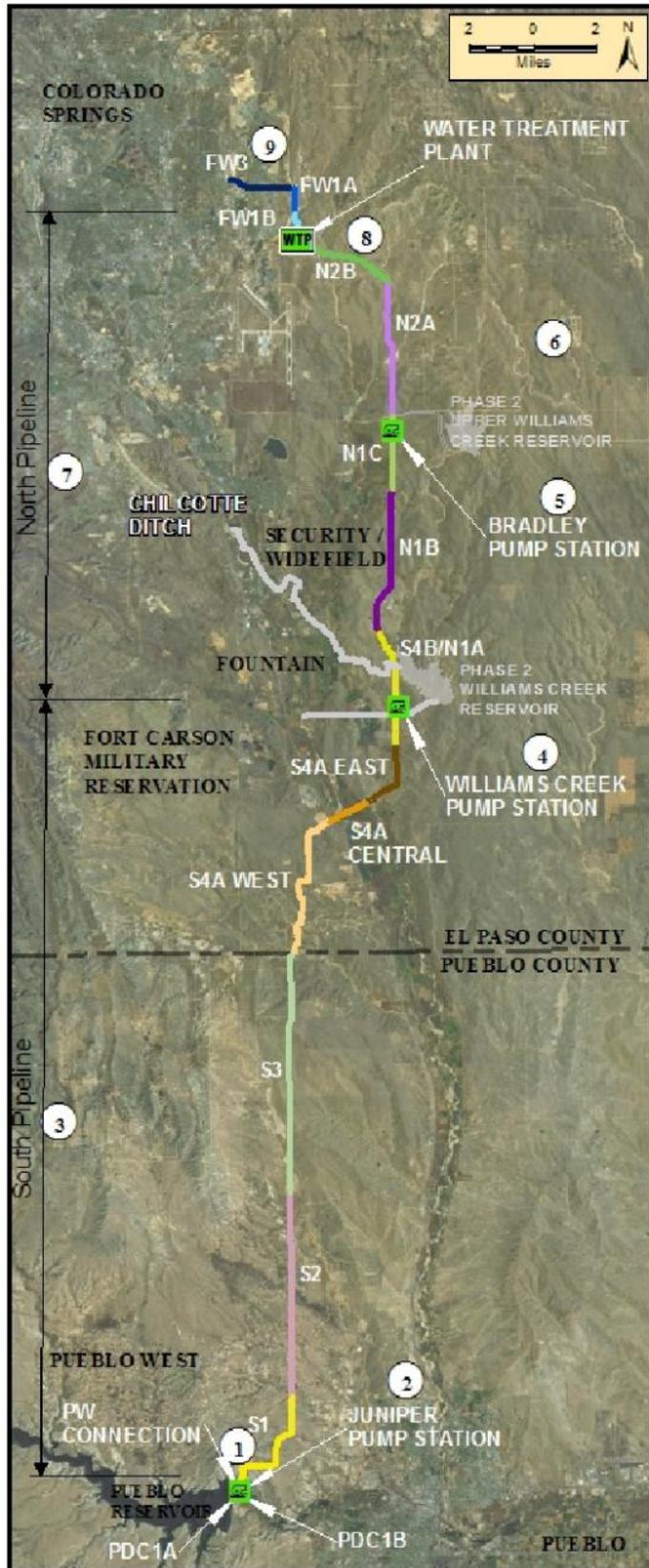
*Figure 3 – Distribution of Phase 1 Direct Costs through December 2013 (\$451M Total)*



### Key Financial Details

- The budget for Phase 1 is \$988 million, including actual and projected escalation, while the current cost forecast is \$899 million. The project is currently forecasting completion approximately \$89 million below budget. These anticipated savings are accounted for in water rates and bond issuance planning.
- Cumulative actual costs to date are \$451 million, with a majority expended on engineering and construction, permitting, land, and management activities.
- Forecasted costs for 2014 are \$194 million with a cumulative expenditure of \$645 million by the end of 2014.

Figure 4 – Phase 1 Projects Status Map



**9 Finished Water Pipeline (FW)**

Design: 100%  
 Land: 90% of properties secured  
 Focus: Completing easement acquisitions, preparing for construction of section 3

**8 SDS Water Treatment Plant and Finished Water Pump Station**

Design: 100%  
 Land: 100% of properties secured  
 Focus: Constructing water treatment plant – setting reinforcements, pouring concrete, and receiving 42-inch piping

**7 North Pipeline (N)**

Design: 100%  
 Land: 95% of properties secured  
 Focus: Preparing for construction of section 2B

**6 Upper Williams Creek Reservoir**

Design: Conceptual design complete  
 Land: 40% of properties secured  
 Focus: Cultural resource survey

**5 Bradley Pump Station**

Design: 100%  
 Land: 100% of properties secured  
 Focus: Constructing raw water pump station – excavation, piping installation, and equipment manufacturing

**4 Williams Creek Pump Station**

Design: 100%  
 Land: 100% of properties secured  
 Focus: Constructing raw water pump station – excavation, piping installation, and equipment manufacturing

**3 South Pipeline (S)**

Design: 100%  
 Land: 95% of properties secured  
 Focus: Finalizing land acquisitions, constructing section 4A Central

**2 Juniper Pump Station**

Design: 100%  
 Land: Construction authorization secured  
 Focus: Constructing raw water pump station – excavation, piping installation, and equipment manufacturing

**1 Pueblo Dam Connection (PDC)**

Design: 100%  
 Land: Construction authorization secured  
 Focus: Pipe installation for 1B (pipeline)

**Schedule:** The Program is on schedule to begin operations in April 2016.

**Budget:** The Program is currently forecasting completion under budget by \$89 million.

Visit [www.sdswater.org](http://www.sdswater.org) for additional information.