



# **Capital Master Plan 2023 - 2032**

# Platte Canyon Water and Sanitation District



## Capital Master Plan 2023 - 2032

# PLATTE CANYON WATER AND SANITATION DISTRICT

## CAPITAL MASTER PLAN

2023 - 2032

### Table of Contents

---

<b><u>Section</u></b>		<b><u>Page</u></b>
<b>1</b>	<b>Master Plan Description</b>	
	Background	1
	Purpose	1
	Financial	2
	Criteria for Rating Water and Sewer Main Rehabilitation and Replacement Projects	3
<b>2</b>	<b>Summary of Costs for Proposed Capital Expenditures for the Period of 2023 - 2032</b>	<b>6</b>
<b>3</b>	<b>Water Distribution and Wastewater Collection Projects</b>	
	2023 Projects	14
	2024 Projects	16
	2025 Projects	21
	2026 Projects	26
	2027 Projects	30
	2028 Projects	33
	2029 Projects	39
	2030 Projects	43
	2031 Projects	49
	2032 Projects	XX
<b>4</b>	<b>Vehicle and Equipment Schedule</b>	<b>55</b>
<b>5</b>	<b>Completed Capital Construction Projects</b>	<b>58</b>
<b>6</b>	<b>Capital Project Map</b>	<b>75</b>

# **SECTION 1**

## **MASTER PLAN DESCRIPTION**

### **BACKGROUND**

Platte Canyon Water and Sanitation District was organized in May 1959 to provide potable water distribution and wastewater collection and transmission services to properties located within the District boundaries. Since the formation of the District, over 77.5 miles of water mains, 75.6 miles of sanitary sewer mains, and one potable water pumping station have been installed by the District and private developers. The District now has responsibility for operation, maintenance, rehabilitation, and replacement of all these facilities.

The District first implemented an asset management program in 1986, which consisted of evaluating the assets to develop a systematic rehabilitation and replacement program. The program was substantially enhanced and updated in 2018 and 2019 by adding an evaluation of the criticality of each asset to the existing assessment. This criticality factor is based on age, type of material, number of failures, and observed condition of each asset. Using the new asset evaluation criteria, the selection and prioritization of capital projects is updated each year. The evaluation process and criteria used to determine which assets are in need of rehabilitation or replacement are described in a following section.

Present day replacement costs for assets owned and maintained by the District totals over \$150 million. Although the majority of the District's infrastructure remains within its expected useful life, electrolysis-caused corrosion as well as normal aging and deterioration of facilities have increased the need for the rehabilitation and replacement of District assets.

The oldest of the District's assets were installed in 1958 and 46 percent were installed prior to 1974. These assets are now approaching the end of their useful life and are failing at an increasing rate. This Capital Master Plan provides a systematic process for scheduling and conducting these necessary system improvements in a timely and cost-effective manner.

### **PURPOSE**

The purpose of this Plan is to itemize and schedule water and wastewater facility expansion, rehabilitation and replacement projects, and vehicle and equipment purchases. This Plan is intended to be a dynamic document. The proposed construction, rehabilitation, and replacement schedule will be reviewed annually and adjusted to reflect changes in development patterns, and infrastructure deterioration and failure. The Plan will be submitted to the Board of Directors for review and discussion in conjunction with the annual budget and ten-year financial plan.

The Plan enhances the accuracy and effectiveness of budgeting and cash flow analysis and enables the District to schedule expenditures and determine appropriate levels of capital reserves. It



provides for long range planning of tax and service fee revenues, minimizing the potential for large fluctuations in tax and service fee rates. The program further allows for planning and scheduling system replacements and rehabilitations on a consistent basis to match proposed revenues.

The Plan provides a framework for the District to be proactive rather than reactive when dealing with asset replacement and rehabilitation needs. System modifications are prioritized so the facilities most in need of repair are replaced or rehabilitated in an appropriate timeframe. The goal is to minimize operation and repair expenses by avoiding costly unscheduled repair, replacement, and rehabilitation of deteriorating facilities. Most importantly, an aggressive capital rehabilitation and replacement program helps avoid system deterioration, disruption, and potential safety, health and property damage impacts.

For vehicle and equipment needs, the Plan provides for systematic replacement of the District's fleet and equipment. Replacements are scheduled to avoid large expenditures for equipment repairs, excessive down time of malfunctioning equipment, while balancing annual expenditures for replacements. The Plan allows for consideration of service life, manufacturers production lead time, and changing performance requirements for various vehicle and equipment assets.

In summary, the Plan has been prepared to increase the accuracy and reliability of budgetary and long-range financial analysis, and to improve short- and long-term facility and maintenance planning.

## **FINANCIAL**

The 2023-2032 Capital Master Plan includes \$991,731 for capital projects and vehicles in 2023, and \$25,470,230 during the ten-year period. This compares with the previous year's projected expenditures of \$2,077,951 and the ten-year projected expenditures of \$20,879,300.

Water facility replacement projects account for 90 percent of the total proposed expenditures while purchases of vehicle and equipment account for the remaining 10 percent. The District's extensive sanitary sewer video inspection and maintenance program has not revealed a need to schedule major rehabilitation or replacement of sewer system assets in the next ten years. However, the District has implemented a more intensive sewer rating program to provide a base line for monitoring the condition of the system over time.

The District's Board of Directors adopted a revised Cash Reserve Policy in May 2019 that establishes criteria for establishing minimum cash reserves for operations, capital expenditures and debt service. The criteria for the capital reserve component are based on the greater of the projected capital expenses for the next five years, or a set percentage of the replacement cost of all District assets adjusted for depreciation. The suggested balance for each reserve component is calculated and presented to the Board during the annual budget and financial plan evaluation. The District's goal is to maintain appropriate cash reserves to fund the levels of service for operations at established levels of service as well as rehabilitation and replacement of system assets as determined by the comprehensive Plan.

## **CRITERIA FOR RATING WATER AND SEWER MAIN REHABILITATION AND REPLACEMENT PROJECTS**

### **Water**

In 2020, the District implemented the Sedaru software platform for the capital planning process. This software has a CIP module that includes a robust approach based on a variety of factors, many of which the District was already using in its planning process. The new software continues the District's goal of prioritizing the replacement of water mains over the ten-year planning horizon. The Sedaru platform expands upon the previously used analytical, objective rating process to include a more comprehensive assessment of all District-owned water mains that incorporates a wider range of factors.

This process includes the ability to automatically group multiple segments of pipe located along the same street as projects and rank them against each other. Co-located priority segments become one large project and those with higher priority segments are recommended for replacement on a more aggressive schedule. Previously, each pipe segment was evaluated on an individual basis, which resulted in a disjointed approach to full replacement of critical water mains in a specific roadway.

#### **Performance Score (Likelihood of Failure)**

To begin with, a performance score is calculated for each segment using known pipe characteristics including those listed in the following table.

Age of pipe	The score assigned to each segment is based upon the following age ranges: <ul style="list-style-type: none"><li>• 0-10 years old – 1 point</li><li>• 11-30 years old – 2 points</li><li>• 31-50 years old – 3 points</li><li>• 51-58 years old – 4 points</li><li>• 59 and older – 5 points</li></ul>
Type of pipe	Each type of pipe is assigned a score, which is based on the likelihood of failure. A higher number means it is more likely for that pipe material to fail: <ul style="list-style-type: none"><li>• cast iron (CIP) – 5 points</li><li>• ductile iron, asbestos-cement, steel – 3 points</li><li>• polyvinyl chloride (PVC) – 1 point</li></ul>
Number of leaks	Each segment is assigned a score based on the number of failures on that segment: <ul style="list-style-type: none"><li>• no failures – 0 points</li><li>• 1 failure – 3 points</li><li>• 2 failures – 4 points</li><li>• 3 or more failures – 5 points</li></ul>

An overall Performance score is then calculated for each segment with the pipe material weighted at 36% of the total points and the age of pipe and number of leaks equally weighted at 32% each.

Impact Score (Consequence of Failure)

Next, an impact score is calculated for each segment using two different factors. One factor is the condition rating determined by District staff in the past years. The other is the number of isolation valves required to shut down each segment.

*Condition Score:* A condition score, which is defined as the result of a water main failing, is measured as the impact/significance on the distribution system, customers in the surrounding area, and the District. Every segment in the distribution system was reviewed by staff and given a CoF rating. This rating, which ranges from 1 to 5, increases as the impacts of the water main failure become more significant and costlier. Factors considered include:

- Number of units served – This is all customers served by that segment of water main, including residents, businesses, commercial entities, and municipal buildings.
- Number of critical customers or large businesses served – Critical customers include schools and universities, hospitals, assisted living facilities, senior centers, urgent care centers, fire stations, and other locations that provide a vital public service. Large businesses affected by a potential break include strip malls and shopping centers as well as stand-alone businesses.
- Cost to repair – The cost to repair will typically be between \$6,000 and \$10,000 (rated a 3 out of 5) but variances such as depth of the main, difficult access, and size of break can impact the rating.
- Time to repair – The time to repair will most typically be 4 to 6 hours (rated a 2 out of 5) but variables such as ease of access to the break area and/or complexity of the break are also considered.
- Other factors – Other factors can include environmental impacts (a flowing break near a river/lake), potential flooding of nearby customers property, a potential break on a major thoroughfare or the only road to an area or critical customer, potential impacts to critical customers (as noted above), or other circumstances that would make a break repair more difficult, costly, and/or impactful to customers.

Then in the Sedaru platform, additional granularity was added and points were assigned as follows for the condition score and the number of isolation valves:

Condition Score	The score assigned to each segment is based upon the following ranges: <ul style="list-style-type: none"><li>• 1.0 to 1.7 – 1 point</li><li>• 1.8 to 2.5 – 2 points</li><li>• 2.6 to 2.9 – 3 points</li><li>• 3.0 to 3.5 – 4 points</li><li>• 3.6 or higher – 5 points</li></ul>
Number of isolation valves	The score assigned to each segment is based upon the following: <ul style="list-style-type: none"><li>• 1 to 2 valve – 1 point</li><li>• 3 to 4 valves – 2 points</li><li>• 5 valves – 3 points</li><li>• 6 valves – 4 points</li><li>• 7 or more valves – 5 points</li></ul>

An overall Impact score is then calculated for each segment with the condition score weighted at 95% of the total points and the number of isolation valves weighted at 5%.

### Overall Score

An overall score (based on a maximum of 100 points) is calculated for each segment as follows:

$$\text{Overall Score} = [ (\text{Performance Score}) \times 3 + (\text{Impact Score}) ] \times 5$$

An example of the application of the pipe evaluation rating system follows:

A cast iron pipe installed in 1960 with two failures, a condition rating of 2.6, and 5 isolation valves receives an overall score as calculated below:

Age of pipe      5 points

Type of pipe      5 points

Number of leaks   4 points

$$\text{Performance Score} = 5 \times 0.32 + 5 \times 0.36 + 4 \times 0.32 = 4.68$$

Condition rating      3 points

# of Isolation Valves   3 points

$$\text{Impact Score} = 3 \times 0.95 + 3 \times 0.05 = 3.0$$

$$\text{Total Score} ( 4.68 \times 3 + 3.0 ) \times 5 = 85.20$$

Using the Overall Score, the Sedaru software develops a ranking list of all the water mains in the distribution system. The top 200 most critical water mains were then grouped into projects based upon their location (i.e. all segments in the same street became one project) and combined Overall Score. This list became the starting point for the prioritization of the replacement and rehabilitation projects within the District.

The projects were initially assigned to years based upon the current industry standard of replacing 1% of pipes per year. That list and mapping of projects was then evaluated for several additional factors including project proximity and total annual cost. In some cases, projects were moved up or down on the replacement schedule to obtain budget and/or construction efficiencies.

### Sewer

Sanitary sewer pipelines are rated during routine, preventive television inspections. Pipelines deemed to be at risk of failure or stoppage despite increased preventive maintenance, or identified as a source of infiltration or exfiltration, are scheduled for rehabilitation or replacement within a three-year timeframe. Some pipelines that are damaged yet can continue to provide reliable service with increased preventive maintenance are scheduled for rehabilitation or replacement in later years based on the extent of damage and potential for failure.

## **SECTION 2**

### **SUMMARY OF PROPOSED CAPITAL EXPENDITURES FOR THE PERIOD 2023 - 2032**

The annual asset rehabilitation and replacement evaluation process results in the addition and rescheduling of several capital projects from the previous ten-year capital plan. These fluctuations in project scheduling are expected due to the timing, type and number of water and sewer main failures, and the criticality of each asset determines the priority for rehabilitation or replacement. Those pipelines that provide critical service and exhibit continuing deterioration are prioritized while the pipelines that have a lower level of impact on service levels and do not show advanced deterioration are deprioritized.

Additional infrastructure improvements will be required beyond the current ten-year planning period, so a 30-year infrastructure rehabilitation and replacement plan is also prepared. This plan is used as a planning tool to reflect the long-range facility improvements and financial needs of the District. The long-term financial plan is updated annually and presented to the Board during the budget review process.

The Plan has been divided into water facility rehabilitation/replacement, water main replacement, sanitary sewer rehabilitation and replacement, and vehicle and equipment additions and replacements.

#### **Water Facilities**

The schedule for water facility projects is based on the process as explained in the criteria for replacement of assets section of this report. No facilities in the replacement/rehabilitation schedule are needed to expand capacity to serve new development. Existing District facilities are adequate to serve all anticipated development within the District's ultimate service area.

#### **Water Mains**

One water main replacement project is scheduled for 2023. This project includes replacement of 1,785 feet of 8-inch cast iron pipe with advanced levels of electrolysis-caused corrosion with new PVC pipe. The pipe to be replaced was installed in 1960 and 1963 and was not protected from corrosive soils as is current practice. This project is located within the Columbine Hills Subdivision, which contains some of the oldest water mains in the District. There has only been one (1) break on this water main but it is located in a high traffic corridor and the District prefers to minimize emergency repairs in this roadway. The projected construction cost for this project is \$668,258 but will be budgeted at \$801,908 to include a 20% contingency of \$133,660.

The Plan proposes 39 additional water main replacement projects between 2024 and 2032, which represents the replacement of 38,400 feet of pipe.

The projected replacement cost for all 40 capital projects scheduled from 2023 to 2032 is \$21,149,274. This includes the cost of construction and a 20 percent construction contingency for each project. The type and size of the pipe scheduled for replacement as part of these projects is shown in Table 1 below.

**Table 1**

<b>Size</b>	<b>Cast Iron Pipe</b>	<b>Asbestos Cement Pipe</b>
4-inch	2,277 feet	0 feet
6-inch	21,432 feet	0 feet
8-inch	13,726 feet	2,906 feet
12-inch	5,834 feet	1,158 feet
16-inch	936 feet	0 feet

From 2023 to 2032, an additional \$1,689,817 is budgeted for capital project engineering costs. These costs are projected at 10 percent of anticipated construction costs and may be partially budgeted in the year prior to when construction is planned. This allows the District to have projects designed and ready for bidding prior to the start of the construction season.

Both construction (with contingency) and engineering costs are inflated at 2.54 percent per year. Using the twenty-year average of the CPI provides for a more stable planning approach to decisions regarding year-on-year rate increases in the long-term financial plan

In total, the water main replacement projects in the 2023-2032 Capital Master Plan include 40,152 feet of pipe proposed for replacement. This represents 10 percent of all water main assets owned by the District, which reflects a replacement rate of 1.00 percent per year. This rate aligns with the water sector best practice of replacing 1.00 percent of water main assets per year.

### **Sanitary Sewers**

No sanitary sewer replacements have been scheduled for 2023. No sewer replacement or rehabilitation projects are scheduled between 2024 and 2032.

### **Vehicles & Equipment**

In 2022, vehicle and equipment replacements are projected at \$477,464. These include replacement of two (2) standard four-wheel drive pickup trucks, the trailer-mounted valve operator, and the television inspection unit originally purchased in 2012.

Vehicle replacement costs for the period between 2022 and 2031 are projected to be \$2,658,678, which is \$390,596 more than the amount proposed in last year's schedule. This is mainly due to the decision to shorten the replacement cycle for the large CDL-required vehicles from every 12 years to every 10 years. The district is experiencing significant repair/maintenance costs to these vehicles in years 11 and 12, and staff believes a more frequent replacement cycle will minimize the impact of those unplanned repairs on the annual budgets.

A detailed vehicle replacement schedule is provided in Section 4. Note the costs in that section are shown in 2022 values and have been inflated at 2.54 percent per year in Table 2.

### **Summary of All Capital Expenditures**

The District's water distribution system continues to require significant attention as portions of the system approach the end of its reliable, useful life. It is extremely important that the District maintain a proactive facility maintenance program and comprehensive long-range capital improvement program to detect and repair all District owned infrastructure as necessary.

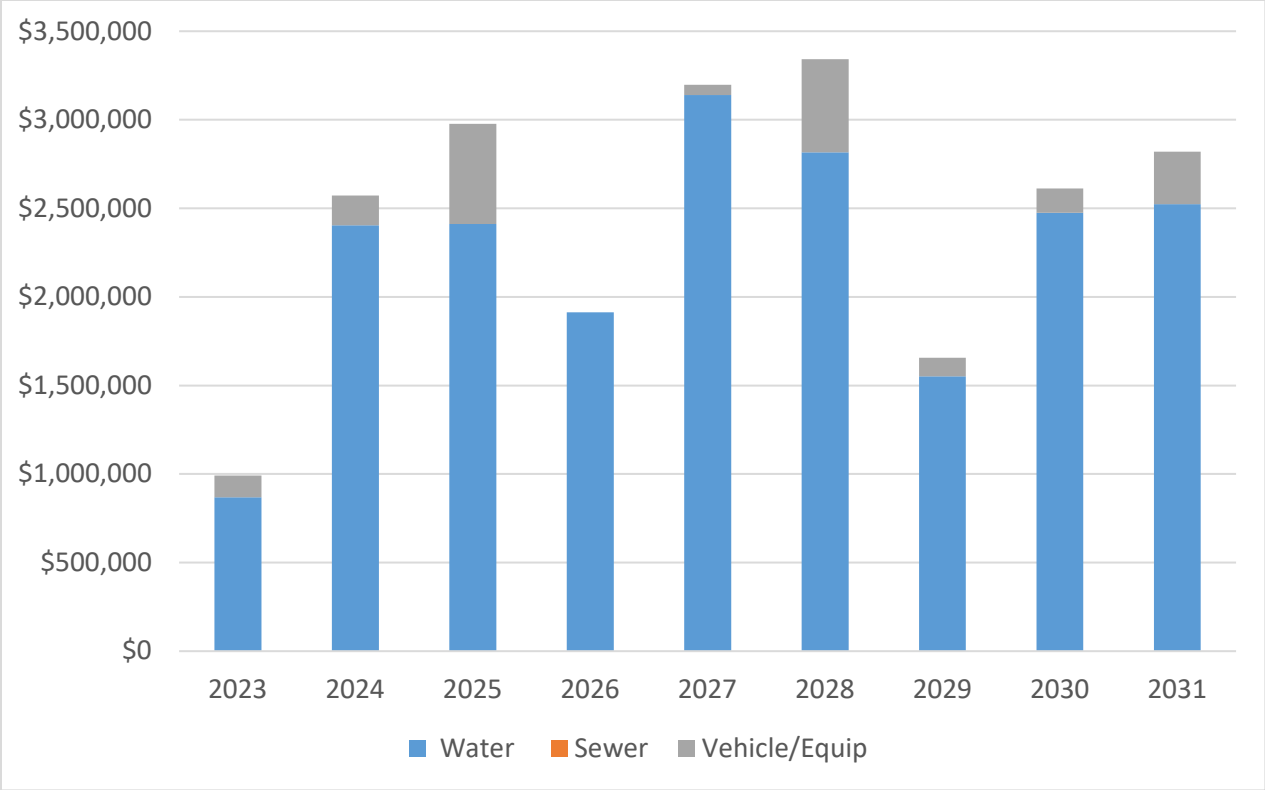
The District's sewer transmission (interceptor) network is extensive and serves a significant area outside of the District. Replacement or rehabilitation of these sewers has cost millions of dollars. With the rehabilitation/replacement of the backbone sewer infrastructure, its useful life has been extended 50 years.

The District currently has sufficient financial resources to complete all projects proposed in the 2023-2032 Capital Master Plan. Annual increases are proposed in the District's water and sewer service fee which is billed by Denver Water on customer water bills. Future adjustments will enable the matching of operating revenue with operating costs and avoid depleting capital reserves. It should be noted that discussions have occurred regarding obtaining a loan through the Colorado Drinking Water State Revolving Fund to accelerate the next 10 years of capital projects to 2024. This project has been placed on the 2023 Intended Use Plan and staff will be pursuing this funding avenue in 2023.

The following table and chart summarize the costs associated with the capital projects proposed from 2023 through 2032.

**Table 2**

<b>Year</b>	<b>Water</b>	<b>Sewer</b>	<b>Vehicle/Equip</b>	<b>Totals</b>
<b>2023</b>	\$868,743	\$0	\$123,048	\$991,791
<b>2024</b>	\$2,404,759	\$0	\$167,180	\$2,571,939
<b>2025</b>	\$2,411,667	\$0	\$566,030	\$2,977,697
<b>2026</b>	\$1,912,834	\$0	\$0	\$1,912,834
<b>2027</b>	\$3,139,302	\$0	\$57,814	\$3,197,116
<b>2028</b>	\$2,930,821	\$0	\$525,410	\$3,342,501
<b>2029</b>	\$1,623,681	\$0	\$104,890	\$1,655,955
<b>2030</b>	\$2,474,791	\$0	\$136,888	\$2,611,679
<b>2031</b>	\$2,524,598	\$0	\$295,768	\$2,820,367
<b>2032</b>	\$2,734,241	\$0	\$654,110	\$3,388,351
<b>TOTAL</b>	<b>\$22,839,091</b>	<b>\$0</b>	<b>\$2,631,139</b>	<b>\$25,470,230</b>





## **SECTION 3**

### **WATER DISTRIBUTION AND WASTEWATER COLLECTION FACILITY REHABILITATION AND REPLACEMENT PROJECTS SCHEDULED FOR 2023 - 2032**

## 2023 Capital Improvement Projects

### Water

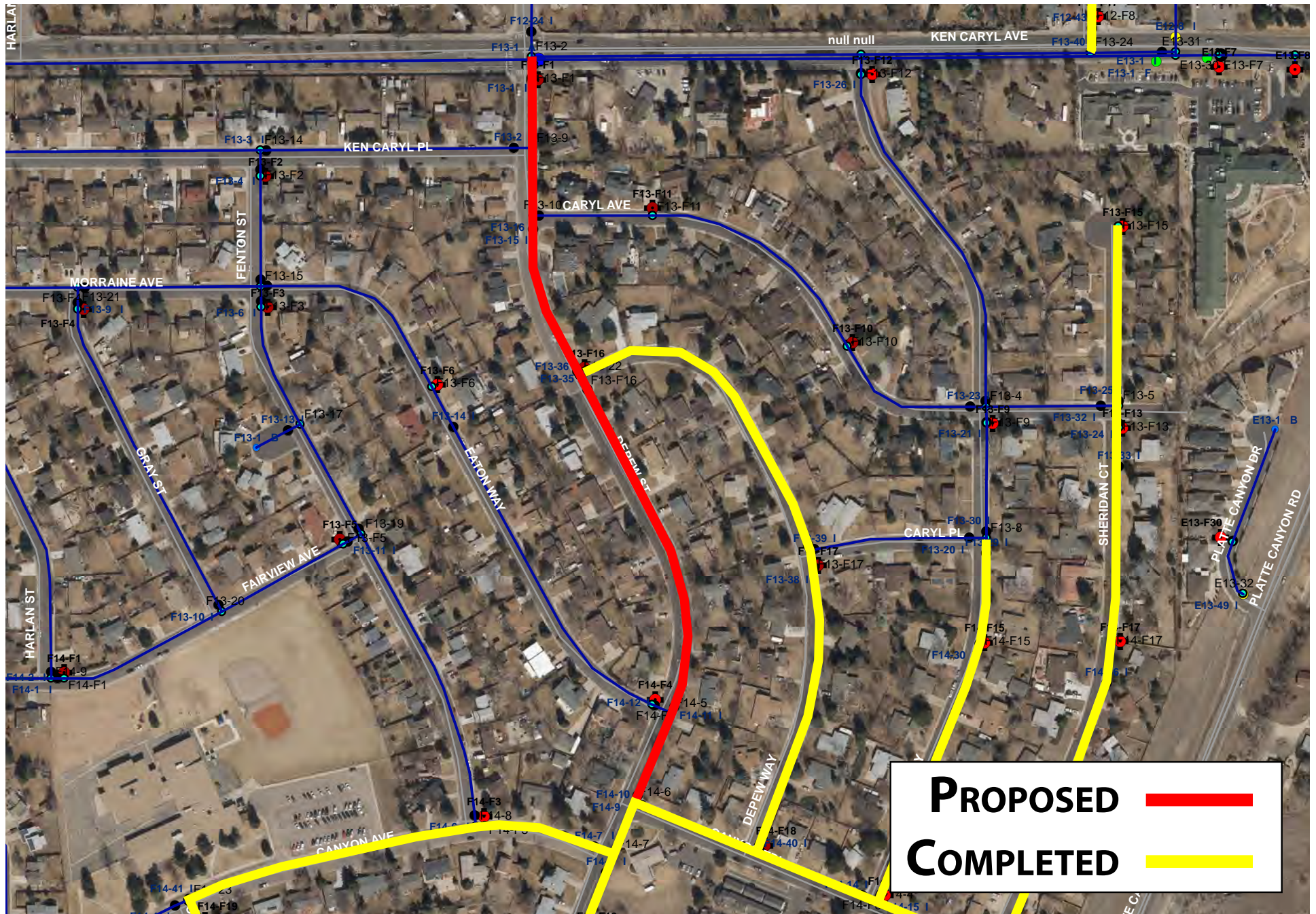
Project	Subdivision	Location	Description	Pipe Age (yrs)	COST			
					Construction	Contingency (20%)	Engineering (10%)	TOTAL
23-1W	Columbine Hills	S. Depew Street from W. Ken Caryl Ave to W. Canyon Trail	Replace 1,785 feet of 8- inch cast iron pipe with 8- inch PVC pipe	60, 63	\$668,258	\$133,652	\$66,826	<b>\$868,735</b>

### Sewer

No projects scheduled.

# PROJECT C.I.P. 23-1W

## S. DEPEW ST. WATER MAIN REPLACEMENT



## 2024 Capital Improvement Projects

### Water

Project	Subdivision	Location	Description	Pipe Age (yrs)	COST			
					Construction	Contingency (20%)	Engineering (10%)	TOTAL
24-1W	Bow Mar South	S. Laurel Place from S. Snowberry Drive to W. Bowles Ave.	Replace 758 feet of 6-inch cast iron pipe with 6-inch PVC pipe	59	\$266,688	\$53,338	\$26,669	<b>\$346,695</b>
24-2W	Bow Mar South	S. Snowberry Drive from S. Laurel Place to W. Bowles Ave.	Replace 797 feet of 6-inch cast iron pipe with 8-inch PVC pipe; diameter was upsized by DW staff	59	\$305,910	\$61,182	\$30,591	<b>\$397,683</b>
24-3W	Bow Mar South	Marigold Land from Blue Sage Drive to S. Sumac Lane	Replace 1,028 feet of 6-inch cast iron pipe with 6-inch PVC pipe	60	\$361,830	\$72,366	\$36,183	<b>\$470,379</b>
24-4W	Bow Mar South	Blue Sage Drive from W. Berry Ave to Tule Lake Drive	Replace 1,906 feet of 12-inch cast iron pipe with 12-inch PVC pipe	60	\$915,380	\$183,076	\$91,538	<b>\$1,189,993</b>

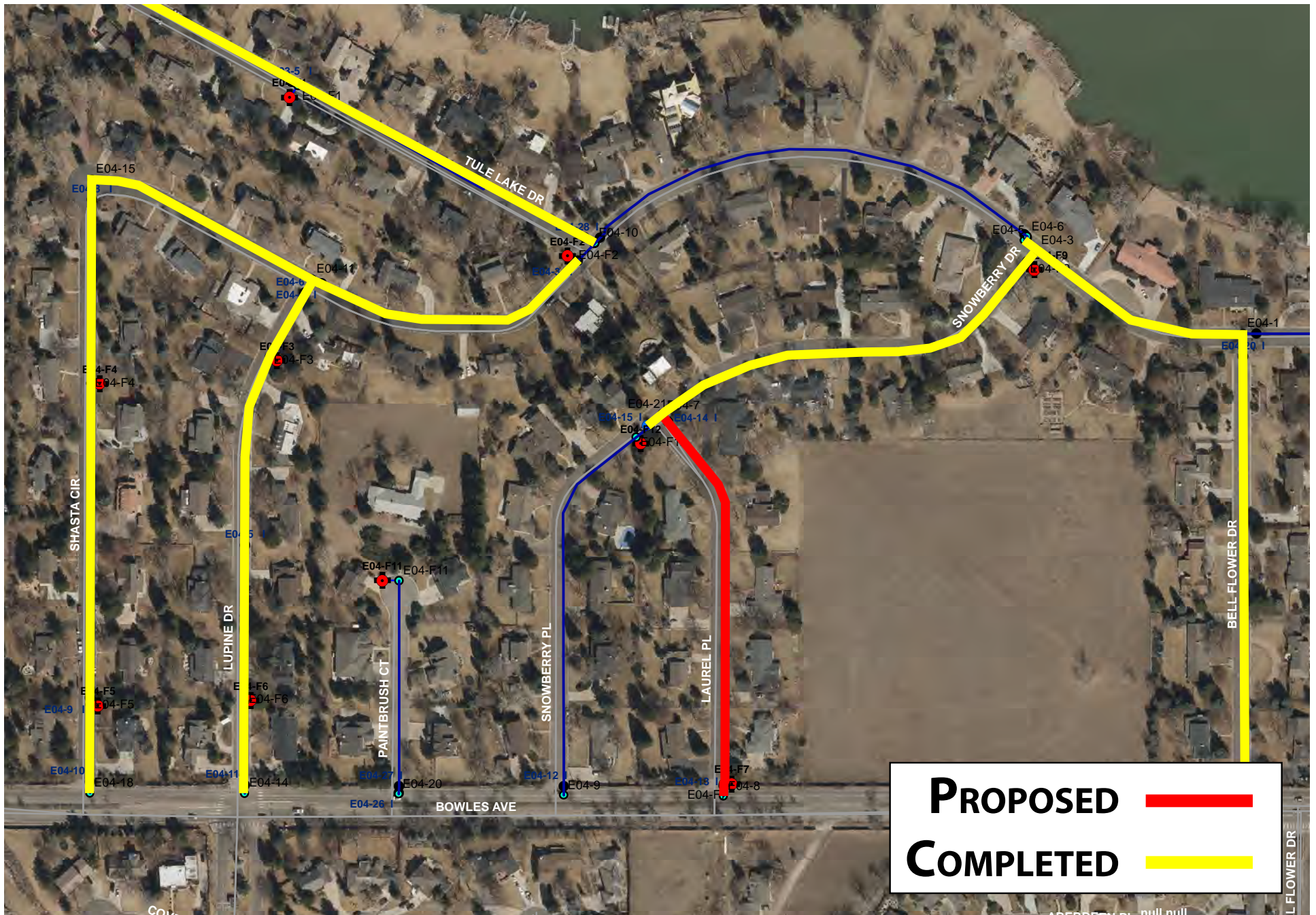
### Sewer

No projects scheduled.



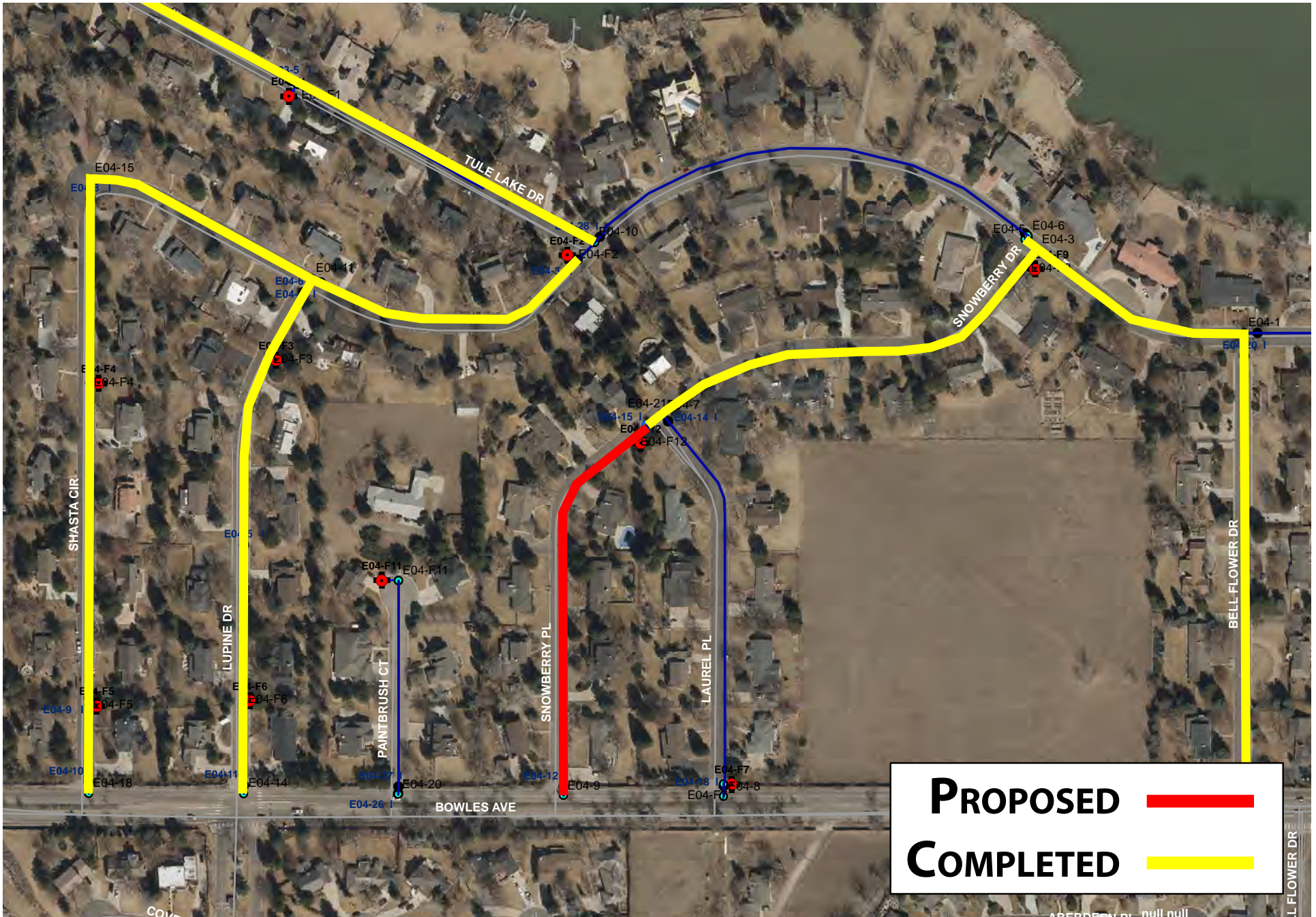
# PROJECT C.I.P. 24-1W

## S. LAUREL PL. WATER MAIN REPLACEMENT





PROJECT C.I.P. 24-2W  
S. SNOWBERRY DR. WATER MAIN REPLACEMENT





# PROJECT C.I.P. 24-3W

## MARIGOLD LN. WATER MAIN REPLACEMENT





# PROJECT C.I.P. 24-4W

## BLUE SAGE DR. WATER MAIN REPLACEMENT





## 2025 Capital Improvement Projects

### Water

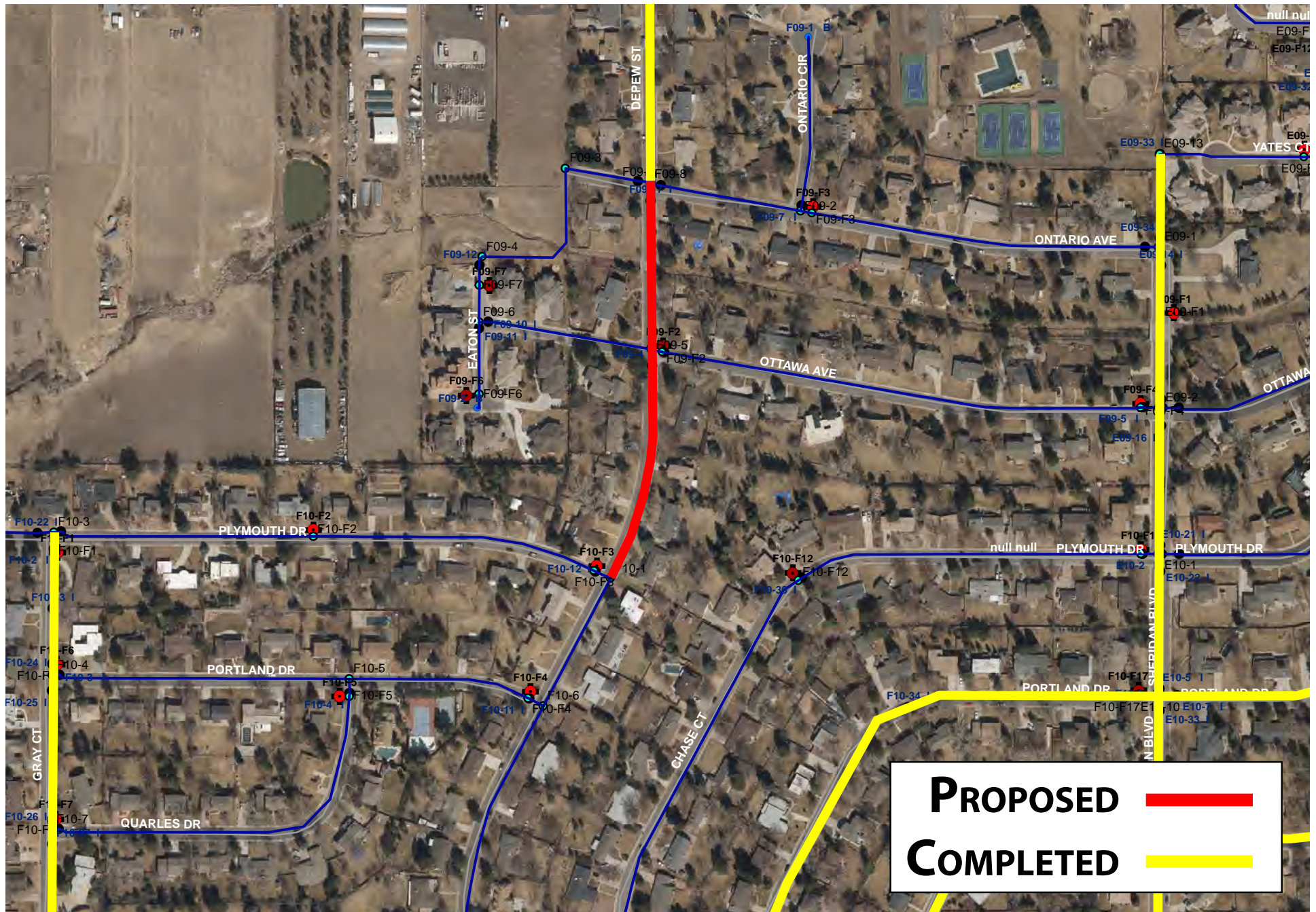
Project	Subdivision	Location	Description	Pipe Age (yrs)	COST			
					Construction	Contingency (20%)	Engineering (10%)	TOTAL
25-1W	Normandy Estates	S. Depew Street from W. Ontario Ave to W. Plymouth Drive	Replace 902 feet of 8-inch cast iron pipe with 8-inch PVC pipe; w/ culvert crossing	49, 65	\$405,022	\$81,004	\$40,502	<b>\$526,528</b>
25-2W	Normandy Estates	S. Depew St. from W. Plymouth Drive to W. Rowland Ave.	Replace 970 feet of 6-inch cast iron pipe with 8-inch PVC pipe; diameter was upsized by DW staff; replace 302 feet of 8-inch asbestos cement pipe with 8-inch PVC pipe	49, 65	\$500,703	\$100,141	\$50,070	<b>\$650,913</b>
25-3W	Columbine Hills	W. Chestnut Drive from S. Lamar Court to S. Kendall Blvd.	Replace 1,453 feet of 6-inch cast iron pipe with 6-inch PVC pipe	51	\$449,092	\$89,818	\$44,909	<b>\$583,820</b>
25-4W	Normandy Estates	W. Plymouth Dr. from S. Gray Court to S. Depew Street	Replace 1,271 feet of 8-inch cast iron pipe with 8-inch PVC pipe	48	\$500,308	\$100,062	\$50,031	<b>\$650,401</b>

### Sewer

No projects scheduled.

# PROJECT C.I.P. 25-1W

## S. DEPEW ST. WATER MAIN REPLACEMENT





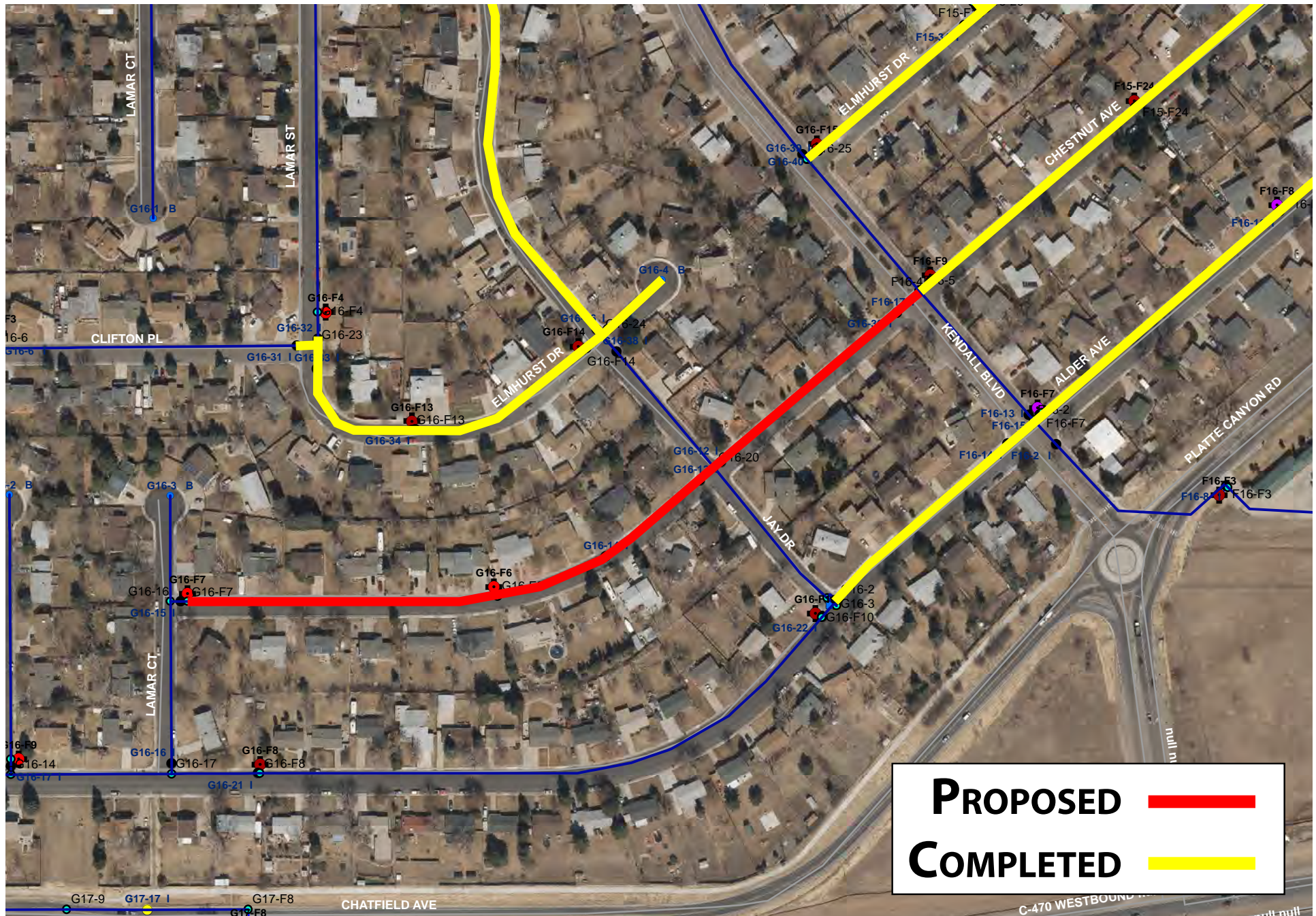
**PROPOSED** —

**COMPLETED** —



# PROJECT C.I.P. 25-3W

## W. CHESTNUT AVE. WATER MAIN REPLACEMENT





**PROPOSED** ———

**COMPLETED** ———

## 2026 Capital Improvement Projects

### Water

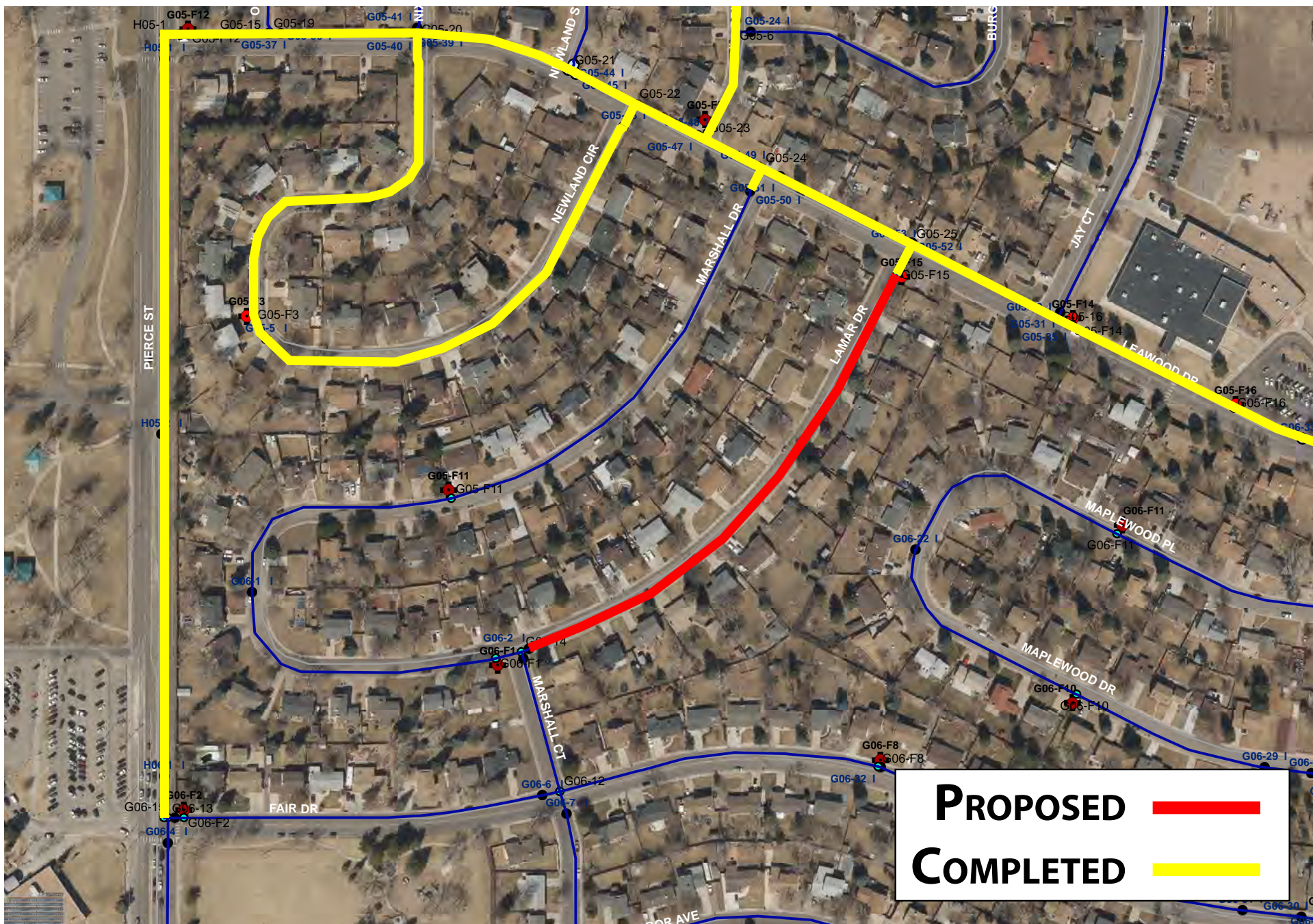
Project	Subdivision	Location	Description	Pipe Age (yrs)	COST			
					Construction	Contingency (20%)	Engineering (10%)	TOTAL
26-1W	Leawood	S. Lamar Dr. from W. Leawood Drive to S. Marshall Court	Replace 1,013 feet of 6-inch cast iron pipe with 6-inch PVC pipe	54	\$374,849	\$74,970	\$37,485	<b>\$487,304</b>
26-2W	Leawood	W. Burgandy Drive loop off W. Brittany Place	Replace 857 feet of 6-inch cast iron pipe with 6-inch PVC pipe	60	\$317,108	\$63,422	\$31,711	<b>\$412,241</b>
26-3W	Leawood	S. Marshall Place from W. Leawood Drive to S. Marshall Court	Replace 1,931 feet of 8-inch cast iron pipe with 8-inch PVC pipe	53	\$779,446	\$155,889	\$77,945	<b>\$1,013,280</b>

### Sewer

No projects scheduled.



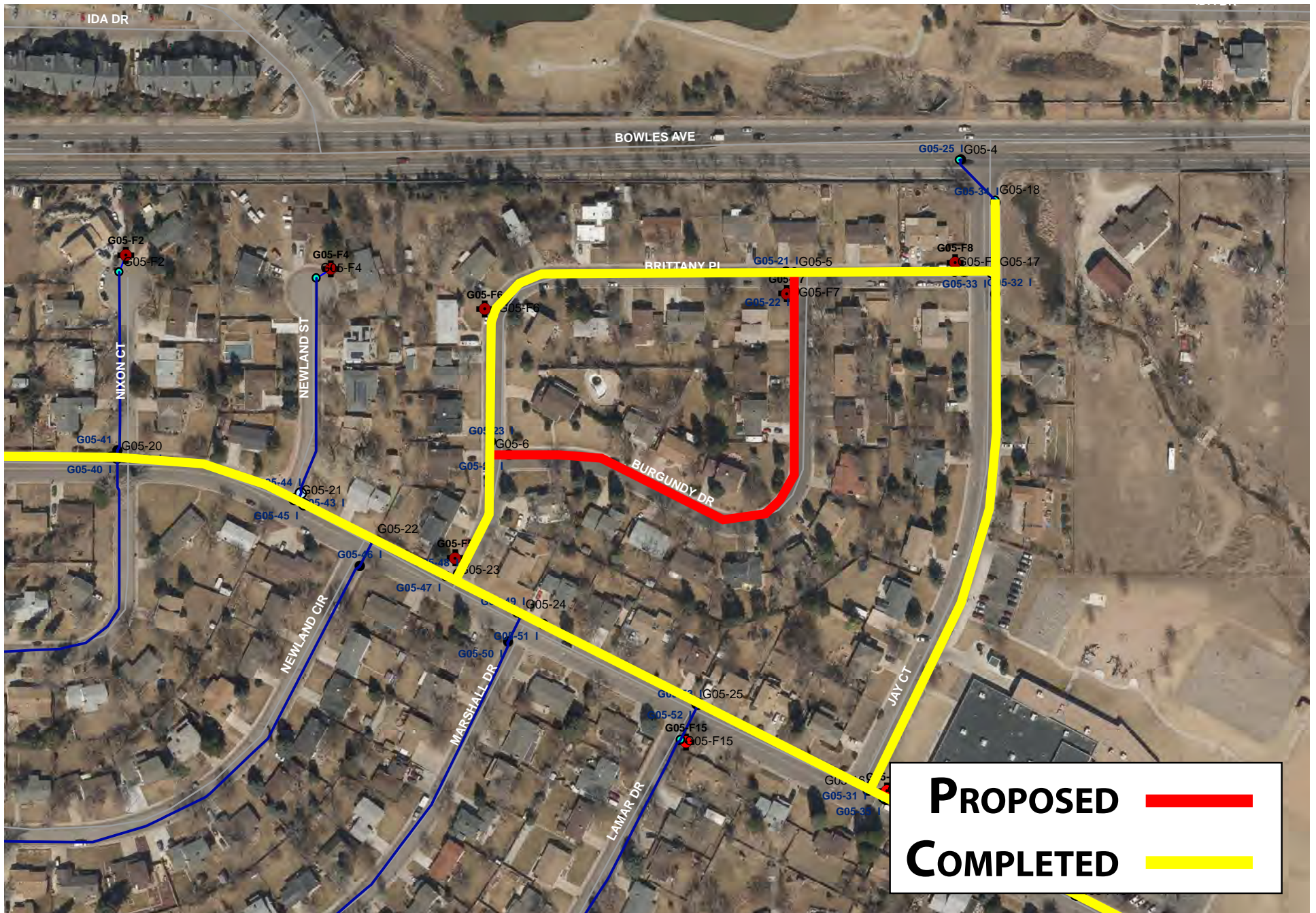
PROJECT C.I.P. 26-1W  
S. LAMAR DR. WATER MAIN REPLACEMENT





# PROJECT C.I.P. 26-2W

## W. BURGANDY DR. WATER MAIN REPLACEMENT







## 2027 Capital Improvement Projects

### Water

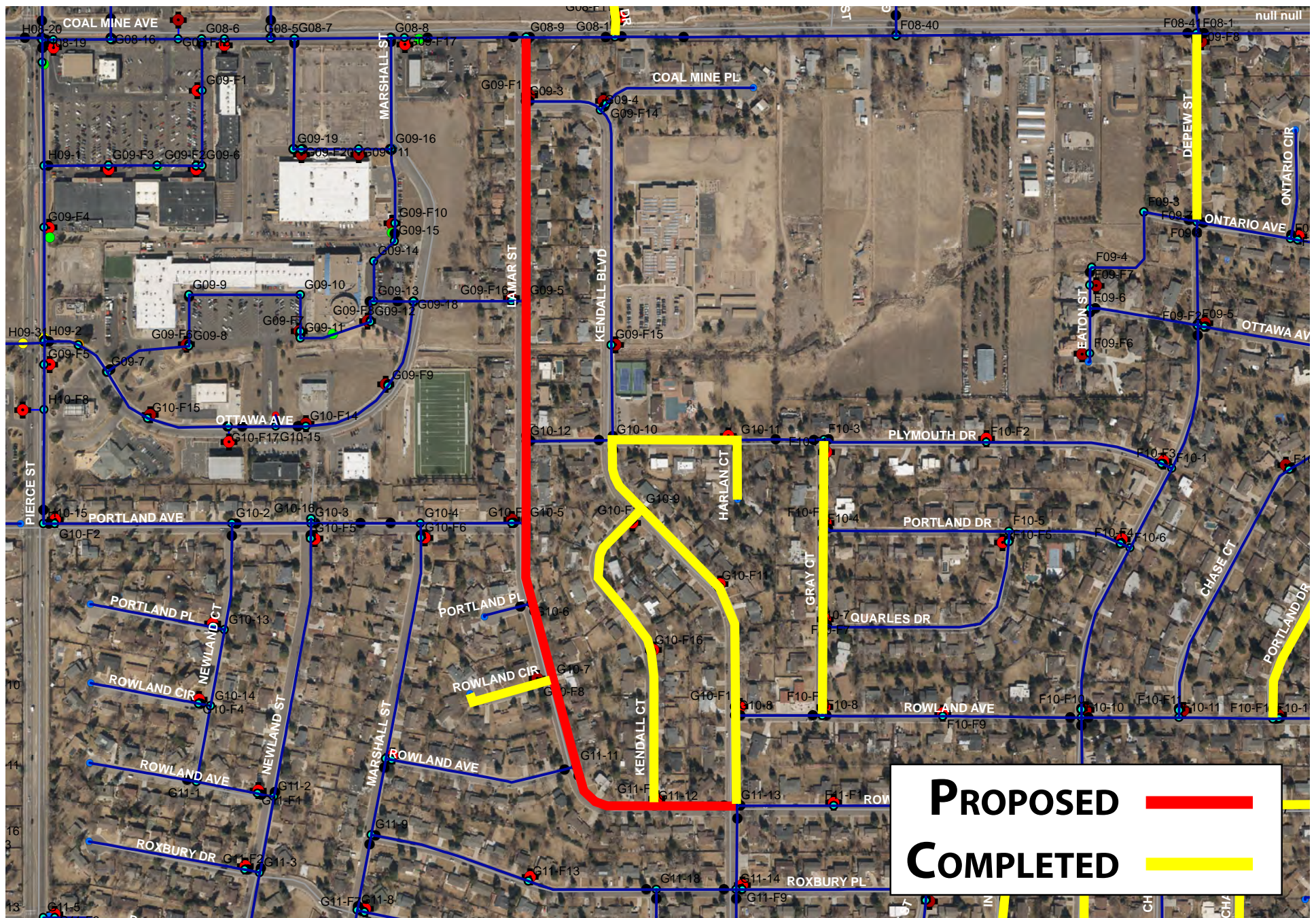
Project	Subdivision	Location	Description	Pipe Age (yrs)	COST			
					Construction	Contingency (20%)	Engineering (10%)	TOTAL
27-1W	Columbine Knolls	S. Lamar Street from W. Coal Mine Ave. to S. Kendall Blvd.	Replace 3,305 feet of 12-inch cast iron pipe with 12-inch PVC pipe	59	\$1,711,793	\$342,359	\$171,179	<b>\$2,225,331</b>
27-2W	Columbine Knolls	W. Portland Ave. from S. Marshall Street to S. Lamar Street	Replace 373 feet of 8-inch cast iron pipe with 8-inch PVC pipe	59	\$154,248	\$30,850	\$15,425	<b>\$200,523</b>
27-3W	Columbine West	Webster St. from W. Coal Mine Ave. to W. Glasgow Place	Replace 902 feet of 8-inch cast iron pipe with 8-inch PVC pipe	51	\$548,806	\$109,761	\$54,881	<b>\$713,448</b>

### Sewer

No projects scheduled.



PROJECT C.I.P. 27-1W  
S. LAMAR ST. WATER MAIN REPLACEMENT





# PROJECT C.I.P. 27-2W

## W. PORTLAND AVE. WATER MAIN REPLACEMENT





# PROJECT C.I.P. 27-3W

## WEBSTER ST. WATER MAIN REPLACEMENT



## 2028 Capital Improvement Projects

### Water

Project	Subdivision	Location	Description	Pipe Age (yrs)	COST			
					Construction	Contingency (20%)	Engineering (10%)	TOTAL
28-1W	Columbine Knolls	W. Rowland Place from S. Kendall Blvd. to S. Depew Street	Replace 1,192 feet of 8-inch cast iron pipe with 12-inch PVC pipe; diameter was upsized by DW staff	54	\$591,211	\$118,242	\$59,121	<b>\$768,575</b>
28-2W	Columbine Knolls	W. Roxbury Place from S. Kendall Blvd. to S. Ingalls Way	Replace 961 feet of 6-inch cast iron pipe with 6-inch PVC pipe	54	\$373,995	\$74,799	\$37,399	<b>\$486,193</b>
28-3W	Columbine West	W. Glasow Pl. cul-de-sac off W. Hinsdale Drive	Replace 351 feet of 4-inch cast iron pipe with 4-inch PVC pipe	50	\$548,806	\$109,761	\$54,881	<b>\$713,448</b>
28-4W	Columbine Knolls	S. Chase Ct. from S. Rowland Place to W. Geddes Place	Replace 1,088 feet of 8-inch cast iron pipe with 8-inch PVC pipe	54	\$124,143	\$24,829	\$12,414	<b>\$161,385</b>
28-5W	Columbine Knolls	S. Marshall St. from W. Portland Ave. to W. Roxbury Place	Replace 1,133 feet of 8-inch cast iron pipe with 8-inch PVC pipe	59	\$480,952	\$96,190	\$48,095	<b>\$625,238</b>
28-6W	Leawood	S. Newland St. cul-de-sac off W. Leawood Drive	Replace 347 feet of 6-inch cast iron pipe with 6-inch PVC pipe	60	\$135,371	\$27,074	\$13,537	<b>\$175,982</b>

### Sewer

No projects scheduled.



# PROJECT C.I.P. 28-1W

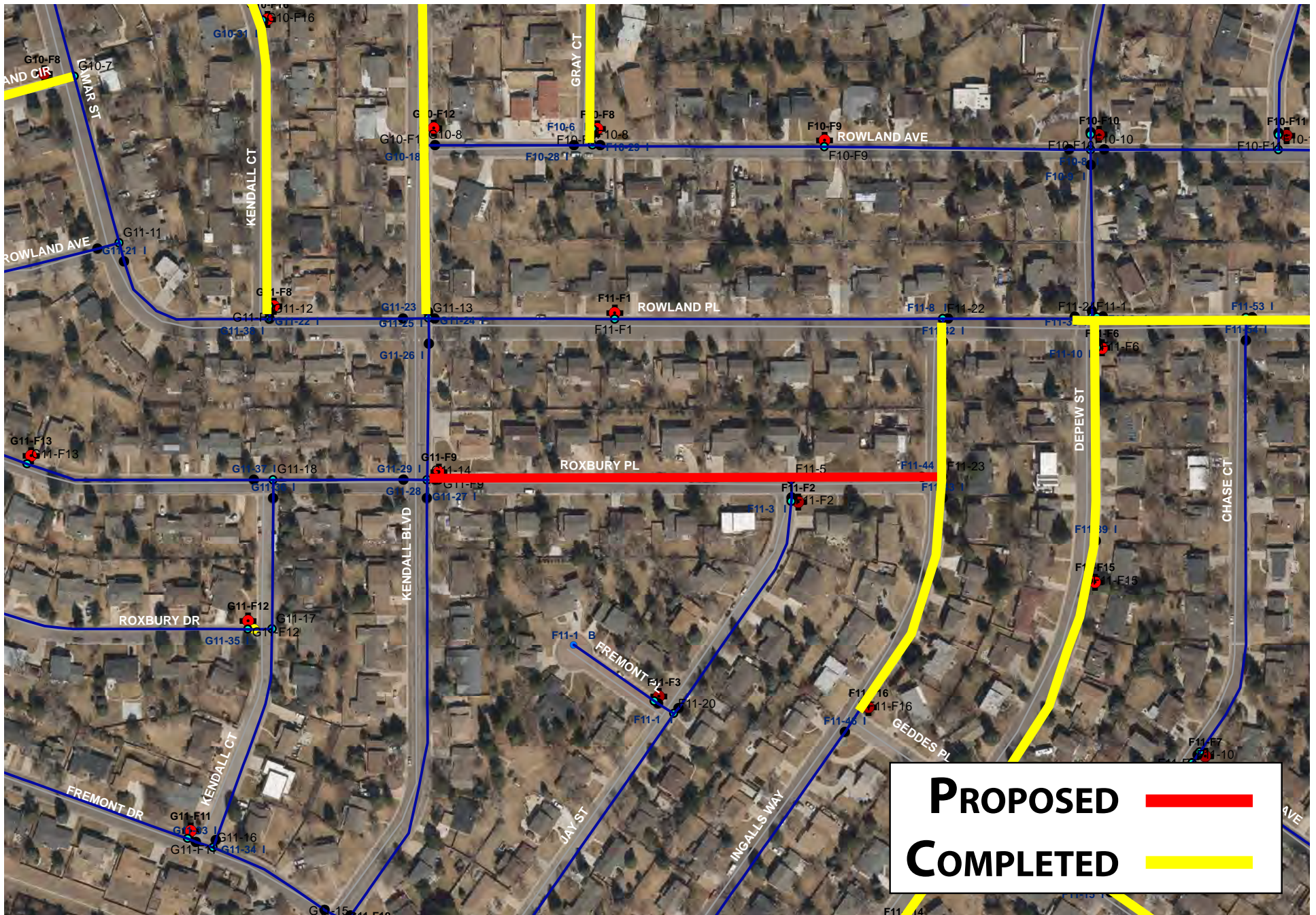
## W. ROWLAND PL. WATER MAIN REPLACEMENT





# PROJECT C.I.P. 28-2W

## W. ROXBURY PL. WATER MAIN REPLACEMENT







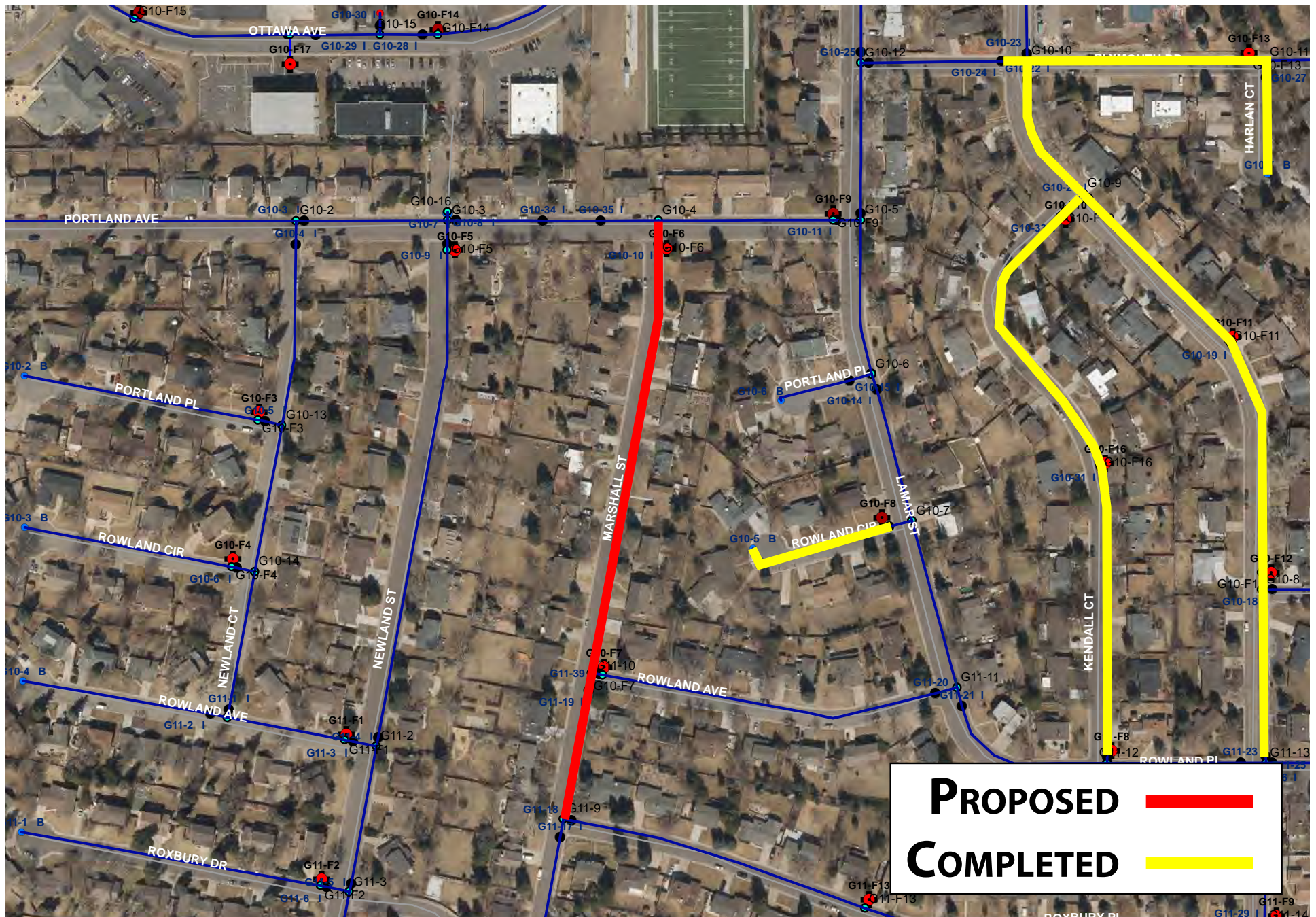


**PROPOSED** ———

**COMPLETED** ———



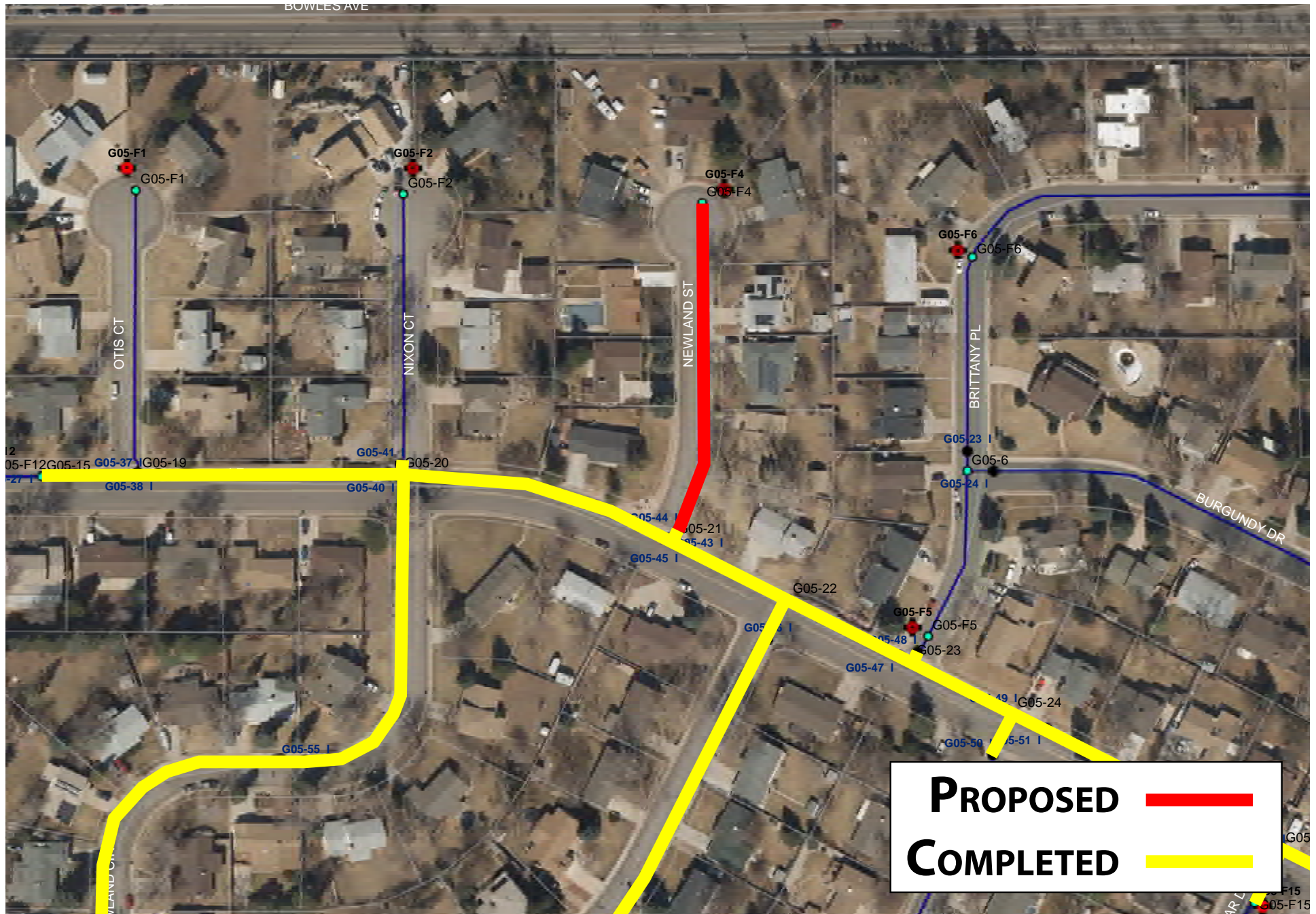
PROJECT C.I.P. 28-5W  
S. MARSHALL ST. WATER MAIN REPLACEMENT





# PROJECT C.I.P. 28-6W

## S. NEWLAND ST. WATER MAIN REPLACEMENT



## 2029 Capital Improvement Projects

### Water

Project	Subdivision	Location	Description	Pipe Age (yrs)	COST			
					Construction	Contingency (20%)	Engineering (10%)	TOTAL
29-1W	Columbine Hills	S. Kendall Blvd. from W. Rowland Place to W. Fremont Drive	Replace 1,013 feet of 6-inch cast iron pipe with 6-inch PVC pipe	51, 54	\$631,120	\$126,224	\$63,112	<b>\$820,456</b>
29-2W	Columbine West	S. Salisbury Court cul-de-sac off W. Hinsdale Dr.	Replace 262 feet of 4-inch cast iron pipe with 4-inch PVC pipe	51	\$95,069	\$19,014	\$9,507	<b>\$123,590</b>
29-3W	Columbine West	S. Reed Court cul-de-sac off W. Hinsdale Dr.	Replace 351 feet of 4-inch cast iron pipe with 4-inch PVC pipe	51	\$127,273	\$25,455	\$12,727	<b>\$165,456</b>
29-4W	Columbine West	S. Vance Street cul-de-sac off W. Hinsdale Dr.	Replace 310 feet of 4-inch cast iron pipe with 4-inch PVC pipe	51	\$112,510	\$22,502	\$11,251	<b>\$146,264</b>
29-5W	Columbine West	W. Quarto Place cul-de-sac off S. Pierce Court	Replace 433 feet of 6-inch cast iron pipe with 6-inch PVC pipe	50	\$172,873	\$34,575	\$17,287	<b>\$224,735</b>
29-6W	Columbine West	S. Teller Street cul-de-sac off W. Hinsdale Dr.	Replace 303 feet of 4-inch cast iron pipe with 4-inch PVC pipe	65	\$110,139	\$22,028	\$11,014	<b>\$143,180</b>

### Sewer

No projects scheduled.



**PROPOSED** ———

**COMPLETED** ———

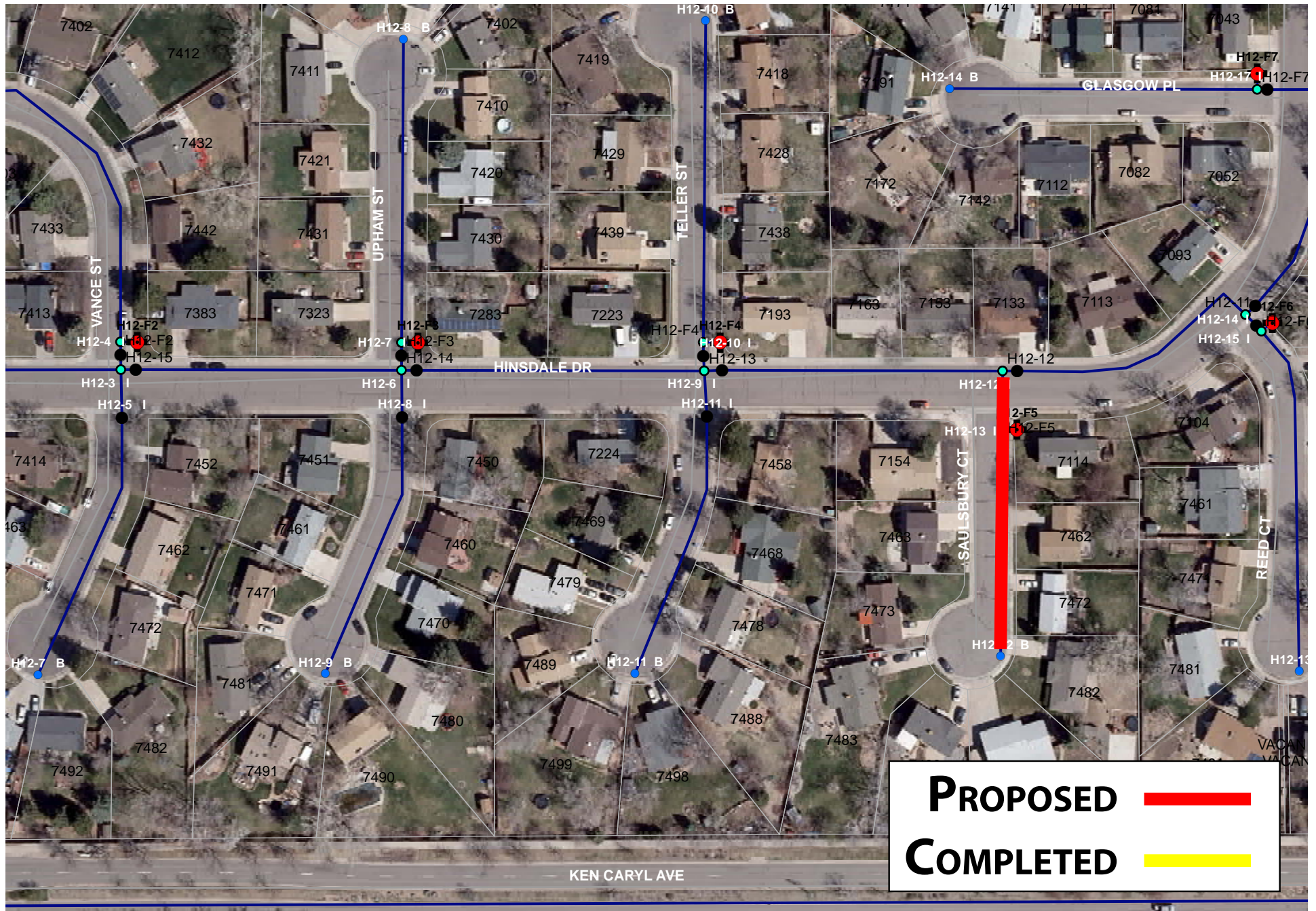
**PROPOSED** 

**COMPLETED** 



# PROJECT C.I.P. 29-2W

## S. SAULSBURY CT. WATER MAIN REPLACEMENT









**PROPOSED** —

**COMPLETED** —



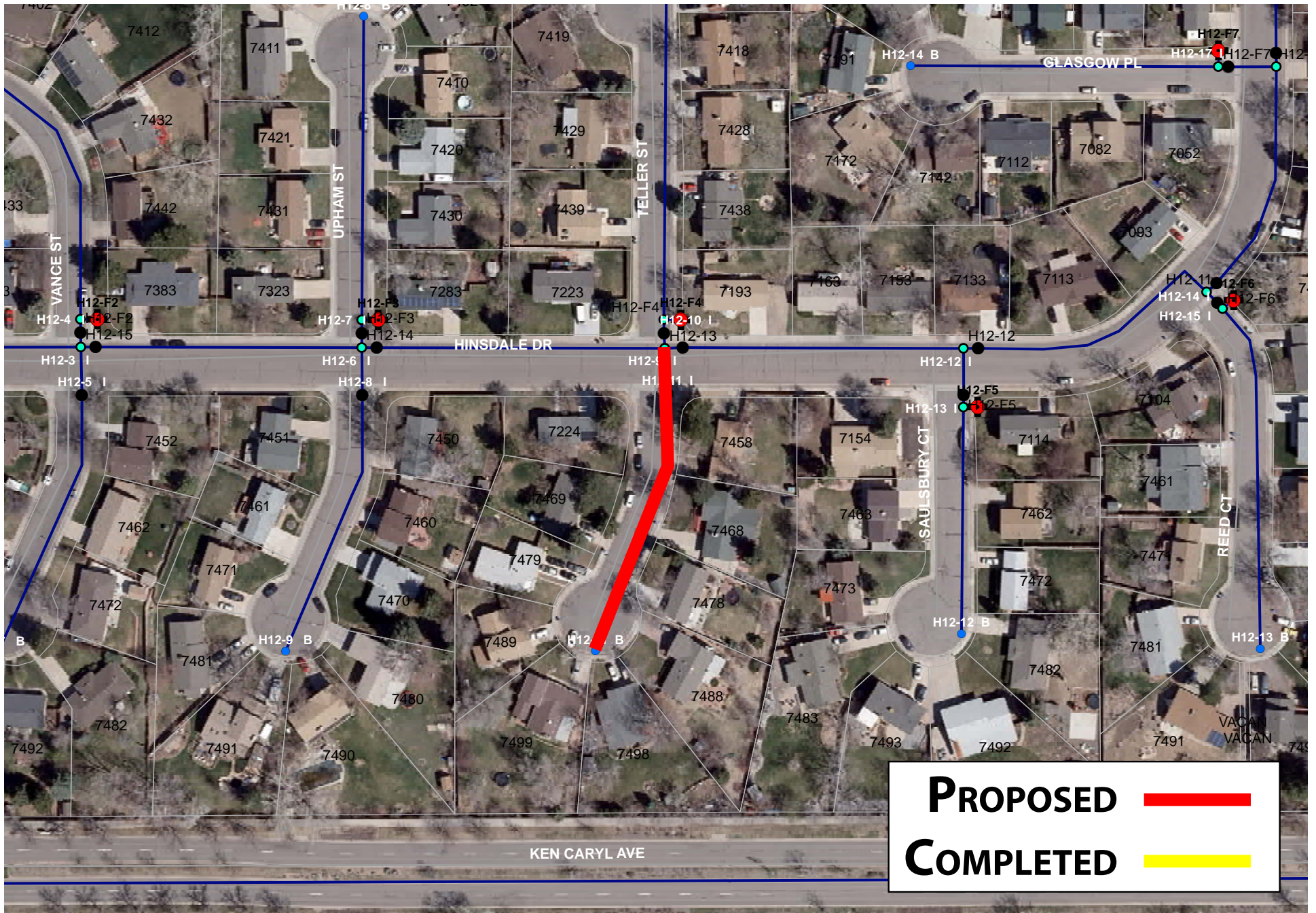
# PROJECT C.I.P. 29-5W

## W. QUARTO PL. WATER MAIN REPLACEMENT





PROJECT C.I.P. 29-6W  
S. TELLER ST. WATER MAIN REPLACEMENT



## 2030 Capital Improvement Projects

### Water

Project	Subdivision	Location	Description	Pipe Age (yrs)	COST			
					Construction	Contingency (20%)	Engineering (10%)	TOTAL
30-1W	Normandy Estates	W. Ontario Ave. from S. Depew Street to S. Sheridan Blvd.	Replace 1,160 feet of 8-inch cast iron pipe with 8-inch PVC pipe	65	\$517,840	\$103,568	\$51,784	<b>\$673,192</b>
30-2W	Normandy Estates	W. Ontario Circle cul-de-sac off W. Ontario Ave.	Replace 394 feet of 4-inch cast iron pipe with 4-inch PVC pipe	65	\$146,770	\$29,354	\$14,677	<b>\$190,802</b>
30-3W	Columbine Knolls	W. Monticello Ave. from S. Jay Dr. to S. Kendall Blvd. then north on S. Kendall Blvd. to W. Elmhurst Ave	Replace 260 feet of 8-inch cast iron pipe with 8-inch PVC pipe and 684 feet of 10-inch cast iron pipe with 10-inch PVC pipe	62	\$493,841	\$98,768	\$49,384	<b>\$641,993</b>
30-4W	Columbine Hills	S. Alder Ave. from S. Marshall Court to S. Jay Drive	Replace 1821 feet of 6-inch cast iron pipe with 6-inch PVC pipe	49	\$745,232	\$149,046	\$74,523	<b>\$968,801</b>

### Sewer

No projects scheduled.



# PROJECT C.I.P. 30-1W

## W. ONTARIO AVE. WATER MAIN REPLACEMENT





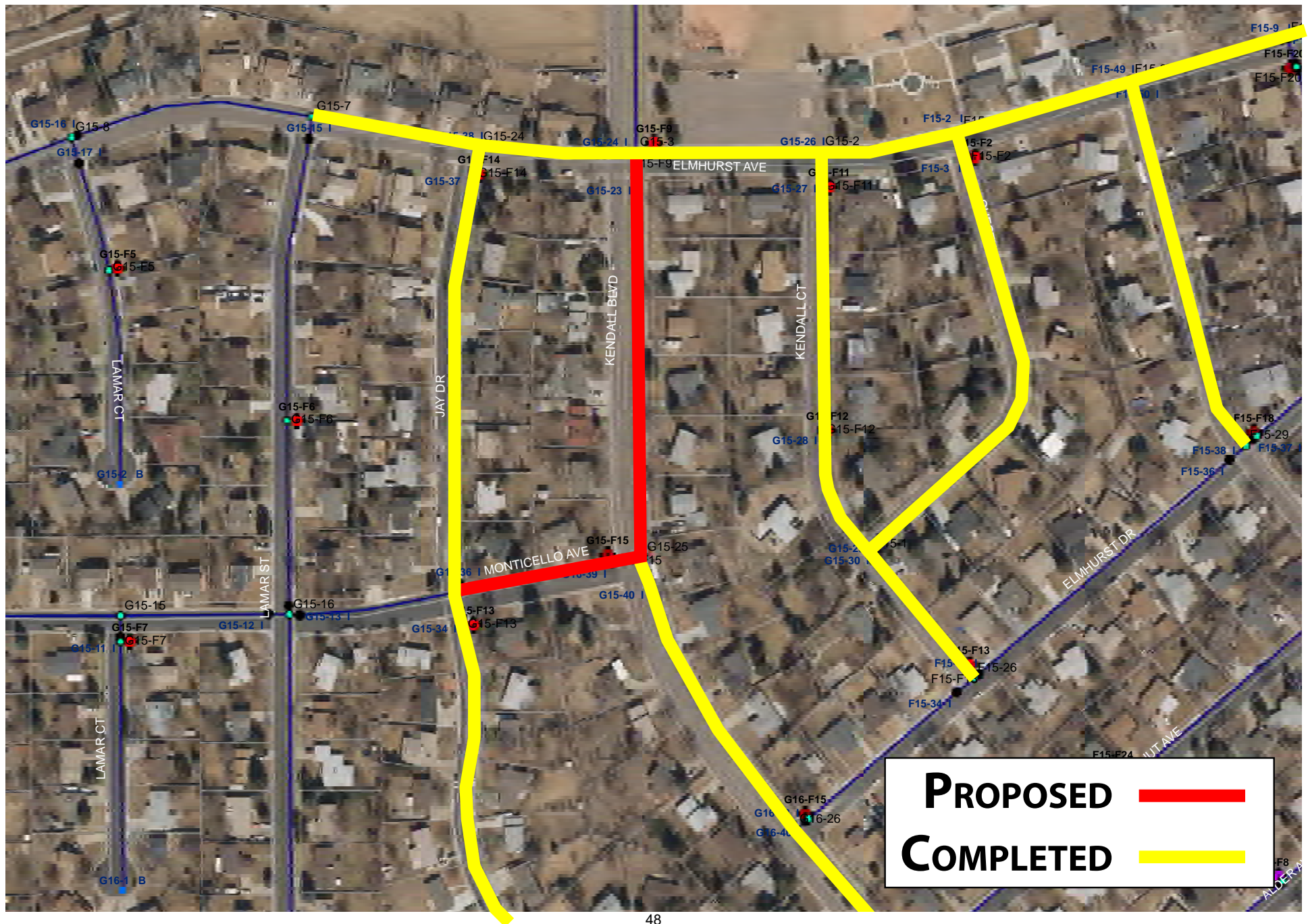
# PROJECT C.I.P. 30-2W

## W. ONTARIO CIR. WATER MAIN REPLACEMENT





PROJECT C.I.P. 30-3W  
W. MONTICELLO AVE. WATER MAIN REPLACEMENT







## 2031 Capital Improvement Projects

### Water

Project	Subdivision	Location	Description	Pipe Age (yrs)	COST			
					Construction	Contingency (20%)	Engineering (10%)	TOTAL
31-1W	Normandy Estates	W. Rowland Ave. from S. Kendall Blvd. to S. Depew Street	Replace 1,216 feet of 6-inch cast iron pipe with 6-inch PVC pipe	49, 59	\$510,283	\$102,057	\$51,028	<b>\$663,368</b>
31-2W	Columbine Knolls	W. Rowland Ave. from S. Marshall Street to S. Lamar Street	Replace 1,013 feet of 6-inch cast iron pipe with 6-inch PVC pipe	59	\$294,372	\$58,874	\$29,437	<b>\$382,684</b>
31-3W	Columbine Hills	S. Marshall Court from W. Alder Ave. to W. Chatfield Ave.	Replace 234 feet of 6-inch cast iron pipe with 6-inch PVC pipe	55	\$98,195	\$19,639	\$9,819	<b>\$127,653</b>
31-4W	Columbine Hills	S. Jay Drive from W. Elmhurst Dr. to W. Alder Ave.	Replace 623 feet of 12-inch cast iron pipe with 12-inch PVC pipe	62	\$356,821	\$71,364	\$35,682	<b>\$463,867</b>
31-5W	Columbine Knolls	W. Roxbury Pl. from S. Marshall Street to S. Kendall Blvd.	Replace 1,931 feet of 8-inch cast iron pipe with 8-inch PVC pipe	59	\$565,475	\$113,095	\$56,548	<b>\$735,118</b>
31-6W	Columbine West	S. Upham St. cul-de-sac off W. Hinsdale Dr.	Replace 306 feet of 4-inch cast iron pipe with 4-inch PVC pipe	51	\$116,852	\$23,370	\$11,685	<b>\$151,908</b>

### Sewer

No projects scheduled.

# PROJECT C.I.P. 31-1W

## W. ROWLAND AVE. WATER MAIN REPLACEMENT





# PROJECT C.I.P. 31-2W

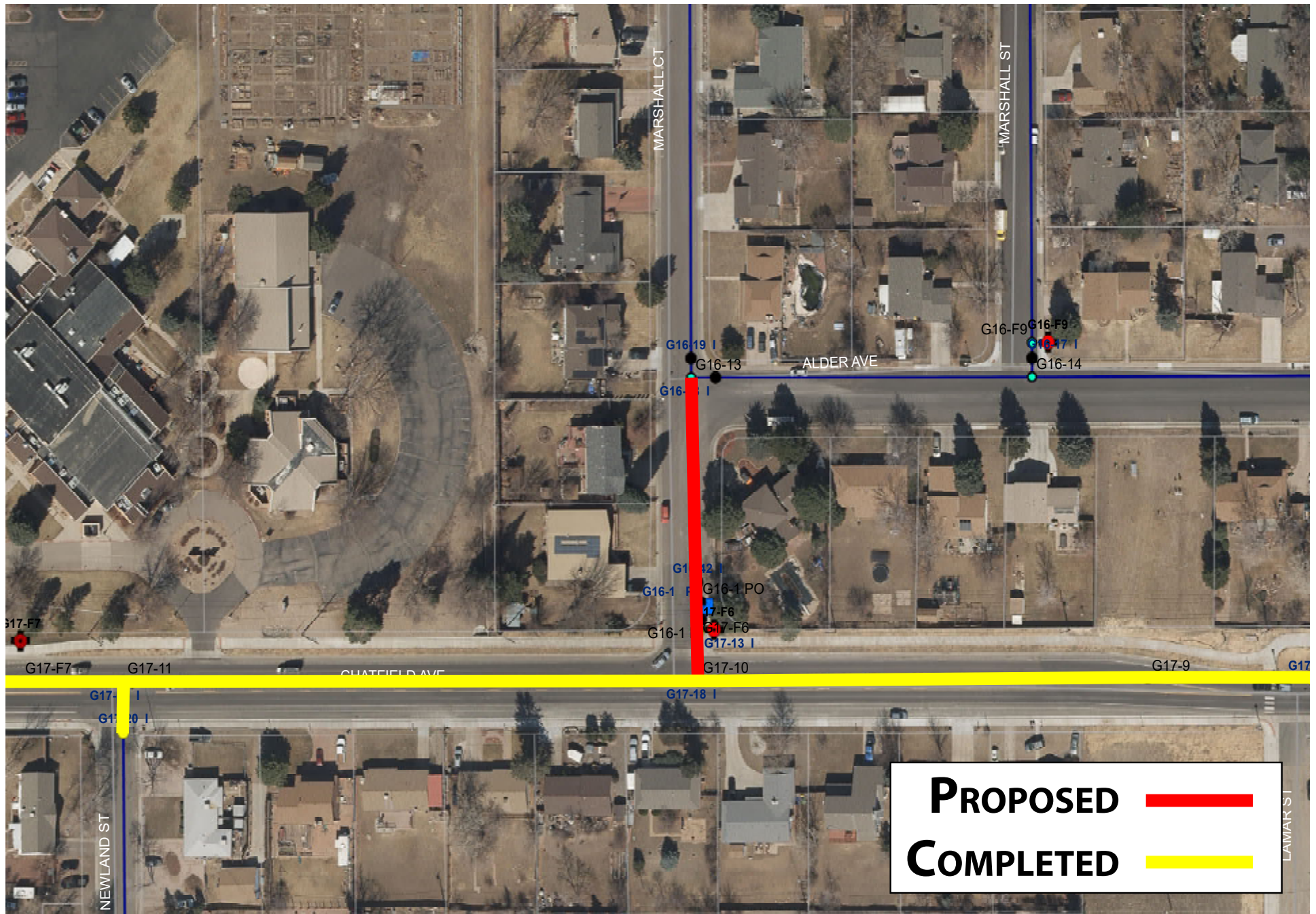
## W. ROWLAND AVE. WATER MAIN REPLACEMENT





# PROJECT C.I.P. 31-3W

## S. MARSHALL CT. WATER MAIN REPLACEMENT





# PROJECT C.I.P. 31-4W

## S. JAY DR. WATER MAIN REPLACEMENT





# PROJECT C.I.P. 31-5W

## W. ROXBURY PL. WATER MAIN REPLACEMENT





# PROJECT C.I.P. 31-6W

## S. UPHAM ST. WATER MAIN REPLACEMENT



## 2032 Capital Improvement Projects

### Water

Project	Subdivision	Location	Description	Pipe Age (yrs)	COST			
					Construction	Contingency (20%)	Engineering (10%)	TOTAL
32-1W	Columbine Hills	S. Ames Way from W. Ken Caryl Ave. to W. Caryl Ave.	Replace 885 feet of 6-inch cast iron pipe with 6-inch PVC pipe	63	\$379,764	\$75,953	\$37,976	<b>\$493,693</b>
32-2W	N/A	W. Coal Mine Ave. from S. Marshall Street to S. Depew Street	Replace 2,906 feet of 8-inch asbestos cement pipe with 12-inch PVC pipe; diameter was upsized by DW staff	63	\$130,230	\$26,046	\$13,023	<b>\$169,299</b>
32-3W	Columbine Hills	W. Caryl Ave. from S. Sheridan Ct. to S. Depew Way	Replace 303 feet of 6-inch cast iron pipe with 6-inch PVC pipe	58	\$1,593,262	\$318,652	\$159,326	<b>\$2,071,240</b>

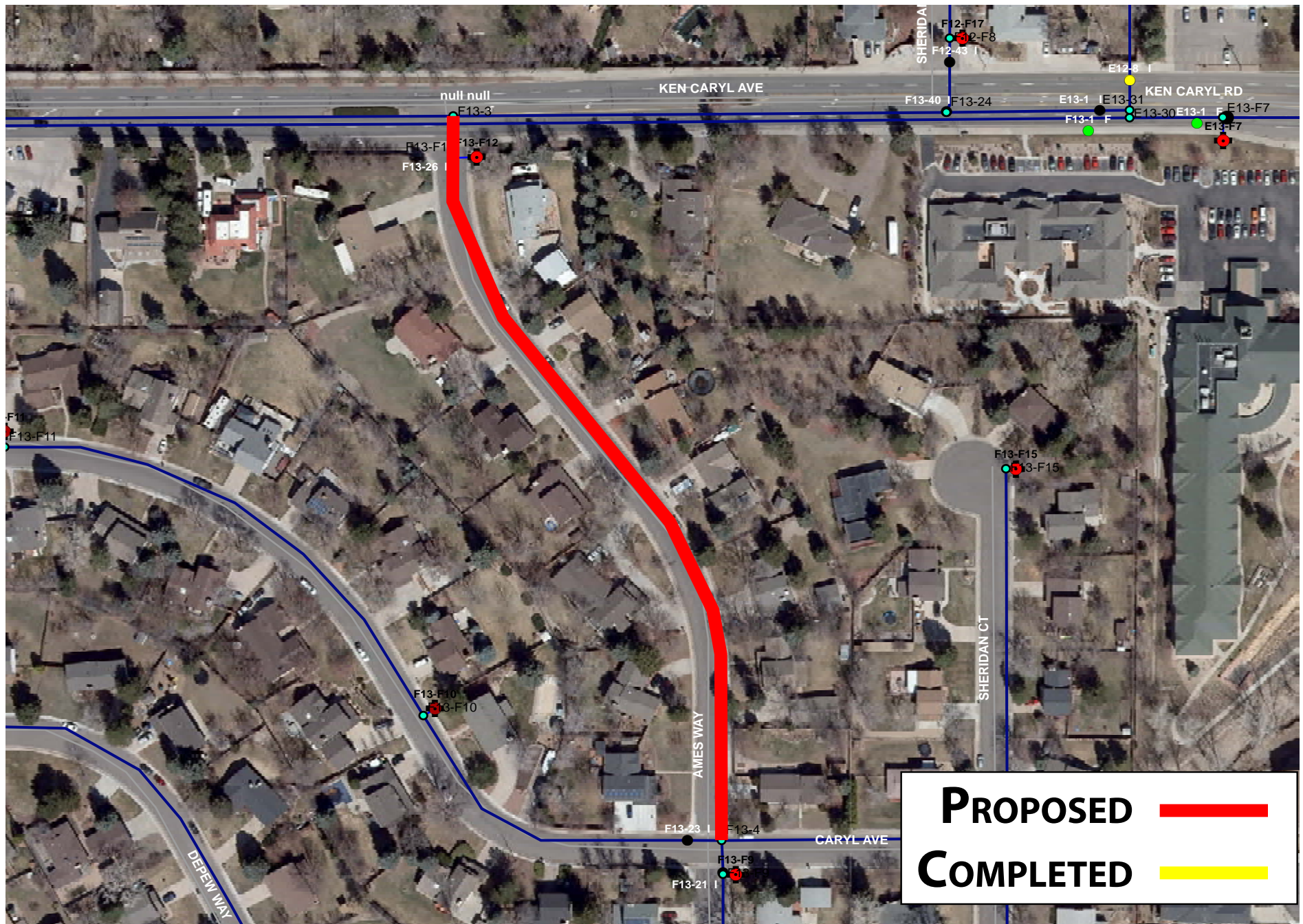
### Sewer

No projects scheduled.



# PROJECT C.I.P. 32-1W

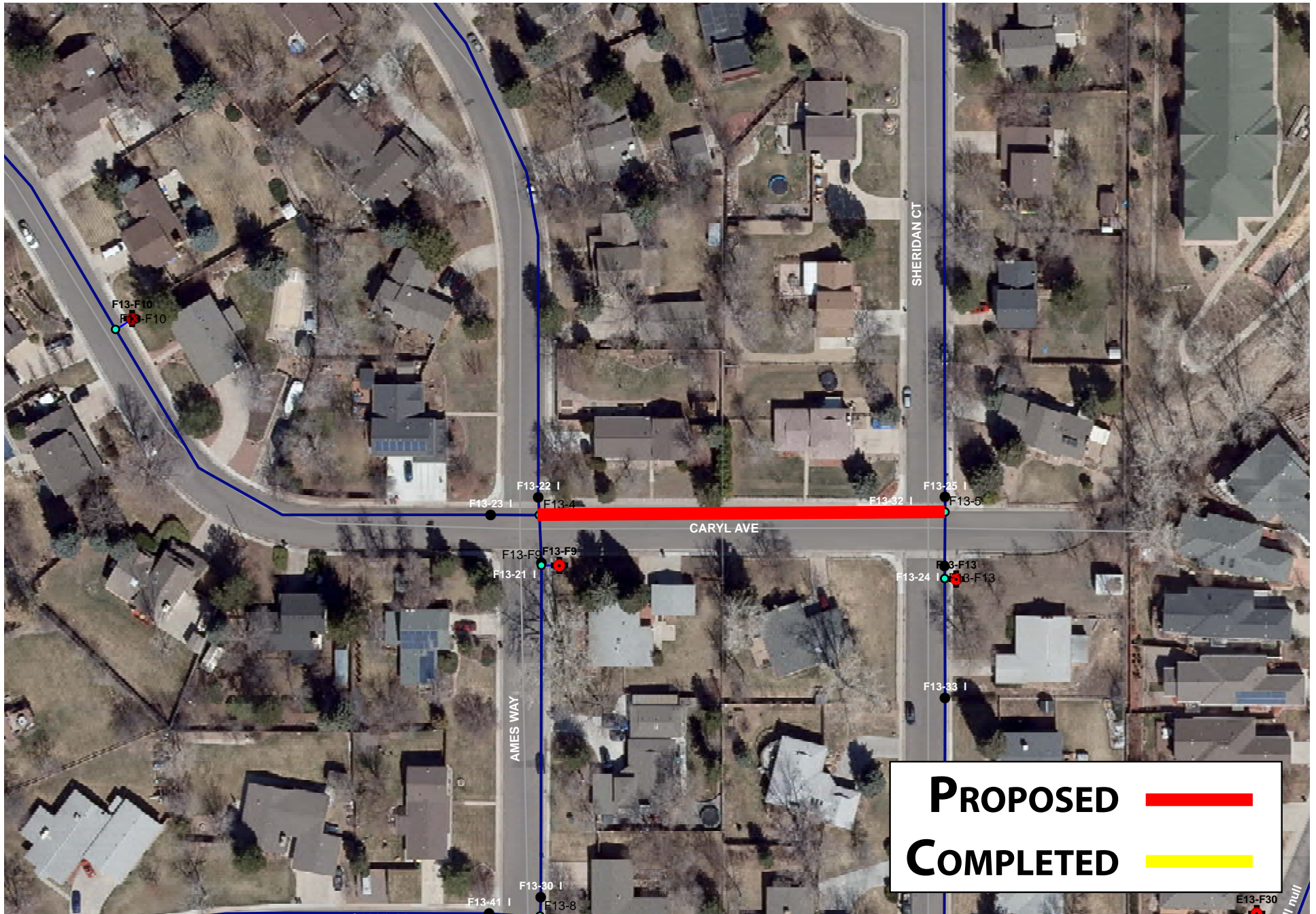
## S. AMES WAY WATER MAIN REPLACEMENT





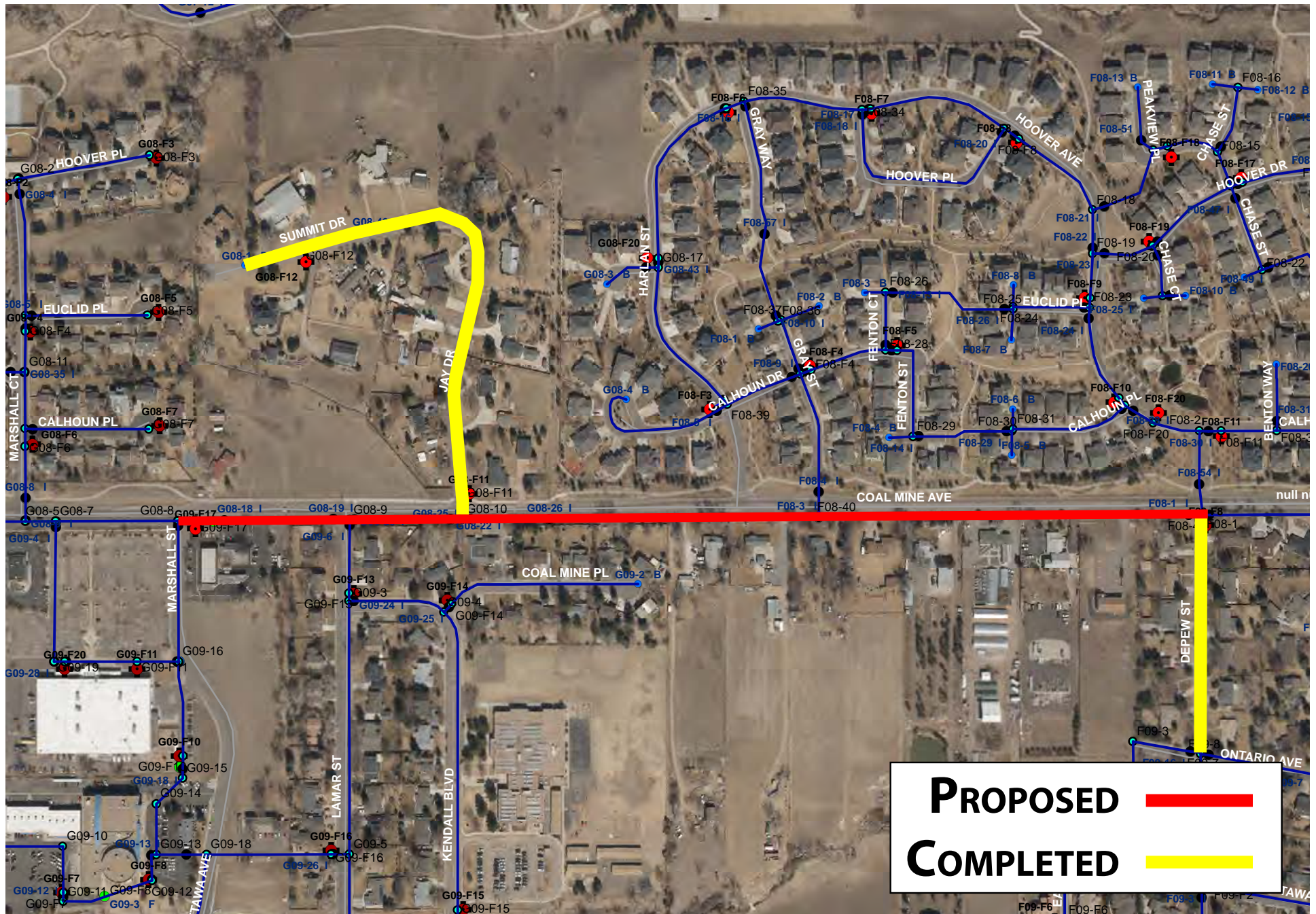
# PROJECT C.I.P. 32-2W

## W. CARYL AVE. WATER MAIN REPLACEMENT





# W. COAL MINE AVE. WATER MAIN REPLACEMENT



## **SECTION 4**

### **VEHICLE AND EQUIPMENT SCHEDULE 2023 - 2032**



## VEHICLE AND EQUIPMENT SCHEDULE

<b><u>2023</u></b>	4WD pickup (Replaces 2013 pickup)	(\$40,000)	
	4WD pickup (Replaces 2015 pickup)	(\$40,000)	
	4" Trailer Mounted Trash Pump	(\$40,000)	\$120,000
<b><u>2024</u></b>	4WD pickup (Replaces 2016 pickup)	(\$40,000)	
	Combination Valve/Vacuum Operator (Replaces 2016 Hurco)	(\$59,000)	
	6" Trailer Mounted Trash Pump	(\$60,000)	\$159,000
<b><u>2025</u></b>	Combination Sewer Cleaner/Vac Unit (Replaces 2015 VacCon Unit)	(\$525,000)	\$525,000
<b><u>2026</u></b>	No purchases scheduled in this year		
<b><u>2027</u></b>	4WD pickup (Replaces 2019 pickup)	(\$40,000)	
	Trailer-Mounted Arrow Board (Replaces 2019 Arrow Board)	(\$11,000)	\$51,000
<b><u>2028</u></b>	4WD Pickup (Replaces 2020 Pickup)	(\$40,000)	
	Television Unit (Replaces 2018 Cues Unit)	(\$378,000)	
	Trailer Mounted Message Board (Replaces 2020 Message Board)	(\$34,000)	\$452,000

<b><u>2029</u></b>	4WD Pickup (Replaces 2021 Pickup)	(\$40,000)	
	Utility Vehicle (Replaces 2021 Utility Vehicle)	(\$48,000)	\$ 88,000
<b><u>2030</u></b>	4WD Pickup (Replaces 2022 Pickup (1))	(\$40,000)	
	4WD Pickup (Replaces 2022 Pickup (2))	(\$40,000)	
	Trailer-Mounted Valve Operator (Replaces 2022 Hurco Unit)	(\$32,000)	\$112,000
<b><u>2031</u></b>	4WD Pickup (Replaces 2023 Pickup (1))	(\$40,000)	
	4WD Pickup (Replaces 2023 Pickup (1))	(\$40,000)	
	Flatbed with compressor and Crane (Replaces 2021 Flatbed)	(\$116,000)	
	4" Trailer Mounted Trash Pump	(\$40,000)	\$236,000
<b><u>2032</u></b>	Combination Valve/Vacuum Operator (Replaces 2023 Hurco)	(\$59,000)	
	4WD pickup (Replaces 2016 pickup)	(\$40,000)	
	Sewer Cleaner (Replaces 2022 Sewer Cleaner)	(\$350,000)	
	6" Trailer Mounted Trash Pump	(\$60,000)	\$509,000



## **SECTION 5**

### **COMPLETED CAPITAL CONSTRUCTION PROJECTS**

## **COMPLETED CAPITAL CONSTRUCTION PROJECTS**

<b><u>September 2021</u></b>	<b>Project CIP 21-1W</b> Replaced 1,900 feet of 8-inch cast iron pipe with 1,900 feet of 8-inch PVC pipe in S. Depew Street between S. Platte Canyon Road and W. Canyon Trail in the Columbine Hills Subdivision. This project also includes a culvert crossing (\$682,940)
<b><u>September 2021</u></b>	<b>Project CIP 21-2W</b> Replaced 700 feet of 6-inch cast iron pipe with 700 feet of 6-inch PVC pipe in W. Alder Way between S. Depew St. and W. Alder Ave. in the Columbine Hills Subdivision (\$172,026)
<b><u>September 2021</u></b>	<b>Project CIP 21-3W</b> Replaced 1,700 feet of 6-inch cast iron pipe with 1,700 feet of 8-inch PVC pipe on the S. Newland Circle loop on W. Leawood Dr. in the Leawood Subdivision (\$358,068)
<b><u>September 2020</u></b>	<b>Project CIP 20-1W</b> Replaced 1,311 feet of 6-inch cast iron pipe with 1,311 feet of 6-inch PVC pipe in W. Geddes Ave. between S. Sheridan Ct. and S. Chase Ct. in the Columbine Knolls and Grove Subdivision (\$292,745)
<b><u>September 2020</u></b>	<b>Project CIP 20-2W</b> Replaced 1,107 feet of 8-inch cast iron pipe with 1,107 feet of 12-inch PVC pipe in S. Kendall Blvd. between W. Alder Ave. and W. Monticello Ave. in the Columbine Hills Subdivision (\$315,517)
<b><u>September 2020</u></b>	<b>Project CIP 20-3W</b> Replaced 465 feet of 6-inch cast iron pipe with 465 feet of 8-inch PVC pipe in W. Alder Ave. between S. Kendall Blvd. and S. Jay Dr. in the Columbine Hills Subdivision (\$108,954)
<b><u>September 2020</u></b>	<b>Project CIP 20-4W</b> Replaced 900 feet of 6-inch cast iron pipe with 900 feet of 8-inch PVC pipe in W. Canyon Trail between S. Depew St. and S. Sheridan Ct. in the Columbine Hills Subdivision (\$206,630)
<b><u>September 2020</u></b>	<b>Project CIP 20-5W</b> Replaced 1,005 feet of 6-inch cast iron pipe with 1,005 feet of 8-inch PVC pipe in W. Canyon Ave. between S. Depew St. and W. Canyon Dr. in the Columbine Hills Subdivision (\$269,549)
<b><u>September 2019</u></b>	<b>Project CIP 19-1W</b> Replaced 1,058 feet of 8-inch cast iron pipe with 1,058 feet of 8-inch PVC pipe in S. Jay Ct. between W. Bowles Ave. and W. Leawood Dr. in the Leawood Subdivision (\$235,134)



<b><u>September 2019</u></b>	<b>Project CIP 19-4W</b> Replaced 2,319 feet of 8-inch cast iron pipe with 2,319 feet of PVC pipe in W. Leawood Dr. between S. Pierce St. and W. Fair Dr. in the Leawood Subdivision (\$701,658)
<b><u>September 2019</u></b>	<b>Project CIP 19-2W</b> Replaced 732 feet of 6-inch cast iron pipe with 732 feet of PVC pipe in S. Jay Dr. between W. Elmhurst Ave. and W. Monticello Ave. in the Columbine Hills Subdivision (\$170,404)
<b><u>September 2019</u></b>	<b>Project CIP 19-3W</b> Replaced 1,255 feet of 8-inch cast iron pipe with 1,255 feet of 8-inch PVC pipe in W. Rowland Pl. between S. Depew St. and S. Sheridan Ct. in the Columbine Knolls Subdivision (\$293,085)
<b><u>September 2019</u></b>	<b>Project CIP 19-1S</b> Replaced 293 feet of 16-inch polyethylene pipe with 293 feet of PVC pipe in S. Sheridan Blvd. at W. Fair Dr. in the Leawood Subdivision (\$180,350)
<b><u>October 2018</u></b>	<b>Project – Not Numbered</b> Scott J. Morse Pump Station fencing, parking, and storage facilities (\$199,005)
<b><u>October 2018</u></b>	<b>Project CIP 18-1W</b> Replaced 210 feet of 16-inch steel pipe with 210 feet of 12-inch PVC pipe in S. Sheridan Blvd. between W. Ontario Ave. and S. Yates Ct. (\$199,005 est.)
<b><u>August 2018</u></b>	<b>Project CIP 18-3W</b> Replaced 1,378 feet of 6-inch cast iron pipe with 1,378 feet of PVC pipe in W. Geddes Cir. west of S. Sheridan Blvd. in the Columbine Manor Subdivision (\$282,754)
<b><u>July 2018</u></b>	<b>Project CIP 18-1S</b> SpectraShield lined five manholes on 16-inch sewer main in S. Sheridan Blvd. between 6159 and 6249 S. Sheridan Blvd. (\$ 8,950)
<b><u>October 2017</u></b>	<b>Projects CIP 17-1S, CIP 17-2S, and CIP 17-3S</b> CIPP lined 7,339 feet of 8-inch and 1,431 feet of 10-inch concrete sewer pipe in S. Depew St., W. Ontario Ave., W. Ontario Cir., S. Sheridan Blvd., W. Plymouth Dr., S. Gray Ct., W. Portland Dr., W. Quarles Dr. and lined 39 concrete manholes. (Normandy Estates Subdivision) (\$356,297)
<b><u>October 2017</u></b>	<b>Project CIP 17-3W</b> Replaced pressure reducing valve and piping at W. Frost Dr. and S. Webster St. (Columbine West Subdivision) (\$32,210)
<b><u>September 2017</u></b>	<b>Project CIP 17-2W</b> Replaced 1,946 feet of 6-inch cast iron pipe with 1,946 feet of PVC pipe in Morning Glory Ln. between Blue Sage Dr. and W. Berry Ave. (Bow Mar South Subdivision) (\$213,537)

<b><u>July 2017</u></b>	<b>Project CIP 17-1W</b> Replaced 994 feet of 6-inch cast iron pipe with 994 feet of 6-inch PVC pipe in W. Canyon Dr. between S. Depew St. and W. Canyon Ave. (Columbine Hills Subdivision) (\$159,173)
<b><u>June 2017</u></b>	<b>Project CIP 16-1W</b> Replaced inlet discharge interior piping, pumps, motors and control system components at Scott J. Morse Pump Station (Columbine Hills Subdivision) (\$1,241,782)
<b><u>September 2016</u></b>	<b>Project CIP 16-2W</b> Replaced 180 feet of 6-inch cast iron pipe in W. Portland Dr. between W. Ottawa Ave. and S. Sheridan Blvd. with 180 feet of 6-inch C-900, class 150 PVC pipe. (Normandy Estates) (\$29,420)
<b><u>August 2016</u></b>	<b>Project CIP 16-1S</b> CIPP lined 3,383 feet of 8-inch concrete pipe, lined 14 concrete manholes and reestablished 40 service connections in W. Rowland Ave., S. Normandy Cir., W. Quarles Dr. and S. Windsor St. (Normandy Estates) (\$129,981)
<b><u>September 2015</u></b>	<b>Project CIP 15-1S</b> CIPP lined 3,383 feet of 8-inch concrete pipe, lined 14 concrete manholes and reestablished 40 service connections in W. Rowland Ave., S. Normandy Cir., W. Quarles Dr. and S. Windsor St. (Normandy Estates) (\$135,225)
<b><u>September 2014</u></b>	<b>Project CIP 14-1W</b> Replaced 1,560 feet of 6-inch cast iron pipe in S. Chase Wy. Between W. Rowland Pl. and S. Sheridan Ct. with 1,560 feet of 6-inch C-900, class 150 PVC (Columbine Knolls Subdivision) (\$251,896)
<b><u>September 2014</u></b>	<b>Project CIP 14-1S</b> CIPP lined 1814 feet of 8-inch concrete pipe, lined 9 manholes, and reestablished 17 sewer service taps in Robincrest Ln. and Meadowlark Ln. north of Coal Mine Ave. (Columbine Heights Subdivision) (\$123,938)
<b><u>September 2013</u></b>	<b>Project CIP 13-1W</b> Replaced 325 feet of 4-inch cast iron pipe with 325 feet of 4-inch C-900, class 150 PVC pipe in S. Quay Ct. between W. Hinsdale Pl. and end of cul-de-sac (Columbine West Subdivision) (\$62,164)
<b><u>September 2013</u></b>	<b>Project CIP 13-2W</b> Replaced 775 feet of 6-inch cast iron pipe with 775 feet of 8-inch C-900, class 150, PVC pipe in S. Jay Dr. between W. Monticello Ave. and W. Elmhurst Dr. (Columbine Hills Subdivision) (\$116,244)
<b><u>September 2012</u></b>	<b>Project CIP 12-1W</b> Replaced 523 feet of 6-inch cast iron pipe with 523 feet of 6-inch C900 class 150 PVC pipe in S. Sheridan Ct. between W. Ken Caryl Ave. and W. Hinsdale Ave. (Columbine Knolls Subdivision) (\$88,872)



**September 2012**

**Project CIP 12-1S**

CIPP lined 1,313 feet of 21-inch and 4,803 feet of 18-inch concrete pipe and 27 concrete manholes on the Raccoon Creek Interceptor Sewer (\$429,565)

**October 2011**

**Project CIP 11-1S**

Replaced 50 feet of 24-inch concrete sewer pipe with 24-inch, PVC sewer pipe in W. Bowles Ave., between Platte Canyon Rd. and Middlefield Ln. (\$68,652)

**October 2010**

**Project CIP 10-1S**

Replaced 200 feet of 8-inch vitrified clay pipe in W. Roxbury Dr. between manholes S.4.1.2 and S.4.1.1. with 200 feet of 8-inch, SDR-35 PVC sewer pipe (Columbine Knolls Subdivision) (\$57,821)

**September 2010**

**Project CIP 10-1W**

Replaced 325 feet of 4-inch cast iron pipe in S. Pierce St. between W. Hinsdale Pl. and end of Pierce St. cul-de-sac with 325 feet of 4-inch, C-900, class 200 PVC pipe (Columbine West Subdivision) (\$45,820)

**September 2010**

**Project CIP 10-2W**

Replaced 1,100 feet of 6-inch cast iron pipe in W. Portland Dr. between S. Sheridan Blvd. and W. Rowland Ave. with 1,100 feet of 6-inch, C-900, class 150 PVC pipe (Normandy Estates Subdivision) (\$121,697)

**September 2009**

**Project CIP 09-1W**

Replaced 483 feet of 16-inch cast iron pipe in W. Leawood Dr. between S. Sheridan Blvd. and S. Benton Wy. with 483 feet of 12-inch, C-900, class 150 PVC pipe (Leawood Subdivision) (\$110,988)

**September 2009**

**Project CIP 09-2W**

Replaced 500 feet of 6-inch asbestos-cement pipe in W. Ottawa Pl. between S. Webster St. and the end of the cul-de-sac with 500 feet of 6-inch, C-900, class 150 PVC pipe (Columbine West Subdivision) (\$81,472)

**September 2008**

**Project CIP 08-1W**

Replaced 695 feet of 8-inch asbestos-cement pipe with 695 feet of 8-inch, C-900, class 150 PVC pipe in S. Depew St. between W. Coal Mine Ave. and W. Ontario Ave. (Normandy Estates Subdivision) (\$103,668)

**September 2008**

**Project CIP 08-2W**

Replaced 796 feet of 6-inch cast iron pipe with 796 feet of 6-inch, C-900, class 150 PVC pipe in Dutch Creek Dr. between Meadowlark Ln. and Glenridge Dr. (Columbine Heights Subdivision) (\$119,561)

**September 2008**

**Project CIP 08-3W**

Replaced 1,215 feet of 6-inch cast iron pipe with 1,215 feet of 6-inch, C-900, class 150 PVC pipe in W. Hinsdale Cir. between S. Platte Canyon Dr. (south intersection) and S. Platte Canyon Dr. (north intersection) (Columbine Manor Subdivision) (\$127,867)

**October 2007**

**Project CIP 07-1W**

Replaced 660 feet of 6-inch cast iron pipe with 660 feet of 6-inch, C-900, class 150 PVC pipe in W. Chestnut Ave. between W. Elmhurst Ave. and W. Elmhurst Dr. (\$72,126)

**October 2007**

**Project CIP 07-2W**

Replaced 752 feet of 6-inch cast iron pipe with 752 feet of 6-inch, C-900, class 150 PVC pipe in S. Ingalls St. between W. Rowland Pl. and W. Geddes Pl. (\$97,508)

**September 2007**

**Project CIP 07-2S**

Installed 186 feet of 30-inch PVC pipe from the inlet to the Platte River Lift Station to the Roxborough Water and Sanitation District interceptor sewer. (\$60,000)

**September 2007**

**Project CIP 07-1S**

CIPP lined 180 feet of 8-inch vitrified clay pipe (VCP) in W. Chestnut Ave. between manholes 71.97 to 71.93 (Columbine Hills Subdivision). 497 feet of 8-inch VCP in W. Glasgow Ave. between manholes 33.5.2 to 33.5 (Columbine Knolls Subdivision) and 551 feet of 8-inch VCP in W. Geddes Ave. between manholes 33.4.2 to 33.4.4 (Columbine Knolls Subdivision) (\$33,450)

**October 2006**

**Project CIP 06-1W**

Replaced 1,065 feet of 16-inch cast iron pipe with 1,065 feet of 16-inch, class 235 PVC pipe in S. Webster St. between W. Glasgow Pl. and W. Frost Dr. and 180 feet of 6-inch cast iron pipe with 6-inch, C-900, class 150, PVC pipe in W. Geddes Cir. East of S. Webster St. (\$262,823)

**October 2006**

**Project CIP 06-2W**

Replaced 1,521 feet of 6-inch cast iron pipe in S. Depew Wy. Between S. Depew St. and W. Canyon Trail with 1,521 feet of 6-inch C-900, class 150, PVC pipe. (\$215,509)

**July 2006**

**Project CIP 6-1S**

Rehabilitated with cured-in-place method of rehabilitation 3,600 feet of 8-inch vitrified clay pipe in W. Rowland Ave. between S. Gray Ct. and S. Sheridan Blvd. and in S. Sheridan Blvd. between W. Rowland Ave. and W. Ottawa Ave. (\$103,669)

**October 2005**

**Project CIP 05-3W**

Replaced 8-inch pressure reducing valve and vault on S. Webster St., 235 feet south of W. Ottawa Ave. (Columbine West Subdivision). (\$57,216)

**September 2005**

**Project CIP 05-1W**

Replaced 2,150 feet of 8-inch cast iron pipe with 8-inch, C-900, class 150 PVC pipe in W. Elmhurst Dr. between S. Kendall Blvd. and W. Elmhurst Ave. (Columbine Hills Subdivision). (\$207,715)

**September 2005**

**Project CIP 05-2W**

Replaced 2,150 feet of 8-inch cast iron pipe with 8-inch, C-900, class 150 pipe in W. Chestnut Ave. between S. Kendall Blvd. and W. Elmhurst Ave. (Columbine Hills Subdivision). (\$208,382)



**August 2005**

**Project CIP 04-5W**

Replaced 1,025 feet of 18-inch steel pipe with 1,025 feet of 16-inch ductile iron pipe in. S. Sheridan Blvd. (extended) between Dutch Creek and W. Coal Mine Ave. (\$213,865)

**May 2005**

**Project CIP 05-1S**

Rehabilitated with a cured-in-place method of rehabilitation 2,154 feet of 8-inch vitrified clay pipe in Morning Glory Ln. between manholes 17.63.10 and 17.63 (Bow Mar South Subdivision). (\$62,565)

**September 2004**

**Project CIP 04-2S**

Replaced 239 feet of 8-inch SDR-35 pipe with 239 feet of C-900, class 200, PVC pipe in W. Frost Dr. (\$44,760)

**August 2004**

**Project CIP 04-1W**

Replaced 830 feet of 6-inch cast iron pipe in W. Elmhurst Dr. between W. Clifton Pl. and the end of the cul-de-sac. (\$114,549)

**August 2004**

**Project CIP 04-3W**

Replaced 14 fire hydrants at the following locations:

On W. Hinsdale Cir. 326' W of Platte Canyon Dr.	(E12-F2)
On W. Fremont Pl. at S. Pierce Ct.	(H11-F16)
On S. Webster St. at W. Ken Caryl Rd.	(H12-F1)
On S. Pierce Ct. at W. Hinsdale Dr.	(H12-F12)
On S. Vance St. at W. Hinsdale Dr.	(H12-F2)
On S. Upham St. at W. Hinsdale Dr.	(H12-F3)
On S. Teller St. at W. Hinsdale Dr.	(H12-F4)
On W. Plymouth Dr. 515' east of Gray Ct.	(F10-F2)
On W. Plymouth Dr. at S. Depew St.	(F10-F3)
On W. Rowland Ave. 400' east of Gray Ct.	(F10-F9)
On S. Saulsbury Ct. at W Hinsdale Dr.	(H12-F5)
On S. Reed Ct. at W. Hinsdale Dr.	(H12-F6)
On S. Quay Ct. at W. Hinsdale Dr.	(H12-F8)
On S. Zephyr Way at W. Glasgow Pl.	(I12-F2)
On W. Glasgow Pl. 600' west of S. Webster St.	(I12-F4)
On W. Glasgow Pl. at S. Webster St.	(I12-F5)
On W. Canyon Ave. at S. Kendall Blvd.	(G14-F12)
On W. Indore Pl. at S. Kendall Blvd.	(G12-F5)

(\$50,418)

**July 2004**

**Project CIP 04-1S**

Rehabilitated with a cured-in-place method of rehabilitation 803 feet of 8-inch vitrified clay pipe in Roxbury Dr. between S. Pierce St. and S. Newland St. (\$26,017)

**October 2003**

**Project CIP 03-1S**

Rehabilitated 26 manholes on the Outfall Sewer in Platte Canyon Rd. between W. Coal Mine Ave. and W. Chatfield Ave. (\$22,273)

**September 2003**

**Project CIP 03-2W**

Replaced 2,250 feet of 8-inch cast iron pipe in W. Alder Ave. between S. Depew St. and S. Kendall Blvd. with 2,250 feet of 8-inch, C-900, class 150, PVC pipe (Columbine Hills). (\$197,693)

**August 2003**

**Project CIP 03-2S**

Rehabilitated 738 feet of 8-inch vitrified clay pipe in S. Sheridan Ct. and within an easement between manholes 49.2 and OF60 using a curried-in-place method of rehabilitation (Columbine Hills). (\$23,185)

**August 2003**

**Project CIP 03-3S**

Rehabilitated 270 feet of 10-inch vitrified clay pipe in S. Depew St. between W. Ottawa Ave. and manhole S1-4 using a cured-in-place method of rehabilitation. (\$12,217)

**April 2003**

**Project CIP 03-3W**

Replaced 11 each 4¼-inch fire hydrants at the following locations:

On W. Chestnut Ave. 450' NE of Chestnut Wy.	(F15-F6)
On W. Alder Wy. 350' north of W. Alder Ave.	(F15-F8)
On W. Elmhurst Ave. at W. Kendall Blvd.	(G15-F9)
On W. Elmhurst Dr. at S. Kendall Blvd.	(G16-F11)
On W. Rowland Pl. 600' west of Ingalls Wy.	(F11-F1)
On S. Marshall St. at W. Portland Ave.	(G10-F6)
On W. Rowland Ave. at S. Marshall St.	(G10-F7)
On W. Roxbury Pl. 550' east of Marshall St.	(G11-F13)
On W. Roxbury Pl. at Kendall Blvd.	(G11-F9)
	(\$14,885)

**September 2002**

**Project CIP 02-1S**

Rehabilitated 15 manholes on the Outfall Sewer in Bowles Ave. and S. Platte Canyon Rd. (manholes OF 15 to OF 30). (\$19,513)

**August 2002**

**Project CIP 02-2S**

Installed Muffin Monster sewage grinder at the Platte River Lift Station. (\$49,963)

**August 2002**

**Project CIP 02-2W**

Replaced 948 feet of 6-inch and 881 feet of 8-inch cast iron pipe in S. Depew St. between W. Rowland Pl. and W. Fremont Dr. with 1830 feet of 8-inch C-900, class 150, PVC pipe. (Columbine Knolls). (\$170,182)

**August 2002**

**Project CIP 02-1W**

Replaced 1,700 feet of 6-inch cast iron pipe in S. Sheridan Ct. between W. Canyon Trail and end of Sheridan Ct. cul-de-sac with 1,700 feet of 6-inch C-900, class 150 PVC pipe. (Columbine Hills). (\$142,614)

**July 2002**

**Project CIP 02-3W**

Replaced 11 each 4¼-inch fire hydrants at the following locations:

On S. Ames Wy. at W. Ken Caryl Ave.	(F13-F12)
On S. Depew Wy. at S. Depew St.	(F13-F7)



On S. Depew Wy. at W. Caryl Pl.	(F13-F8)
On W. Canyon Dr. at W. Canyon Ave.	(F14-F2)
On W. Canyon Ave. at S. Fenton St.	(F14-F3)
On S. Eaton Wy. at S. Depew St.	(F14-F4)
On S. Depew Wy. at W. Canyon Trail	(F14-F5)
On W. Chestnut Dr. at W. Elmhurst Ave.	(F15-F2)
On W. Elmhurst Dr. at W. Elmhurst Ave.	(F15-F3)
On W. Chestnut Ave. 285' west of Chestnut Wy.	(F15-F5)
At 5123 S. Geddes Cir.	(E11-F5)

(\$17,775)

## **July 2002**

### **Project CIP 02-4W**

Installed isolation valves on each side of each District water main crossing of the Denver Water Department's Conduit 20. Valve locations were as follows:

W. Bowles Ave. east of S. Jay Ct. (Leawood) (2)	12"
W. Leawood Dr. east of S. Jay Ct. (Leawood) (2)	8"
W. Maplewood Pl. at S. Ingalls St. (Leawood) (2)	6"
W. Maplewood Dr. at S. Ingalls St. (Leawood) (2)	6"
W. Fair Dr. at S. Ingalls St. (Leawood) (2)	8"
W. Arbor Ave. at S. Ingalls St. (Leawood) (1)	8"
W. Caley Ave. at S. Ingalls St. (Leawood) (2)	6"
S. Jay Wy. at S. Jay Wy. (Leawood) (2)	6"
W. Weaver Dr. at S. Jay Wy. (Leawood) (2)	12"
W. Coal Mine Ave. at S. Marshall St. (Misc.) (1)	8"
W. Marshall St. (Pierce Street Mall) (1)	8"
W. Portland Ave. at S. Marshall St. (Columbine Knolls) (2)	8"
W. Canyon Ave. at S. Pierce St. (Columbine Hills) (2)	12"
	(\$61,566)

## **August 2001**

### **Project 01-2W**

Replaced 1,100 feet of 6-inch cast iron pipe in W. Fremont Dr., between W. Fremont Ave. and S. Platte Canyon Dr. with 1,100 feet of C-900, class 150, PVC pipe. (\$112,045)

## **August 2001**

### **Project 01-3W**

Replaced 2,110 feet of 8-inch cast iron pipe in S. Sheridan Ct. between W. Hinsdale Ave. and W. Rowland Pl. (Columbine Manor). (\$254,234)

## **August 2001**

### **Project 01-4W**

Replaced 12 each 4¼ fire hydrants at the following locations:

On Blue Sage Dr. at W. Berry Ave.	(D03-F1)
On Blue Sage Dr. at Sumac Ln.	(D03-F2)
On Morning Glory Ln. 835' south of Berry Ave.	(D03-F3)
On Blue Sage Dr. at Morning Glory Ln.	(D04-F1)
On Wood Sorrel Dr. at Tule Lake Dr.	(D04-F4)
On Marigold Ln. at Sumac Ln.	(E03-F2)
On Laurel Pl. at W. Bowles Ave.	(E04-F7)
On Snowberry Dr. at Tule Lake Dr.	(E04-F9)

On S. Jay Dr. at W. Coal Mine Ave.	(G08-F11)
On Summit Dr. at S. Kendall Wy.	(G08-F12)
On S. Depew St. at W. Rowland Pl.	(F11-F6)
On S. Chase Wy. at W. Rowland Pl.	(F11-F8)
	(\$36,893)

**July 2001**

**Project 01-1S**

Rehabilitated 2,676 feet of 10-inch concrete sewer pipe in an easement between S. Sheridan Blvd. and S. Platte Canyon Rd. (Normandy Estates Outfall Sewer) with cured in place lining. Rehabilitated 10 manholes located on the pipeline. (\$106,810)

**July 2001**

**Project 01-2S**

Rehabilitated 1,200 feet of 8-inch clay tile pipe in an easement between S. Sheridan Blvd. and Shasta Circle north of Bowles Ave. with cured in place lining. (\$40,579)

**December 2000**

**Project 00-2S**

Rehabilitated 15 manholes (OF1 to OF14) on the District's outfall sewer main. (\$26,669)

**September 2000**

**Project 00-1W**

Replaced 1,050 feet of 18-inch steel water main in S. Sheridan Blvd. between W. Portland Dr. and W. Fremont Ave. with 1,050 feet of 16-inch ductile iron pipe. (\$236,106)

**September 2000**

**Project 00-2W**

Replaced 1,573 feet of 6-inch cast iron pipe in W. Rowland Ave. between S. Sheridan Blvd. And W. Quarles Drive, including the Normandy Pl. cul-de-sac with 1, 573 feet of C-900, class 150, PVC pipe. (\$145,663)

**September 2000**

**Project 00-3W**

Replaced 17 Pacific States fire hydrants at the following locations:

On S. Gray Ct. at W. Fair Dr.	(F06-F1)
On W. Fair Dr. at W. Maplewood Dr.	(F06-F2)
On S. Fenton Ct. 1000' north of W. Weaver Dr.	(F06-F3)
On S. Eaton Ct. at W. Maplewood Dr.	(F06-F4)
On W. Leawood Dr. at W. Fair Dr.	(F06-F5)
On W. Leawood Dr. at S. Chase St.	(F60-F6)
On S. Gray Ct. 500' north of Weaver Dr.	(F07-F2)
On S. Fenton Ct. at W. Weaver Dr.	(F07-F3)
On S. Depew Ct. 250' north of Weaver Dr.	(F07-F5)
On S. Chase Ct. 400' north of Weaver Dr.	(F07-F6)
On S. Chase St. 700' north of Weaver Dr.	(F07-F7)
On S. Chase St. at W. Weaver Dr.	(F07-F8)
On W. Leawood Dr. 50' northwest of Benton Wy.	(F07-F9)
On W. Maple wood Dr. at S. Ingalls St.	(G06-F9)
On W. Canyon Ave. at W. Nova Dr.	(G14-F11)



On W. Canyon Ave. at St. Newland St.	(G14-F2)
On S. Pierce St. 245' south of Canyon Ave.	(H14-F14)
	(\$41,351)

**August 2000**

**Project 00-1S**  
Rehabilitated 2,775 feet of 8-inch vitrified clay sewer pipe in the Bow Mar South subdivision using the cured-in-place (Insituform) method of rehabilitation. (\$93,747)

**December 1999**

**Project 99-3S**  
Installed ultrasonic sewage flow meter at Platte Canyon Sewage Lift Station. (\$16,924)

**December 1999**

**Project 99-2S**  
Rehabilitated manholes OF51, OF52, OF53, OF54 and OF55 on the District's outfall sewer main. (\$12,055)

**September 1999**

**Project 99-1S**  
Rehabilitated 2,392 feet of 24-inch concrete sewer main between manholes OF34 and OF39 using a cured in place rehabilitation process. (\$178,043)

**September 1999**

**Project 99-3W**  
Installed eight 6-inch gate valves at various locations. (\$24,009)

**September 1999**

**Project 99-1W**  
Replaced 2,725 feet of 6-inch cast iron pipe in S. Platte Canyon Dr. between S. Sheridan Blvd. and W. Fremont Ave. (Columbine Manor Subdivision. (\$161,153)

**September 1999**

**Project 99-2W**  
Replaced 10-inch pressure reducing valve and vault on W. Hinsdale Dr. at S. Webster St. (\$53,340)

**November 1998**

**Project 98-2S**  
Rehabilitated manholes OF30 through OF33 and OF61 through OF64 on the District's outfall sewer main (eight manholes). (\$11,025)

**November 1998**

**Project 98-1S**

1. Sliplined 406 feet of 24-inch concrete pipe between manholes OF32 and OF33 and 1,016 feet of 18-inch concrete pipe between manholes OF61 and OF64 on the District's outfall sewer main. (\$68,534)
2. Insituformed 905 feet of 24-inch concrete pipe between manholes OF24 and OF30 on the District's outfall sewer main. (\$79,241)

**October 1998**

**Project 98-1W**  
Replaced 760 feet of 6-inch cast iron pipe in W. Quarles Dr. between S. Sheridan Blvd. and Normandy Parkway with 760 feet of 6-inch C-900, class 150, PVC pipe. (\$81,212)

<b><u>September 1998</u></b>	<b>Project 98-2W</b> Replaced 1,322 feet of 8-inch cast iron pipe in Tule Lake Dr. between S. Sheridan Blvd. and Shasta Cir. with 1,322 feet of 8-inch C-900, class 150, PVC pipe. (\$106,088)
<b><u>May 1998</u></b>	<b>Project 01-1W</b> Replaced 1,263 feet of 6-inch cast iron pipe in S. Gray Ct. Between W. Plymouth Dr. and W. Rowland Ave. with 1,263 feet of 6-inch, C-900, class 150 PVC pipe. (\$90,096)
<b><u>May 1998</u></b>	<b>Projects 97-4W and 97-5W</b> Replaced 10-inch pressure regulating valve and vault on S. Webster St. at W. Frost Dr., replaced 6-inch pressure regulating valve on W. Frost Dr. at S. Webster St., replaced 10-inch pressure regulating valve and vault on W. Fremont Dr. at S. Allison St. (\$90,198)
<b><u>May 1998</u></b>	<b>Project 97-1W</b> Replaced 1,046 feet of 18-inch steel water main with 1,046 feet of 16-inch ductile iron pipe, and 290 feet of 6-inch cast iron pipe with 290 feet of class 50 ductile iron pipe in S. Sheridan Blvd. in Normandy Estates Subdivision. (\$228,137)
<b><u>February 1998</u></b>	<b>Project 97-1S</b> Sliplined 2,035 feet of 24-inch concrete sanitary sewer main with 22-inch O.D., SDR 32.5 PE pipe between outfall sewer manholes OF19 and OF30. (\$122,864)
<b><u>July 1997</u></b>	<b>Project 97-2W</b> Replace IKOR variable speed motor controller at the Columbine West Water Pumping Station. (\$58,536)
<b><u>July 1997</u></b>	<b>Project 97-3W</b> Installed centralized, telemetered, computerized supervisory control and data acquisition (SCADA) system. (\$55,908)
<b><u>October 1996</u></b>	<b>Project 96-1S</b> Sliplined 1,517 feet of 27-inch sanitary sewer main between manhole OF3 and OF7. (\$100,395)
<b><u>June 1996</u></b>	<b>Project 96-1W</b> Installed 1,508 feet of 12-inch class 150 PVC pipe with associated appurtenances in S. Pierce St. between W. Fair Dr. and W. Leawood Dr. (\$74,908)
<b><u>July 1995</u></b>	<b>Project 95-2W</b> Relocated 732 feet of 12-inch asbestos-cement pipe with 732 feet PVC pipe in W. Coal Mine Avenue between S. Webster Street and the entrance to The Terrace at Columbine. (\$33,470)
<b><u>July 1995</u></b>	<b>Project 95-3W</b> Replaced 1,758 feet of 6-inch cast iron pipe with 1,758 feet of PVC pipe in W. Geddes Place between S. Sheridan Court and S. Depew Street in the Columbine Grove Subdivision. (\$95,432)



**July 1995**

**Project 95- 4W**

Replaced 1,179 feet of 6-inch cast iron water pipe with 1,179 feet of 6-inch PVC pipe in S. Ames Way between W. Caryl Avenue and W. Canyon Trail. (\$66,744)

**July 1995**

**Project 95-1S**

Sliplined 1,064 feet of 27-inch concrete pipe between manholes OF7 and OF12 in S. Julian Street between W. Bowles Avenue and W. Alamo Place and 875 feet of 24-inch concrete sewer main between S. Julian Street and S. Lowell Way. (\$170,332)

**September 1994**

**Unscheduled**

Replaced 500 feet of 6-inch cast iron pipe with 500 of 6-inch PVC in the W. Fremont Place cul-de-sac west of S. Sheridan Blvd. (\$132,102)

**August 1994**

**Project 94-3W**

Replaced 1,550 feet of 6-inch cast iron water pipe with 1,550 feet of 8-inch PVC pipe in W. Fremont Avenue between Platte Canyon Road and S. Sheridan Boulevard. (\$95,959)

**July 1994**

Sliplined 1, 375 feet of 21-inch concrete sewer main in Platte Canyon Road between manholes OF42 and OF47. (\$64,757)

**November 1994**

Insituform rehabilitated 500 feet of 8-inch vitrified clay sewer pipe in an easement between S. Ingalls Street and S. Jay Way. (\$29,277)

**September 1994**

**Project 93-3W**

Replaced 1,500 feet of 18-inch steel water main with 1,600 feet of 16-inch ductile iron pipe between W. Bowles Avenue and W. Leawood Drive. (\$123,000)

**April 1993**

**Project 93-1W**

Replaced 800 feet of 6-inch cast iron water pipe in W. Quarles Drive between S. Sheridan Blvd. and W. Rowland Ave. (Normandy Estates Subdivision) with 800 feet of 6-inch PVC pipe. (\$36,000)

**May 1993**

**Project 93-1S and 93-2S**

Sliplined 545 feet of 21-inch concrete sewer between manholes 56.1 and 58,501 feet of 18-inch concrete sewer between manholes 58 and 59, and 1,000 feet of 27-inch concrete pipe between the sewage lift station and manhole 3 on the Platte Canyon outfall sewer main. (\$128,410)

**May 1992**

**Project 92-1W**

Replaced 1,150 feet of 6-inch cast iron water pipe in Sumac Lane west of Blue Sage Dr. to end of cul-de-sac with 8-inch PVC pipe (Bow Mar South Subdivision). (\$62,120)

**May 1992**

**Project 92-2W**

Replaced 925 feet of 6-inch cast iron water pipe S. Kendall Ct. between W. Elmhurst Ave. and W. Elmhurst Dr. with 6-inch PVC pipe (Columbine Hills Subdivision). (\$51,782)

**March 1992**

**Project CIP 91-1S**

Sewage Lift Station Rehabilitation Project. (\$199,478)

1. Rehabilitated existing concrete lift station building
2. Constructed generator and storage building
3. Installed automatic electric transfer switch
4. Installed 500 gallon diesel fuel tank
5. Rehabilitated wet well
6. Replaced in-let gates
7. Replaced comminutor
8. Installed wooden fence

**August 1991**

**Project CIP 91-1W**

Replaced 1,200 feet of 6-inch cast iron water pipe in S. Kendall Ct. between S. Kendall Blvd. and W. Rowland Pl. (Columbine Knolls Subdivision). (\$ 58,066)

**September 1990**

**Project CIP 90-1S**

Sliplined 1,876 feet of 8-inch and 10-inch clay tile sewer pipe in an easement through the Columbine Hills Shopping Center and in W. Canyon Ave. between S. Pierce St. and S. Kendall Blvd. (\$30,537)

**May 1990**

**Project CIP 90-1W**

Replaced 1,219 feet of 6-inch cast iron water pipe in W. Brittany Pl. between W. Leawood Dr. and S. Jay Ct. (Leawood Subdivision). (\$60,949)

**August 1989**

**Project CIP 89-2W**

- a). Replaced 950 feet of 12 inch cast iron water main in Blue Sage Dr. between W. Bowles Ave. and Tule Lake Dr. (Bow Mar South Subdivision)
- b). Replaced 450 feet of 6 inch cast iron pipe in W. Roxbury Pl. west of S. Sheridan Blvd. (Columbine Grove Subdivision). (\$96,200)

**July 1989**

**Project CIP 89-1W**

Replaced 1,550 feet of 6 inch cast iron pipe in Lupine Dr. between W. Bowles Ave. and Shasta Cir. and in Shasta Cir. between Lupine Dr. and Tule Lake Dr. (Bow Mar South Subdivision). (\$75,490)

**December 1988**

**Project CIP 88-2S**

Replaced manhole 40 on District Outfall Sewer Main in Platte Canyon Road. (\$ 2,500)

**June 1988**

**Project CIP 88-1S**

Sliplined 200 feet of 24 inch concrete sewer between manholes 33 and 34 in Platte Canyon Rd. at Dutch Creek. (\$13,616)



<b><u>June 1988</u></b>	<b>Project CIP 88-1W</b> Replaced 1250 feet of 6 inch water main in S. Kendall Blvd. between S. Kendall Ct. and W. Rowland Pl. (\$60,164)
<b><u>September 1987</u></b>	<b>Project CIP 87-1W</b> Replaced 1,400 feet of 6 inch water main in W. Plymouth Dr. between S. Kendall Blvd. and S. Harlan Ct.; and in S. Harlan Ct. (cul-de-sac) south of W. Plymouth Dr. (\$57,672)
<b><u>September 1987</u></b>	<b>Project CIP 87-1S</b> Replaced 1,470 feet of 8 inch sanitary sewer in W. Bowles Ave. between Platte Canyon Rd. and Blue Sage Dr. (\$69,808)
<b><u>July 1986</u></b>	<b>Project CIP 86-1W</b> Replaced 1,800 feet of eight inch water pipe in Shasta Circle (Bow Mar Subdivision). (\$76,276)
<b><u>September 1985</u></b>	<b>Project CIP 85-1S</b> Sliplined 694 feet of 18 inch sewer, 3,064 feet of 21 inch sewer, and 1,604 feet of 24 inch sewer. (\$ 220,780)
<b><u>December 1978</u></b>	<b>Project CIP 78-2W</b> Replaced 1,450 feet of six inch water pipe in Summit Dr. and Jay Dr. (Columbine Estates Subdivision). (\$33,782)
<b><u>December 1978</u></b>	<b>Project CIP 78-1W</b> Replaced 305 feet of six inch water pipe in W. Rowland Cir., west of S. Lamar St. (Columbine Knolls Subdivision). (\$11,496)
<b><u>April 1977</u></b>	<b>Project 77-1W</b> Replaced 817 feet of six inch water pipe in Snowberry Dr. (Bow Mar South Subdivision). (\$18,616)
<b><u>April 1976</u></b>	<b>Project 76-2W</b> Replaced 855 feet of six inch water pipe in Bell Flower Dr. (Bow Mar South Subdivision). (\$11,960)
<b><u>April 1976</u></b>	<b>Project 76-1W</b> Replaced 855 feet of six inch water pipe in Wood Sorrell Dr. (Bow Mar South Subdivision). (\$11,960)
<b><u>March 1975</u></b>	<b>Project 75-1W</b> Replaced 1,140 feet of eight inch water pipe in Tule Lake Dr. (Bow Mar South Subdivision). (\$19,873)

## **SECTION 6**

### **CAPITAL IMPROVEMENT PROJECT MAP**



PROPOSED WATER MAIN  
REPLACEMENT PROJECTS

KEY	PROJECT
1	23-1W
2	24-1W
3	24-2W
4	24-3W
5	24-4W
6	25-1W
7	25-2W
8	25-3W
9	25-4W
10	26-1W
11	26-2W
12	26-3W
13	27-1W
14	27-2W
15	27-3W
16	28-1W
17	28-2W
18	28-3W
19	28-4W
20	28-5W
21	28-6W
22	29-1W
23	29-2W
24	29-3W
25	29-4W
26	29-5W
27	29-6W
28	30-1W
29	30-2W
30	30-3W
31	30-4W
32	31-1W
33	31-2W
34	31-3W
35	31-4W
36	31-5W
37	31-6W
38	32-1W
39	32-2W
40	32-3W

WATER MAIN  
REPLACEMENT PROJECTS

KEY	PROJECT
1	75-1W
2	76-1W
3	76-2W
4	77-1W
5	78-1W
6	78-2W
7	86-1W
8	87-1W
9	88-1W
10	89-1W
11a	89-2W
11b	89-2W
12	90-1W
13	91-1W
14	92-2W
15	93-1W
16	93-1W
17	93-3W
18	94-3W
19	Unscheduled
20	95-2W
21	95-3W
22	95-4W
23	Unscheduled
24	97-1W
25	01-1W
26	98-1W
27	98-2W
28	99-1W
29	00-1W
30	00-2W
31	01-2W
32	01-3W
33	02-1W
34	02-2W
35	03-2W
36	04-1W
37	04-5W
38	05-1W
39	05-2W
40	06-1W
41	06-2W
42	07-1W
43	07-2W
44	08-1W
45	08-2W
46	08-3W
47	08-4W
48	08-5W
49	10-1W
50	10-2W
51	12-1W
52	13-1W
53	13-2W
54	14-1W
55	16-2W
56	16-1W
57	17-1W
58	17-2W
59	17-3W
60	18-1W
61	18-3W
62	19-1W
63	19-2W
64	19-3W
65	19-4W
66	20-1W
67	20-2W
68	20-3W
69	20-4W
70	20-5W
71	21-1W
72	21-2W
73	21-3W
74	21-4W
75	22-1W
76	22-2W
77	22-3W

- BEAM BREAK
- ELECTROLYSIS BREAK
- LEAK @ FITTING
- CONTRACTOR ERROR
- UNKNOWN

WATER MAIN REPLACED

