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# Capital Master Plan 2019 - 2028

# PLATTE CANYON WATER AND SANITATION DISTRICT

## CAPITAL MASTER PLAN

2019 - 2028

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# Platte Canyon Water and Sanitation District



## Capital Master Plan 2019 - 2028

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# **PLATTE CANYON WATER AND SANITATION DISTRICT**

## **CAPITAL MASTER PLAN**

### **2019 - 2028**

#### **BACKGROUND**

Platte Canyon Water and Sanitation District was organized in May 1959 to provide water distribution and wastewater collection and transmission services to properties located within the District boundaries. Since the formation of the District, over 76 miles of water mains, 75 miles of sanitary sewer mains, and one potable water pumping station have been installed by the District and private developers. Platte Canyon now has responsibility for operation, maintenance, rehabilitation, and replacement of all wastewater collection and water distribution facilities installed by and conveyed to the District.

Platte Canyon implemented an asset evaluation and management, and systematic rehabilitation and replacement program in 1986. Selection and prioritization of capital projects is updated and enhanced each year. A detailed, objective evaluation process has been developed by which every water system asset is analyzed and rated. Sanitary sewer assets are likewise evaluated based on age and condition as determined by the District's comprehensive video inspection program. The evaluation process and criteria used each year are described below.

Present day replacement costs for assets owned and maintained by Platte Canyon totals over \$150 million, and although the majority of the District's infrastructure remains within its expected useful life, electrolysis caused corrosion and normal aging and deterioration of facilities have increase the need for asset rehabilitation or replacement. The 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 the Capital Master Plan is to itemize and schedule water and wastewater facility expansion, rehabilitation and replacement projects, and vehicle and equipment purchases.

The master 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 and thus minimizes 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 and level basis to match proposed revenues.

The capital expenditure plan allows 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 a timely manner. This allows for minimizing 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 and disruption and potential safety, health and property damage impacts.

For vehicle and equipment needs, the capital master 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, and inordinate expenditures for replacements in any single year. 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 Capital Improvement Master 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 2019-2028 Capital Master Plan proposes expenditure of \$1,721,028 in 2019, and \$11,433,088 during the ten-year period. This compares with last year's master plan projected expenditures for 2019 amounting to \$390,531 and ten-year expenditures totaling \$4,078,598. The 2019-2028 capital plan's projected expenditures are \$7,354,490 greater than the 2018-2017 plan's projected expenditures largely due to the reevaluation of all District water assets and the focus to become more proactive in replacing assets prior to incurring major repair expenses. Water facility replacement projects account for 83 percent of the total proposed expenditures while sewer rehabilitation expenses and vehicle and equipment purchases account for three percent and 14 percent respectively.

Expenditures called for in this Capital Master Plan will result in a reserve fund balance of \$8,381,871 at year end 2019 and \$6,339,913 at year-end 2028. These amounts are in line with the District's cash reserve policy adopted by the Board of Directors in 2018. No increases in tax revenues, tap fees or annexation fees will to be required to meet the goals of the current plan.

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

### **Water**

For the 2019 – 2028 Capital Master Plan, a new rating process was developed to prioritize the replacement of water mains over the ten-year planning horizon. This process 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.

Additionally, this new process provides for a broader evaluation of water mains in that multiple segments of pipe located along the same street are grouped together and evaluated as one project. 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. This new comprehensive evaluation groups several co-located priority segments into projects and recommends replacement on a more aggressive schedule.

#### Baseline Pipe Rating

To begin with, a baseline pipe rating was calculated using known pipe characteristics including those listed in the following table.

Age of pipe	The current date minus the installation date of the segment, divided by 365 to produce an age accurate to the day
Type of pipe	Each type of pipe is assigned a number of points based on likelihood of failure with a higher number meaning it is more likely for that pipe material to fail: <ul style="list-style-type: none"> <li>• cast iron (CIP) – 75 points</li> <li>• ductile iron (DI) – 60 points</li> <li>• asbestos-cement (ACP) – 60 points</li> <li>• polyvinyl chloride (PVC) – 60 points</li> <li>• steel – 60 points</li> </ul>

The equation for the baseline pipe rating is:

$$\text{Baseline Pipe Rating} = (\text{age of pipe}) \times 3.0 + (\text{pipe material factor})$$

#### Failure Weight and Consequence of Failure

Two additional factors are then added into the equation to determine the Total Pipe Rating for each segment of water main.

Failure Weight	An equation which adds a modifier to the pipe rating escalating with the number of failures on a pipe segment <ul style="list-style-type: none"> <li>• Failure count = 1, Failure Weight = Count * 10</li> <li>• Failure count = 2, Failure Weight = Count * 20</li> <li>• Failure count = 3, Failure Weight = Count * 30</li> <li>• Failure count = 4, Failure Weight = Count * 40</li> <li>• Failure count = 5, Failure Weight = Count * 50</li> </ul>
Consequence of Failure Weight (CoF)	An equation which adds a modifier to the pipe rating escalating with the consequence of failure of a pipe segment <ul style="list-style-type: none"> <li>• CoF rating is less 2.0, CoF Weight = CoF Rating * 10</li> <li>• CoF rating is 2.0 – 2.9, CoF Weight = CoF Rating * 20</li> <li>• CoF rating is 3.0 – 3.9, CoF Weight = CoF Rating * 30</li> <li>• CoF rating is 4.0 – 4.9, CoF Weight = CoF Rating * 40</li> <li>• CoF rating equals 5.0, CoF Weight = CoF Rating * 50</li> </ul>

*Failure Weight:* For the development of the Failure Weight, the equation was created to place a higher emphasis on pipes with multiple failures. This decision was based upon field experience, which indicates pipes have a greater risk of incurring multiple failures once the first failure is

experienced. Few individual pipe segments in the system have more than two failures, but when water mains are evaluated more broadly it is not that uncommon to see more than three failures on some longer runs of water main (consisting of multiple pipe segments).

*Consequence of Failure (CoF):* New for this Capital Master Plan, a factor for the Consequence of Failure was included in the pipe rating equation. CoF can be defined as the result of a water main failing, which 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.

Each segment was given a 1 to 5 rating based upon these five CoF criteria. These ratings were averaged to determine the overall CoF rating, which is then incorporated into the equation for the Total Pipe Rating.

#### Total Pipe Rating

The equation for the Total Pipe Rating is calculated as:

$$\text{Total Pipe Rating} = (\text{Baseline Pipe Rating}) + (\text{Failure Weight}) + (\text{CoF Weight})$$

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

A cast iron pipe installed in 1962 with one failure and a CoF rating of 3.2
---

Age of pipe - 56 points
-------------------------

Type of pipe - 75 points

Baseline Pipe Rating =  $56 \times 3.0 + 75 = 243$

Failure Weight =  $2 \text{ [one failure]} \times 20 = 40$

CoF Weight =  $3.2 \text{ [CoF rating]} \times 30 = 96$

Total points =  $243 + 40 + 96 = 379$  points

Using the Total Pipe Rating calculations, a rating list was developed of all water mains in the distribution system. The top 200 rated mains were then grouped into projects based upon their location (i.e. all segments in the same street became one project) and re-ranked according to the highest Total Pipe Rating of those segments. That 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 increments of 7.5 points beginning from the highest rated project. 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.

### **DESCRIPTION OF CAPITAL MASTER PLAN ELEMENTS**

The revised facility rehabilitation and replacement evaluation process has resulted in the addition and rescheduling of several capital projects from the previous ten-year capital plan. These annual fluctuations in project scheduling are likely to be the norm in the future as the timing, type and number of water and sewer main failures, and the criticality of each asset determine the priority for rehabilitation and replacement. Those pipelines that provide critical service and exhibit continuing deterioration will be prioritized while the pipelines that have a lower level of impact on service levels and do not show advanced deterioration will be deprioritized for rehabilitation/replacement.

Additional infrastructure improvements will be required beyond the current ten-year planning period so a 30-year infrastructure rehabilitation and replacement plan has been prepared as a planning document to reflect the long-range facility improvements and financial needs of the

District. The long-term financial plan is being updated and will be presented to the Board of Directors during the budget review process.

The Master Plan has been divided into water facility rehabilitation and replacement, sanitary sewer rehabilitation and replacement, and vehicle and equipment additions and replacements. The schedule for water facility projects is based on the criticality, consequence of failure and current condition of each asset 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.

Four water main replacement projects are scheduled for construction in 2019. All of the projects propose replacement of cast iron pipe that has exhibited advanced levels of electrolysis caused corrosion. 3,920 feet of 8-inch, and 732 feet of cast iron pipe will be replaced with PVC pipe. Projects CIP 19-1W and CIP 19-4W are located in the Leawood subdivision on S. Jay Ct. between W. Bowles Ave. and W. Leawood Dr., and on W. Leawood Dr. between S. Pierce St. and W. Fair Dr. The two projects propose replacement of 3,377 feet of 8-inch cast iron pipe at an estimated cost of \$904,312 including engineering, construction and a 10 percent contingency.

Another 2019 capital water project, CIP 19-2W, proposes replacement of 732 feet of cast iron water pipe in S. Jay Dr. between W. Elmhurst Ave. and W. Monticello Ave. in the Columbine Hills subdivision. This short segment of water main was installed prior to the adoption of the standard requiring protective wrap to eliminate direct contact with corrosive soils. The pipeline has experienced three electrolysis caused water breaks since 1985. The estimated cost of the project including engineering and contingencies is \$146,618.

The final water replacement project scheduled for 2019, CIP 19-3W, is located at W. Rowland Pl. between S. Depew St. and S. Sheridan Ct. in the Columbine Knolls subdivision. The project proposes replacement of 1,255 feet of 8-inch cast iron pipe with PVC pipe. This pipeline was also installed without protective wrap and has experienced six breaks since 1997, the latest of which occurred in 2018. The estimated cost of this project is \$317,939 bringing the total 2019 water related capital project budget to \$1,368,869.

Platte Canyon owns and maintains a 16-inch sanitary sewer in S. Sheridan Blvd. in the Leawood Subdivision. The sewer main was pipe burst in 1959 to enable a 16-inch polyethylene pipe to be inserted within an existing 8-inch vitrified clay pipe. The Grant Water and Sanitation District paid for the upsizing in order to accommodate growth in the District and provide another connection point to Southwest Metropolitan's C-line interceptor sewer. Five concrete manholes on the pipeline that exhibited advanced deterioration were lined with SpectraShield in 2018. In 2019, 293 feet of the 16" pipeline will be excavated and replaced to restore proper grade and flow. The estimated cost of the project is \$316,159 of which the Grant Water and Sanitation District will be responsible for \$303,513 and Platte Canyon will be responsible for \$12,646.

The 2019-2028 Capital Plan proposes 26 additional water main replacement projects between 2020 and 2028. These projects total 31,202 feet of pipe; 8,419 feet of asbestos-cement pipe and 22,783



feet of cast iron pipe. The present-day replacement cost of the projects is \$8,162,060 including engineering and contingencies.

Other than the sewer replacement project scheduled for 2019, no sewer replacement or rehabilitation projects are scheduled during the ten-year planning period.

Vehicle replacement costs for the period between 2019 and 2028 are projected to be \$1,586,000, \$407,000 more than the amount proposed in last year's vehicle replacement schedule. Vehicle and equipment costs are limited to replacement of existing mobile assets and not additions to the District's fleet.

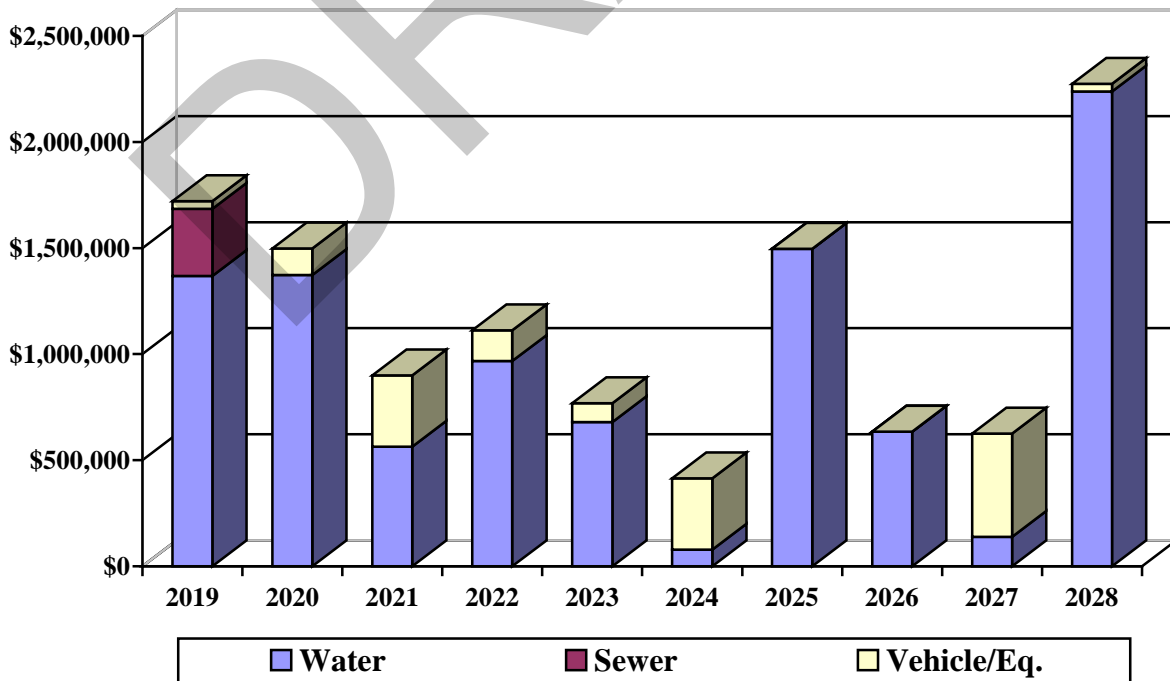
Total capital expenses during the ten year planning period are \$11,433,088; 121 percent of the projected year end 2018 reserve fund balance of \$9,471,113. Cash financing is anticipated for all capital projects and no increases in property tax rates, tap fees, or service charges are proposed over the ten-year period.

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## SECTION 2

### SUMMARY OF PROPOSED CAPITAL EXPENDITURES FOR THE PERIOD 2019 - 2028

Year	Water	Sewer	Vehicle/Equip	Totals
2019	\$ 1,368,869	\$ 316,159	\$ 36,000	\$ 1,721,028
2020	\$ 1,373,431	\$ 0	\$ 124,000	\$ 1,497,431
2021	\$ 564,045	\$ 0	\$ 335,000	\$ 899,045
2022	\$ 967,519	\$ 0	\$ 145,000	\$ 1,112,519
2023	\$ 680,455	\$ 0	\$ 88,000	\$ 768,455
2024	\$ 78,624	\$ 0	\$ 336,000	\$ 414,624
2025	\$ 1,496,476	\$ 0	\$ 0	\$ 1,496,476
2026	\$ 624,005	\$ 0	\$ 0	\$ 624,005
2027	\$ 139,622	\$ 0	\$ 486,000	\$ 625,622
2028	\$ 2,237,883	\$ 0	\$ 36,000	\$ 2,273,883
<b>TOTALS</b>	<b>\$9,530,929</b>	<b>\$316,159</b>	<b>\$1,586,000</b>	<b>\$11,433,088</b>



## **SECTION 3**

### **WATER DISTRIBUTION AND WASTEWATER COLLECTION FACILITY REHABILITATION AND REPLACEMENT PROJECTS SCHEDULED FOR 2019 - 2028**

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## 2019 Capital Improvement Projects Water

Project: **CIP 19-1W**

Location: S. Jay Ct. between W. Bowles Ave. and W. Leawood Dr.  
(Leawood Subdivision).

Description: Replace 1,058 feet of 8-inch cast iron pipe with 1,058 feet of 8-inch PVC pipe.

Date Installed: 1962

Rating: 380.65

Cost:	Construction:	\$ 247,160
	Engineering (15%)	\$ <u>37,074</u>
		\$ 284,234
	Contingencies (10%)	\$ <u>28,423</u>
		\$ 312,657

Project: **CIP 19-2W**

Location: S. Jay Dr. between W. Elmhurst Ave. and W. Monticello Ave.  
(Columbine Hills Subdivision)

Description: Replace 732 feet of 6-inch cast iron pipe with 732 feet of 6-inch PVC pipe.

Date Installed: 1960

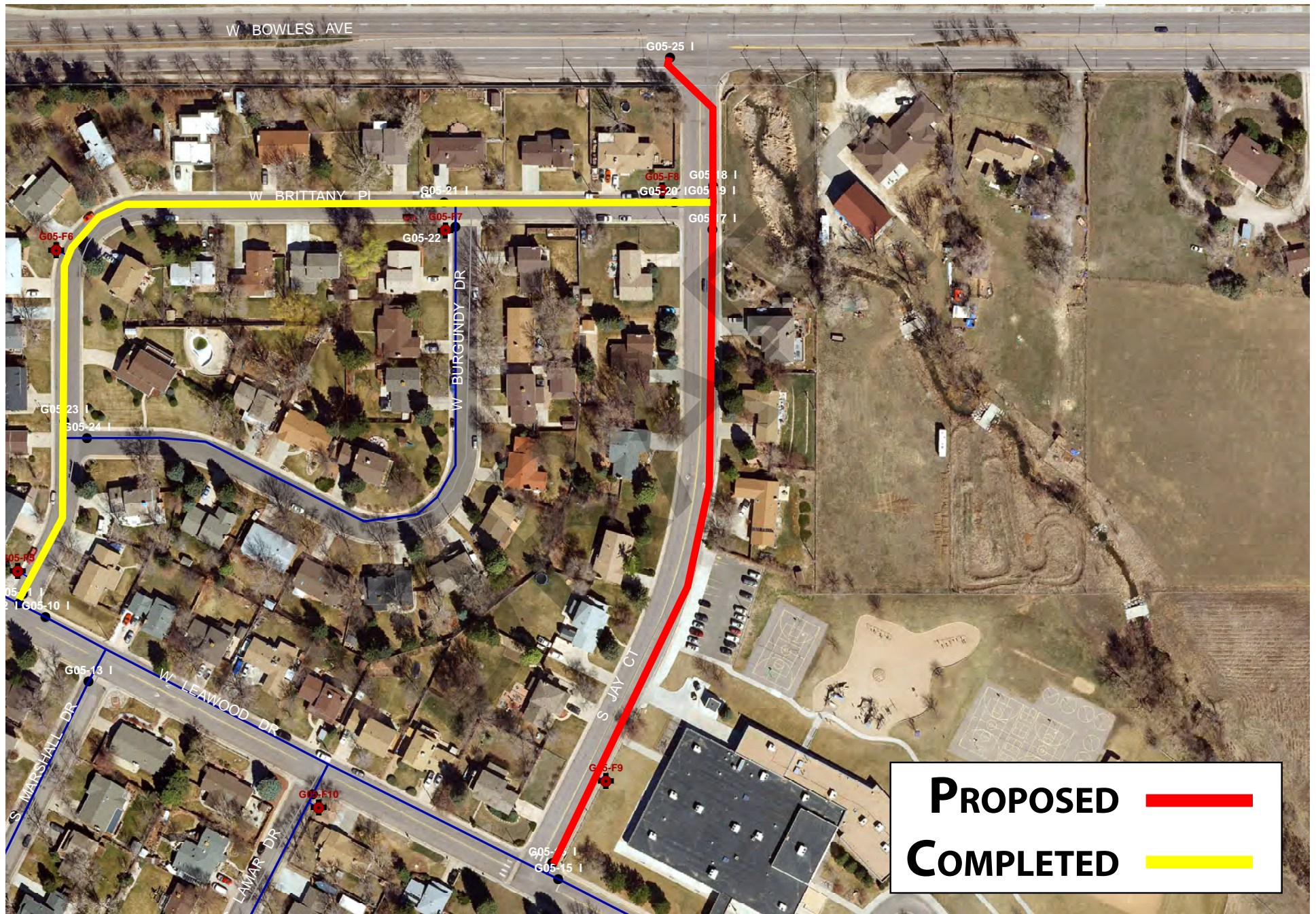
Rating: 378.67

Cost:	Construction:	\$ 115,734
	Engineering (15%)	\$ <u>17,360</u>
		\$ 133,094
	Contingencies (10%)	\$ <u>13,309</u>
		\$ 146,618



# PROJECT C.I.P. 19-1W

## S. JAY CT. WATER MAIN REPLACEMENT





# PROJECT C.I.P. 19-2W

## S. JAY DR. WATER MAIN REPLACEMENT



Project: **CIP 19-3W**

Location: W. Rowland Pl. between S. Depew St. and S. Sheridan Ct.  
(Columbine Knolls Subdivision)

Description: Replace 1,255 feet of 8-inch cast iron pipe with 1,255 feet of 8-inch PVC pipe.

Date installed: 1964

Rating: 375.95

Cost:

Construction:	\$ 251,335
Engineering (15%)	<u>\$ 37,700</u>
	\$ 289,035
Contingencies (10%)	<u>\$ 28,904</u>
	\$ 317,939

Project: **CIP 19-4W**

Location: W. Leawood Dr. between S. Pierce St. and W. Fair Dr. (Leawood Subdivision)

Description: Replace 2,319 feet of 8-inch cast iron pipe with 2,319 feet of 8-inch PVC pipe.

Date installed: 1962

Rating: 347.08

Cost:

Construction:	\$ 467,712
Engineering (15%)	<u>\$ 70,156</u>
	\$ 537,868
Contingencies (10%)	<u>\$ 53,789</u>
	\$ 591,655



PROJECT C.I.P. 19-3W  
W. ROWLAND PL. WATER MAIN REPLACEMENT

# W. ROWLAND PL. WATER MAIN REPLACEMENT

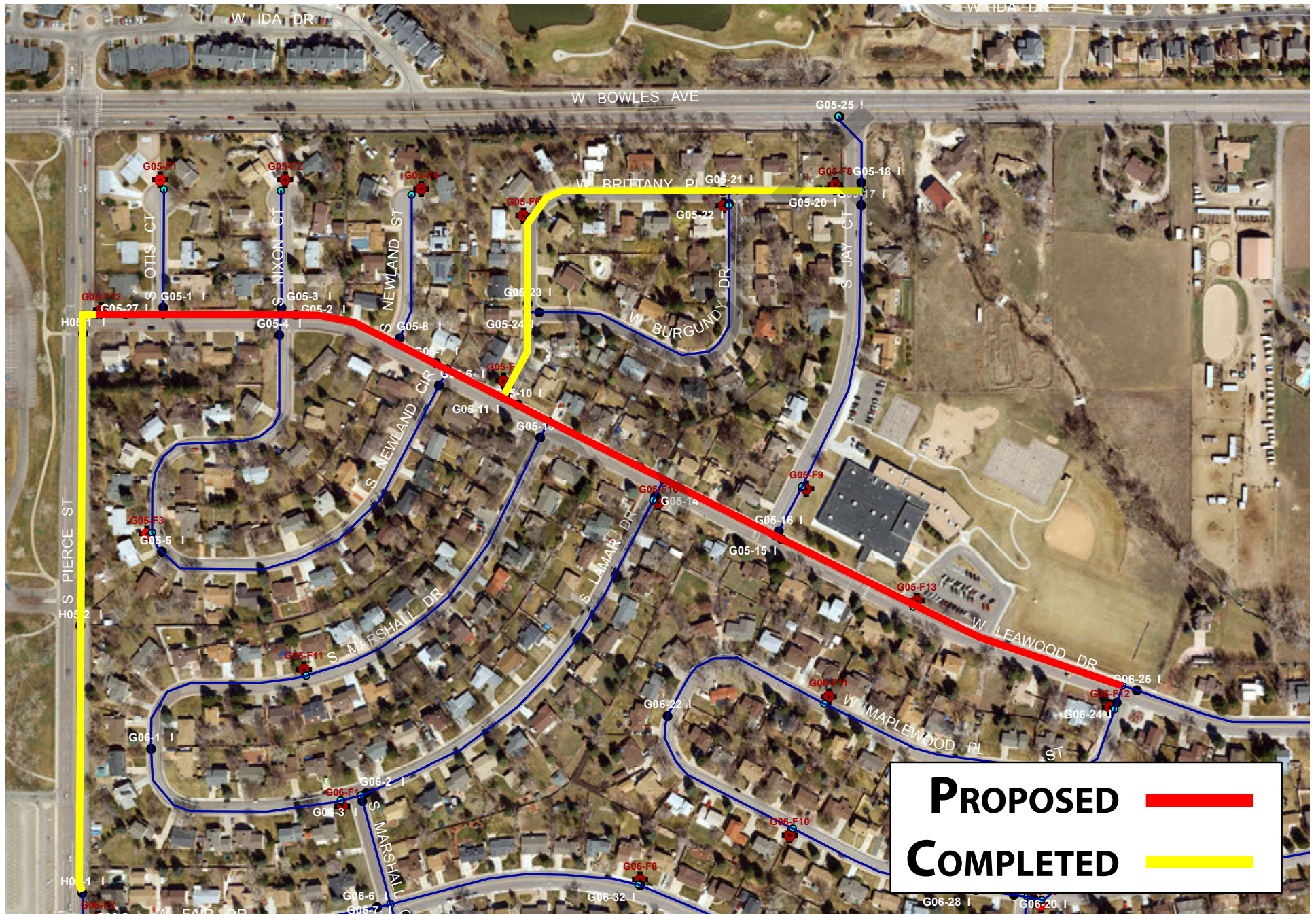


# COMPLETED



PROJECT C.I.P. 19-4W  
W. LEAWOOD DR. WATER MAIN REPLACEMENT

# W. LEAWOOD DR. WATER MAIN REPLACEMENT



# COMPLETED

## 2019 Capital Improvement Projects Sewer

Project: **CIP 19-1S**

Location: S. Sheridan Blvd. at W. Fair Dr. (Leawood Subdivision).

Description: Replace 293 feet of 16-inch polyethylene (PE) pipe with 293 feet of PVC pipe. The existing PE pipe was installed in 1995 by pipe bursting an 8-inch vitrified clay pipe. The PE pipe has shifted from its original alignment and must be replaced to restore proper grade.

Date Installed: 1995

Cost:	Construction:	\$ 249,929
	Engineering (15%)	<u>\$ 37,489</u>
		\$ 287,418
	Contingencies (10%)	<u>\$ 28,741</u>
		\$ 316,159



The map displays a residential neighborhood with numerous streets. Key streets include W Capri Pl, S Coventry Ln, S Chase Ct, S Sheridan Blvd, S Leawood Dr, S Christensen Ln, and S Xavier Ct. The map shows a network of water main (LWD) and sewer (COV) lines. A red line segment on S Sheridan Blvd indicates a proposed water main. A legend in the bottom right corner shows a red line for 'PROPOSED'.



## 2020 Capital Improvement Projects Water

Project: **CIP 20-1W**

Location: S. Depew St. between W. Ken Caryl Ave. and S. Platte Canyon Rd. (Columbine Hills Subdivision).

Description: Replace 3,844 feet of 8-inch cast iron pipe with 3,844 feet of 8-inch PVC pipe.

Date Installed: 1959

Rating: 366.70

Cost:	Construction:	\$ 910,656
	Engineering (15%)	<u>\$ 136,598</u>
		\$1,047,254
	Contingencies (10%)	<u>\$ 104,725</u>
		\$1,151,979

Project: **CIP 20-2W**

Location: W. Canyon Ave. between W. Canyon Dr. and S. Depew St. (Columbine Hills Subdivision).

Description: Replace 1,036 feet of feet of 6-inch cast iron pipe with 1,036 feet of 6-inch PVC pipe.

Date Installed: 1959

Rating: 366.70

Cost:	Construction:	\$ 176,879
	Engineering (15%)	<u>\$ 26,532</u>
		\$ 201,411
	Contingencies (10%)	<u>\$ 20,141</u>
		\$ 221,452

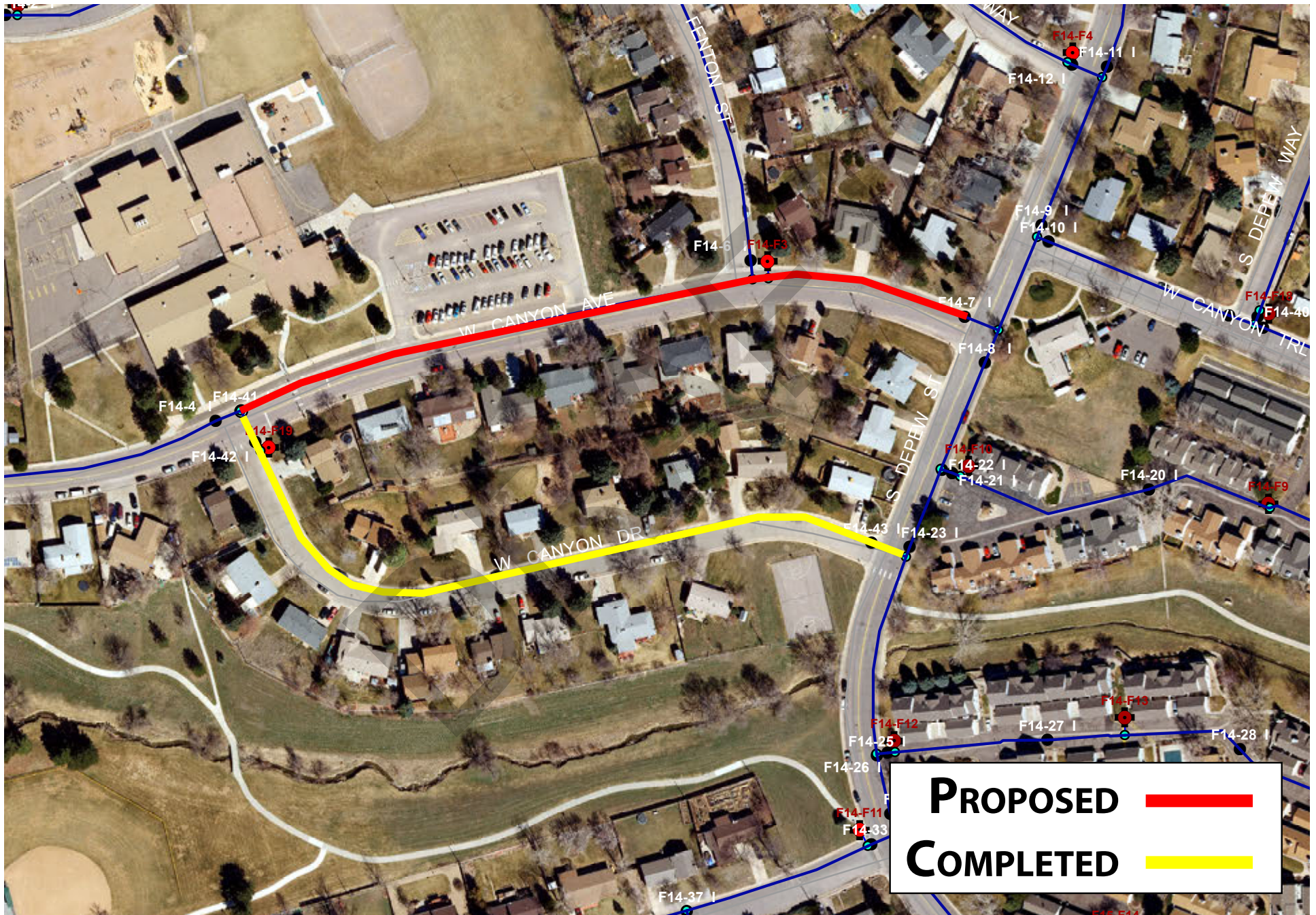


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# PROJECT C.I.P. 20-2W

## W. CANYON AVE. WATER MAIN REPLACEMENT



## **2020 Capital Improvement Projects Sewer**

No projects scheduled

DRAFT

## 2021 Capital Improvement Projects Water

Project:	<b>CIP 21-1W</b>		
Location:	S. Pierce St. between W. Ottawa Ave. and Fire Hydrant G09-F4		
Description:	Replace 1,287 feet of feet of 12-inch asbestos-cement pipe with 1,287 feet of 12-inch PVC pipe.		
Date Installed:	1973		
Rating:	356.00		
Cost:	Construction:	\$ 357,084	
	Engineering (15%)	<u>\$ 53,563</u>	
		\$ 410,647	
	Contingencies (10%)	<u>\$ 41,065</u>	
		\$ 451,712	
Project:	<b>CIP 21-2W</b>		
Location:	W. Alder Ave. between S. Kendall Blvd. and S. Jay Dr. (Columbine Hills Subdivision)		
Description:	Replace 464 feet of feet of 6-inch cast iron pipe with 464 feet of 6-inch PVC pipe.		
Date Installed:	1960		
Rating:	348.78		
Cost:	Construction:	\$ 88,801	
	Engineering (15%)	<u>\$ 13,320</u>	
		\$ 102,121	
	Contingencies (10%)	<u>\$ 10,212</u>	
		\$ 112,333	



# PROJECT C.I.P. 21-1W

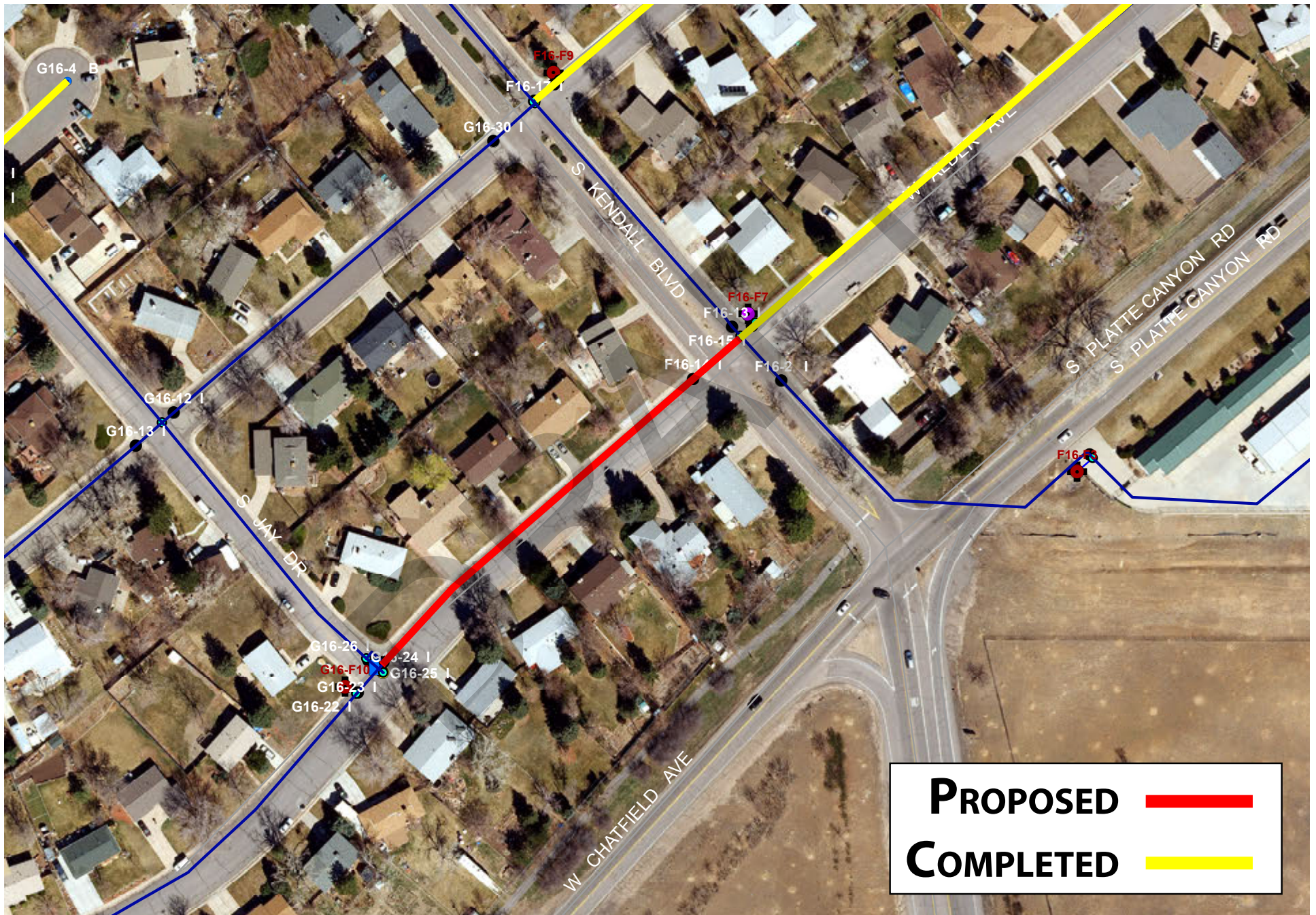
## S. PIERCE ST. WATER MAIN REPLACEMENT





# PROJECT C.I.P. 21-2W

## W. ALDER AVE. WATER MAIN REPLACEMENT



**2021 Capital Improvement Projects  
Sewer**

No projects scheduled

DRAFT

## 2022 Capital Improvement Projects Water

Project: **CIP 22-1W**

Location: W. Coal Mine Ave. between S. Lamar St. and S. Sheridan Blvd.

Description: Replace 4,061 feet of feet of 8-inch asbestos-cement pipe with 4,061 feet of 8-inch PVC pipe.

Date Installed: 1958

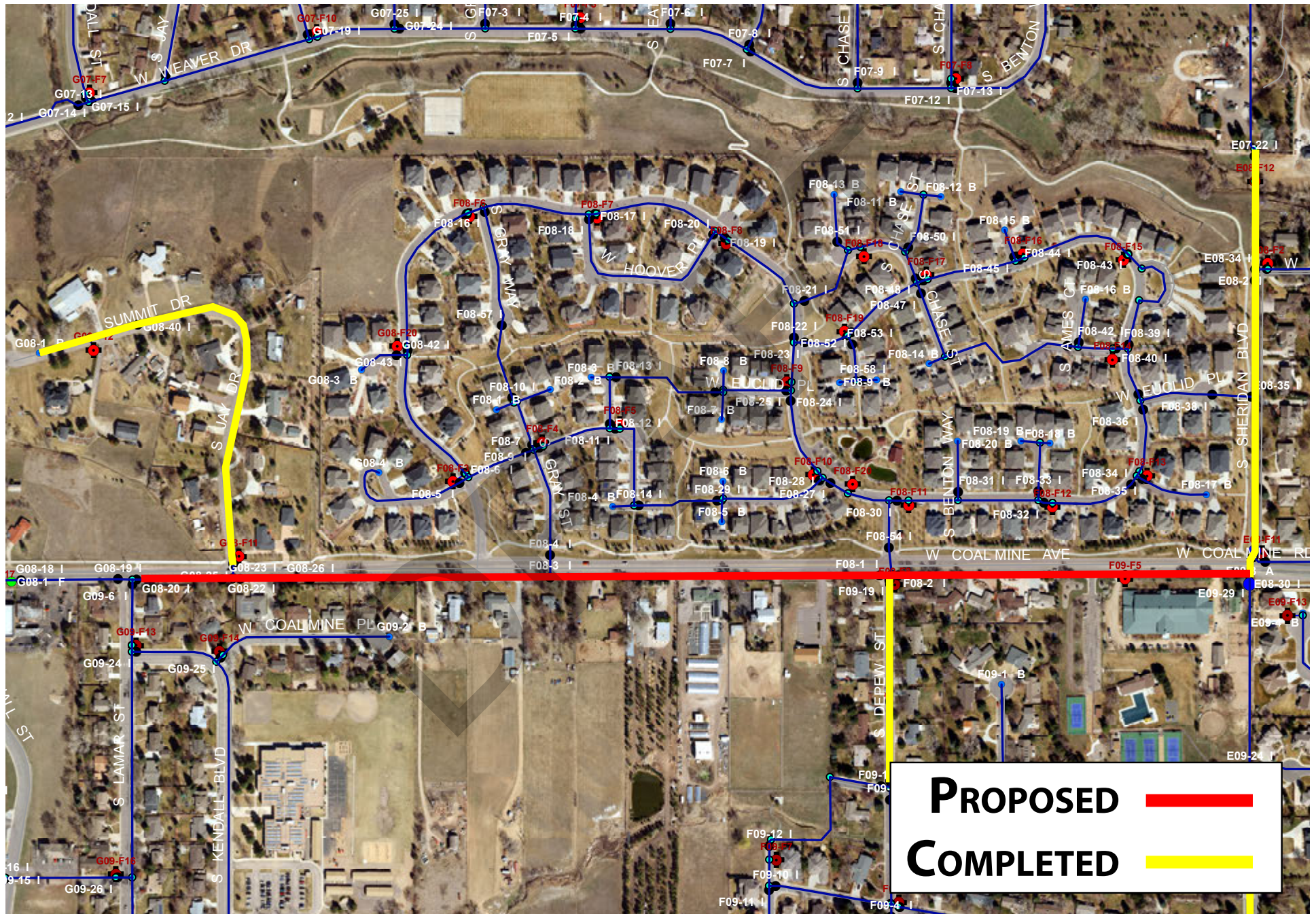
Rating: 342.89

Cost:

Construction:	\$ 764,838
Engineering (15%)	<u>\$ 114,726</u>
	\$ 879,563
Contingencies (10%)	<u>\$ 87,956</u>
	\$ 967,519



PROJECT C.I.P. 22-1W  
W. COAL MINE AVE. WATER MAIN REPLACEMENT





## **2022 Capital Improvement Projects Sewer**

No projects scheduled

DRAFT

## 2023 Capital Improvement Projects Water

Project: **CIP 23-1W**

Location: Blue Sage Dr. between W. Berry Ave. and Sumac Ln. (Sow Mar South Subdivision)

Description: Replace 839 feet of 12-inch cast iron pipe with 839 feet of 12-inch PVC pipe.

Date Installed: 1959

Rating: 341.11

Cost:	Construction:	\$ 206,712
	Engineering (15%)	<u>\$ 31,007</u>
		\$ 237,719
	Contingencies (10%)	<u>\$ 23,772</u>
		\$ 261,491

Project: **CIP 23-2W**

Location: Blue Sage Dr. between Sumac Ln. and Tule Lake Dr. (Bow Mar South Subdivision)

Description: Replace 822 feet of 12-inch cast iron pipe with 822 feet of 12-inch PVC pipe.

Date Installed: 1959

Rating: 341.11

Cost:	Construction:	\$ 170,796
	Engineering (15%)	<u>\$ 25,619</u>
		\$ 196,415
	Contingencies (10%)	<u>\$ 19,642</u>
		\$ 216,057

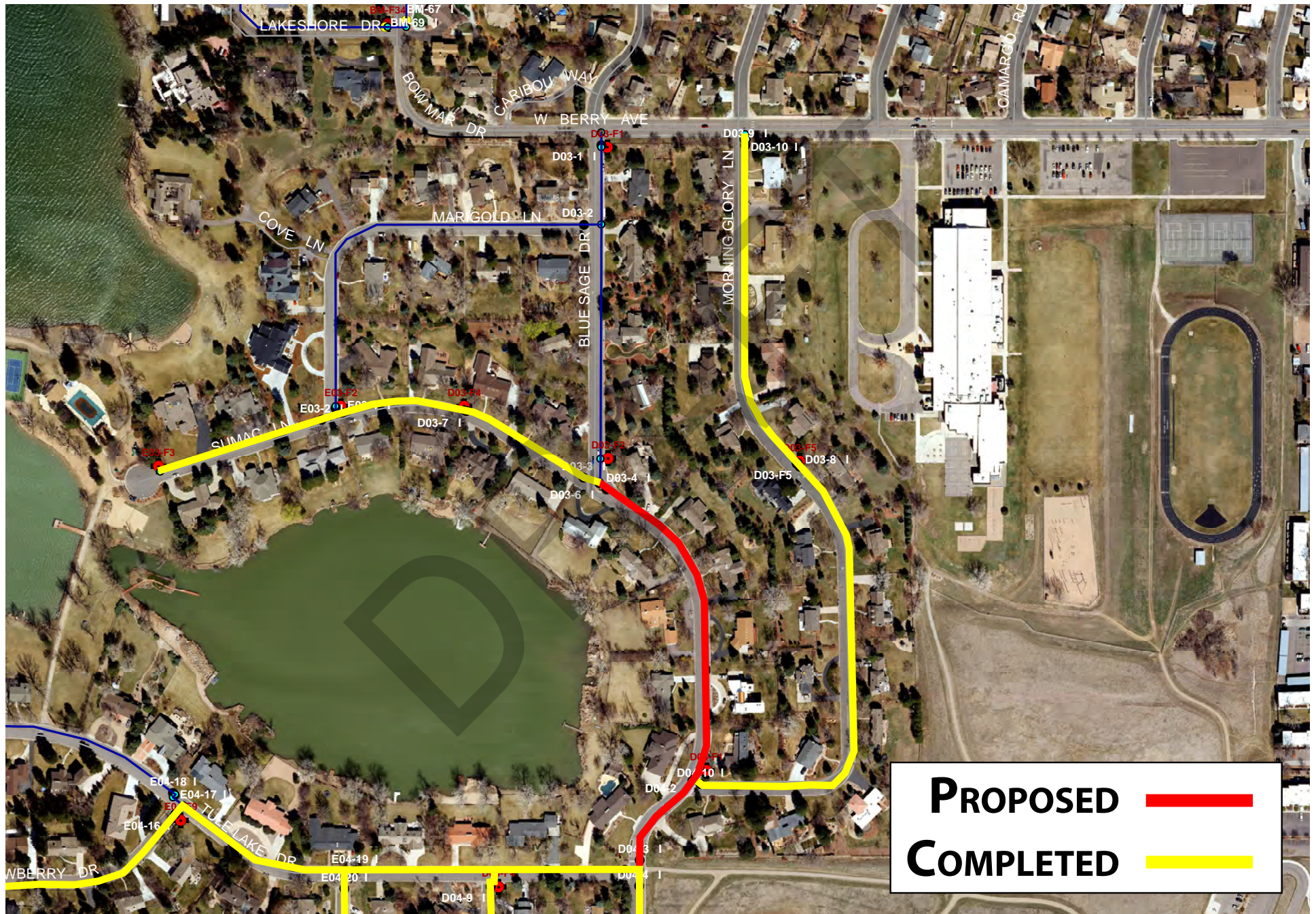
**PROPOSED** ———

**COMPLETED** ———



# PROJECT C.I.P. 23-2W

## BLUE SAGE DR. WATER MAIN REPLACEMENT



Project: **CIP 23-3W**

Location: Marigold Ln. between Sumac Ln. and Blue Sage Dr. (Bow Mar South Subdivision)

Description: Replace 1,028 feet of 6-inch cast iron pipe with 1,028 feet of 6-inch PVC pipe.

Date Installed: 1963

Rating: 331.4

Cost:

Construction:	\$ 160,401
Engineering (15%)	<u>\$ 24,060</u>
	\$ 184,461
Contingencies (10%)	<u>\$ 18,446</u>
	\$ 202,907



**PROPOSED** —

**COMPLETED** —

## **2023 Capital Improvement Projects Sewer**

No projects scheduled

DRAFT

## 2024 Capital Improvement Projects Water

Project: **CIP 24-1W**

Location: W. Canyon Trail between S. Depew St. and S. Sheridan Ct.  
(Columbine Hills Subdivision)

Description: Replace 884 feet of 6-inch cast iron pipe with 884 feet of 6-inch PVC pipe.

Date Installed: 1959

Rating: 331.68

Cost:

Construction:	\$ 203,038
Engineering (15%)	<u>\$ 30,456</u>
	\$ 233,493
Contingencies (10%)	<u>\$ 23,349</u>
	\$ 256,842

Project: **CIP 24-2W**

Location: W. Caryl Pl. between S. Depew Wy. and S. Ames Wy. (Columbine Hills Subdivision)

Description: Replace 355 feet of 6-inch cast iron pipe with 355 feet of 6-inch PVC pipe.

Date Installed: 1959

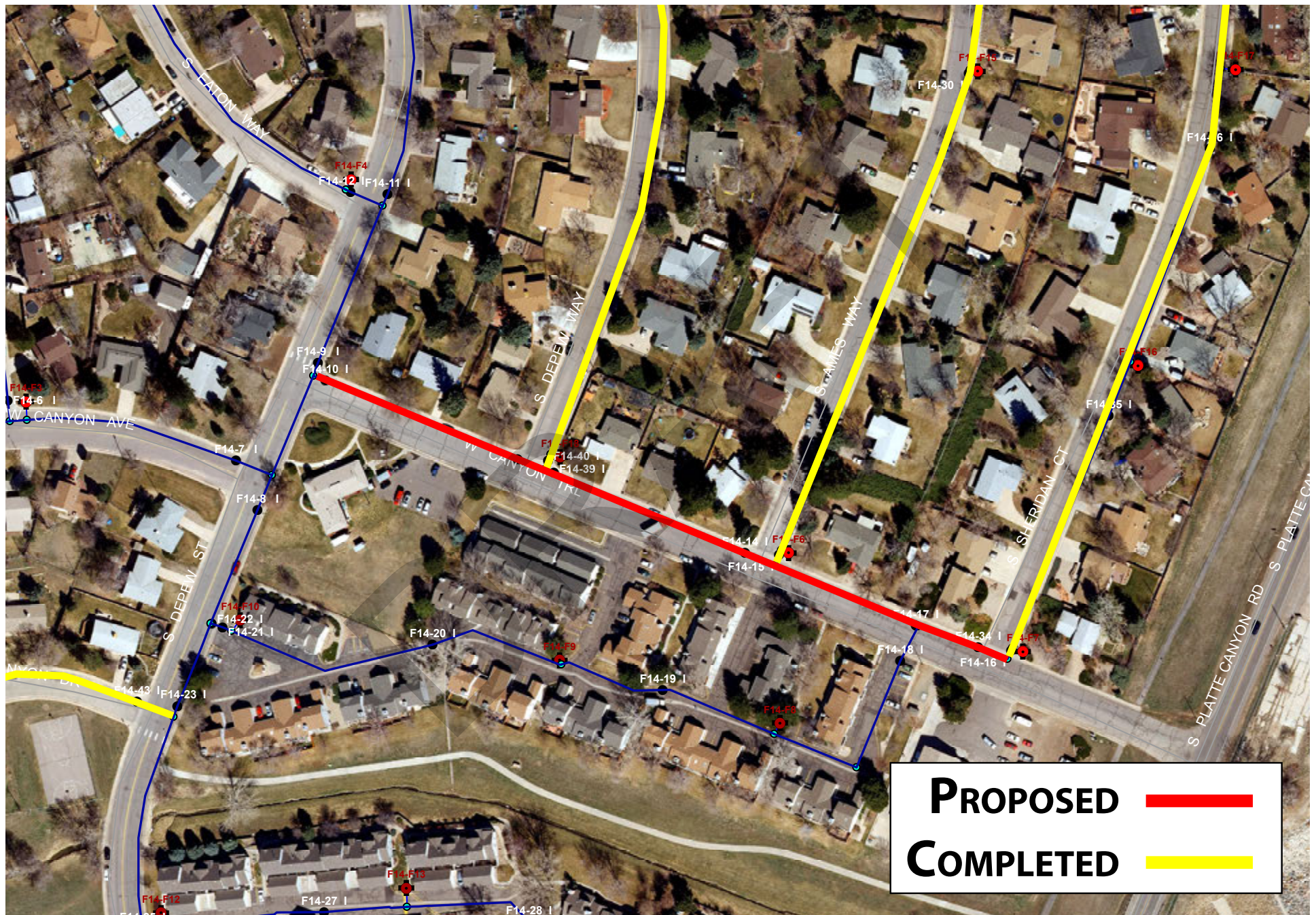
Rating: 331.68

Cost:

Construction:	\$ 62,153
Engineering (15%)	<u>\$ 9,323</u>
	\$ 71,476
Contingencies (10%)	<u>\$ 7,148</u>
	\$ 78,624



PROJECT C.I.P. 24-1W  
W. CANYON TRL. WATER MAIN REPLACEMENT





**PROPOSED** 

**COMPLETED** 

## **2024 Capital Improvement Projects Sewer**

No projects scheduled

DRAFT



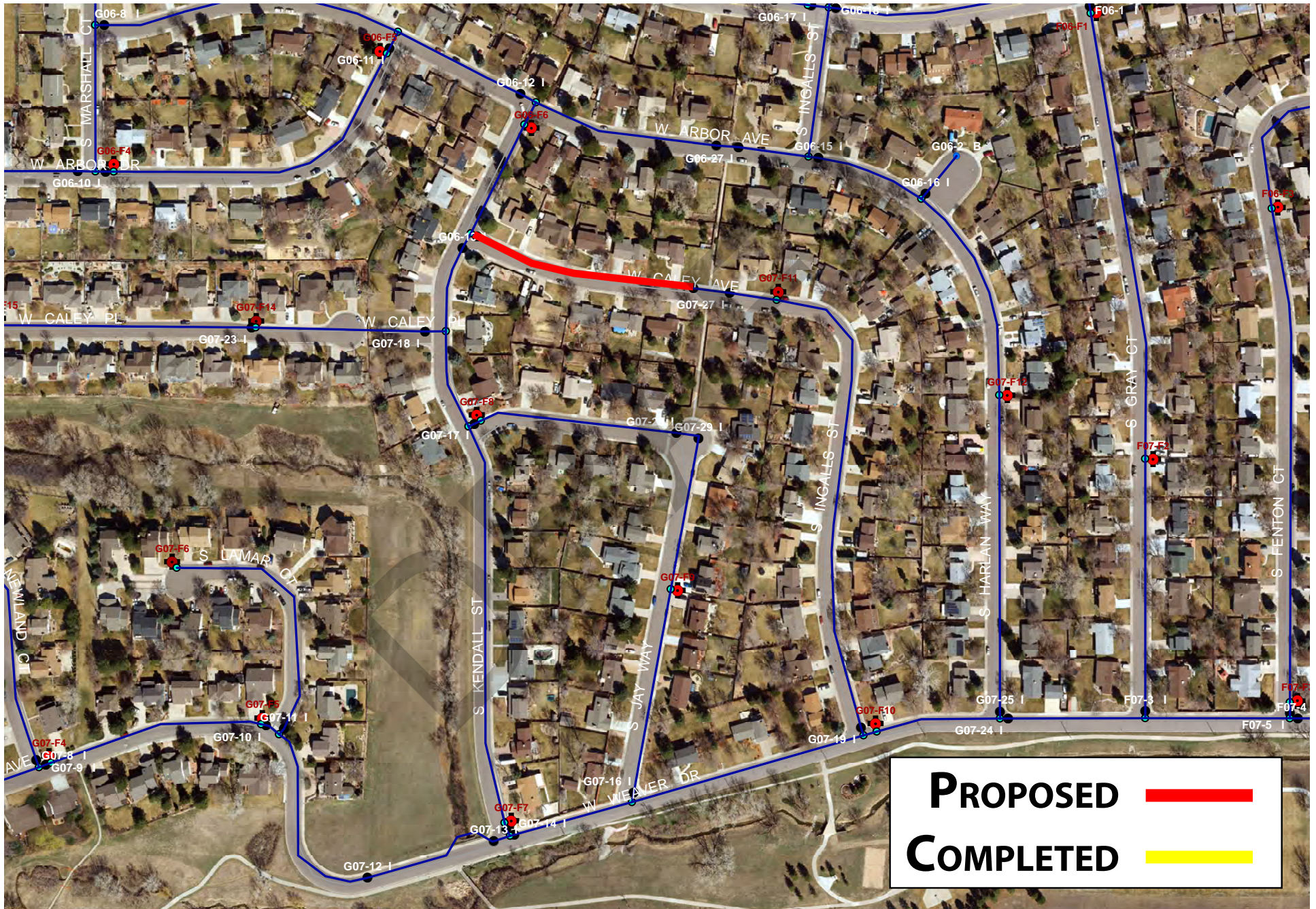
## 2025 Capital Improvement Projects Water

Project:	<b>CIP 25-1W</b>		
Location:	W. Caley Ave. between S. Kendall St. and Valve G07-26I (Leawood Subdivision)		
Description:	Replace 448 feet of 6-inch asbestos-cement pipe with 448 feet of 6-inch PVC pipe.		
Date Installed:	1971		
Rating:	330.80		
Cost:	Construction:	\$ 78,404	
	Engineering (15%)	<u>\$ 11,761</u>	
		\$ 90,165	
	Contingencies (10%)	<u>\$ 9,017</u>	
		\$ 99,182	
Project:	<b>CIP 25-2W</b>		
Location:	Snowberry Pl. between Laurel Pl. and W. Bowles Ave. (Bow Mar South Subdivision)		
Description:	Replace 760 feet of 6-inch cast iron pipe with 760 feet of 6-inch PVC pipe.		
Date Installed:	1963		
Rating:	329.33		
Cost:	Construction:	\$ 113,991	
	Engineering (15%)	<u>\$ 17,099</u>	
		\$ 131,090	
	Contingencies (10%)	<u>\$ 13,109</u>	
		\$ 144,199	



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

## W. CALEY AVE. WATER MAIN REPLACEMENT





PROJECT C.I.P. 25-2W  
SNOWBERRY PL. WATER MAIN REPLACEMENT





Project: **CIP 25-3W**

Location: W. Rowland Ave. between S. Lamar St. and S. Marshall St.  
(Columbine Knolls Subdivision)

Description: Replace 2,206 feet of 6-inch cast iron pipe with 2,206 feet of 6-inch PVC pipe.

Date Installed: 1958

Rating: 328.80

Cost: Construction: \$ 383,139

Engineering (15%) \$ 57,471  
\$ 440,610

Contingencies (10%) \$ 44,061  
\$ 484,671

Project: **CIP 25-4W**

Location: W. Roxbury Pl. between S. Marshall St. and S. Kendall Ct.  
(Columbine Knolls Subdivision)

Description: Replace 1,614 feet of 6-inch cast iron pipe with 1,614 feet of 6-inch PVC pipe.

Date Installed: 1964

Rating: 328.80

Cost: Construction: \$ 274,481

Engineering (15%) \$ 41,172  
\$ 315,653

Contingencies (10%) \$ 31,565  
\$ 347,218



PROJECT C.I.P. 25-3W  
W. ROWLAND AVE. WATER MAIN REPLACEMENT





PROJECT C.I.P. 25-4W  
W. ROXBURY PL. WATER MAIN REPLACEMENT





Project: **CIP 25-5W**

Location: W. Chestnut Dr. between W. Elmhurst Ave. and S. Kendall Ct.  
(Columbine Hills Subdivision)

Description: Replace 822 feet of 6-inch cast iron pipe with 822 feet of 6-inch PVC pipe.

Date Installed: 1960

Rating: 328.70

Cost:

Construction:	\$ 129,932
Engineering (15%)	<u>\$ 19,490</u>
	\$ 149,422
Contingencies (10%)	<u>\$ 14,942</u>
	\$ 164,364



PROJECT C.I.P. 25-5W  
W. CHESTNUTDR. WATER MAIN REPLACEMENT





## **2025 Capital Improvement Projects Sewer**

No projects scheduled

DRAFT



## 2026 Capital Improvement Projects Water

Project: **CIP 26-1W**

Location: S. Kendall Blvd. between S. Lamar St. and W. Plymouth Dr. and  
S. Kendall Blvd. between W. Rowland Pl. and W. Fremont Dr.  
(Columbine Knolls Subdivision)

Description: Replace 2,373 feet of 6-inch cast iron pipe with 2,373 feet of 6-  
inch PVC pipe.

Date Installed: 1960

Rating: 325.20

Cost:                      Construction:                      \$ 472,378

                                 Engineering (15%)                      \$ 70,857

                                                      \$ 543,235

                                 Contingencies (10%)                      \$ 54,324

                                                      \$ 597,559

Project: **CIP 26-2W**

Location: W. Maplewood Pl. at W. Leawood Dr.

Description: Replace 60 feet of 8-inch asbestos-cement pipe with 60 feet of 8-  
inch, PVC pipe.

Date Installed: 1969

Rating: 321.87

Cost:                      Construction:                      \$ 20,906

                                 Engineering (15%)                      \$ 3,136

                                                      \$ 24,042

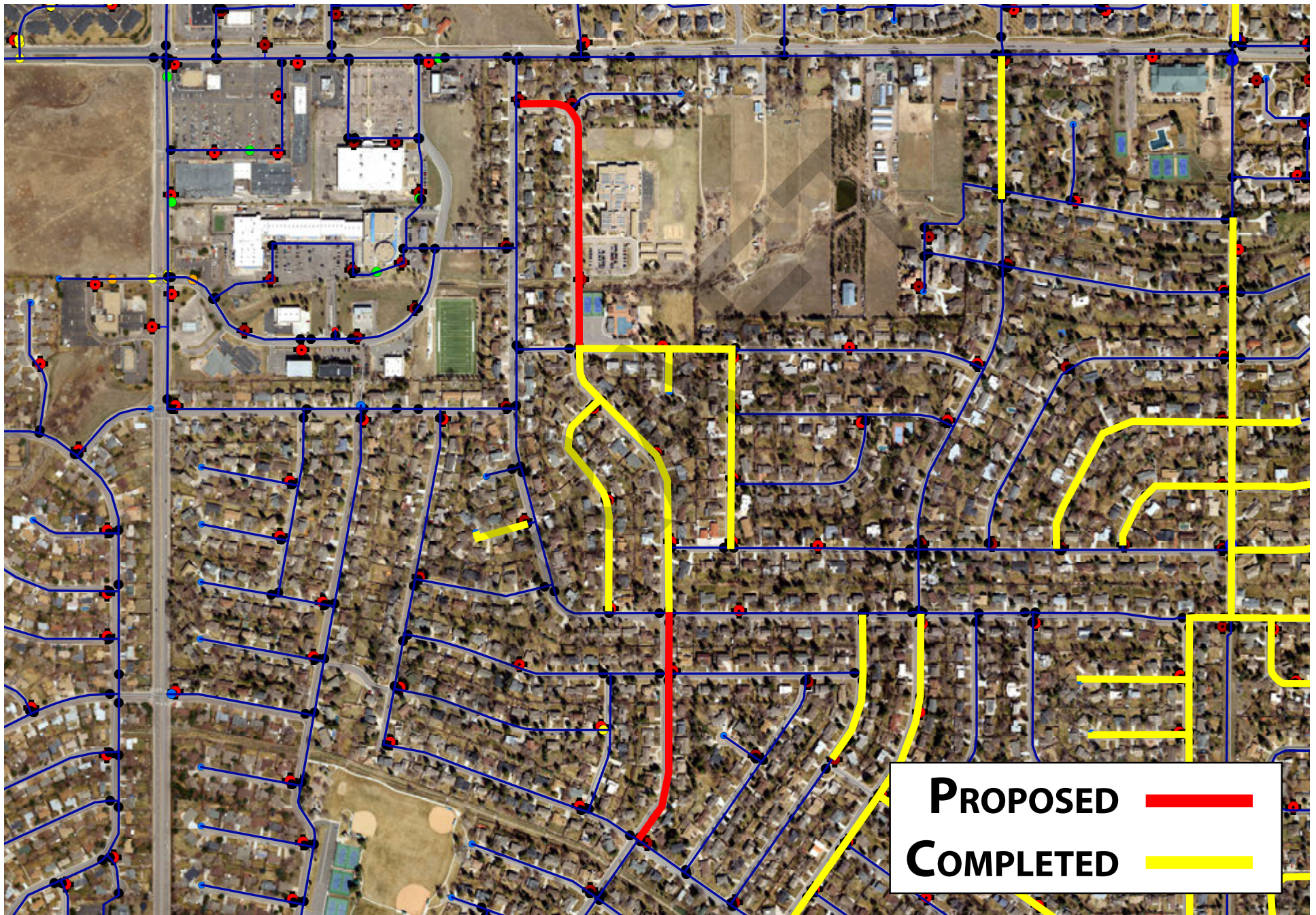
                                 Contingencies (10%)                      \$ 2,404

                                                      \$ 26,446



# PROJECT C.I.P. 26-1W

## S. KENDALL BLVD. WATER MAIN REPLACEMENT

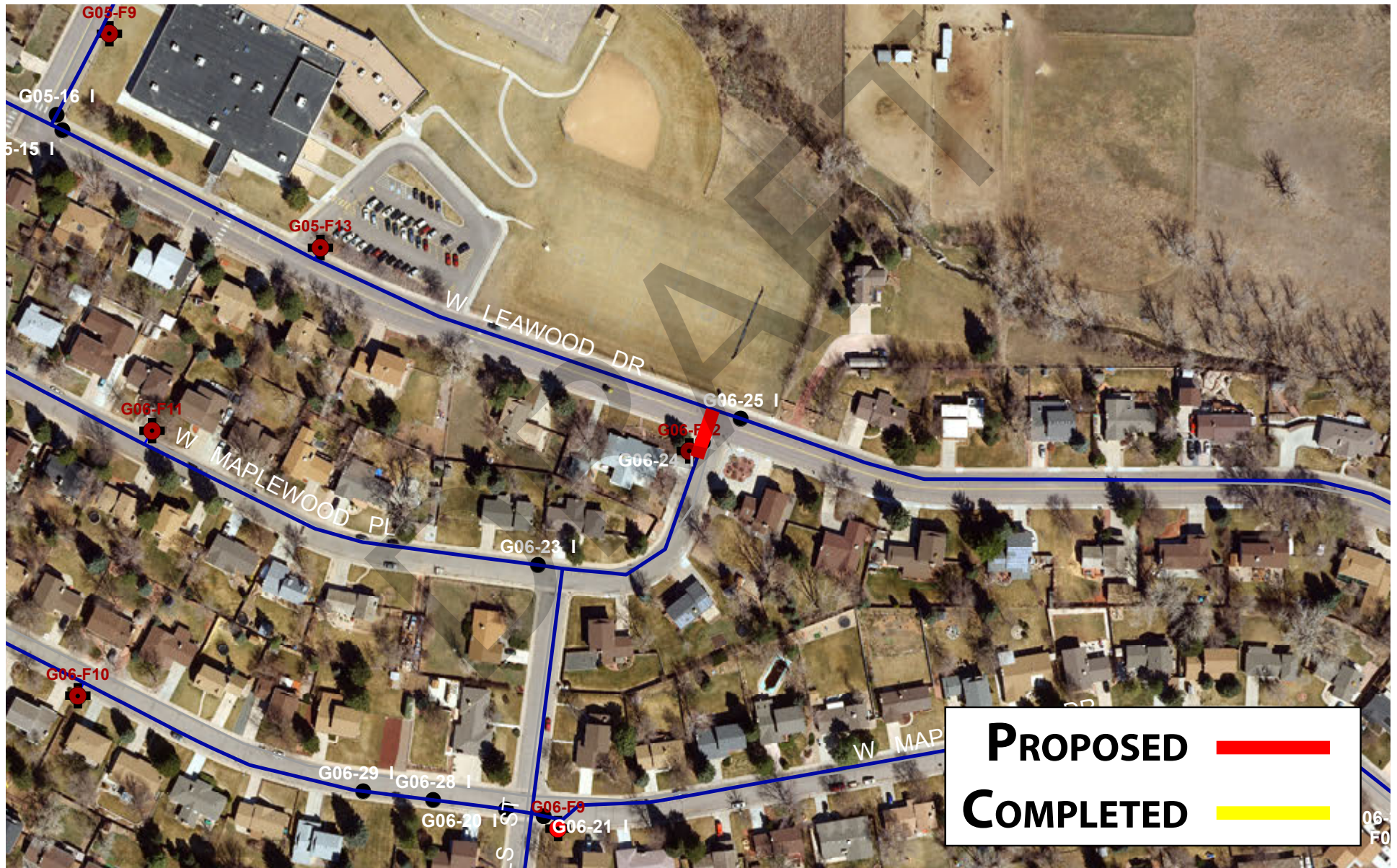




# PROJECT C.I.P. 26-2W

## W. MAPLEWOOD PL.

### WATER MAIN REPLACEMENT



## **2026 Capital Improvement Projects Sewer**

No projects scheduled

DRAFT



## 2027 Capital Improvement Projects Water

Project: **CIP 27-1W**

Location: W. Ken Caryl Ave. from S. Pierce St. to a point 493 east of S. Pierce St.

Description: Replace 493 feet of 8-inch asbestos-cement pipe with 493 feet of 8-inch PVC pipe.

Date Installed: 1971

Rating: 315.12

Cost:

Construction:	\$ 110,373
Engineering (15%)	<u>\$ 16,556</u>
	\$ 126,929
Contingencies (10%)	<u>\$ 12,693</u>
	\$ 139,622

# PROJECT C.I.P. 27-1W

## KEN CARYL AVE. WATER MAIN REPLACEMENT





**2027 Capital Improvement Projects  
Sewer**

No projects scheduled

DRAFT

## 2028 Capital Improvement Projects Water

Project: **CIP 28-1W**

Location: W. Ontario Ave. between S. Depew St. and S. Sheridan Blvd.  
(Normandy Estates Subdivision)

Description: Replace 1,158 feet of 8-inch cast iron pipe with 1,158 feet of 8-inch PVC pipe.

Date Installed: 1958

Rating: 311.89

Cost:

Construction:	\$ 224,739
Engineering (15%)	<u>\$ 33,711</u>
	\$ 259,450
Contingencies (10%)	<u>\$ 25,945</u>
	\$ 285,395

Project: **CIP 28-2W**

Location: W. Plymouth Dr. between S. Sheridan Blvd and W. Ottawa Ave.  
(Normandy Estates Subdivision)

Description: Replace 785 feet of 6-inch asbestos-cement pipe with 785 feet of 6-inch PVC pipe.

Date Installed: 1970

Rating: 311.39

Cost:

Construction:	\$ 117,732
Engineering (15%)	<u>\$ 17,660</u>
	\$ 135,392
Contingencies (10%)	<u>\$ 13,539</u>
	\$ 148,931



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

## W. ONTARIO AVE. WATER MAIN REPLACEMENT









Project: **CIP 28-3W**

Location: S. Lamar Dr. between S. Marshall Ct. and W. Leawood Dr.  
(Leawood Subdivision)

Description: Replace 1,015 feet of 6-inch cast iron pipe with 1,015 feet of 6-inch PVC pipe.

Date Installed: 1969

Rating: 310.87

Cost: Construction: \$ 152,286

Engineering (15%) \$ 22,843  
\$ 175,129

Contingencies (10%) \$ 17,513  
\$ 192,642

Project: **CIP 28-4W**

Location: S. Kendall Blvd. between W. Alder Ave. and W. Elmhurst Ave.  
(Columbine Hills Subdivision)

Description: Replace 1,701 feet of 8-inch cast iron pipe with 1,701 feet of 8-inch PVC pipe.

Date Installed: 1960

Rating: 310.70

Cost: Construction: \$ 336,945

Engineering (15%) \$ 50,542  
\$ 387,487

Contingencies (10%) \$ 38,749  
\$ 426,236









Project: **CIP 28-5W**

Location: W. Elmhurst Ave. between S. Jay Dr. and S. Depew St. (Columbine Hills Subdivision)

Description: Replace 2,278 feet of 6-inch cast iron pipe with 2,278 feet of 6-inch PVC pipe.

Date Installed: 1960

Rating: 310.67

Cost:

Construction:	\$ 418,388
Engineering (15%)	<u>\$ 62,758</u>
	\$ 481,146
Contingencies (10%)	<u>\$ 48,115</u>
	\$ 529,261

Project: **CIP 28-6W**

Location: S. Fenton St. between W. Moraine Ave. and W. Canyon Ave. (Columbine Hills Subdivision)

Description: Replace 1,285 feet of 6-inch asbestos-cement pipe with 1,285 feet of 6-inch PVC pipe.

Date Installed: 1969

Rating: 310.14

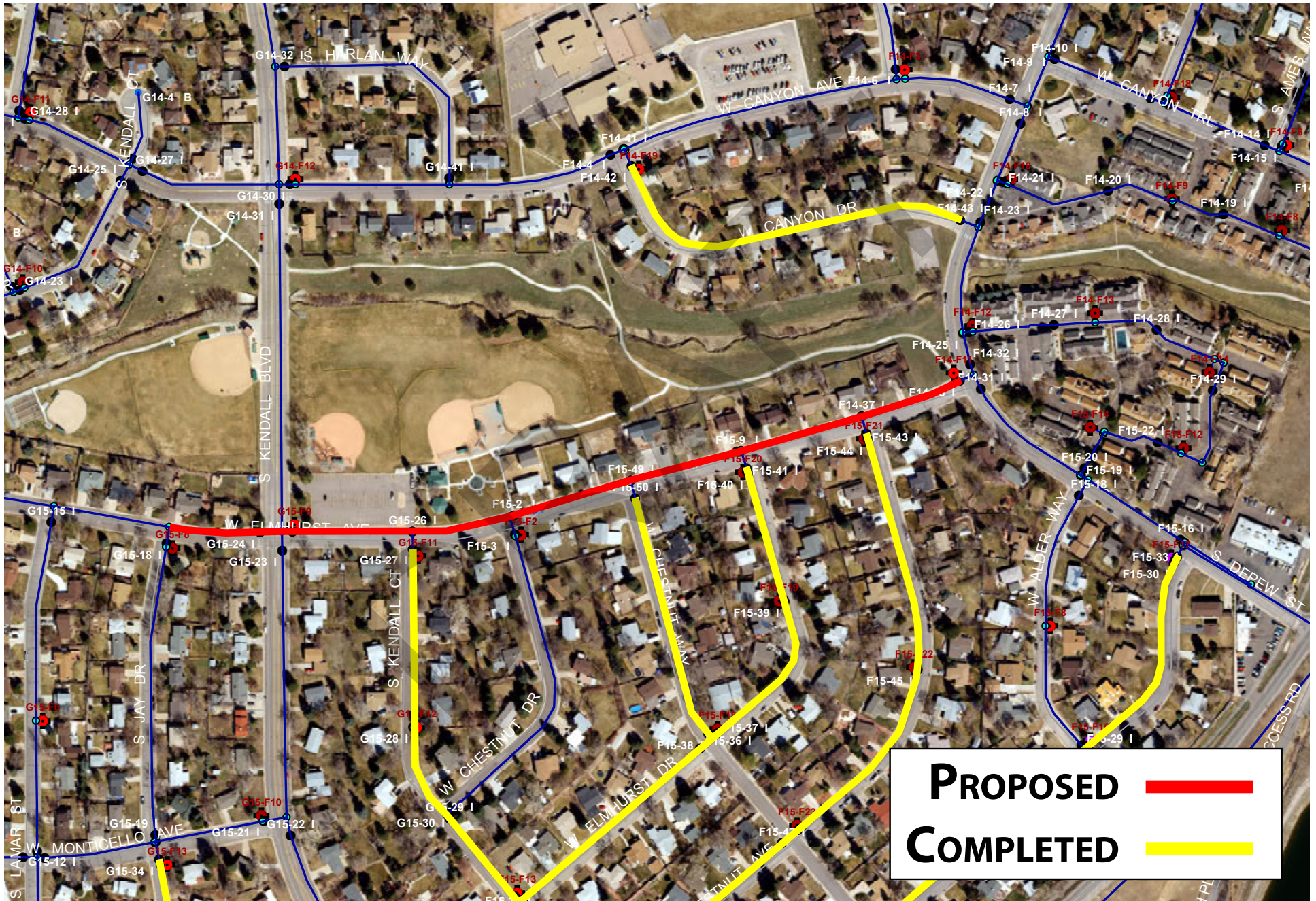
Cost:

Construction:	\$ 192,686
Engineering (15%)	<u>\$ 28,903</u>
	\$ 221,589
Contingencies (10%)	<u>\$ 22,159</u>
	\$ 243,748



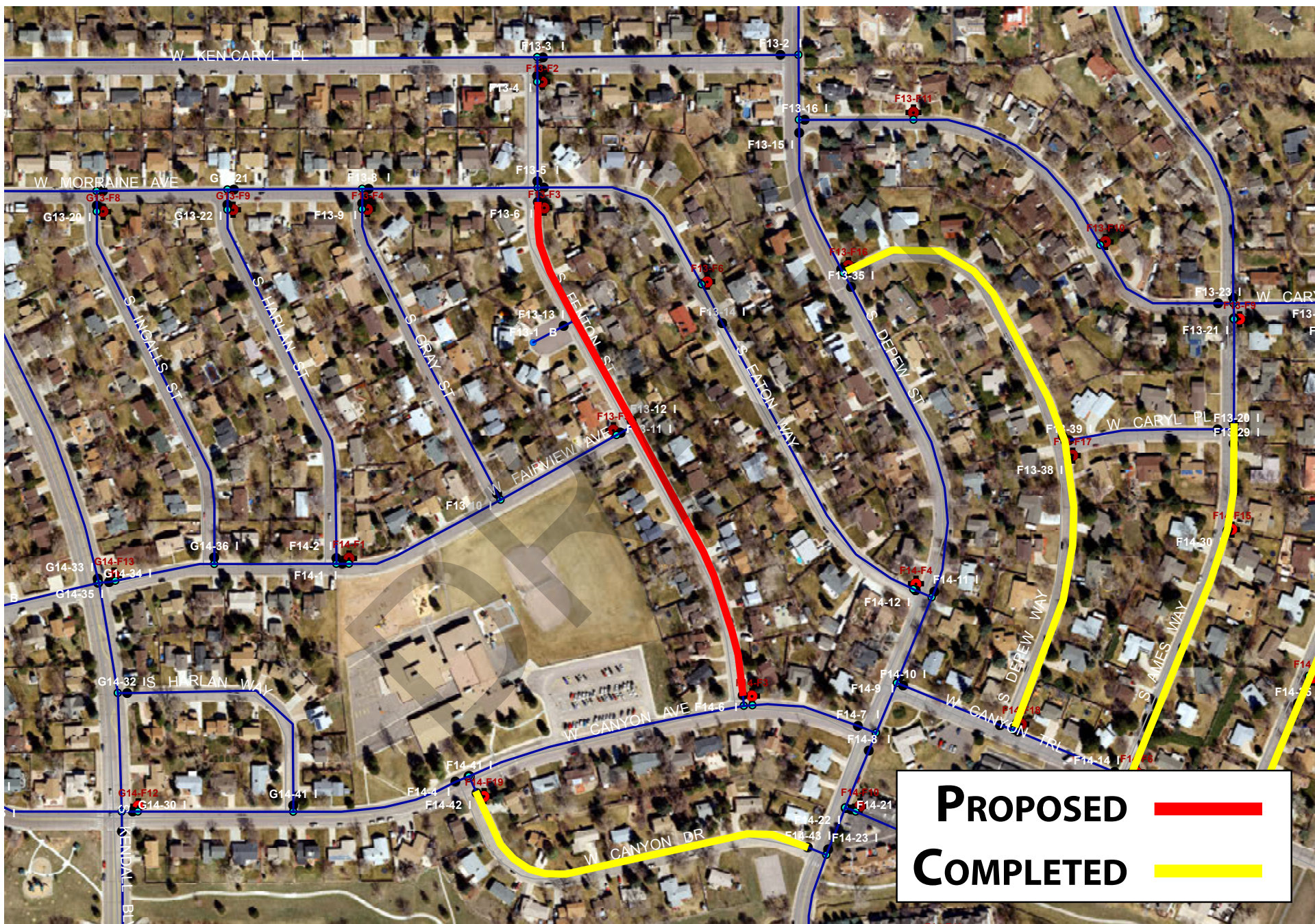
# PROJECT C.I.P. 28-5W

## W. ELMHURST AVE. WATER MAIN REPLACEMENT





PROJECT C.I.P. 28-6W  
S. FENTON ST. WATER MAIN REPLACEMENT





Project: **CIP 28-7W**

Location: W. Geddes Ave. from S Sheridan Ct. to a point 599 feet west of S. Sheridan Ct. (Columbine Knolls Subdivision)

Description: Replace 599 feet of 6-inch cast iron pipe with 599 feet of 6-inch PVC pipe.

Date Installed: 1968

Rating: 308.76

Cost: Construction: \$ 89,804

Engineering (15%) \$ 13,471  
\$ 103,275

Contingencies (10%) \$ 10,328  
\$ 113,603

Project: **CIP 28-8W**

Location: S. Depew St. between W. Ontario Ave. and W. Portland Dr. (Normandy Estates Subdivision)

Description: Replace 1,191 feet of 8-inch cast iron pipe with 1,191 feet of 8-inch PVC pipe.

Date Installed: 1958

Rating: 307.89

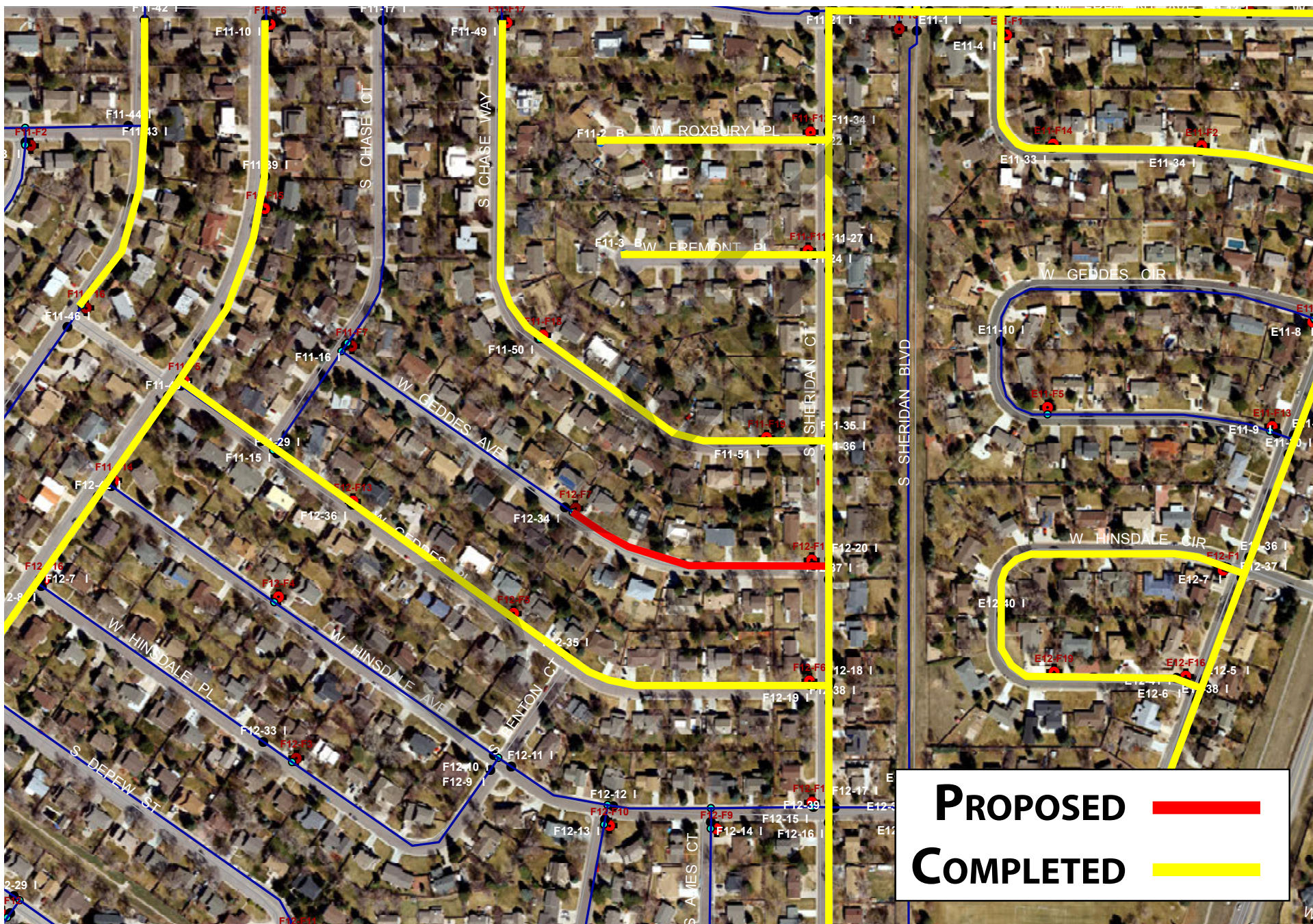
Cost: Construction: \$ 235,626

Engineering (15%) \$ 35,344  
\$ 270,970

Contingencies (10%) \$ 27,097  
\$ 298,067



PROJECT C.I.P. 28-7W  
W. GEDDES AVE. WATER MAIN REPLACEMENT









**2028 Capital Improvement Projects  
Sewer**

No projects scheduled

DRAFT



## **SECTION 4**

### **VEHICLE AND EQUIPMENT SCHEDULE 2019 - 2028**

DRAFT

## VEHICLE AND EQUIPMENT SCHEDULE\*

<b><u>2019</u></b>	4WD pickup (Replaces 2011 Chevrolet pickup) (\$36,000)	\$ 36,000
<b><u>2020</u></b>	4WD pickup (Replaces 2012 Chevrolet pickup) (\$36,000)	
	Flatbed Truck with Air Compressor (Replaces 2008 Ford) (\$88,000)	\$ 124,000
<b><u>2021</u></b>	4WD pickup (Replaces 2013 Ford pickup) (\$36,000)	
	Sewer cleaner (Replaces 2009 Seca unit) (\$300,000)	\$ 335,000
<b><u>2022</u></b>	4WD pickup (Replaces 2014 Ford [1] pickup) (\$36,000)	
	Trailer mounted Valve Operator (Replaces 2014 Hurco) (\$36,000)	
	4WD pickup (Replaces 2014 Ford [2] pickup) (\$36,000)	
	Utility Vehicle (Replaces 2014 Ford Explorer) (\$42,000)	\$ 145,000
<b><u>2023</u></b>	4WD pickup (Replaces 2015 pickup) (\$36,000)	
	Combination Valve/Vacuum Operator (Replaces 2016 Hurco) (\$52,000)	\$ 88,000



<b><u>2024</u></b>	4WD pickup (Replaces 2016 pickup) (\$36,000)	
	Video Inspection Unit (Replaces 2012 Cues unit) (\$300,000)	\$ 336,000
<b><u>2025</u></b>	No purchases scheduled	
<b><u>2026</u></b>	No purchases scheduled	
<b><u>2027</u></b>	4WD pickup (Replaces 2019 pickup) (\$36,000)	
	Combination Sewer Cleaner/Vac Unit – Replaces 2015 VacCon Unit (\$450,000)	\$486,000
<b><u>2028</u></b>	4WD Pickup – replaces 2020 Pickup (\$36,000)	\$36,000

\*All costs in 2018 Dollars

## **SECTION 5**

### **COMPLETED CAPITAL CONSTRUCTION PROJECTS**

DRAFT



## COMPLETED CAPITAL CONSTRUCTION PROJECTS

<b><u>October 2018</u></b>	<b>Project – Not Numbered</b> Scott J. Morse Pump Station fencing, parking, and storage facilities ( <b>\$309,315</b> )
<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. ( <b>\$199,005 est.</b> )
<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 ( <b>\$282,732</b> )
<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. ( <b>\$ 8,950</b> )
<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) ( <b>\$356,297</b> )
<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) ( <b>\$32,210</b> )
<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) ( <b>\$213,537</b> )
<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) ( <b>\$159,173</b> )
<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) ( <b>\$1,241,782</b> )
<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) ( <b>\$29,420</b> )
<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)

**September 2015**

**Project CIP 15-1S**

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)

**September 2014**

**Project CIP 14-1W**

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)

**September 2014**

**Project CIP 14-1S**

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)

**September 2013**

**Project CIP 13-1W**

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)

**September 2013**

**Project CIP 13-2W**

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)

**September 2012**

**Project CIP 12-1W**

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)



<b><u>September 2010</u></b>	<b>Project CIP 10-2W</b> 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)
<b><u>September 2009</u></b>	<b>Project CIP 09-1W</b> 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)
<b><u>September 2009</u></b>	<b>Project CIP 09-2W</b> 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)
<b><u>September 2008</u></b>	<b>Project CIP 08-1W</b> 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)
<b><u>September 2008</u></b>	<b>Project CIP 08-2W</b> 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)
<b><u>September 2008</u></b>	<b>Project CIP 08-3W</b> 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)
<b><u>October 2007</u></b>	<b>Project CIP 07-1W</b> 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)
<b><u>October 2007</u></b>	<b>Project CIP 07-2W</b> 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)
<b><u>September 2007</u></b>	<b>Project CIP 07-2S</b> 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)
<b><u>September 2007</u></b>	<b>Project CIP 07-1S</b> 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)
<b><u>October 2006</u></b>	<b>Project CIP 06-1W</b> 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)
<b><u>October 2006</u></b>	<b>Project CIP 06-2W</b> 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)
<b><u>July 2006</u></b>	<b>Project CIP 6-1S</b> 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)
<b><u>October 2005</u></b>	<b>Project CIP 05-3W</b> Replaced 8-inch pressure reducing valve and vault on S. Webster St., 235 feet south of W. Ottawa Ave. (Columbine West Subdivision). (\$57,216)
<b><u>September 2005</u></b>	<b>Project CIP 05-1W</b> 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)
<b><u>September 2005</u></b>	<b>Project CIP 05-2W</b> 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)
<b><u>August 2005</u></b>	<b>Project CIP 04-5W</b> 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)
<b><u>May 2005</u></b>	<b>Project CIP 05-1S</b> 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)
<b><u>September 2004</u></b>	<b>Project CIP 04-2S</b> 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)
<b><u>August 2004</u></b>	<b>Project CIP 04-1W</b> 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 cured-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"
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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)

<b><u>December 2000</u></b>	<b>Project 00-2S</b> Rehabilitated 15 manholes (OF1 to OF14) on the District's outfall sewer main. (\$26,669)
<b><u>September 2000</u></b>	<b>Project 00-1W</b> 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)
<b><u>September 2000</u></b>	<b>Project 00-2W</b> 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)
<b><u>September 2000</u></b>	<b>Project 00-3W</b> Replaced 17 Pacific States fire hydrants at the following locations: <div style="margin-left: 40px;"> 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) </div> <div style="text-align: right; margin-right: 40px;">(\$41,351)</div>
<b><u>August 2000</u></b>	<b>Project 00-1S</b> 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)
<b><u>December 1999</u></b>	<b>Project 99-3S</b> Installed ultrasonic sewage flow meter at Platte Canyon Sewage Lift Station. (\$16,924)
<b><u>December 1999</u></b>	<b>Project 99-2S</b> 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)

**September 1998**

**Project 98-2W**

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)

**May 1998**

**Project 01-1W**

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)

**May 1998**

**Projects 97-4W and 97-5W**

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)
<b><u>July 1995</u></b>	<b>Project 95- 4W</b> 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)
<b><u>July 1995</u></b>	<b>Project 95-1S</b> 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)
<b><u>September 1994</u></b>	<b>Unscheduled</b> 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)

**June 1988**

**Project CIP 88-1W**

Replaced 1250 feet of 6 inch water main in S. Kendall Blvd. between S. Kendall Ct. and W. Rowland Pl. (\$60,164)

**September 1987**

**Project CIP 87-1W**

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)

**September 1987**

**Project CIP 87-1S**

Replaced 1,470 feet of 8 inch sanitary sewer in W. Bowles Ave. between Platte Canyon Rd. and Blue Sage Dr. (\$69,808)

**July 1986**

**Project CIP 86-1W**

Replaced 1,800 feet of eight inch water pipe in Shasta Circle (Bow Mar Subdivision). (\$76,276)

**September 1985**

**Project CIP 85-1S**

Sliplined 694 feet of 18 inch sewer, 3,064 feet of 21 inch sewer, and 1,604 feet of



24 inch sewer. (\$ 220,780)

**December 1978**

**Project CIP 78-2W**

Replaced 1,450 feet of six inch water pipe in Summit Dr. and Jay Dr. (Columbine Estates Subdivision). (\$33,782)

**December 1978**

**Project CIP 78-1W**

Replaced 305 feet of six inch water pipe in W. Rowland Cir., west of S. Lamar St. (Columbine Knolls Subdivision). (\$11,496)

**April 1977**

**Project 77-1W**

Replaced 817 feet of six inch water pipe in Snowberry Dr. (Bow Mar South Subdivision). (\$18,616)

**April 1976**

**Project 76-2W**

Replaced 855 feet of six inch water pipe in Bell Flower Dr. (Bow Mar South Subdivision). (\$11,960)

**April 1976**

**Project 76-1W**

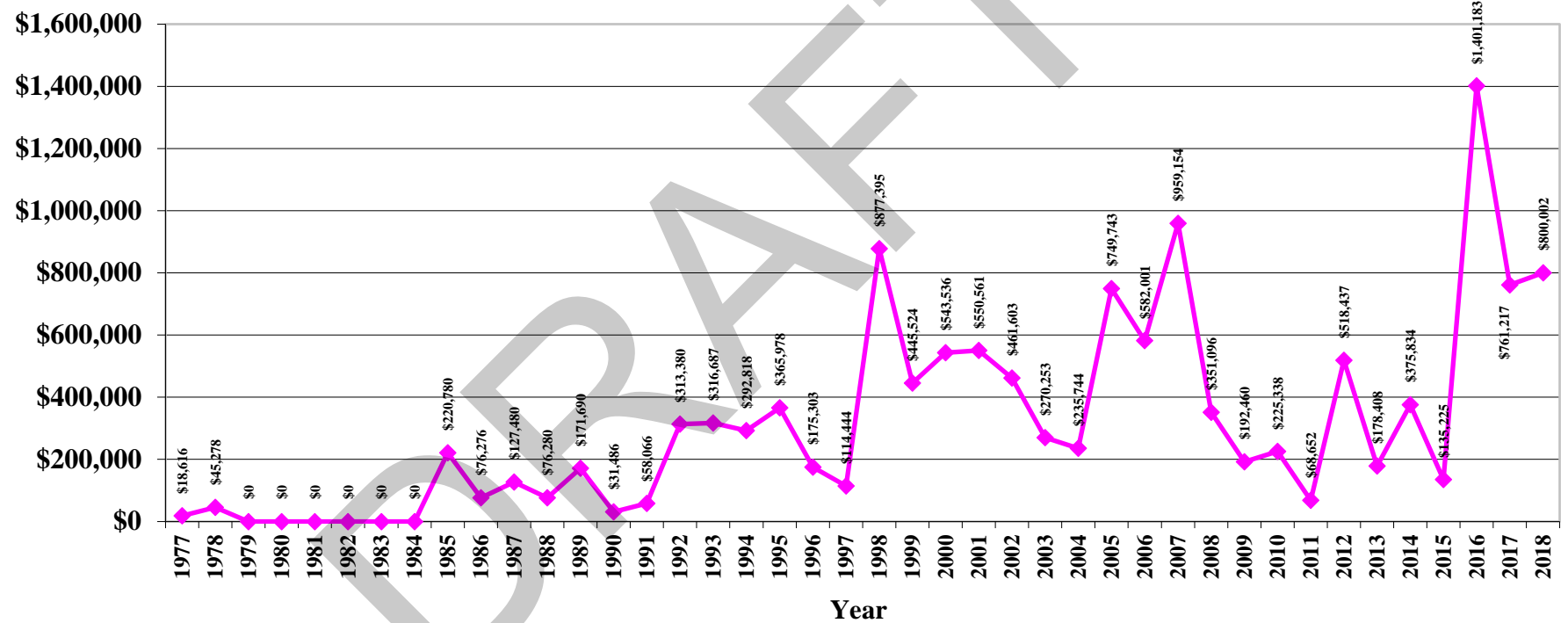
Replaced 855 feet of six inch water pipe in Wood Sorrell Dr. (Bow Mar South Subdivision). (\$11,960)

**March 1975**

**Project 75-1W**

Replaced 1,140 feet of eight inch water pipe in Tule Lake Dr. (Bow Mar South Subdivision). (\$19,873)

# Capital Improvement Expenditures

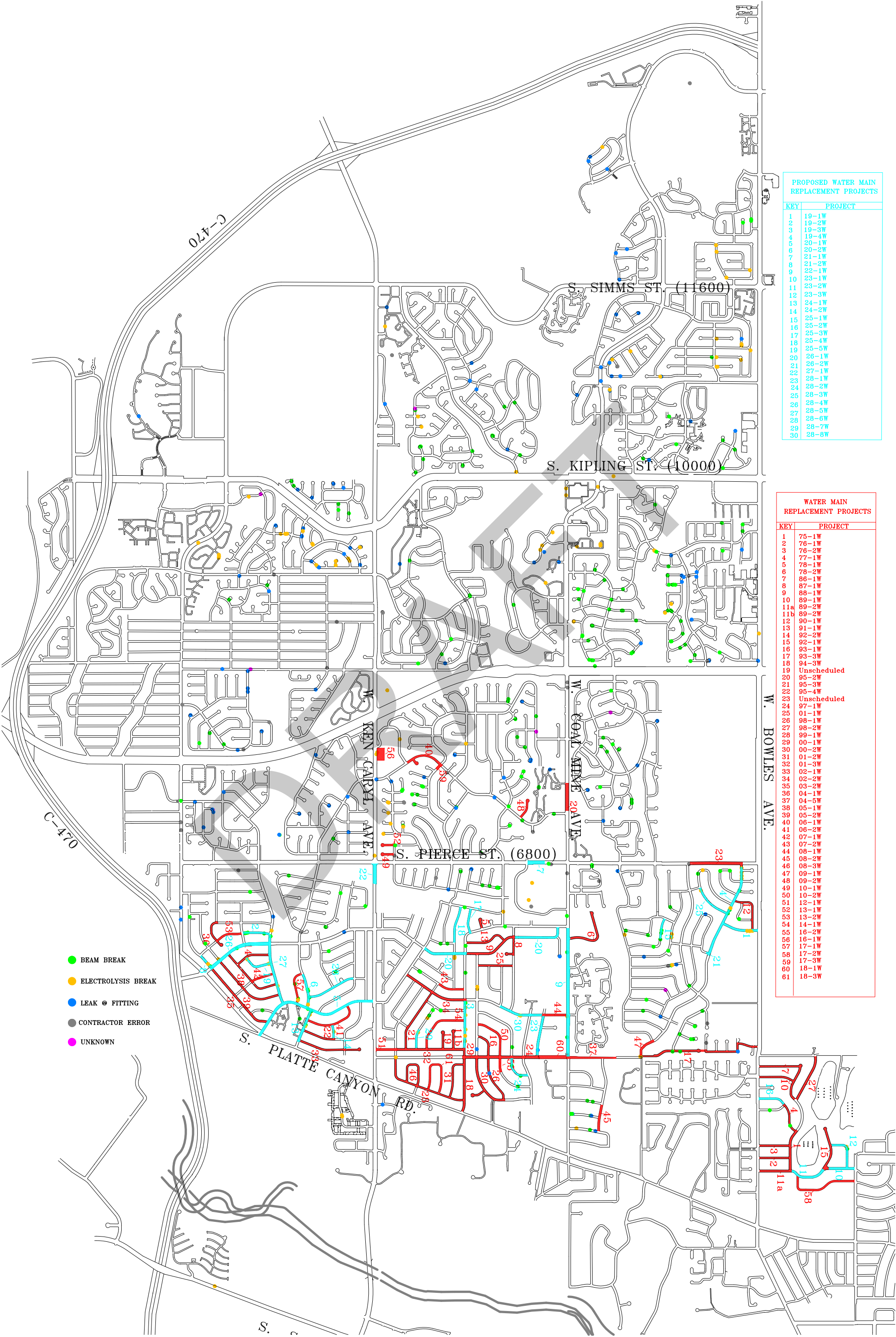




## **SECTION 6**

### **CAPITAL IMPROVEMENT PROJECT MAP**

DRAFT



PROPOSED WATER MAIN REPLACEMENT PROJECTS	
KEY	PROJECT
1	19-1W
2	19-2W
3	19-3W
4	19-4W
5	20-1W
6	20-2W
7	21-1W
8	21-2W
9	22-1W
10	23-1W
11	23-2W
12	23-3W
13	24-1W
14	24-2W
15	25-1W
16	25-2W
17	25-3W
18	25-4W
19	25-5W
20	26-1W
21	26-2W
22	27-1W
23	28-1W
24	28-2W
25	28-3W
26	28-4W
27	28-5W
28	28-6W
29	28-7W
30	28-8W

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	92-1W
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	09-1W
48	09-2W
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

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