



**Southwest Metropolitan
Water and Sanitation District**

Capital Master Plan 2022 - 2031

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SECTION 1

MASTER PLAN DESCRIPTION

BACKGROUND

Southwest Metropolitan Water and Sanitation District was organized in April 1961 to provide water distribution and wastewater collection and transmission services to properties located within the District boundaries. Since the formation of the District, over 172 miles of water mains, 163 miles of sewer main, and one 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 implemented an asset management program in 1989, which consisted of evaluating the assets to develop a systematic rehabilitation and replacement program. The program was substantially enhanced and updated in 2019 by adding an evaluation of the criticality of each asset to the previous assessment, which is based on age, type of material, number of failures and observed condition of each asset. Using the new asset evaluation criteria, selection and prioritization of capital projects will be 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 exceeds \$350 million, and most of the water and sewer infrastructure was constructed between 1973 and 1985. The oldest of these assets are now approaching the end of their reliable, useful life and are failing at an increasing rate. The capital improvement program provides a systematic method for scheduling the necessary system improvements.

PURPOSE

The purpose of the Capital Master Plan is to itemize and schedule water and wastewater facility expansion, rehabilitation, and replacement projects. 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 allows the District to schedule future expenditures and determine appropriate levels of capital reserves. The program provides for long range planning of revenue sources used for infrastructure rehabilitation and repair revenues and avoids the potential for large annual fluctuations in revenue sources. 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 corrected 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.

The Plan is exclusively focused on replacement and rehabilitation of existing facilities. The District has conducted comprehensive analyses to determine the adequacy of existing sewer interceptors and water transmission mains to serve projected development within the District. Historic wastewater flow data collected from the District's network of flow monitors populated a sophisticated sewer hydraulic model. Future flow contributions to the system were projected using information received from land use planning data and from satellite contributors to the Southwest Metropolitan sewer system. The results of the analysis predicted that all existing sewer interceptors have sufficient capacity to serve projected growth within the District's and contributors' proposed service boundaries.

The District periodically reviews and updates a water facility master plan to confirm that all areas of the District's service area can be adequately served with the existing water storage, pumping and transmission facilities. Thus, the 2022-2031 Capital Master Plan is limited to replacement and rehabilitation of existing facilities.

FINANCIAL

The capital financial requirements for rehabilitation or replacement of this infrastructure is rising as the District's facilities age and deteriorate. The 2022-2031 Capital Master Plan includes \$1,376,447 for the 2022 capital projects, and \$10,536,871 during the ten-year period. This compares with the previous year's projected expenditures of \$346,229 and the ten-year projected expenditures of \$8,389,014.

Water facility replacement projects account for almost 100 percent of the total proposed expenditures. The District's has an extensive sanitary sewer video inspection and maintenance program, which has not revealed a need to schedule a significant number of sewer system rehabilitation or replacement projects in the next ten years. Recent implementation of a more intensive sewer rating program provides a baseline for monitoring the condition of the system over time. Sewer system projects will be added to this plan as they are identified.

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">• 0-10 years old – 1 point• 11-30 years old – 2 points• 31-50 years old – 3 points• 51-58 years old – 4 points• 59 and older – 5 points
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">• cast iron (CIP) – 5 points• ductile iron, asbestos-cement, steel – 3 points• polyvinyl chloride (PVC) – 1 point
Number of leaks	Each segment is assigned a score based on the number of failures on that segment: <ul style="list-style-type: none">• no failures – 0 points• 1 failure – 2 points• 2 failures – 3 points• 3 failures – 4 points• 4 or more failures – 5 points

An overall Performance score is then calculated for each segment with the number of leaks weighted at 40% of the total points and the age of pipe and pipe material equally weighted at 30% 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">• 1.0 to 1.7 – 1 point• 1.8 to 2.5 – 2 points• 2.6 to 3.1 – 3 points• 3.2 to 3.9 – 4 points• 3.9 or higher – 5 points
Number of isolation valves	The score assigned to each segment is based upon the following: <ul style="list-style-type: none">• 1 to 2 valve – 1 point• 3 to 4 valves – 2 points• 5 valves – 3 points• 6 valves – 4 points• 7 or more valves – 5 points

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 1977 with three failures, a condition rating of 3.2, and 5 isolation valves receives an overall score as calculated below:

Age of pipe 3 points

Type of pipe 5 points

Number of leaks 4 points

$$\text{Performance Score} = 4 \times 0.40 + 3 \times 0.30 + 5 \times 0.30 = 4.00$$

Condition rating 4 points

of Isolation Valves 3 points

$$\text{Impact Score} = 4 \times 0.95 + 3 \times 0.05 = 3.95$$

$$\text{Total Score} (4.00 \times 3 + 3.95) \times 5 = 79.75$$

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 COSTS FOR PROPOSED CAPITAL IMPROVEMENTS FOR THE YEARS 2022 - 2031

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, and sanitary sewer rehabilitation and replacement.

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 construction in 2022 at a construction cost (including 20% contingency) of \$1,188,764. This project, CIP 22-1W, includes replacement of 2,240 feet of 16-inch ductile iron pipe in S. Kipling Street with 16-inch PVC pipe. This pipeline has experienced only one break, which occurred in 2010. However, staff is extremely concerned about managing future breaks due to the depth of this water main, as it is located 14' deep in the Kipling Street median. The project would involve relocated the water main to the east side of Kipling and at a more manageable depth.

An additional 16 water main replacement projects are scheduled for construction between 2023 and 2031, which represents the replacement of 17,307 feet of pipe. The type and size of the pipe scheduled for replacement between 2022 and 2030 is shown in Table 1 below.

Table 1

Size	Cast Iron Pipe	Asbestos Cement Pipe	Ductile Iron Pipe
6-inch	0 feet	2,885 feet	2,623 feet
8-inch	0 feet	5,492 feet	588 feet
12-inch	900 feet	566 feet	0 feet
16-inch	5,285 feet	0 feet	2,239 feet

The projected replacement cost for the 13 replacement projects is \$8,455,7755. This includes the cost of construction and a 20 percent construction contingency for each project.

From 2022 to 2030, an additional \$796,091 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 2.46 percent per year.

As referenced above, many of the water projects in this Plan provide critical water transmission service that have larger service level impacts than typical subdivision distribution mains. District staff will pursue more advanced assessment of the condition of some of these assets prior to the year they are scheduled to be replaced.

Sanitary Sewers

There is one sanitary sewer replacement scheduled for 2022. As a result of a sewer service line inspection done as part of a house sale, that service was discovered to be partially submerged due to pipe movement. An inclination survey showed dips and heaving of the connected sewer main, which may lead to sewer backups that would be the responsibility of the District. Therefore, the segment of sewer main is recommended for replacement.

No additional sewer replacement or rehabilitation projects are scheduled from 2023 to 2031.

Summary of All Capital Expenditures

The District's water distribution system will necessitate additional attention as significant 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.

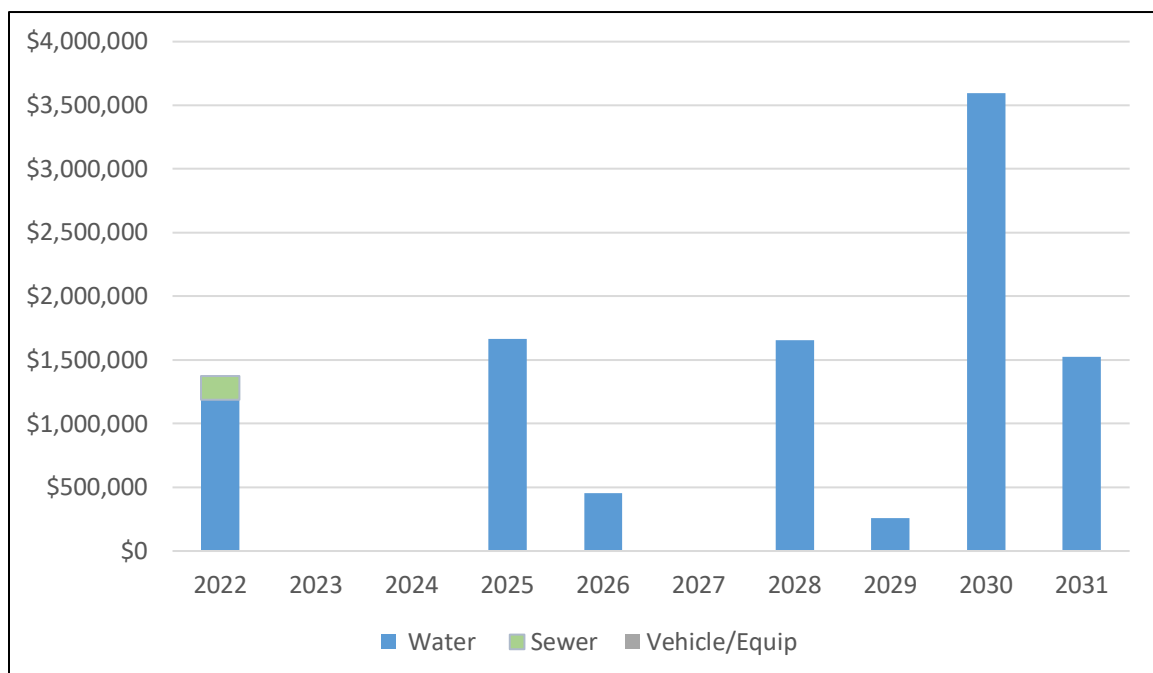
The District's sewer transmission (interceptor) network is extensive and serves a significant area outside of the District including Ken Caryl Ranch and Grant Water and Sanitation Districts, Meadowbrook-Fairview Metropolitan District, and portions of the Platte Canyon and Columbine Water and Sanitation Districts, and the City of Littleton. 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 majority of the District's sewer collection system remains in good shape, and no major repairs are planned in the next ten years.

The District currently has sufficient financial resources to complete all projects proposed in the 2022-2031 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.

The following table and chart summarize the costs associated with the capital projects proposed from 2022 through 2031.

Table 2

Year	Water	Sewer	Vehicle/Equip	Totals
2022	\$1,180,181	\$176,998	\$0	\$1,357,179
2023	\$0	\$0	\$0	\$0
2024	\$0	\$0	\$0	\$0
2025	\$1,667,638	\$0	\$0	\$1,667,638
2026	\$456,193	\$0	\$0	\$456,193
2027	\$0	\$0	\$0	\$0
2028	\$1,654,824	\$0	\$0	\$1,654,824
2029	\$260,663	\$0	\$0	\$260,663
2030	\$3,595,801	\$0	\$0	\$3,595,801
2031	\$1,525,305	\$0	\$0	\$1,525,305
TOTAL	\$10,340,605	\$176,998	\$0	\$10,517,603



SECTION 3

WATER DISTRIBUTION AND WASTEWATER COLLECTION FACILITY REHABILITATION AND REPLACEMENT PROJECTS SCHEDULED FOR 2022 – 2031

2022 Capital Improvement Projects

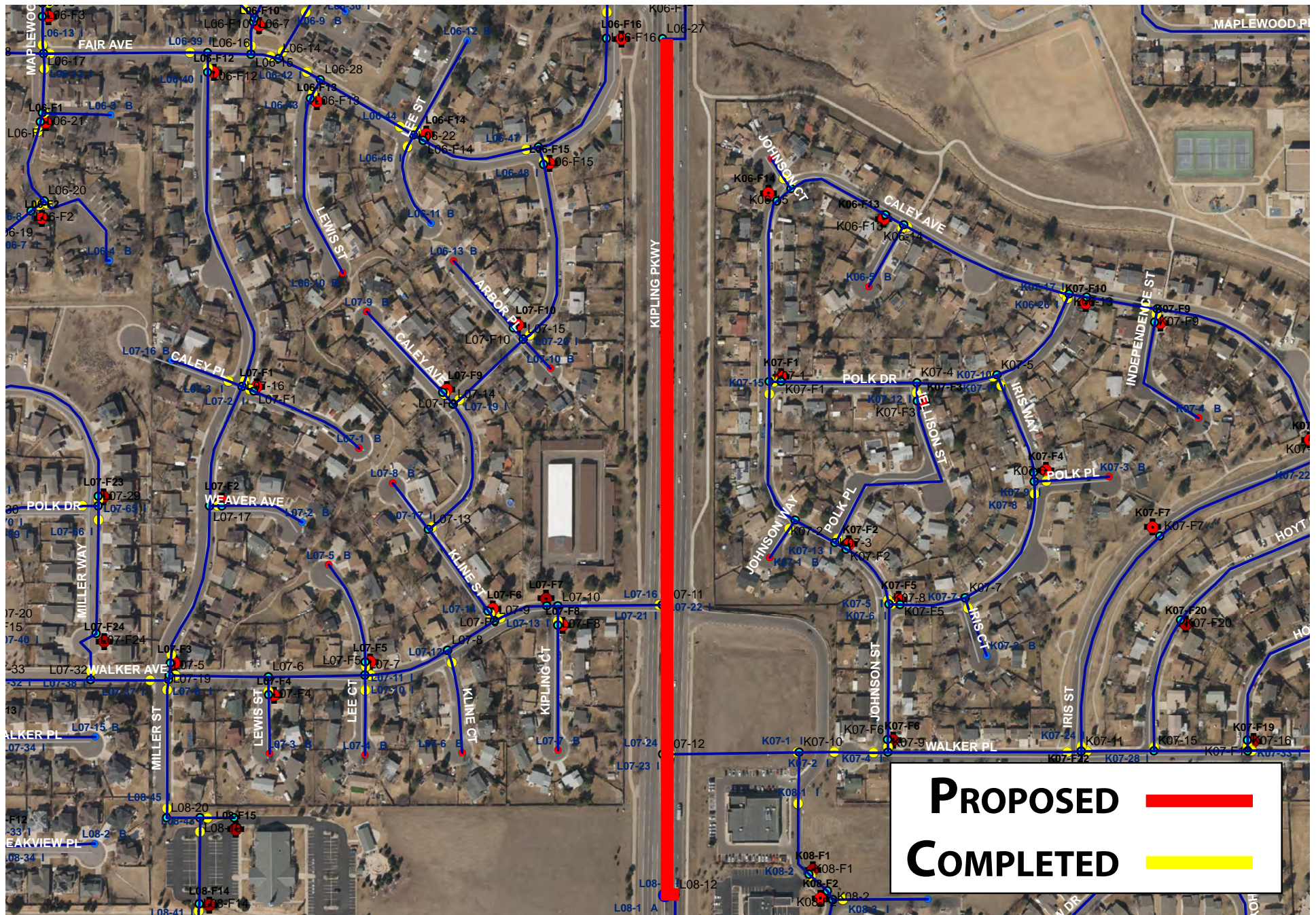
Water

Project	Subdivision	Location	Description	Pipe Age (yrs)	COST			
					Construction	Contingency (20%)	Engineering	TOTAL
22-1W	N/A	S. Kipling from south of W. Fair to north of W. Coal Mine Ave.	Replace 2,239 feet of 16-inch ductile iron pipe with 16-inch PVC pipe	42	\$914,434	\$182,886	\$82,861	\$1,180,181

Sewer

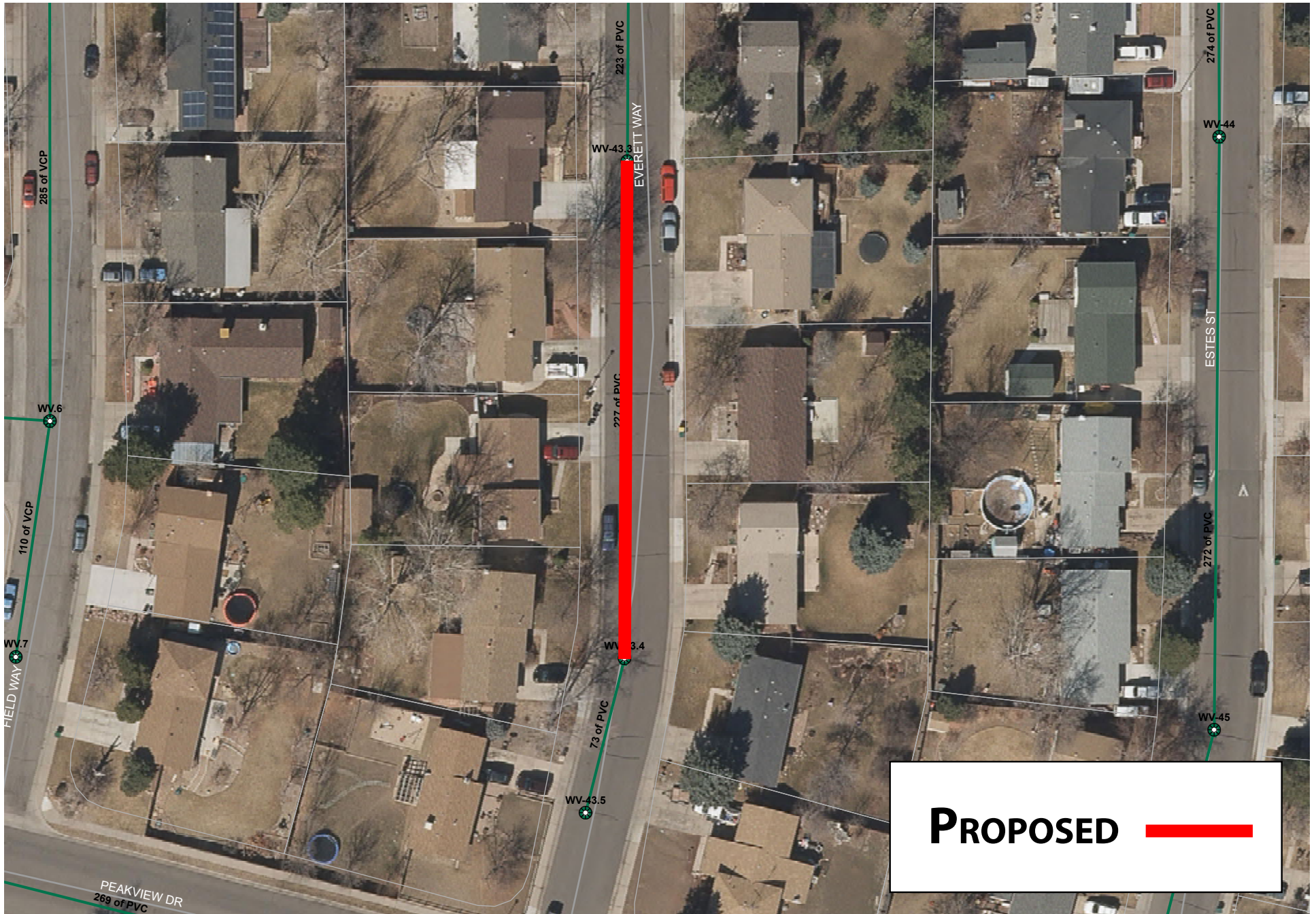
Project	Subdivision	Location	Description	Pipe Age (yrs)	COST			
					Construction	Contingency (20%)	Engineering	TOTAL
22-1S	Woodmar Village	S. Everett Way from WV-43.4 to WV43.3	Replace 227 feet of 8-inch SDR-35 PVC pipe with 8-inch SDR-35 PVC pipe. No MH rehab is expected.	42	\$144,372	\$14,437	\$18,189	\$176,998

PROJECT C.I.P. 22-1W
S. KIPLING ST. WATER MAIN REPLACEMENT



PROJECT C.I.P. 22-1S

S. EVERETT WAY SEWER MAIN REPLACEMENT



2023 Capital Improvement Projects

Water

No projects scheduled.

Sewer

No projects scheduled.

2024 Capital Improvement Projects

Water

No projects scheduled.

Sewer

No projects scheduled.

2025 Capital Improvement Projects

Water

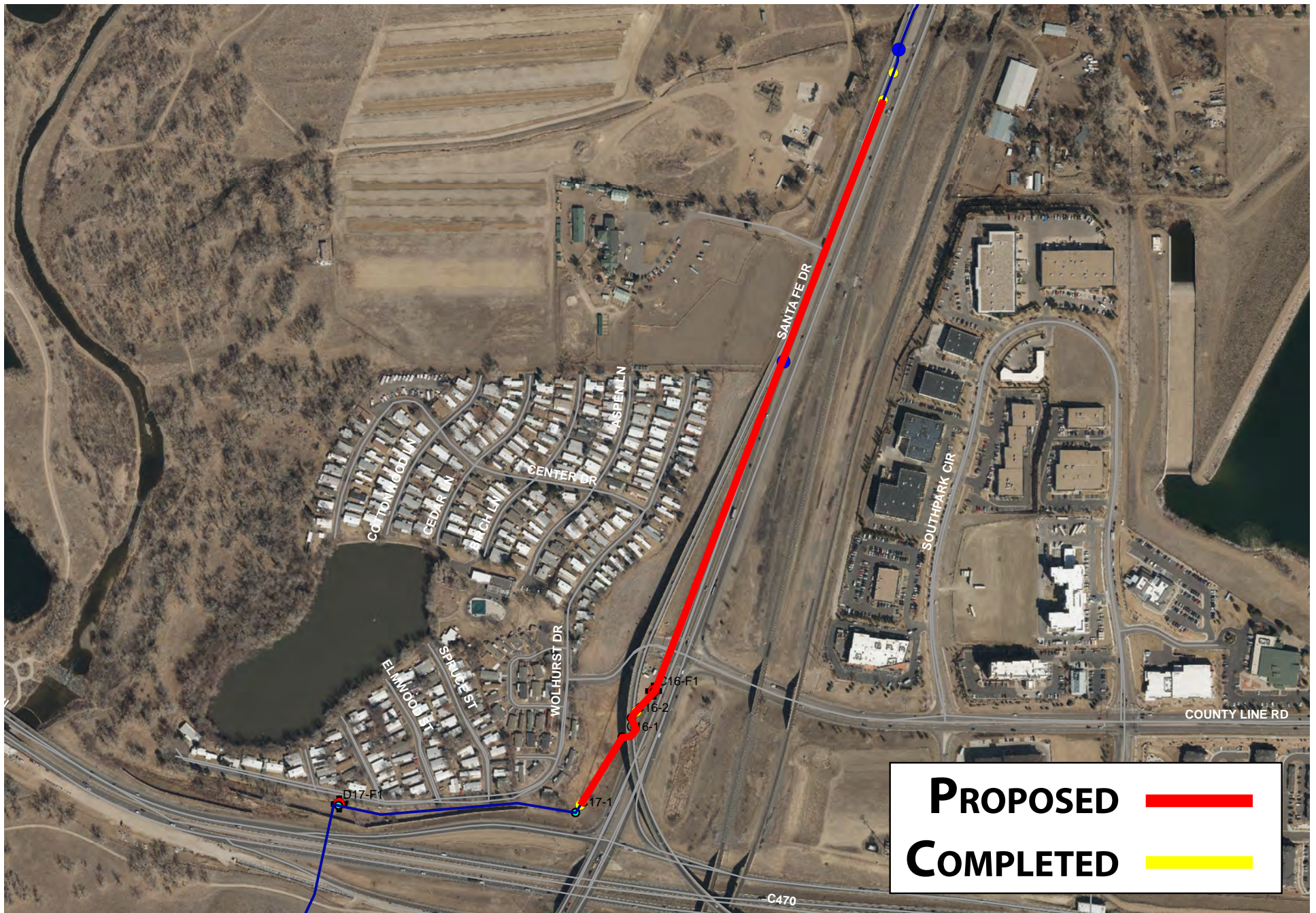
Project	Subdivision	Location	Description	Pipe Age (yrs)	COST			
					Construction	Contingency (20%)	Engineering (10%)	TOTAL
25-1W	N/A	S. Santa Fe Dr. from S. Wolhurst Dr. to a point south of the culvert crossing	Replace 2,920 feet of 16- inch cast iron pipe with 16- inch PVC pipe	51	\$1,282,798	\$256,560	\$128,280	\$1,667,638

Sewer

No projects scheduled.

PROJECT C.I.P. 25-1W

SANTA FE DR. WATER MAIN REPLACEMENT



2026 Capital Improvement Projects

Water

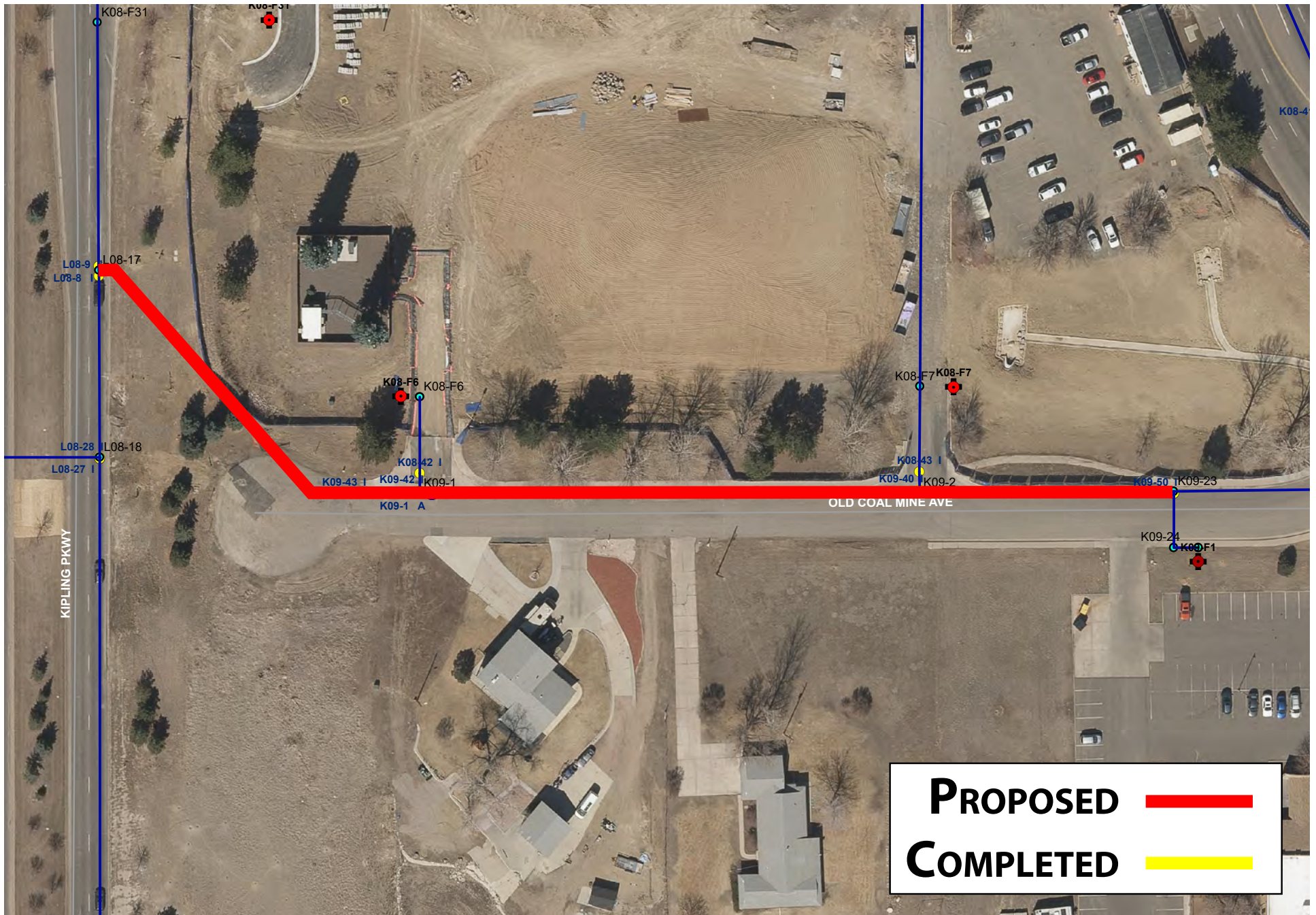
Project	Subdivision	Location	Description	Pipe Age (yrs)	COST			
					Construction	Contingency (20%)	Engineering (10%)	TOTAL
26-1W	N/A	Old Coal Mine Ave. from church connection to S. Kipling St.	Replace 780 feet of 16-inch cast iron pipe with 16-inch PVC pipe	46	\$350,918	\$70,184	\$35,092	\$456,193

Sewer

No projects scheduled.

PROJECT C.I.P. 26-1W

OLD COAL MINE AVE WATER MAIN REPLACEMENT



2027 Capital Improvement Projects

Water

No projects scheduled.

Sewer

No projects scheduled.

2028 Capital Improvement Projects

Water

Project	Subdivision	Location	Description	Pipe Age (yrs)	COST			
					Construction	Contingency (20%)	Engineering (10%)	TOTAL
28-1W	Lexington Village	Lexington Way from end of water main to branch line from S. Garland Way	Replace 352 feet of 8-inch ductile iron pipe with 8-inch PVC pipe	36	\$117,493	\$23,499	\$11,749	\$152,741
28-2W	Woodmar Square	W. Walker Drive from W. Hoover Pl. to S. Yukon St. and including S. Xephyr Ct.	Replace 1,496 feet of 6-inch asbestos cement pipe with 6-inch PVC pipe	41	\$457,440	\$91,488	\$45,744	\$594,672
28-3W	Woodmar Village	S. Cody Way from W. Peakview Dr. to S. Dover Way	Replace 1,257 feet of 8-inch asbestos cement pipe with 8-inch PVC pipe	47	\$419,515	\$83,903	\$41,951	\$545,369
28-4W	Woodmar Village	S. Everett Way from W. Peakview Dr. to S. Estes St.	Replace 911 feet of 6-inch asbestos cement pipe with 3-inch PVC pipe	47	\$278,492	\$55,698	\$27,849	\$362,039

Sewer

No projects scheduled.

PROJECT C.I.P. 28-1W

LEXINGTON WAY WATER MAIN REPLACEMENT



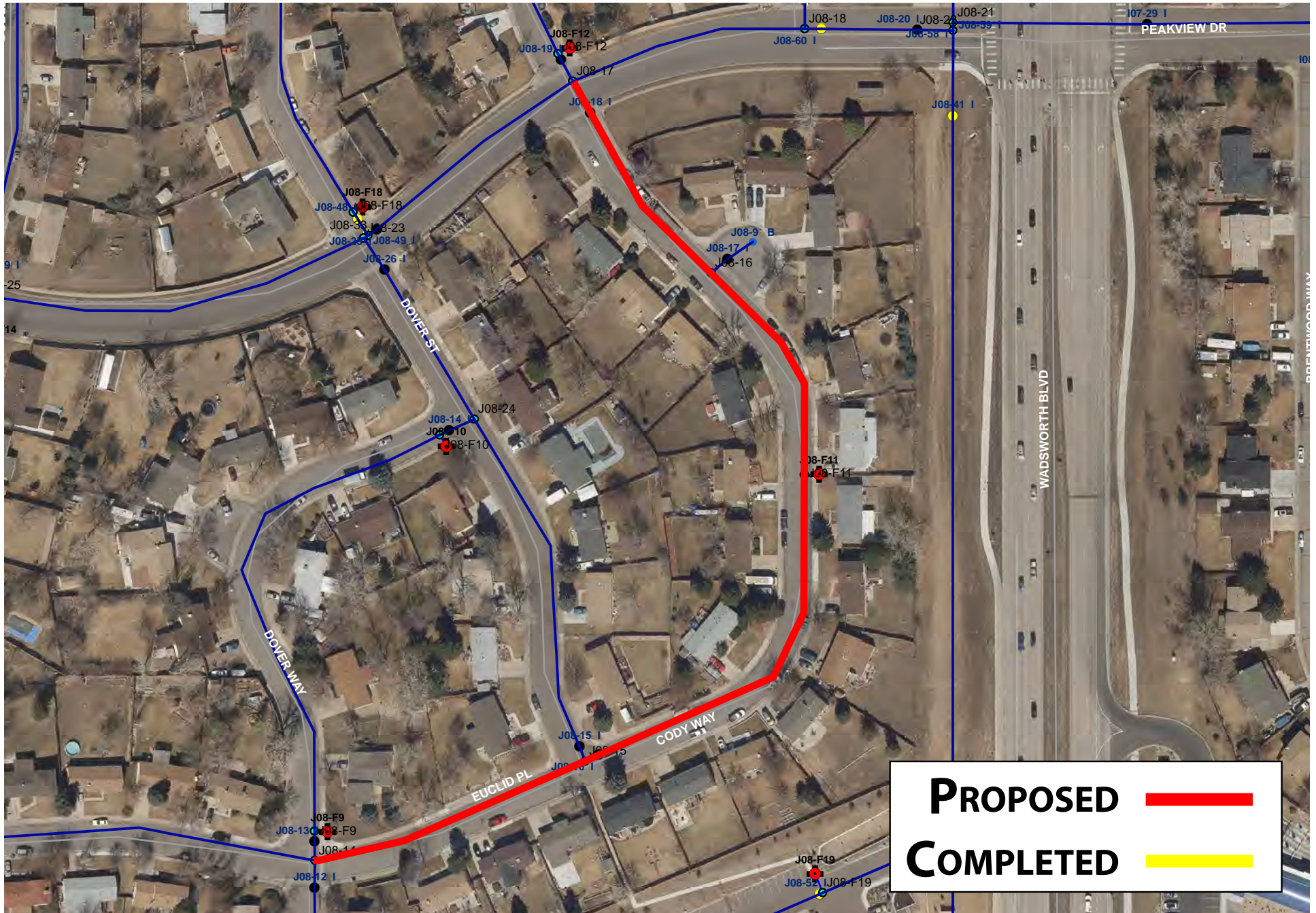
PROJECT C.I.P. 28-2W

W. WALKER DR. WATER MAIN REPLACEMENT



PROJECT C.I.P. 28-3W

S. CODY WAY WATER MAIN REPLACEMENT



PROJECT C.I.P. 28-4W
S. EVERETT WAY WATER MAIN REPLACEMENT



2029 Capital Improvement Projects

Water

Project	Subdivision	Location	Description	Pipe Age (yrs)	COST			
					Construction	Contingency (20%)	Engineering (10%)	TOTAL
29-1W	Kipling Villas	W. Arbor Drive from S. Everett Ct. to W. Arbor Ave. including the two cul-de-sacs	Replace 291 feet of 4-inch CIP with 4-inch PVC; replace 375 feet of 6-inch asbestos cement pipe with 6-inch PVC	46	\$200,510	\$40,102	\$20,051	\$260,663

Sewer

No projects scheduled.

PROJECT C.I.P. 29-1W

W. ARBOR DR & EVERETT CT. WATER MAIN REPLACEMENT



2030 Capital Improvement Projects

Water

Project	Subdivision	Location	Description	Pipe Age (yrs)	COST			
					Construction	Contingency (20%)	Engineering (10%)	TOTAL
30-1W	Powderhorn	S. Oak Way from W. Caley Ave. north to the fire hydrant	Replace 235 feet of 8-inch ductile iron pipe with 8-inch PVC pipe	32	\$82,392	\$16,478	\$8,239	\$107,109
30-2W	Powderhorn	W. Brittany Dr. and S. Quail Way from S. Pierson St. to W. Capri Ave.	Replace 11216 feet of 6-inch ductile iron pipe with 6-inch PVC pipe	35	\$390,624	\$78,125	\$39,062	\$507,811
30-3W	Williamsburg	W. Nova Ave. cul-de-sac off S. Jellison St.	Replace 478 feet of 6-inch asbestos cement pipe with 6-inch PVC pipe	42	\$153,399	\$30,680	\$15,340	\$199,419
30-4W	N/A	C470 Crossing at S. Santa Fe Dr. from SE corner of the Wolhurst community to Blakeland Dr.	Replace 900 feet of 12-inch cast iron pipe with 12-inch PVC pipe; replace 1,585 feet of 16-inch cast iron pipe with 16-inch PVC pipe; this project includes a directional bore under C470	51	\$1,696,958	\$339,392	\$169,696	\$2,206,046
30-5W	Woodmar Village	W. Euclid Pl. from S. Dover Way to S. Peakview Dr.	Replace 1,264 feet of 8-inch asbestos cement pipe with 8-inch PVC pipe	47	\$442,629	\$88,526	\$44,263	\$575,418

Sewer

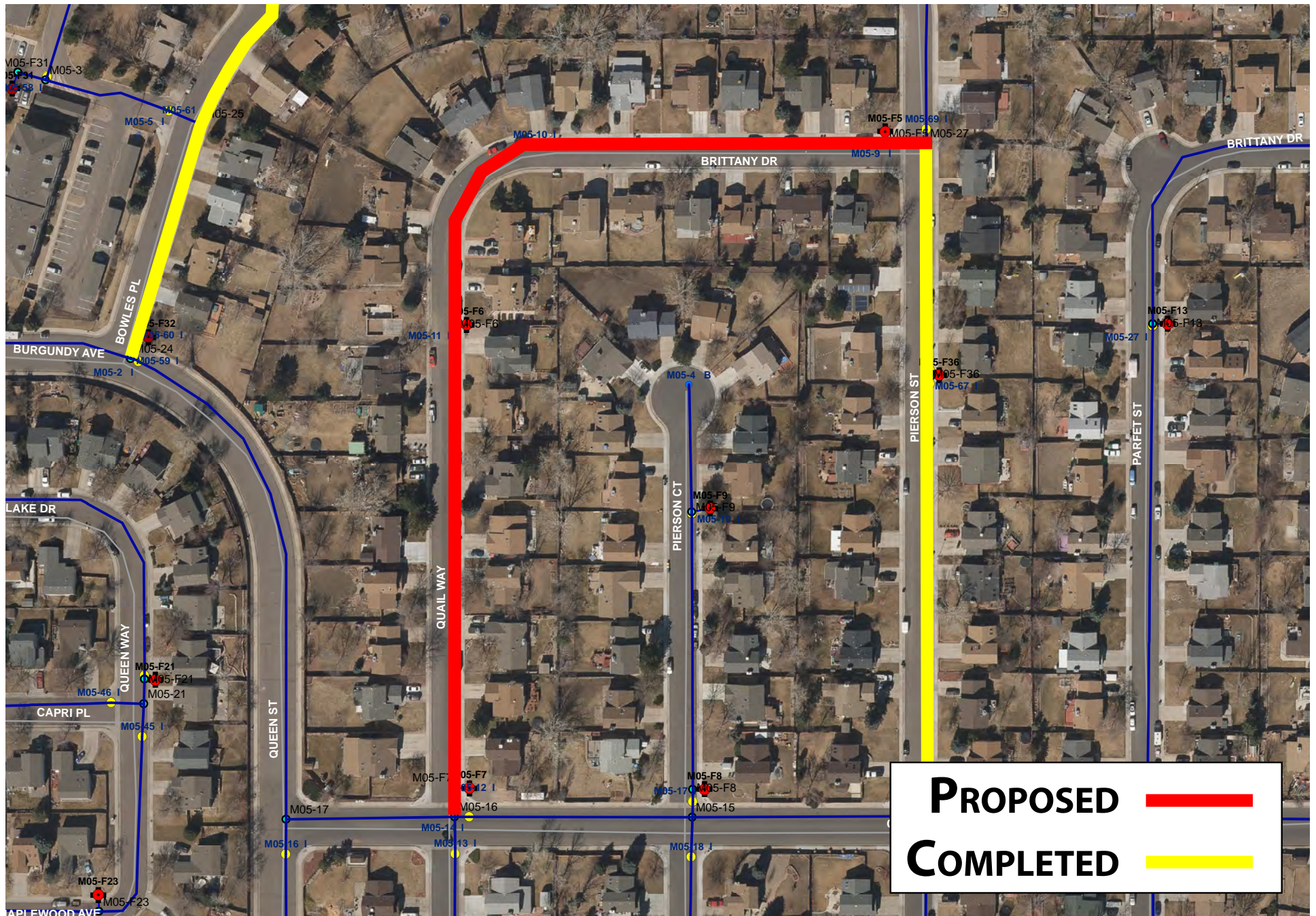
No projects scheduled.

PROJECT C.I.P. 30-1W

S. OAK WAY WATER MAIN REPLACEMENT



PROJECT C.I.P. 30-2W
W. BRITTANY DR. WATER MAIN REPLACEMENT



PROJECT C.I.P. 30-4W

C-470 CROSSING AT SANTA FE DR. WATER MAIN REPLACEMENT



2031 Capital Improvement Projects

Water

Project	Subdivision	Location	Description	Pipe Age (yrs)	COST			
					Construction	Contingency (20%)	Engineering (10%)	TOTAL
31-1W	Woodmar Village	S. Cody Way and S. Dudley Way from W. Weaver Ave. to W. Peakview Dr.	Replace 1,273 feet of 8-inch asbestos cement pipe with 8-inch PVC pipe	47	\$456,723	\$91,345	\$45,672	\$593,740
31-2W	Powderhorn	S. Parfet Street from W. Fair Ave. to W. Capri Ave.	Replace 724 feet of 6-inch ductile iron pipe with 6-inch PVC pipe	32	\$238,228	\$47,646	\$23,823	\$309,696
31-3W	Powderhorn	W. Brittany Drive from S. Oak Way to northern hydrant on S. Parfet St.	Replace 683 feet of 6-inch ductile iron pipe with 6-inch PVC pipe	35	\$224,565	\$44,913	\$22,457	\$291,935
31-4W	N/A	W. Bowles Ave. from S. Estes Street to a point north of S. Dover Ct.	Replace 566 feet of 12-inch asbestos cement pipe with 12-inch PVC pipe	40	\$253,795	\$50,759	\$25,380	\$329,934

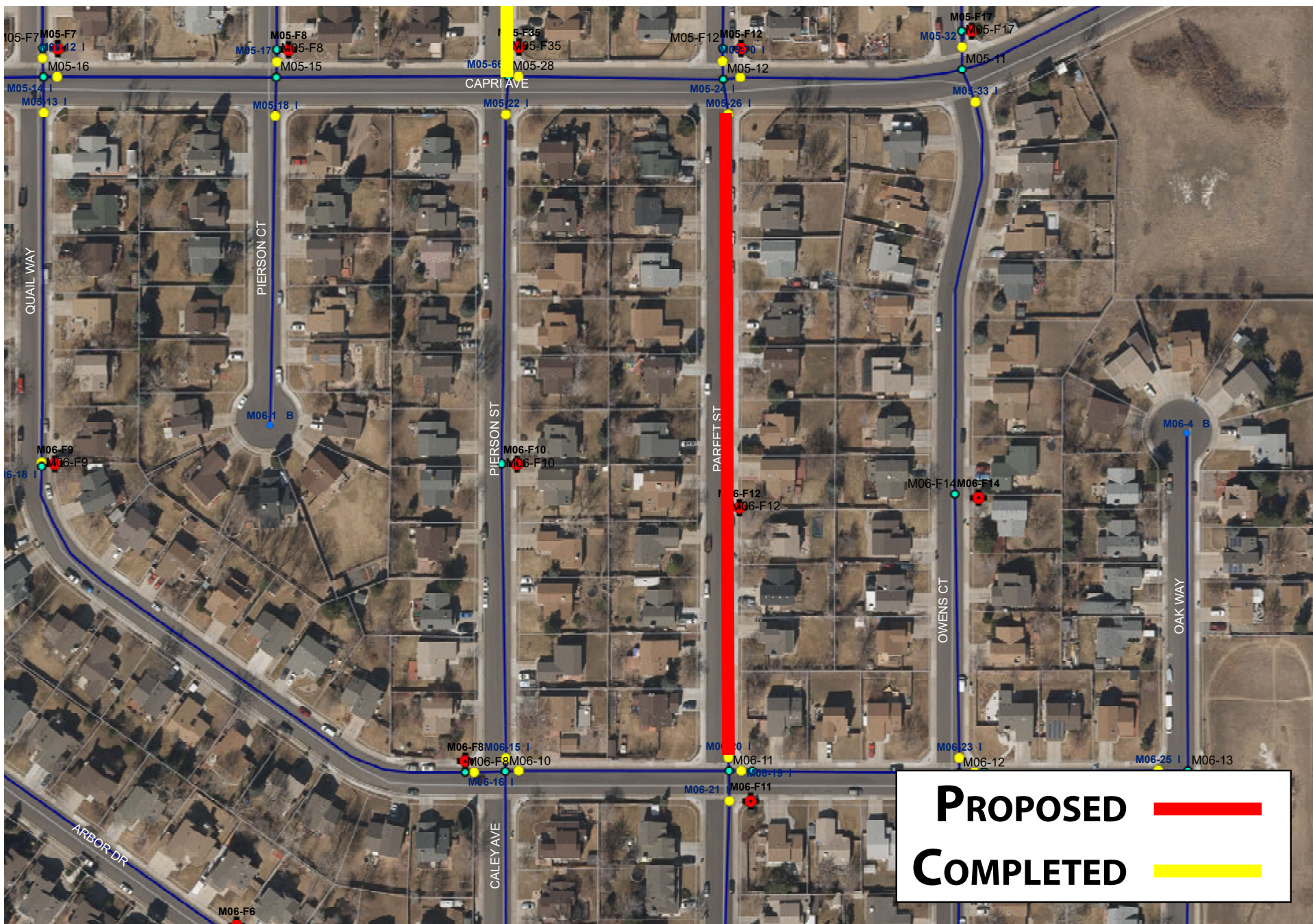
Sewer

No projects scheduled.

PROPOSED —

COMPLETED —

PROJECT C.I.P. 31-2W
S. PARFET ST. WATER MAIN REPLACEMENT



PROJECT C.I.P. 31-3W

W. BRITTANY DR. WATER MAIN REPLACEMENT



PROJECT C.I.P. 31-4W

W. BOWLES AVE. WATER MAIN REPLACEMENT



SECTION 4

SUMMARY OF COMPLETED WATER AND WASTEWATER SYSTEM EXPANSION AND REHABILITATION/REPLACEMENT PROJECTS

<u>September 2021</u>	Project CIP 21-1S Dutch Creek Interceptor Rehabilitation at W. Coal Mine Ave. (\$54,497)
<u>September 2021</u>	Project CIP 21-1W Replaced 300 feet of 12-inch cast iron pipe with 300 feet of 12-inch PVC pipe in S. Holland Way from S. Garland Street to S. Garland Court. This project also includes a culvert crossing. (\$204,676)
<u>August 2020</u>	Project CIP 20-1W Replaced 356 feet of 6-inch asbestos-cement pipe with 356 feet of 6-inch PVC pipe in S. Flower Wy. between W. Arbor Ave. and valve K06-35 I in the Kipling Villas Subdivision. (\$115,625)
<u>August 2020</u>	Project CIP 20-2W Replaced 376 feet of 12-inch ductile iron pipe with 376 feet of 12-inch PVC in W. Walden Ave. between S. Independence Wy. and S. Hoyt Ct. in the Meadows Subdivision. (\$165,304)
<u>August 2020</u>	Project CIP 20-3W Replaced 788 feet of 12-inch PVC with 788 feet of 6-inch PVC in S. Polo Ridge DR. between Thoroughbred Run and the end of the cul-de-sac in the Polo Reserve Subdivision. (\$203,507)
<u>October 2019</u>	Project CIP 19-1W Replaced 701 feet of 12-inch ductile iron pipe in S Garland St. between W. Walden Ave. and W. Nova Pl. with 701 feet of PVC pipe in the Meadows Subdivision. (\$259,565)
<u>October 2019</u>	Project CIP 19-2W Replaced 272 feet of 6-inch ductile iron pipe with 272 feet of 6-inch PVC pipe in S Holland St. between W Laurel Pl. to the end of the Cul-De-Sac in the Meadows Subdivision. (\$85,934)
<u>October 2018</u>	Project CIP 18-2W Removed two connections to a 10-inch water main in S. Wadsworth Blvd. and reconnected the two water mains to a 16-inch water main in S. Wadsworth Blvd. (\$116,068)

<u>October 2018</u>	Project CIP 18-1W Replaced 945 feet of 8-inch ductile iron pipe with 945 feet of PVC pipe in S. Pierson St. between W. Brittany Dr. and valve number M05-F11 in the Powderhorn Subdivision (229,647)
<u>October 2018</u>	Project CIP 18-1S Replaced 228 of 8-inch sewer pipe in W. Parkhill Ave. at S. Garland St. (Kipling Villas Subdivision) (\$123,419)
<u>October 2018</u>	Project CIP 18-1E Replaced supervisory control and data acquisition system equipment (\$132,443)
<u>November 2017</u>	Project CIP 17-1S CIPP lined 2,745 feet of 8-inch concrete pipe located in Chatfield Ave. between S. Pierce St. and S. Lamar St. (Herrick Dale Subdivision) (98,214)
<u>October 2017</u>	Project CIP 17-2W Replaced variable frequency controllers at Hogback Pump Station (\$41,525)
<u>October 2017</u>	Project CIP 17-1W Replaced 1,649 feet of 8-inch asbestos-concrete with 1,649 feet of 8-inch PVC pipe in W. Chatfield Ave. between S. Pierce St. and S. Lamar Ct. (\$200,050)
<u>August 2017</u>	Project CIP 17-2S Installed 111 feet of 8-inch PVC pipe between manholes FV-3 and FV 2-5.4 (Fairway Vistas Subdivision) (59,490)
<u>August 2016</u>	Project CIP 16-1S CIPP lined 6,998 feet of 15-inch and 980 feet of 18-inch concrete sewer pipe, rehabilitate 31 manholes and replace all manhole frames and covers. (\$946,155)
<u>August 2016</u>	Project CIP 16-1W Replaced 66 feet of 4-inch cast iron pipe including the blow-off assembly (Kipling Villas Subdivision) (\$25,555)
<u>October 2015</u>	Project CIP 15-1S CIPP lined 4,237 feet of 36-inch concrete sewer pipe, lined 21 concrete manholes and replaced 21 manhole frames and covers on the B-line interceptor sewer between Platte Canyon Rd. and the South Platte River. (\$1,232,479)
<u>September 2015</u>	Project CIP 15-2S and 15-3S Replaced 836 feet of 8-inch SDR-35 PVC pipe with 836 feet of 8-inch SDR-35 pipe in S. Garrison St. between manholes SC 4-7A and SC 4-7B and W. Geddes Pl. between manholes SC 4-6 and SC 4-8 in the Stony Creek Subdivision and in W. Cooper Pl. between manholes FV 2-5 and FV 2-9 in the Fairway Vista Subdivision (\$411,924)
<u>September 2015</u>	Project CIP 15-1W Replaced 553 feet of 6-inch ductile iron pipe in S. Simms Ct. between W.

Maplewood Ave. and valve number NO5-5B (Powderhorn Subdivision) (\$147,354)

December 2014

Project CIP 14-1S

Cured-in-place lined 2,279 feet of 15-inch, 1,612 feet of 21-inch, and 1,842 feet of 36-inch concrete sewer pipe (C-line interceptor) Lined 37 manholes and replaced all manhole frames and covers. (\$1,524,912)

October 2014

Project CIP 14-1W

Replaced pressure reducing valve and associated piping at W. Burgundy Ave. and S. Simms St., W. Coal Mine Ave. at S. Simms St., and 6618 S. Oak Cir. (\$115,660)

September 2014

Project CIP 14-2W

Installed 1,100 feet of 12-inch C900, class 150 PVC pipe in W. Blakeland Dr. to establish a looped water system in the Blakeland Subdivision. (\$273,704)

December 2013

Project CIP 13-1S

Cured-in-place lined 2,816 feet of 42-inch, 7,660 feet of 48-inch, and 1,411 feet of 60-inch concrete sewer pipe (A-line interceptor) Lined 43 manholes. (\$3,642,127)

October 2013

Project CIP 13-1W

Replaced two pressure reducing valve assemblies at W. Coal Mine Ave. and S. Garrison St. and W. Coal Mine Ave. and S. Owens St. (\$66,867)

September 2013

Project CIP 13-3S

Replaced 65 feet of 8-inch SDR-25 PVC pipe in S. Simms Wy. between manholes S-2C-1 and S-2C-2 in the Powderhorn Subdivision with 65 feet of 8-inch, C-900, class 200 PVC pipe. (\$33,816)

September 2013

Project CIP 13-2S

Replaced four Inventron flow meters on the D-line interceptor (2 each), the Columbine interceptor, and the Massey Draw interceptor. (\$35,625)

December 2012

Project CIP 12-1S

Rehabilitate with a cured-in-place rehabilitation process 13,296 feet of 33-inch concrete pipe and 3,083 feet of 36-inch concrete pipe. Rehabilitate 51 manholes. (\$2,514,591)

October 2012

Project CIP 12-2S

C-line and Dutch Creek flow meter rehabilitation. Replaced Inventron flow monitoring equipment with Echo equipment. (\$16,438)

August 2012

Project CIP 11-2W

Installed a connection to Denver Water Conduit 10 with a pressure reducing valve and vault to provide a second hydraulic connection to the Herrick-Dale Subdivision. (\$106,665)

June 2012

Project CIP 11-1W

Installed 440 feet of 8-inch, C-900, DR 18, PVC pipe in W. Ken Caryl Ave. between W. Indore Dr. and Falling Water Ranch Subdivision to provide an additional hydraulic connection between Falling Water Ranch and Meadows Sanctuary Subdivisions. (\$131,715)

September 2011

Project CIP 11-1S

Rehabilitated using cured-in-place lining portions of the C-line interceptor sewer consisting of 5,119 feet of 15-inch, 1,053 feet of 21-inch and 138 feet of 27-inch concrete pipe. Rehabilitated and sealed 23 concrete manholes. (\$623,265)

August 2011

A-line flow meter rehabilitation. Replaced Inventron flow monitoring equipment with Pulsar equipment. (\$6,855)

September 2010

Project CIP 10-1S

Replaced 494 feet of 8-inch PVC pipe in S. Independence Wy. between manholes M3-1G4C and M3-1G4, and in W. David Ave. between manholes M3-1G4 and M3-1G3 and M3-1G2 and M3-1G1 (Meadows Subdivision. (\$79,239.)

August 2010

Replaced 85 feet of 12-inch asbestos cement pipe in with 85 feet of 8-inch, C-900, class 150, PVC pipe on S. Yukon Way. (Columbine Knolls South Subdivision). (\$25,115.)

October 2009

Project CIP 09-1W

Replaced 1,520 feet of 6-inch cast iron pipe in W. Burgundy Dr. and W. Brittany Dr. in Kipling Hills Subdivision with 1,520 feet of 6-inch, C-900, class 150, PVC pipe.

Replaced 205 feet of 6-inch cast iron pipe in S. Dover Ct. in Kipling Villas Subdivision with 205 feet of C900, class 200, PVC pipe. (\$214,860)

October 2008

Project CIP 08-1W

Replaced 932 feet of 6-inch asbestos cement pipe with 932 feet of 6-inch, C-900, class 150, PVC pipe in S. Dover St. between W. Peakview Dr. and S. Dudley Wy. in the Woodmar Village Subdivision. (\$131,769)

August 2008

Project CIP 08-1S

Replaced 53 feet of 8-inch PVC pipe with 53 feet of 8-inch, C-900, class 200, PVC pipe in W. Hinsdale Pl. between manholes SC9-9 and SC9-10 in the Stony Creek Filing No. 9 Subdivision. (\$18,648)

August 2008

Project CIP 08-2S

Replaced 160 feet of 8-inch PVC pipe with 160 feet of 8-inch, C-900, class 200, PVC pipe in W. Chatfield Ave. between manholes DS 3-5.1 and DS 3-5 in the Dakota Station Subdivision. (\$55,945)

November 2007

Project CIP 07-1W

Replaced 840 feet of 8-inch ductile iron pipe with 840 feet of 8-inch, C-900, class 150, PVC pipe in W. Chatfield Ave. (easement) in the Dakota Station Subdivision Filing No. 3. (\$102,822.)

November 2007

Project CIP 07-2W

Replaced 489 feet of 6-inch asbestos-cement pipe in W. Weaver Pl. east of W. Walker Dr. (Woodmar Square Subdivision) with 489 feet of 6-inch, C-900, class 150, PVC pipe. (\$65,417)

August 2007

Project CIP 07-1S

Replaced 906 feet of 8-inch PVC sewer pipe in W. Cooper Dr. between manholes P6-11 and P6-9 and P6-8 and P6-7 (Powderhorn Subdivision Filing No. 6) with 906 feet of 8-inch, C-900, class 200 PVC pipe. (\$205,206)

September 2006

Project CIP 06-1W

Replaced 245 feet of 4-inch ductile iron pipe in S. Moore St. north of W. Glasgow Ave. with 245 feet of 4-inch, C900, class 150, PVC pipe (Meadows Subdivision) (\$59,098)

August 2006

Project CIP 06-1S

Rehabilitated (epoxy lined) 1,120 feet of 8-inch vitrified clay pipe in W. Kingsley Ave. between manholes MD-3 and HD-7 in the Herrick Dale Subdivision. (\$34,861)

November 2005

Project CIP 05-4W

Replaced 1,252 feet of 12-inch cast iron pipe and 105 feet of 8-inch cast iron pipe with 1,357 feet of 12-inch, C900, class 150, PVC pipe in W. Ken Caryl Ave. between S. Garrison St. and S. Kipling St. (\$316,867)

October 2005

Project CIP 05-3W

Replaced 1,300 feet of 8-inch ductile iron pipe with 1,300 feet of 8-inch C900, class 150, PVC pipe in W. Bowles Cir. between W. Lake Ave. and valve number N05-29I (Powderhorn subdivision. (\$120,807)

October 2005

Project CIP 05-2W

Replaced 1,200 feet of 6-inch ductile iron pipe with 1,200 feet of 6-inch C900, class 150, PVC pipe in S. Taft St. between W. Lake Ave. and S. Swadley Wy. (Powderhorn subdivision). (\$120,807)

October 2005

Project CIP 05-1W

Replaced 1,020 feet of 6-inch asbestos-cement pipe with 1,020 feet of 6-inch C900, class 150, PVC pipe in W. Laurel Pl. between Spread Eagle Mountain and S. Jellison St. (Williamsburg Subdivision Filing No. 1). (\$120,807)

November 2004

Project CIP 04-1W

Replaced 800 feet of 6-inch ductile iron pipe with 800 feet of 6-inch C900, class 150, PVC pipe in S. Parfet St. between W. Walker Dr. and W. Polk Dr., and replaced 1,127 feet of 8-inch ductile iron pipe with 1,127 feet of 8-inch C900, class 150, PVC pipe in W. Bowles Ave. between W. Burgundy Ave. and S. Pierson St. (\$100,857)

November 2004

Project CIP 04-2W

Replaced 1,127 feet of 8-inch ductile iron pipe with 1,127 feet of 8-inch C900, class 150, PVC pipe in W. Bowles Ave. between W. Burgundy Ave. and S. Pierson St. (\$139,278.)

November 2004

Project CIP 04-1S

Replaced 574 feet of 8-inch SDR-25, PVC pipe with 574 feet of 8-inch C900, class

200, PVC pipe. (\$117,982)

October 2004

Project CIP 04-2S

Rehabilitated using a cured-in-place method of rehabilitation 1,300 feet of 12-inch clay tile pipe in W. Maplewood Pl., S. Holland Way, and W. Parkhill Ave. in the Kipling Villas Subdivision. (\$53,896)

June 2004

Project CIP 03-1S

Constructed sewer flow metering vault on the B-Line Sewer Interceptor. (\$275,043)

October 2003

Project CIP 03-1W

Replaced 1,600 feet of 6-inch ductile iron water pipe in S. Independence Way between S. Hoyt St. and the end of the Independence Way cul-de-sac (Meadows Subdivision Filing No. 3) (\$146,784)

September 2003

Project CIP 03-2S

Replaced 938 feet of 8-inch SDR-35 PVC sewer pipe with 938 feet of C900, class 200, PVC pipe in S. Parfet St. from manhole P2-6A to P2-6, S. Owens Ct. from manhole P2-4B to P2-4A, and W. Coal Mine Ave. from manhole FV-2 to FV-1. (\$163,383)

September 2002

Constructed sewer flow metering vaults on the Massey Draw and C-Line Interceptors. (\$245,420)

December 2002

Project CIP 02-2S

Replaced 876 feet of 8-inch SDR-35 PVC pipe with 876 feet of C900, class 200, PVC pipe in S. Oak Ct. between S. Parfet St. and S. Owens St. (manholes P2-2E to P2-2). (\$39,236)

December 2002

Project CIP 02-1W

Replaced 455 feet of 6-inch ductile iron pipe in W. Canyon Pl. (Meadows Subdivision Filing No. 2) with 455 feet of 6-inch C900, class 150, PVC pipe. (\$128,375)

December 2001

Project CIP 01-1W

Replaced 405 feet of 12-inch, 430 feet of 8-inch, and 810 feet of 6-inch asbestos cement pipe in Vista View Dr. between W. Ottawa Ave. and W. Meadows Dr. and in S. Lewis Ct. between S. Miller Ct. and S. Miller St. with C-900, class 150, PVC pipe. (\$261,421)

December 2001

Project CIP 01-4W

Replaced 186 feet of 6-inch ductile iron pipe in W. Nova Pl. west of S. Garland St. with 186 feet of 6-inch, C-900, class 150, PVC pipe. (\$15,798)

December 2001

Replaced 360 feet of 8-inch, SDR-35, PVC sewer pipe between manholes M.31 and M.32 in W. Ontario Ave. with 360 feet of 8-inch, C-900, class 200, PVC pipe. Replaced 8-inch SDR-35, PVC pipe in W. Cooper Ave. between manholes S-2F-1 and S-2F with 127 feet of 8-inch, C-900, class 200, PVC pipe. Replaced 231 feet of 8-inch, SDR-35, PVC pipe in S. Parfet St. between manholes P2 and 6A and P2 and 6B with 231 feet of C-900, class 200, PVC pipe. (\$168,828)

November 2000**Project CIP 99-1W-RR**

Replaced 1,300 feet of 8-inch ductile iron pipe in W. Bowles Cir. From a point 150' west of S. Simms St. to valve number N05-29I with 1,300' of 8-inch C-900, class 150 PVC pipe. (\$99,819)

September 2000**Project CIP 00-1W**

Replaced 1,100 feet of ductile iron pipe in Bowles Avenue Marketplace with 1,100 feet of C-900, class 150, PVC pipe. (\$104,325)

September 2000**Project CIP 00-1S**

Replaced 282 feet of 8-inch, SDR-35, PVC pipe between manholes PH 3A-1 and PH 3 on S. Owens Ct. and 260 feet of 8-inch, SDR-35, PVC pipe between manholes PH 3 and PH 2 on W. Fair Ave. with C-900, class 200, PVC pipe (Powderhorn Subdivision Filing No. 5). (\$117,987).

August 2000**Project CIP 00-2W**

Replaced 26 Pacific States fire hydrants located at the following locations:

1.	On W. Walker Dr. and S. Yukon St.	H07-F12
2.	On S. Teller Ct. and W. Polk Ave.	H07-F3
3.	On S. Webster St. and S. Yukon St.	H08-F1
4.	On W. Walker Dr. and S. Peakview Ave.	H08-F6
5.	On W. Calhoun Pl. and W. Calhoun Dr.	I08-F4
6.	On S. Upham St. at W. Euclid Pl.	H08-F4
7.	On S. Brentwood St. at W. Polk Pl.	I07-F4
8.	On W. Caley Pl. 500' west of Yarrow St.	I07-F5
9.	On W. Caley Pl. 550' west of Yarrow St.	I07-F6
10.	On S. Yarrow St. at W. Caley Dr.	I07-F7
11.	On W. Calhoun Pl. at W. Calhoun Dr.	I08-F4
12.	On S. Allison Ct. at W. Hoover Pl.	I08-F5
13.	On W. Arbor Dr. at S. Everett Ct.	J06-F21
14.	On S. Field Ct. at W. Arbor Ave.	J06-F22
15.	On S. Everett Wy. At S. Estes St.	J07-F6
16.	On W. Weaver Ave. at S. Dudley Wy.	J07-F7
17.	On S. Santa Fe Dr. 2, 750' south of Mineral	C15-F1
18.	On S. Santa Fe Dr. 6,800' south of Mineral	C17-F1
19.	On S. Holland Wy. At W. Maplewood Pl.	K06-F4
20.	On S. Independence St. at W. Maplewood Pl.	K06-F3
21.	On S. Holland St. 50' west of Maplewood	K06-F11
22.	On W. Burgundy Ave. at S. Holland Wy.	K05-F9
23.	On S. Holland St. at W. Capri Ave.	K05-F21
24.	On W. Capri Ave. at S. Independence St.	K05-F13
25.	On W. Lake Ave. at S. Independence St.	K05-F12
26.	On W. Lake Ave. at S. Holland Wy.	K05-F11

(\$55,694)

August 2000**Project CIP 00-3W, CIP 01-3W, and CIP 02-2W**

Installed By-Pass Assemblies at zone valves located at the following sites:

1.	On W. Fairview Dr. at S. Saulsbury Ct.	H13-19I
2.	On W. Nova Dr. at W. Morraine Dr.	H13-21I
3.	On S. Pierce Wy. at W. Morraine Dr.	H13-28I
4.	On W. Ken Caryl Ave. at S. Pierce St.	H13-31I
5.	On W. Walden Dr. at S. Upham St.	H14-1I
6.	On W. David Dr. at S. Vance Ct.	H14-23I
7.	On S. Vance Ct. at W. Nichols Pl.	H15-24I
8.	On S. Quay Ct. at W. Clifton Pl.	H16-19I
9.	On S. Vance Ct. at W. Nichols Pl.	H16-4I
10.	On W. Clifton Ave. at S. Upham St.	H16-5I
11.	On S. Upham St. at W. Clifton Ave. (north)	H16-6I
12.	On S. Cody Wy. at W. Capri Pl.	J05-37I
13.	On S. Wadsworth Blvd. At W. Bowles Ave.	J05-43I
14.	On W/ Arbor Ave. at S. Garrison St.	J06-47I
15.	On S. Flower St. 120' west of Capri Ave.	J06-50I
16.	On W. Glasgow Ave. at S. Nelson St.	L12-1I
17.	On S. Oak St. at W. Capri Ave.	M05-36I
18.	On S. Oak Cir. At Cooper Dr.	M08-25I
19.	On S. Newcombe St. at W. Rowland Ave.	M10-8I
20.	On W. Roxbury Ave. at W. Meadows Dr.	L11-42I
21.	On W. Polk Dr. at W. Weaver Dr.	J07-3I
22.	On S. Everett Wy. at W. Peakview Dr.	J08-34I
23.	On S. Field Wy. at W. Peakview Dr.	J08-36I
24.	On W. Peakview Dr. at W. Weaver Dr.	J08-38I
25.	On W. Euclid Ave. at S. Estes St.	J08-9I
26.	On W. Freemont Pl. at S. Carr St.	J11-22I
27.	On W. Glasgow Pl. at S. Carr St.	J12-36I
28.	On W. Maplewood Ave. at S. Garland Wy.	K06-18I
29.	On W. Maplewood Dr. at S. Garrison St.	K06-27I
30.	On W. Meadows Dr. at W. Roxbury Ave.	L11-41I
	(\$63,976)	

June 2000

Project CIP 00-4W

Installed a connection between a Southwest Metropolitan owned 8-inch water main in W. Chatfield Ave. and Denver Water Department's Conduit 10 at W. Chatfield Ave. and S. Lamar St. Installed a pressure reducing valve at the connection. (\$63,836).

December 2000

Project CIP 99-2S

Installed flumes and flow metering stations on the Dutch Creek Interceptor and Columbine Interceptor. (\$245,250)

May 2000

Project CIP 97-1B-SE

Expanded and Remodeled District Office building at 8739 W. Coal Mine Ave. (\$1,747,788)

April 2000

Project CIP 97-1W-SE

Installed 700' of 16-inch ductile iron water pipe in Continental Divide Rd. between Chatfield Pump Station and northern section line of Section 4. (\$14,348)

April 2000

Project CIP 97-2W-SE

Constructed 15.0 million gallon per day pump station with associated piping and

controls. Project included installation of a pressure reducing valve station on Denver Water Department Conduit 115 at S. Kipling St. and W. Coal Mine Ave. (\$397,252)

April 2000

Project CIP 97-3W-SE

Constructed 5.0-million-gallon reservoir at W. Chatfield Ave. and S. Kipling St. (\$485,131)

December 1999

Project CIP-2W-RR

Replaced Pacific States fire hydrants at the following locations:

- | | | |
|----|------------------------------------|---------|
| 1. | S. Yarrow at W. Euclid Pl. | I08-F11 |
| 2. | S. Allison St. at W. Peakview Dr. | I07-F3 |
| 3. | S. Dover St. at S. Cody Way | J07-F8 |
| 4. | W. Arbor Ave. at W. Parkhill Ave. | J06-F24 |
| 5. | S. Holland Way at W. Bowles Ave. | K05-F8 |
| 6. | W. Maplewood Pl. at S. Garland Ct. | K06-F10 |
| 7. | W. Lake Dr. at S. Garland Way | K05-F14 |
| 8. | W. Lake Dr. at S. Garland Way | K05-F15 |
| 9. | W. Burgundy Ave. at S. Garland Way | K05-F10 |

(\$17,823)

December 1999

Project CIP 99-1S-RR

Installed two sewer flow metering stations on the D-Line Interceptor. (\$311,816)

November 1998

Projects CIP 98-1W-RR and CIP 98-3W-RR

Replaced 70 feet of 12-inch, 1,676 feet of 6-inch, and 100 feet of 4-inch ductile iron pipe in W. David Avenue between S. Garrison Court and S. Independence Way and 562 feet of cast iron pipe in W. Brittany Place between S. Estes Street and W. Brittany Drive. (\$225,010)

July 1998

Project CIP 98-2W-RR

Replaced five Pacific States Fire Hydrants at the following locations:

- | | |
|----|--------------------------------------|
| 1. | W. Euclid Avenue at S. Everett Way |
| 2. | S. Field Street at S. Everett Way |
| 3. | S. Field Street at W. Peakview Drive |
| 4. | S. Everett Way at W. Peakview Drive |
| 5. | S. Estes Street at W. Peakview Drive |

(\$9,533)

October 1997

Project CIP 97-1S-RR

Replaced 800 feet of 8-inch SDR-35 sewer pipe with 800 feet of C-900, Class 200 PVC pipe in Crestone Mountain and W. Fairview Avenue. (\$71,133)

July 1997

Project CIP 97-2W-RR

Replaced five Pacific States fire hydrants at:

- | | | |
|----|--|-----------|
| 1. | W. Euclid Avenue at S. Garrison Street | (K08-F25) |
| 2. | S. Field Ct. At W. Euclid Avenue | (J08-F2) |
| 3. | S. Dover Way at W. Euclid Place | (J08-F9) |
| 4. | S. Upham Street at W. Euclid Place | (H08-F4) |
| 5. | S. Dover Way at S. Dover Street | (J08-F10) |

(\$12,049)

May 1997

Project CIP 97-1W-RR

Replaced 200 feet of 6-inch cast iron pipe in W. Capri Place and 1,000 feet of 8-inch cast iron pipe in W. Cody Way with C-900, Class 150 PVC pipe. (\$105,522)

September 1996

Project CIP 96-2W-RR

Relocated 1,000 feet of 16-inch pipe in W. Coal Mine Ave. between S. Wadsworth Blvd. and 8739 W. Coal Mine Ave. (\$86,948)

August 1996

Project 94-1W-RR

Replaced 1,300 feet of 8-inch asbestos-cement pipe and 1,900 feet of 16-inch ductile iron pipe in W. Ken Caryl Ave. between S. Carr St. and S. Estes St. with a 16-inch ductile iron pipe. (\$152,724)

August 1996

Project CIP 94-3W-SE

Constructed 5.74 million gallons per day pumping station at 13398 W. Coal Mine Ave. (\$540,518)

July 1996

Project CIP 94-2W-SE

Constructed 3.55 million gallon treated water reservoir on the east side of the Dakota Hogback south of W. Bowles Ave. (\$2,309,961)

July 1996

Project 96-3W-RR

Replaced five Pacific States fire hydrants at:

- | | | |
|----|--|-----------|
| 1. | W. Burgundy Ave., 620 feet SE of S. Cody St. | (J05-F17) |
| 2. | W. Capri Pl., 175 feet east of S. Cody St. | (J05-F18) |
| 3. | S. Ammons Ct. at W. Peakview Dr. | (I08-F2) |
| 4. | S. Brentwood Way at W. Peakview Dr. | (I07-F11) |
| 5. | W. Brittany Pl. at W. Brittany Dr. | (J05-F16) |

September 1995

Project CIP 95-2W-RR

replaced Pacific States fire hydrants at:

- | | | |
|----|--|-----------|
| 1. | S. Santa Fe Dr. 200 feet S of entrance to Wolhurst Subdivision | (C16-F1) |
| 2. | S. Cody Way at W. Peakview Dr. | (J08-F12) |
| 3. | 7808 W. Peakview Dr. | (I07-F8) |
| 4. | S. Wadsworth Blvd., 200 feet N of W. Parkhill Ave. | (J06-F12) |
| 6. | W. Arbor Ave., at S. Dudley Ct. | (J06-F18) |
- (\$14,100)

September 1995

Replaced 765 feet of 6-inch cast iron pipe with 765 feet of 6-inch PVC pipe in W. David Place between S. Independence Way and S. Hoyt Street. (\$56,461.25)

August 1995

Unscheduled Project

Relocated 2,625 feet of 16-inch, 2,104 feet of 12-inch, 312 feet of 8-inch, and 105 feet of 6-inch cast iron and asbestos-cement water main in S. Kipling St. between

W. Geddes Ave. and W. Bowles Ave. (\$353,560.67 total cost; \$133,230.66 Southwest Metropolitan and \$220,330.02 Jefferson County)

July 1995

Project CIP 95-1W-RR

Relocated 484 feet of 12-inch cast iron pipe with 12-inch ductile iron pipe in W. Coal Mine Avenue east of S. Wadsworth Blvd. (\$25,591.96)

May 1995

Project 94-1W-SE

Installed 6,300 feet of 36-inch water main in W. Coal Mine Ave. from S. Ward St. to Hogback Reservoir (Denver Water Department Conduit 137 Phase II). (\$841,273.35)

May 1995

Project CIP 94-1S-SE

Installed 2,900 feet of 15-inch, 1,510 feet of 18-inch, and 5,585 feet of 21-inch PVC sewer pipe along the western boundary of South Platte Park (Platte River Interceptor Sewer). (\$931,924.47)

September 1994

Replaced Pacific States fire hydrants at:

1. S. Garland Way at S. Garrison (south intersection)
2. S. Dudley Way at W. Peakview Dr.
3. W. Polk Ave., 500' east of S. Yukon Ct.
4. W. Caley Dr. 375' east of S. Yukon Ct. and W. Weaver Pl.
at W. Walker Dr.

(\$12,407)

July 1994

A-Line Interceptor Sewer Flow Metering Station. (\$85,994)

August 1993

Acquired the 20-inch water main in Mineral Avenue between Platte Canyon Rd. and Santa Fe Drive from the Denver Water Department.
(\$182,927)

May 1993

Replaced 1,180 feet of 12-inch asbestos-cement water pipe in S. Jellison St. between W. Laurel Pl. and Crestone Mountain (Williamsburg Subdivision Filing No. 1). (\$101,900)

September 1990

Installed 30 feet of 12-inch ductile iron pipe in S. Pierce St. at W. Polk Ave. (\$8,093)

September 1990

Installed fire hydrant assembly on S. Wadsworth Blvd. at W. Bowles Ave. (\$3,350)

August 1990

Replaced 285 feet of 8-inch PVC. sewer main (collapsed) in W. Peakview Dr. north of Coal Mine Ave. (MH FV-3 to MH FV-4) (Fairway Vista). (\$29,900)

May 1990

Replaced 180 feet of 8-inch PVC. sewer main (collapsed) in S. Iris Way between S. Johnson Ct. and W. Friend Pl. (MH DS-9 to MH DS-10) (Dakota Station Subdivision Filing No. 2). (\$20,840)

November 1988

Installed 5,253 feet of 15 inch, 99 feet of 18 inch and 57 feet of 8 inch PVC sanitary sewer pipe for the Lilley Gulch Parallel between Wadsworth Blvd. and Kipling St. (\$236,658)

February 1983

Replaced 625 feet of 12 inch asbestos-cement water main in Crestone Mountain between S. Jellison St. and W. Canyon Ave. and 475 feet of 6 inch asbestos-cement water main in W. Walden Ave. west of Crestone Mountain (Williamsburg #1). (\$36,750)

SECTION 5

CAPITAL IMPROVEMENT PROJECT MAP

