Platte Canyon Water and Sanitation District

Capital Master Plan
2020 - 2029
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Master Plan Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Background</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Purpose</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Financial</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Criteria for Rating Water and Sewer Main Rehabilitation and Replacement Projects</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Description of Capital Plan Elements</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>Summary of Costs for Proposed Capital Improvement Projects 2010 - 2029</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>Water Distribution and Wastewater Collection Projects</td>
<td>9</td>
</tr>
<tr>
<td>3</td>
<td>2020 - Water Projects</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CIP 20-1W  W. Geddes Ave. between S. Sheridan Ct. and S. Chase Ct. Water Main Replacement (Columbine Knolls and Grove Subdivision)</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>CIP 20-2W  S. Kendall Blvd. between S. Alder Ave. and W. Monticello Ave. Water Main Replacement (Columbine Hills Subdivision)</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>CIP 20-3W  W. Alder Ave. between S. Kendall Blvd. and S. Jay Dr. Water Main Replacement (Columbine Hills Subdivision)</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>CIP 20-4W  W. Canyon Trail between S. Depew St. and S. Sheridan Ct. Water Main Replacement (Columbine Hills Subdivision)</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>CIP 20-5W  W. Canyon Ave. between S. Depew St. and W. Canyon Dr. Water Main Replacement (Columbine Hills Subdivision)</td>
<td>12</td>
</tr>
</tbody>
</table>
3 2020 - Sewer Projects
No projects scheduled

3 2021 - Water Projects
CIP 21-1W  W. Elmhurst Ave. between S. Depew St. and S. Lamar St. (Columbine Hills Subdivision)
CIP 21-2W  W. Chestnut Dr. between S. Kendall Ct. and W. Elmhurst Ave. Water Main Replacement (Columbine Hills Subdivision)

3 2021 - Sewer Projects
No projects scheduled

3 2022 - Water Projects
CIP 22-1W  S. Depew St. between W. Ken Caryl Ave. and S. Platte Canyon Rd. Water Main Replacement Water Main Replacement (Columbine Hills Subdivision)
CIP 22-2W  W. Alder Way between S. Depew St. and W. Alder Ave. (Columbine Hills Subdivision)

3 2022 - Sewer Projects
No projects scheduled

3 2023 - Water Projects
CIP 23-1W  W. Coal Mine Ave. between S. Sheridan Blvd. and S. Jay Dr. Water Main Replacement

3 2023 - Sewer Projects
No projects scheduled

3 2024 - Water Projects
CIP 24-1W  S. Pierce St. between W. Coal Mine Ave. and W. Portland Ave. Water Main Replacement

3 2024 - Sewer Projects
No projects scheduled

3 2025 - Water Projects
CIP 25-1W  Blue Sage Dr. between W. Berry Ave. and Tule Lake Dr. Water Main Replacement (Bow Mar South Subdivision)
CIP 25-2W  Marigold Ln. between Blue Sage Dr. and Sumac Ln. and Blue Sage Dr. Water Main Replacement (Bow Mar South Subdivision)  

CIP 25-3W  S. Newland Ct. between S. Portland Ave. and W. Rowland Ave. (Columbine Knolls Subdivision)  

CIP 25-4W  W. Caryl Pl. between S. Ames Way and S. Depew Way Water Main Replacement (Columbine Hills Subdivision)  

3 2025 – Sewer Projects  
No projects scheduled  

3 2026 – Water Projects  
CIP 26-1W  W. Caley Ave. and S. Ingalls St. between W. Weaver Dr. and S. Kendall St. Water Main Replacement (Leawood Subdivision)  

CIP 26-2W  S. Newland Cir. Between W. Leawood Dr. and W. Leawood Dr. Water Main Replacement (Leawood Subdivision)  

CIP 25-3W  Snowberry Pl. between Laurel Pl. and W. Bowles Ave. Water Main Replacement (Bow Mar South Subdivision)  

CIP 26-4W  S. Laurel Pl. between W. Bowles Ave. and Snowberry Pl. Water Main Replacement (Bow Mar South Subdivision)  

3 2026 – Sewer Projects  
No projects scheduled  

3 2027 – Water Projects  
CIP 27-1W  W. Rowland Ave. between S. Marshall and S. Lamar St. Water Main Replacement (Columbine Knolls Subdivision)  

CIP 27-2W  W. Roxbury Pl. between S. Kendall Blvd. and S. Marshall St. Water Main Replacement (Columbine Knolls Subdivision)  

CIP 27-3W  S. Lamar St. between S. Coal Mine Ave. and W. Rowland Ave. (Columbine Knolls Subdivision)  

CIP 27-4W  W. Portland Ave. between S. Marshall St. and S. Lamar St. Water Main Replacement (Columbine Knolls Subdivision)
CIP 27-5W  S. Kendall Blvd. between S. Lamar St. and W. Plymouth Dr. (Columbine Knolls Subdivision) 30

3 2027 – Sewer Projects
   No projects scheduled 31

3 2028 – Water Projects
   CIP 28-1W  W. Ken Caryl Ave. between S. Pierce St. and a Point 493 East of S. Pierce St. 32
   CIP 28-2W  W. Ontario Ave. between S. Depew St. and S. Sheridan Blvd. (Normandy Estates Subdivision) 32
   CIP 28-3W  W. Plymouth Dr. between W. Ottawa Ave. and S. Sheridan Blvd. (Normandy Estates Subdivision) 33
   CIP 28-4W  S. Lamar Dr. between W. Leawood Dr. and S. Marshall Ct. (Leawood Subdivision) 33
   CIP 28-5W  S. Depew St. between W. Ontario Ave. and W. Plymouth Dr. (Normandy Estates Subdivision) 34

3 2028 – Sewer Projects
   No projects scheduled 35

3 2029 – Water Projects
   CIP 29-1W  W. Monticello Ave. between S. Jay Dr. and S. Kendall St. (Columbine Hills Subdivision) 36
   CIP 29-2W  S. Kendall Blvd. between W. Elmhurst Ave. and W. Monticello Ave. (Columbine Hills Subdivision) 36
   CIP 29-3W  W. Chestnut Ave. between S. Jay Dr. and S Kendall Blvd. (Columbine Knolls Subdivision) 37
   CIP 29-4W  S. Ames Way between W. Ken Caryl Ave. and W. Caryl Ave. (Columbine Hills Subdivision) 37
   CIP 29-5W  S. Kendall Blvd. between W. Rowland Pl. and W. Fremont Dr. (Columbine Knolls Subdivision) 38
   CIP 29-6W  S. Teller Ct. Cul-De-Sac South of W. Roxbury Pl (Columbine West Subdivision) 38
CIP 29-7W  W. Roxbury Pl between S. Webster St. and S. Teller Ct. (Columbine Knolls Subdivision) 39

CIP 29-8W  S. Otis Ct. Cul-De-Sac North of Leawood Dr. (Leawood Subdivision) 39

CIP 29-9W  S. Nixon Ct. Cul-De-Sac North of W. Leawood Dr. (Leawood Subdivision) 40

3  **2029 – Sewer Projects**
   No projects scheduled 41

4  **Vehicle and Equipment Schedule** 42

5  **Completed Capital Construction Projects** 45

6  **Capital Project Map** 60
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 77.7 miles of water mains, 75.9 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. The program was substantially enhanced and updated in 2018 and 2019 by adding an evaluation of the criticality of each asset to the existing assessment, which is based on age, type of material, number of failures and observed condition of each asset. Using the new asset evaluation criteria, the selection and prioritization of capital projects is updated each year. The evaluation process and criteria used to determine which assets are in need of rehabilitation or replacement are described in a following section.

Present day replacement costs for assets owned and maintained by Platte Canyon totals over $150 million. Although the majority of the District’s infrastructure remains within its expected useful life, electrolysis caused corrosion along with normal aging and deterioration of facilities have increased the need for the rehabilitation and replacement of District assets. The oldest facilities owned by the District were installed in 1958 and 46 percent of the District’s assets were installed prior to 1974. These assets are now approaching the end of their useful life and are failing at an increasing rate. This Capital Master Plan provides a systematic process for scheduling and conducting these necessary system improvements in a timely and cost-effective manner.

PURPOSE

The purpose of 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, minimizing the potential for large fluctuations in tax and service fee rates. The program further allows for planning and scheduling system replacements and rehabilitations on a consistent 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, 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 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 2020-2029 Capital Master Plan proposes expenditure of $1,706,279 in 2020, and $18,194,786 during the ten-year period. This compares with last year’s master plan projected expenditures for 2020 amounting to $1,497,431 and ten-year expenditures totaling $11,433,088. The $6,761,698 increase in projected expenditures is attributed to the more proactive and comprehensive asset replacement evaluation process established in 2018 and 2019. Water facility replacement projects account for 90 percent of the total proposed expenditures while vehicle and equipment purchases account for the remaining 10 percent. The District’s extensive sanitary sewer video inspection and maintenance program has not revealed a need to schedule major rehabilitation or replacement of sewer system assets in the next ten years. However, the District is instituting a more intensive sewer rating program to provide a base line for monitoring the condition of all assets over time.

The Platte Canyon 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 of Directors 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 Capital Master Plan.
CRITERIA FOR RATING WATER AND SEWER MAIN REHABILITATION AND REPLACEMENT PROJECTS

Water

In 2018, a new rating process was developed to prioritize the replacement of water mains over the ten-year planning horizon. The process was slightly revised and expanded in 2019, and the proposed 2020-2029 Capital Master Plan was created using the revised process. 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.

This 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 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 is calculated using known pipe characteristics including those listed in the following table.

<table>
<thead>
<tr>
<th>Age of pipe</th>
<th>The current date minus the installation date of the segment, divided by 365 to produce an age accurate to the day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of pipe</td>
<td>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:</td>
</tr>
<tr>
<td></td>
<td>• cast iron (CIP) – 75 points</td>
</tr>
<tr>
<td></td>
<td>• ductile iron (DI) – 60 points</td>
</tr>
<tr>
<td></td>
<td>• asbestos-cement (ACP) – 60 points</td>
</tr>
<tr>
<td></td>
<td>• polyvinyl chloride (PVC) – 60 points</td>
</tr>
<tr>
<td></td>
<td>• steel – 60 points</td>
</tr>
</tbody>
</table>

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 |
Failure count = 1, Failure Weight = Count * 10
• Failure count = 2, Failure Weight = Count * 20
• Failure count = 3, Failure Weight = Count * 30
• Failure count = 4, Failure Weight = Count * 40
• Failure count = 5, Failure Weight = Count * 50

<table>
<thead>
<tr>
<th>Consequence of Failure Weight (CoF)</th>
<th>An equation which adds a modifier to the pipe rating escalating with the consequence of failure of a pipe segment</th>
</tr>
</thead>
<tbody>
<tr>
<td>CoF rating is less 2.0, CoF Weight = CoF Rating * 10</td>
<td></td>
</tr>
<tr>
<td>CoF rating is 2.0 – 2.9, CoF Weight = CoF Rating * 20</td>
<td></td>
</tr>
<tr>
<td>CoF rating is 3.0 – 3.9, CoF Weight = CoF Rating * 30</td>
<td></td>
</tr>
<tr>
<td>CoF rating is 4.0 – 4.9, CoF Weight = CoF Rating * 40</td>
<td></td>
</tr>
<tr>
<td>CoF rating equals 5.0, CoF Weight = CoF Rating * 50</td>
<td></td>
</tr>
</tbody>
</table>

*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:

<table>
<thead>
<tr>
<th>A cast iron pipe installed in 1962 with one failure and a CoF rating of 3.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of pipe - 56 points</td>
</tr>
<tr>
<td>Type of pipe - 75 points</td>
</tr>
<tr>
<td>Baseline Pipe Rating = 56 x 3.0 + 75 = 243</td>
</tr>
<tr>
<td>Failure Weight = 2 [one failure] * 20 = 40</td>
</tr>
<tr>
<td>CoF Weight = 3.2 [CoF rating] * 30 = 96</td>
</tr>
<tr>
<td>Total points = 243 + 40 + 96 = 379 points</td>
</tr>
</tbody>
</table>

Using the Total Pipe Rating calculations, a ranking list was developed of all water mains in the
distribution system. The top 200 ranked mains were then grouped into projects based upon their
location (i.e. all segments in the same street became one project). If a project contained multiple
segments with breaks, the Total Pipe Rating for that project was recalculated to include the
combined impact of the multiple breaks. The projects were then re-ranked according to the revised
Total Pipe Rating. 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 tool 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.

Five water main replacement projects are scheduled for construction in 2019. All projects propose replacement of cast iron pipe that has exhibited advanced levels of electrolysis caused corrosion. 1,107 feet of 8-inch, and 3,681 feet of 6-inch cast iron pipe will be replaced with PVC pipe. Four of the five projects are located within the Columbine Hills Subdivision which contains some of the oldest water mains owned by the District. The cast iron pipe was installed in the late 1950’s and early 1960’s and was not protected from corrosive soils as is the current practice. The fifth project proposed for construction in 2020 is located in the Columbine Knolls and Grove Subdivision which also has many older cast iron pipe assets. Combined, these five water mains have experienced 17 water breaks, including six that occurred in 2018. The projected engineering and construction cost for the five water main replacements in 2020 is $1,318,886 but will be budgeted at $1,552,279 to include a 20 percent contingency in the amount of $263,777.

No sanitary sewer replacements have been scheduled for 2020, but vehicle and equipment replacements will total $154,000. These include replacement of a standard four-wheel drive pickup truck, a trailer mounted message board, and a flatbed service truck with an air compressor installed.
The 2020-2029 Capital Master Plan proposes 33 additional water main replacement projects between 2021 and 2029, which represents the replacement of 37,661 feet of pipe. The type and size of the pipe scheduled for replacement between 2021 and 2019 is shown in Table 1 below.

<table>
<thead>
<tr>
<th>SIZE</th>
<th>CAST IRON</th>
<th>ASBESTOS-CEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-inch</td>
<td>13,566 feet</td>
<td>4,207 feet</td>
</tr>
<tr>
<td>8-inch</td>
<td>6,456 feet</td>
<td>5,247 feet</td>
</tr>
<tr>
<td>10-inch</td>
<td>685 feet</td>
<td>0 feet</td>
</tr>
<tr>
<td>12-inch</td>
<td>5,750 feet</td>
<td>1,750 feet</td>
</tr>
</tbody>
</table>

The projected replacement cost for the 33 replacement projects is $14,857,370. This includes construction costs, engineering costs amounting to 10 percent of anticipated construction costs and a 20 percent contingency for each project. Costs are inflated at 2.46 percent per year.

Totaling of the water main replacement projects in the 2020-2029 Capital Master Plan, 42,449 feet of pipe is proposed for replacement. This represents 10.7 percent of all water main assets owned by the District, which reflects a replacement rate of 1.07 percent per year. This rate aligns with the water sector best practice of replacing 1.00 percent of water main assets per year.

No sewer replacement or rehabilitation projects are scheduled between 2021 and 2029.

Vehicle replacement costs for the period between 2021 and 2029 are projected to be $1,631,137, $59,137 more than the amount proposed in last year’s vehicle replacement schedule. Vehicle and equipment costs are largely limited to replacement of existing mobile assets but do include the initial purchase and replacement of trailer mounted message boards for traffic safety purposes.
### SUMMARY OF PROPOSED CAPITAL EXPENDITURES FOR THE PERIOD 2020 - 2029

<table>
<thead>
<tr>
<th>Year</th>
<th>Water</th>
<th>Sewer</th>
<th>Vehicle/Equip</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>$1,552,279</td>
<td>$0</td>
<td>$154,000</td>
<td>$1,706,279</td>
</tr>
<tr>
<td>2021</td>
<td>$965,708</td>
<td>$0</td>
<td>$345,290</td>
<td>$1,310,998</td>
</tr>
<tr>
<td>2022</td>
<td>$1,824,466</td>
<td>$0</td>
<td>$159,571</td>
<td>$1,984,037</td>
</tr>
<tr>
<td>2023</td>
<td>$1,104,163</td>
<td>$0</td>
<td>$95,732</td>
<td>$1,199,895</td>
</tr>
<tr>
<td>2024</td>
<td>$989,909</td>
<td>$0</td>
<td>$379,539</td>
<td>$1,369,448</td>
</tr>
<tr>
<td>2025</td>
<td>$1,726,758</td>
<td>$0</td>
<td>$0</td>
<td>$1,726,758</td>
</tr>
<tr>
<td>2026</td>
<td>$1,610,284</td>
<td>$0</td>
<td>$0</td>
<td>$1,610,284</td>
</tr>
<tr>
<td>2027</td>
<td>$2,855,599</td>
<td>$0</td>
<td>$560,017</td>
<td>$3,415,616</td>
</tr>
<tr>
<td>2028</td>
<td>$1,734,121</td>
<td>$0</td>
<td>$44,941</td>
<td>$1,779,062</td>
</tr>
<tr>
<td>2029</td>
<td>$2,045,910</td>
<td>$0</td>
<td>$46,047</td>
<td>$2,091,957</td>
</tr>
</tbody>
</table>

**TOTALS**  
$16,409,197 $0 $1,785,137 $18,194,334

![Bar Chart of Capital Expenditures](chart.png)
SECTION 3

WATER DISTRIBUTION AND WASTEWATER COLLECTION FACILITY REHABILITATION AND REPLACEMENT PROJECTS SCHEDULED FOR 2020 - 2029
## 2020 Capital Improvement Projects
### Water

<table>
<thead>
<tr>
<th>Project:</th>
<th>CIP 20-1W</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location:</strong></td>
<td>W. Geddes Ave. between S. Sheridan Ct. and S. Chase Ct. (Columbine Knolls and Grove Subdivision).</td>
</tr>
<tr>
<td><strong>Description:</strong></td>
<td>Replace 1,311 feet of 6-inch cast iron pipe with 1,311 feet of 6-inch PVC pipe.</td>
</tr>
<tr>
<td><strong>Date Installed:</strong></td>
<td>1968</td>
</tr>
<tr>
<td><strong>Rating:</strong></td>
<td>521.52</td>
</tr>
<tr>
<td><strong>Cost:</strong></td>
<td></td>
</tr>
<tr>
<td>Construction:</td>
<td>$ 265,704</td>
</tr>
<tr>
<td>Engineering (10%)</td>
<td>$ 26,570</td>
</tr>
<tr>
<td>Contingencies (20%)</td>
<td>$ 58,455</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project:</th>
<th>CIP 20-2W</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location:</strong></td>
<td>S Kendall Blvd. between W. Alder Ave. and W. Monticello Ave. (Columbine Hills Subdivision).</td>
</tr>
<tr>
<td><strong>Description:</strong></td>
<td>Replace 1,107 feet of feet of 8-inch cast iron pipe with 1,107 feet of 8-inch PVC pipe.</td>
</tr>
<tr>
<td><strong>Date Installed:</strong></td>
<td>1960</td>
</tr>
<tr>
<td><strong>Rating:</strong></td>
<td>463.43</td>
</tr>
<tr>
<td><strong>Cost:</strong></td>
<td></td>
</tr>
<tr>
<td>Construction:</td>
<td>$ 298,107</td>
</tr>
<tr>
<td>Engineering (10%)</td>
<td>$ 29,811</td>
</tr>
<tr>
<td>Contingencies (20%)</td>
<td>$ 65,584</td>
</tr>
</tbody>
</table>
PROJECT C.I.P. 20-1W
W. GEDDES AVE. WATER MAIN REPLACEMENT
Project: CIP 20-3W
Location: W. Alder Ave. between S Kendall Blvd. and S. Jay Dr. (Columbine Hills Subdivision).
Description: Replace 465 feet of feet of 6-inch cast iron pipe with 465 feet of 6-inch PVC pipe.
Date Installed: 1960
Rating: 351.43
Cost: Construction: $115,095
Engineering (10%) $11,510
$126,605
Contingencies (20%) $25,321
$151,926

Project: CIP 20-4W
Location: W. Canyon Trail between S. Depew St. and S. Sheridan Ct. (Columbine Hills Subdivision).
Description: Replace 900 feet of feet of 6-inch cast iron pipe with 900 feet of 6-inch PVC pipe.
Date Installed: 1959
Rating: 454.34
Cost: Construction: $267,649
Engineering (10%) $26,765
$294,414
Contingencies (20%) $58,883
$353,297
PROJECT C.I.P. 20-3W
W. ALDER AVE. WATER MAIN REPLACEMENT
PROJECT C.I.P. 20-4W
W. CANYON TRL. WATER MAIN REPLACEMENT
Project: **CIP 20-5W**

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

**Description:** Replace 1,005 feet of 6-inch cast iron pipe with 1,005 feet of 6-inch PVC pipe.

**Date Installed:** 1959

**Rating:** 417.90

**Cost:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction:</td>
<td>$ 229,413</td>
</tr>
<tr>
<td>Engineering (10%)</td>
<td>$ 22,941</td>
</tr>
<tr>
<td></td>
<td>$ 252,354</td>
</tr>
<tr>
<td>Contingencies (20%)</td>
<td>$ 50,471</td>
</tr>
<tr>
<td></td>
<td>$ 302,825</td>
</tr>
</tbody>
</table>
PROJECT C.I.P. 20-5W
W. CANYON AVE. WATER MAIN REPLACEMENT
2020 Capital Improvement Projects
Sewer

No projects scheduled
2021 Capital Improvement Projects
Water

Project: CIP 21-1W
Location: W. Elmhurst Ave. between S. Depew St. and S. Lamar St. (Columbine Hills Subdivision)
Description: Replace 2,280 feet of 6-inch cast iron pipe with 2,280 feet of 6-inch PVC pipe.
Date Installed: 1960
Rating: 392.10
Cost: Construction: $555,637
Engineering (10%) $55,564
$611,201
Contingencies (20%) $122,240
$733,441

Project: CIP 21-2W
Location: W. Chestnut Dr. between S. Kendall Ct. and W. Elmhurst Ave. (Columbine Hills Subdivision)
Description: Replace 840 feet of 6-inch cast iron pipe with 840 feet of 6-inch PVC pipe.
Date Installed: 1960
Rating: 331.47
Cost: Construction: $175,960
Engineering (10%) $17,596
$193,556
Contingencies (20%) $38,711
$232,267
PROJECT C.I.P. 21-1W
W. ELMHURST AVE. WATER MAIN REPLACEMENT

PROPOSED

COMPLETED
PROJECT C.I.P. 21-2W
W. CHESTNUT DR. WATER MAIN REPLACEMENT
2021 Capital Improvement Projects
Sewer

No projects scheduled
2022 Capital Improvement Projects
Water

Project: CIP 22-1W
Location: S. Depew St. between W. Ken Caryl Ave. and S. Platte Canyon Rd. (Columbine Hills Subdivision)
Description: Replace 3,700 feet of 8-inch cast iron pipe with 3,700 feet of 8-inch PVC pipe.
Date Installed: 1959
Rating: 369.47
Cost: Construction: $1,210,998
Engineering (10%) $121,100 $1,332,098
Contingencies (20%) $266,420 $1,598,518

Project: CIP 22-2W
Location: W. Alder Way between S. Depew St. and W. Alder Ave. (Columbine Hills Subdivision)
Description: Replace 690 feet of 6-inch cast iron pipe with 690 feet of 6-inch PVC pipe.
Date Installed: 1960
Rating: 309.47
Cost: Construction: $171,173
Engineering (10%) $17,117 $188,290
Contingencies (20%) $37,658 $225,948
PROJECT C.I.P. 22-2W
W. ALDER WAY WATER MAIN REPLACEMENT

PROPOSED
COMPLETED
2022 Capital Improvement Projects
Sewer

No projects scheduled
## 2023 Capital Improvement Projects
### Water

**Project:** CIP 23-1W  
**Location:** W. Coal Mine Ave. between S. Sheridan Blvd. and S. Jay Dr.  
**Description:** Replace 3,250 feet of 8-inch asbestos-cement pipe with 3,250 feet of 8-inch PVC pipe.  
**Date Installed:** 1960 and 1965  
**Rating:** 365.66  
**Cost:**  
- Construction: $836,487  
- Engineering (10%) $83,649  
  $920,136  
- Contingencies (20%) $184,027  
  $1,104,163
PROJECT C.I.P. 23-1W
W. COAL MINE AVE. WATER MAIN REPLACEMENT
2023 Capital Improvement Projects
Sewer

No projects scheduled
2024 Capital Improvement Projects
Water

Project: CIP 24-1W
Location: S. Pierce St. between W. Coal Min Ave. and W. Portland Ave.
Description: Replace 1,750 feet of 12-inch asbestos-cement pipe with 1,750 feet of 12-inch PVC pipe.
Date Installed: 1975
Rating: 358.76
Cost:
  Construction: $ 749,931
  Engineering (10%) $ 74,993
  $ 824,924
  Contingencies (20%) $ 164,985
  $ 989,909
PROJECT C.I.P. 24-1W
S. PIERCE ST. WATER MAIN REPLACEMENT
2024 Capital Improvement Projects
Sewer

No projects scheduled
**2025 Capital Improvement Projects**

**Water**

<table>
<thead>
<tr>
<th>Project: CIP 25-1W</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Location: Blue Sage Dr. between W. Berry Ave. and Tule Lake Dr. (Bow Mar South Subdivision)</td>
<td></td>
</tr>
<tr>
<td>Description: Replace 1,935 feet of 12-inch cast iron pipe with 1,935 feet of 12-inch PVC pipe.</td>
<td></td>
</tr>
<tr>
<td>Date Installed: 1959</td>
<td></td>
</tr>
<tr>
<td>Rating: 343.87</td>
<td></td>
</tr>
<tr>
<td>Cost:</td>
<td></td>
</tr>
<tr>
<td>Construction: $680,565</td>
<td></td>
</tr>
<tr>
<td>Engineering (10%) $68,057</td>
<td></td>
</tr>
<tr>
<td>$748,622</td>
<td></td>
</tr>
<tr>
<td>Contingencies (20%) $149,724</td>
<td></td>
</tr>
<tr>
<td>$898,346</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project: CIP 25-2W</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Location: Marigold Lane between Blue Sage Dr. and Sumac Lane (Bow Mar South Subdivision)</td>
<td></td>
</tr>
<tr>
<td>Description: Replace 1,045 feet of 6-inch cast iron pipe with 1,045 feet of 6-inch PVC pipe.</td>
<td></td>
</tr>
<tr>
<td>Date Installed: 1963</td>
<td></td>
</tr>
<tr>
<td>Rating: 334.20</td>
<td></td>
</tr>
<tr>
<td>Cost:</td>
<td></td>
</tr>
<tr>
<td>Construction: $242,223</td>
<td></td>
</tr>
<tr>
<td>Engineering (10%) $24,222</td>
<td></td>
</tr>
<tr>
<td>$266,445</td>
<td></td>
</tr>
<tr>
<td>Contingencies (20%) $53,289</td>
<td></td>
</tr>
<tr>
<td>$319,734</td>
<td></td>
</tr>
</tbody>
</table>
PROJECT C.I.P. 25-1W
BLUE SAGE DR. WATER MAIN REPLACEMENT
PROJECT C.I.P. 25-2W
MARIGOLD LN. WATER MAIN REPLACEMENT
Project: **CIP 25-3W**

Location: S. Newland Ct. between W. Portland Ave. and W. Rowland Ave. (Columbine Knolls Subdivision)

Description: Replace 944 feet of 8-inch asbestos-cement pipe with 944 feet of 8-inch PVC pipe.

Date Installed: 1971

Rating: 340.32

Cost:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>$281,886</td>
</tr>
<tr>
<td>Engineering (10%)</td>
<td>$28,189</td>
</tr>
<tr>
<td>Contingencies (20%)</td>
<td>$62,015</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$372,090</strong></td>
</tr>
</tbody>
</table>

Project: **CIP 25-4W**

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

Description: Replace 404 feet of 6-inch cast iron pipe with 404 feet of 6-inch PVC pipe.

Date Installed: 1959

Rating: 334.34

Cost:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>$103,475</td>
</tr>
<tr>
<td>Engineering (10%)</td>
<td>$10,348</td>
</tr>
<tr>
<td>Contingencies (20%)</td>
<td>$22,765</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$136,588</strong></td>
</tr>
</tbody>
</table>
PROJECT C.I.P. 25-3W
S. NEWLAND CT. WATER MAIN REPLACEMENT
PROJECT C.I.P. 25-4W
W. CARYL PL. WATER MAIN REPLACEMENT
2025 Capital Improvement Projects
Sewer

No projects scheduled
2026 Capital Improvement Projects

Water

Project: CIP 26-1W
Location: W. Caley Ave. and S. Ingalls St. between W. Weaver Dr. and S. Kendall St. (Leawood Subdivision)
Description: Replace 1,590 feet of 6-inch asbestos-cement pipe with 1,590 feet of 6-inch PVC pipe.
Date Installed: 1971
Rating: 333.56
Cost: Construction: $419,884
Engineering (10%) $41,988
$461,872
Contingencies (20%) $92,375
$554,247

Project: CIP 26-2W
Location: S. Newland Cir. between W. Leawood Dr. and W. Leawood Dr. (Leawood Subdivision)
Description: Replace 1,740 feet of 6-inch cast iron pipe with 1,740 feet of 6-inch, PVC pipe.
Date Installed: 1962
Rating: 331.42
Cost: Construction: $424,233
Engineering (10%) $42,423
$466,656
Contingencies (20%) $93,331
$559,987
PROJECT C.I.P. 26-1W
W. CALEY AVE./ S INGALLS ST WATER MAIN REPLACEMENT
PROJECT C.I.P. 26-2W
S. NEWLAND CR. WATER MAIN REPLACEMENT
Project: CIP 26-3W
Location: Snowberry Pl. between S. Laurel St. and W. Bowles Ave. (Bow Mar South Subdivision)
Description: Replace 797 feet of 6-inch cast iron pipe with 797 feet of 6-inch, PVC pipe.
Date Installed: 1963
Rating: 332.09
Cost: Construction: $ 202,444
Engineering (10%) $ 20,244
$ 222,688
Contingencies (20%) $ 44,538
$ 267,226

Project: CIP 26-4W
Location: S. Laurel Pl. between W. Bowles Ave. and Snowberry Pl. (Bow Mar South Subdivision)
Description: Replace 750 feet of 6-inch cast iron pipe with 750 feet of 6-inch, PVC pipe.
Date Installed: 1963
Rating: 308.09
Cost: Construction: $ 173,352
Engineering (10%) $ 17,335
$ 190,687
Contingencies (20%) $ 38,137
$ 228,824
PROJECT C.I.P. 26-3W
SNOWBERRY PL. WATER MAIN REPLACEMENT
PROJECT C.I.P. 26-4W
S. LAUREL PL. WATER MAIN REPLACEMENT
2026 Capital Improvement Projects
Sewer

No projects scheduled
2027 Capital Improvement Projects
Water

Project: CIP 27-1W
Location: W. Rowland Ave. between S. Marshall St. and S. Lamar St. (Columbine Knolls Subdivision)
Description: Replace 696 feet of 6-inch cast iron pipe with 696 feet of 6-inch PVC pipe.
Date Installed: 1958
Rating: 331.56
Cost: Construction: $147,502
Engineering (10%) $14,750
$162,252
Contingencies (20%) $32,450
$194,702

Project: CIP 27-2W
Location: W. Roxbury Pl. between S. Kendall Blvd. and S. Marshall St. (Columbine Knolls Subdivision)
Description: Replace 1,303 feet of 6-inch cast iron pipe with 1,303 feet of 6-inch PVC pipe.
Date Installed: 1964
Rating: 331.56
Cost: Construction: $338,178
Engineering (10%) $33,818
$371,996
Contingencies (20%) $74,399
$446,395
PROJECT C.I.P. 27-1W
W. ROWLAND AVE. WATER MAIN REPLACEMENT
Project: **CIP 27-3W**

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

Description: Replace 2,640 feet of 12-inch cast iron pipe with 2,640 feet of 12-inch PVC pipe.

Date Installed: 1964

Rating: 330.96

Cost:

- Construction: $1,083,214
- Engineering (10%) $108,321
  
  $1,191,535
- Contingencies (20%) $238,307
  
  $1,429,842

---

Project: **CIP 27-4W**

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

Description: Replace 373 feet of 8-inch cast iron pipe with 373 feet of 8-inch PVC pipe.

Date Installed: 1964

Rating: 325.31

Cost:

- Construction: $124,777
- Engineering (10%) $12,478
  
  $137,255
- Contingencies (20%) $27,451
  
  $164,706
PROJECT C.I.P. 27-3W
S. LAMAR ST. WATER MAIN REPLACEMENT
PROJECT C.I.P. 27-4W
W. PORTLAND AVE. WATER MAIN REPLACEMENT
Project: CIP 27-5W

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

Description: Replace 1,482 feet of 6-inch asbestos pipe with 1,482 feet of 6-inch PVC pipe.

Date Installed: 1960

Rating: 321.96

Cost:

Construction: $365,681

Engineering (10%) $36,568

$402,249

Contingencies (20%) $80,450

$482,699
PROJECT C.I.P. 27-5W
S. KENDALL BLVD. WATER MAIN REPLACEMENT
2027 Capital Improvement Projects
Sewer

No projects scheduled
2028 Capital Improvement Projects

Water

Project: CIP 28-1W

Location: Ken Caryl Ave. Between S. Pierce St. and a point 493 feet 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: 317.88

Cost:

- Construction: $174,744
- Engineering (10%): $17,474
- Contingencies (20%): $38,444

Total: $230,662

Project: CIP 28-2W

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

Description: Replace 1,161 feet of 8-inch asbestos-cement pipe with 1,161 feet of 6-inch PVC pipe.

Date Installed: 1958

Rating: 314.65

Cost:

- Construction: $354,211
- Engineering (10%): $35,421
- Contingencies (20%): $77,926

Total: $467,558
PROJECT C.I.P. 28-1W
KEN CARYL AVE. WATER MAIN REPLACEMENT
PROJECT C.I.P. 28-2W
W. ONTARIO AVE. WATER MAIN REPLACEMENT
Project: CIP 28-3W
Location: W. Plymouth Dr. between W. Ottawa Ave. and S. Sheridan Blvd. (Normandy States Subdivision)
Description: Replace 865 feet of 6-inch asbestos-cement pipe with 865 feet of 6-inch PVC pipe.
Date Installed: 1970
Rating: 314.15
Cost:

<table>
<thead>
<tr>
<th></th>
<th>Construction:</th>
<th>Engineering (10%)</th>
<th>Contingencies (20%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$221,972</td>
<td>$22,197</td>
<td>$48,834</td>
</tr>
<tr>
<td>Total</td>
<td>$244,169</td>
<td>$244,169</td>
<td>$293,003</td>
</tr>
</tbody>
</table>

Project: CIP 28-4W
Location: S. Lamar Dr. between W. Leawood Dr. and S. Marshall Ct. (Leawood Subdivision)
Description: Replace 1,083 feet of 6-inch cast iron pipe with 1,083 feet of 6-inch PVC pipe.
Date Installed: 1969
Rating: 313.63
Cost:

<table>
<thead>
<tr>
<th></th>
<th>Construction:</th>
<th>Engineering (10%)</th>
<th>Contingencies (20%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$255,819</td>
<td>$25,582</td>
<td>$56,280</td>
</tr>
<tr>
<td>Total</td>
<td>$281,401</td>
<td>$281,401</td>
<td>$337,681</td>
</tr>
</tbody>
</table>
PROJECT C.I.P. 28-3W
W. PLYMOUTH DR. WATER MAIN REPLACEMENT
PROJECT C.I.P. 28-4W
S. LAMAR DR. WATER MAIN REPLACEMENT
Project: CIP 28-5W

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

Description: Replace 907 feet of 8-inch cast iron pipe with 907 feet of 8-inch PVC pipe.

Date Installed: 1958

Rating: 310.65

Cost:

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>$306,983</td>
</tr>
<tr>
<td>Engineering (10%)</td>
<td>$30,698</td>
</tr>
<tr>
<td>Contingencies (20%)</td>
<td>$67,536</td>
</tr>
<tr>
<td>Total</td>
<td>$405,217</td>
</tr>
</tbody>
</table>

Contingencies (20%)
2028 Capital Improvement Projects
Sewer

No projects scheduled
### 2029 Capital Improvement Projects

#### Water

<table>
<thead>
<tr>
<th>Project:</th>
<th>CIP 29-1W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location:</td>
<td>W. Monticello Ave. between S. Jay Dr. and S. Kendall St. (Columbine Hills Subdivision)</td>
</tr>
<tr>
<td>Description:</td>
<td>Replace 315 feet of 8-inch cast iron pipe with 315 feet of 8-inch PVC pipe.</td>
</tr>
<tr>
<td>Date Installed:</td>
<td>1960</td>
</tr>
<tr>
<td>Rating:</td>
<td>307.43</td>
</tr>
<tr>
<td>Cost:</td>
<td></td>
</tr>
<tr>
<td>Construction:</td>
<td>$113,233</td>
</tr>
<tr>
<td>Engineering (10%)</td>
<td>$11,323</td>
</tr>
<tr>
<td>Contingencies (20%)</td>
<td>$24,911</td>
</tr>
<tr>
<td>Total Cost:</td>
<td>$149,467</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project:</th>
<th>CIP 29-2W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location:</td>
<td>S. Kendall Blvd. between W. Elmhurst Ave. and W. Monticello Ave. (Columbine Hills Subdivision)</td>
</tr>
<tr>
<td>Description:</td>
<td>Replace 685 feet of 10-inch cast iron and pipe with 685 feet of 8-inch PVC pipe.</td>
</tr>
<tr>
<td>Date Installed:</td>
<td>1960</td>
</tr>
<tr>
<td>Rating:</td>
<td>299.43</td>
</tr>
<tr>
<td>Cost:</td>
<td></td>
</tr>
<tr>
<td>Construction:</td>
<td>$230,659</td>
</tr>
<tr>
<td>Engineering (10%)</td>
<td>$23,066</td>
</tr>
<tr>
<td>Contingencies (20%)</td>
<td>$50,745</td>
</tr>
<tr>
<td>Total Cost:</td>
<td>$304,470</td>
</tr>
</tbody>
</table>
PROJECT C.I.P. 29-1W
W. MONTICELLO AVE. WATER MAIN REPLACEMENT
PROJECT C.I.P. 29-2W
S. KENDALL BLVD. WATER MAIN REPLACEMENT

PROPOSED

COMPLETED
**Project:** CIP 29-3W  
**Location:** W. Chestnut Ave. between S. Jay Dr. and S. Kendall Blvd. (Columbine Hills Subdivision)  
**Description:** Replace 470 feet of 6-inch cast iron pipe with 470 feet of 6-inch PVC pipe.  
**Date Installed:** 1960  
**Rating:** 303.43  
**Cost:**  
- Construction: $145,170  
- Engineering (10%) $14,517  
- Contingencies (20%) $31,937  
  
**Project:** CIP 29-4W  
**Location:** S. Ames Way between W. Ken Caryl Ave. and W. Caryl Ave. (Columbine Hills Subdivision)  
**Description:** Replace 870 feet of 6-inch cast iron pipe with 870 feet of 6-inch PVC pipe.  
**Date Installed:** 1959  
**Rating:** 302.11  
**Cost:**  
- Construction: $220,658  
- Engineering (10%) $22,066  
- Contingencies (20%) $48,545  
  

PROJECT C.I.P. 29-3W
W. CHESTNUT AVE. WATER MAIN REPLACEMENT
PROJECT C.I.P. 29-4W
S. AMES WAY WATER MAIN REPLACEMENT
<table>
<thead>
<tr>
<th>Project:</th>
<th>CIP 29-5W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location:</td>
<td>S. Kendall Blvd. between W. Rowland Pl. and W. Fremont Dr. (Columbine Knowles Subdivision)</td>
</tr>
<tr>
<td>Description:</td>
<td>Replace 1,175 feet of 12-inch cast iron and asbestos-cement pipe with 1,175 feet of 12-inch PVC pipe.</td>
</tr>
<tr>
<td>Date Installed:</td>
<td>1969</td>
</tr>
<tr>
<td>Rating:</td>
<td>301.65</td>
</tr>
<tr>
<td>Cost:</td>
<td>Construction: $427,445</td>
</tr>
<tr>
<td></td>
<td>Engineering (10%) $42,745 $470,190</td>
</tr>
<tr>
<td></td>
<td>Contingencies (20%) $94,038 $564,228</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project:</th>
<th>CIP 29-6W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location:</td>
<td>S. Teller Ct. Cul-De-Sac South of W. Roxbury Pl. (Columbine West Subdivision)</td>
</tr>
<tr>
<td>Description:</td>
<td>Replace 270 feet of 6-inch asbestos-cement pipe with 270 feet of 6-inch PVC pipe.</td>
</tr>
<tr>
<td>Date Installed:</td>
<td>1972</td>
</tr>
<tr>
<td>Rating:</td>
<td>301.57</td>
</tr>
<tr>
<td>Cost:</td>
<td>Construction: $80,650</td>
</tr>
<tr>
<td></td>
<td>Engineering (10%) $8,065 $88,715</td>
</tr>
<tr>
<td></td>
<td>Contingencies (20%) $17,743 $106,458</td>
</tr>
</tbody>
</table>
PROJECT C.I.P. 29-5W
S. KENDALL BLVD. WATER MAIN REPLACEMENT
PROJECT C.I.P. 29-6W
S. TELLER CT. WATER MAIN REPLACEMENT
<table>
<thead>
<tr>
<th>Project:</th>
<th>CIP 29-7W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location:</td>
<td>W. Roxbury Pl. between S. Webster St. and S. Teller Ct. (Columbine Knowles Subdivision)</td>
</tr>
<tr>
<td>Description:</td>
<td>Replace 560 feet of 8-inch asbestos-cement pipe with 560 feet of 8-inch PVC pipe.</td>
</tr>
<tr>
<td>Date Installed:</td>
<td>1972</td>
</tr>
<tr>
<td>Rating:</td>
<td>301.57</td>
</tr>
<tr>
<td>Cost:</td>
<td></td>
</tr>
<tr>
<td>Construction:</td>
<td>$156,945</td>
</tr>
<tr>
<td>Engineering (10%)</td>
<td>$15,695</td>
</tr>
<tr>
<td></td>
<td>$172,640</td>
</tr>
<tr>
<td>Contingencies (20%)</td>
<td>$34,528</td>
</tr>
<tr>
<td></td>
<td>$207,168</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project:</th>
<th>CIP 29-8W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location:</td>
<td>S. Otis Ct. Cul-De-Sac North of W. Leawood Dr. (Leawood Subdivision)</td>
</tr>
<tr>
<td>Description:</td>
<td>Replace 301 feet of 6-inch cast iron pipe with 301 feet of 6-inch PVC pipe.</td>
</tr>
<tr>
<td>Date Installed:</td>
<td>1962</td>
</tr>
<tr>
<td>Rating:</td>
<td>301.42</td>
</tr>
<tr>
<td>Cost:</td>
<td></td>
</tr>
<tr>
<td>Construction:</td>
<td>$88,069</td>
</tr>
<tr>
<td>Engineering (10%)</td>
<td>$8,807</td>
</tr>
<tr>
<td></td>
<td>$96,876</td>
</tr>
<tr>
<td>Contingencies (20%)</td>
<td>$19,375</td>
</tr>
<tr>
<td></td>
<td>$116,251</td>
</tr>
</tbody>
</table>
PROJECT C.I.P. 29-7W
W. ROXBURY PL. WATER MAIN REPLACEMENT

PROPOSED

COMPLETED
PROJECT C.I.P. 29-8W
S. OTIS CT. WATER MAIN REPLACEMENT
Project: CIP 29-9W
Location: S. Nixon Ct. Cul-De-Sac North of W. Leawood Dr. (Leawood Subdivision)
Description: Replace 297 feet of 6-inch cast iron pipe with 297 feet of 6-inch PVC pipe.
Date Installed: 1962
Rating: 301.42
Cost: Construction: $87,102
      Engineering (10%)  $8,710
      $95,812
      Contingencies (20%)  $19,162
      $114,974
2029 Capital Improvement Projects
Sewer

No projects scheduled
SECTION 4

VEHICLE AND EQUIPMENT SCHEDULE
2020 - 2029
VEHICLE AND EQUIPMENT SCHEDULE*

2020
4WD pickup
(Replaces 2012 Chevrolet pickup) ($37,000)

Trailer Mounted Message Board (28,000)

Flatbed Truck with Air Compressor
(Replaces 2008 Ford) ($89,000) $ 154,000

2021
4WD pickup
(Replaces 2013 Ford pickup) ($37,910)

Sewer cleaner
(Replaces 2009 Seca unit) ($307,380) $ 345,290

2022
4WD pickup
(Replaces 2014 Ford [1] pickup) ($38,843)

Trailer mounted Valve Operator
(Replaces 2014 Hurco) ($37,793)

4WD pickup

Utility Vehicle
(Replaces 2014 Ford Explorer) ($44,092) $ 159,571

2023
4WD pickup
(Replaces 2015 pickup) ($39,799)

Combination Valve/Vacuum Operator
(Replaces 2016 Hurco) ($55,933) $ 95,732

2024
4WD pickup
(Replaces 2016 pickup) ($40,778)

Video Inspection Unit
(Replaces 2012 Cues unit) ($338,761) $ 379,539
<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>2025</td>
<td>No purchases scheduled</td>
<td></td>
</tr>
<tr>
<td>2026</td>
<td>No purchases scheduled</td>
<td></td>
</tr>
<tr>
<td>2027</td>
<td>4WD pickup (Replaces 2019 pickup) ($43,862)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Combination Sewer Cleaner/Vac Unit – Replaces 2015 VacCon Unit ($560,017)</td>
<td>$560,017</td>
</tr>
<tr>
<td>2028</td>
<td>4WD Pickup – replaces 2020 Pickup ($44,941)</td>
<td>$44,941</td>
</tr>
<tr>
<td>2029</td>
<td>4WD Pickup – replaces 2021 Pickup ($46,047)</td>
<td>$46,047</td>
</tr>
</tbody>
</table>

*All costs inflated at 2.46% per year
SECTION 5

COMPLETED CAPITAL CONSTRUCTION PROJECTS
## COMPLETED CAPITAL CONSTRUCTION PROJECTS

<table>
<thead>
<tr>
<th>Date</th>
<th>Project CIP</th>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 2019</td>
<td>CIP 19-1W</td>
<td>Replaced 1,058 feet of 8-inch cast iron pipe with 1,058 feet of 8-inch PVC pipe in S. Jay Ct. between W. Bowles Ave. and W. Leawood Dr. in the Leawood Subdivision</td>
<td>$235,134</td>
</tr>
<tr>
<td>September 2019</td>
<td>CIP 19-4W</td>
<td>Replaced 2,319 feet of 8-inch cast iron pipe with 2,319 feet of PVC pipe in W. Leawood Dr. between S. Pierce St. and W. Fair Dr. in the Leawood Subdivision</td>
<td>$701,658</td>
</tr>
<tr>
<td>September 2019</td>
<td>CIP 19-2W</td>
<td>Replaced 732 feet of 6-inch cast iron pipe with 732 feet of PVC pipe in S. Jay Dr. between W. Elmhurst Ave. and W. Monticello Ave. in the Columbine Hills Subdivision</td>
<td>$170,404</td>
</tr>
<tr>
<td>September 2019</td>
<td>CIP 19-3W</td>
<td>Replaced 1,255 feet of 8-inch cast iron pipe with 1,255 feet of 8-inch PVC pipe in W. Rowland Pl. between S. Depew St. and S. Sheridan Ct. in the Columbine Knolls Subdivision</td>
<td>$293,085</td>
</tr>
<tr>
<td>September 2019</td>
<td>CIP 19-1S</td>
<td>Replaced 293 feet of 16-inch polyethylene pipe with 293 feet of PVC pipe in S. Sheridan Blvd. at W. Fair Dr. in the Leawood Subdivision</td>
<td>$180,350</td>
</tr>
<tr>
<td>October 2018</td>
<td>Not Numbered</td>
<td>Scott J. Morse Pump Station fencing, parking, and storage facilities</td>
<td>$199,005</td>
</tr>
<tr>
<td>October 2018</td>
<td>CIP 18-1W</td>
<td>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.</td>
<td>$199,005 est.</td>
</tr>
<tr>
<td>August 2018</td>
<td>CIP 18-3W</td>
<td>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</td>
<td>$282,754</td>
</tr>
<tr>
<td>July 2018</td>
<td>CIP 18-1S</td>
<td>SpectraShield lined five manholes on 16-inch sewer main in S. Sheridan Blvd. between 6159 and 6249 S. Sheridan Blvd.</td>
<td>$8,950</td>
</tr>
<tr>
<td>October 2017</td>
<td>CIP 17-1S, CIP 17-2S, and CIP 17-3S</td>
<td>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)</td>
<td>$356,297</td>
</tr>
<tr>
<td>Date</td>
<td>Project CIP</td>
<td>Description</td>
<td>Subdivision/Location</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>October 2017</strong></td>
<td>17-3W</td>
<td>Replaced pressure reducing valve and piping at W. Frost Dr. and S. Webster St.</td>
<td>(Columbine West Subdivision)</td>
</tr>
<tr>
<td><strong>September 2017</strong></td>
<td>17-2W</td>
<td>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)</td>
<td>($213,537)</td>
</tr>
<tr>
<td><strong>July 2017</strong></td>
<td>17-1W</td>
<td>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)</td>
<td>($159,173)</td>
</tr>
<tr>
<td><strong>June 2017</strong></td>
<td>16-1W</td>
<td>Replaced inlet discharge interior piping, pumps, motors and control system components at Scott J. Morse Pump Station (Columbine Hills Subdivision)</td>
<td>($1,241,782)</td>
</tr>
<tr>
<td><strong>September 2016</strong></td>
<td>16-2W</td>
<td>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)</td>
<td>($29,420)</td>
</tr>
<tr>
<td><strong>August 2016</strong></td>
<td>16-1S</td>
<td>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)</td>
<td>($129,981)</td>
</tr>
<tr>
<td><strong>September 2015</strong></td>
<td>15-1S</td>
<td>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)</td>
<td>($135,225)</td>
</tr>
<tr>
<td><strong>September 2014</strong></td>
<td>14-1W</td>
<td>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)</td>
<td>($251,896)</td>
</tr>
<tr>
<td><strong>September 2014</strong></td>
<td>14-1S</td>
<td>CIPP lined 1,814 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)</td>
<td>($123,938)</td>
</tr>
<tr>
<td><strong>September 2013</strong></td>
<td>13-1W</td>
<td>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)</td>
<td>($62,164)</td>
</tr>
<tr>
<td><strong>September 2013</strong></td>
<td>13-2W</td>
<td>Replaced 775 feet of 6-inch cast iron pipe with 775 feet of 8-inch C-900, class 150</td>
<td></td>
</tr>
</tbody>
</table>
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)

**September 2010**  
**Project CIP 10-2W**  
Replaced 1,100 feet of 6-inch cast iron pipe in W. Portland Dr. between S. Sheridan Blvd. and W. Rowland Ave. with 1,100 feet of 6-inch, C-900, class 150 PVC pipe (Normandy Estates Subdivision) ($121,697)

**September 2009**  
**Project CIP 09-1W**  
Replaced 483 feet of 16-inch cast iron pipe in W. Leawood Dr. between S. Sheridan Blvd. and S. Benton Wy. with 483 feet of 12-inch, C-900, class 150 PVC pipe (Leawood Subdivision) ($110,988)

**September 2009**  
**Project CIP 09-2W**  
Replaced 500 feet of 6-inch asbestos-cement pipe in W. Ottawa Pl. between S. Webster St. and the end of the cul-de-sac with 500 feet of 6-inch, C-900, class 150 PVC pipe (Columbine West Subdivision) ($81,472)

**September 2008**  
**Project CIP 08-1W**  
Replaced 695 feet of 8-inch asbestos-cement pipe with 695 feet of 8-inch, C-900, class 150 PVC pipe in S. Depew St. between W. Coal Mine Ave. and W. Ontario Ave. (Normandy Estates Subdivision) ($103,668)

**September 2008**  
**Project CIP 08-2W**  
Replaced 796 feet of 6-inch cast iron pipe with 796 feet of 6-inch, C-900, class 150 PVC pipe in Dutch Creek Dr. between Meadowlark Ln. and Glenridge Dr.
September 2008  Project CIP 08-3W
Replaced 1,215 feet of 6-inch cast iron pipe with 1,215 feet of 6-inch, C-900, class 150 PVC pipe in W. Hinsdale Cir. between S. Platte Canyon Dr. (south intersection) and S. Platte Canyon Dr. (north intersection) (Columbine Manor Subdivision) ($127,867)

October 2007  Project CIP 07-1W
Replaced 660 feet of 6-inch cast iron pipe with 660 feet of 6-inch, C-900, class 150 PVC pipe in W. Chestnut Ave. between W. Elmhurst Ave. and W. Elmhurst Dr. ($72,126)

October 2007  Project CIP 07-2W
Replaced 752 feet of 6-inch cast iron pipe with 752 feet of 6-inch, C-900, class 150 PVC pipe in S. Ingalls St. between W. Rowland Pl. and W. Geddes Pl. ($97,508)

September 2007  Project CIP 07-2S
Installed 186 feet of 30-inch PVC pipe from the inlet to the Platte River Lift Station to the Roxborough Water and Sanitation District interceptor sewer. ($60,000)

September 2007  Project CIP 07-1S
CIPP lined 180 feet of 8-inch vitrified clay pipe (VCP) in W. Chestnut Ave. between manholes 71.97 to 71.93 (Columbine Hills Subdivision). 497 feet of 8-inch VCP in W. Glasgow Ave. between manholes 33.5.2 to 33.5 (Columbine Knolls Subdivision) and 551 feet of 8-inch VCP in W. Geddes Ave. between manholes 33.4.2 to 33.4.4 (Columbine Knolls Subdivision) ($33,450)

October 2006  Project CIP 06-1W
Replaced 1,065 feet of 16-inch cast iron pipe with 1,065 feet of 16-inch, class 235 PVC pipe in S. Webster St. between W. Glasgow Pl. and W. Frost Dr. and 180 feet of 6-inch cast iron pipe with 6-inch, C-900, class 150, PVC pipe in W. Geddes Cir. East of S. Webster St. ($262,823)

October 2006  Project CIP 06-2W
Replaced 1,521 feet of 6-inch cast iron pipe in S. Depew Wy. Between S. Depew St. and W. Canyon Trail with 1,521 feet of 6-inch C-900, class 150, PVC pipe. ($215,509)

July 2006  Project CIP 6-1S
Rehabilitated with cured-in-place method of rehabilitation 3,600 feet of 8-inch vitrified clay pipe in W. Rowland Ave. between S. Gray Ct. and S. Sheridan Blvd. and in S. Sheridan Blvd. between W. Rowland Ave. and W. Ottawa Ave. ($103,669)

October 2005  Project CIP 05-3W
Replaced 8-inch pressure reducing valve and vault on S. Webster St., 235 feet south of W. Ottawa Ave. (Columbine West Subdivision). ($57,216)

September 2005  Project CIP 05-1W
Replaced 2,150 feet of 8-inch cast iron pipe with 8-inch, C-900, class 150 PVC
pipe in W. Elmhurst Dr. between S. Kendall Blvd. and W. Elmhurst Ave. (Columbine Hills Subdivision). ($207,715)

**September 2005**

**Project CIP 05-2W**
Replaced 2,150 feet of 8-inch cast iron pipe with 8-inch, C-900, class 150 pipe in W. Chestnut Ave. between S. Kendall Blvd. and W. Elmhurst Ave. (Columbine Hills Subdivision). ($208,382)

**August 2005**

**Project CIP 04-5W**
Replaced 1,025 feet of 18-inch steel pipe with 1,025 feet of 16-inch ductile iron pipe in S. Sheridan Blvd. (extended) between Dutch Creek and W. Coal Mine Ave. ($213,865)

**May 2005**

**Project CIP 05-1S**
Rehabilitated with a cured-in-place method of rehabilitation 2,154 feet of 8-inch vitrified clay pipe in Morning Glory Ln. between manholes 17.63.10 and 17.63 (Bow Mar South Subdivision). ($62,565)

**September 2004**

**Project CIP 04-2S**
Replaced 239 feet of 8-inch SDR-35 pipe with 239 feet of C-900, class 200, PVC pipe in W. Frost Dr. ($44,760)

**August 2004**

**Project CIP 04-1W**
Replaced 830 feet of 6-inch cast iron pipe in W. Elmhurst Dr. between W. Clifton Pl. and the end of the cul-de-sac. ($114,549)

**August 2004**

**Project CIP 04-3W**
Replaced 14 fire hydrants at the following locations:
- On W. Hinsdale Cir. 326’ W of Platte Canyon Dr. (E12-F2)
- On W. Fremont Pl. at S. Pierce Ct. (H11-F16)
- On S. Webster St. at W. Ken Caryl Rd. (H12-F1)
- On S. Pierce Ct. at W. Hinsdale Dr. (H12-F12)
- On S. Vance St. at W. Hinsdale Dr. (H12-F2)
- On S. Upham St. at W. Hinsdale Dr. (H12-F3)
- On S. Teller St. at W. Hinsdale Dr. (H12-F4)
- On W. Plymouth Dr. 515’ east of Gray Ct. (F10-F2)
- On W. Plymouth Dr. at S. Depew St. (F10-F3)
- On W. Rowland Ave. 400’ east of Gray Ct. (F10-F9)
- On S. Saulsbury Ct. at W Hinsdale Dr. (H12-F5)
- On S. Reed Ct. at W. Hinsdale Dr. (H12-F6)
- On S. Quay Ct. at W. Hinsdale Dr. (H12-F8)
- On S. Zephyr Way at W. Glasgow Pl. (I12-F2)
- On W. Glasgow Pl. 600’ west of S. Webster St. (I12-F4)
- On W. Glasgow Pl. at S. Webster St. (I12-F5)
- On W. Canyon Ave. at S. Kendall Blvd. (G14-F12)
- On W. Indore Pl. at S. Kendall Blvd. (G12-F5)

($50,418)

**July 2004**

**Project CIP 04-1S**
Rehabilitated with a cured-in-place method of rehabilitation 803 feet of 8-inch
vitrified clay pipe in Roxbury Dr. between S. Pierce St. and S. Newland St. ($26,017)

October 2003

**Project CIP 03-1S**
Rehabilitated 26 manholes on the Outfall Sewer in Platte Canyon Rd. between W. Coal Mine Ave. and W. Chatfield Ave. ($22,273)

September 2003

**Project CIP 03-2W**
Replaced 2,250 feet of 8-inch cast iron pipe in W. Alder Ave. between S. Depew St. and S. Kendall Blvd. with 2,250 feet of 8-inch, C-900, class 150, PVC pipe (Columbine Hills). ($197,693)

**August 2003**

**Project CIP 03-2S**
Rehabilitated 738 feet of 8-inch vitrified clay pipe in S. Sheridan Ct. and within an easement between manholes 49.2 and OF60 using a curried-in-place method of rehabilitation (Columbine Hills). ($23,185)

August 2003

**Project CIP 03-3S**
Rehabilitated 270 feet of 10-inch vitrified clay pipe in S. Depew St. between W. Ottawa Ave. and manhole S1-4 using a cured-in-place method of rehabilitation. ($12,217)

April 2003

**Project CIP 03-3W**
Replaced 11 each 4¼-inch fire hydrants at the following locations:

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

September 2002

**Project CIP 02-1S**
Rehabilitated 15 manholes on the Outfall Sewer in Bowles Ave. and S. Platte Canyon Rd. (manholes OF 15 to OF 30). ($19,513)

August 2002

**Project CIP 02-2S**
Installed Muffin Monster sewage grinder at the Platte River Lift Station. ($49,963)

**August 2002**

**Project CIP 02-2W**
Replaced 948 feet of 6-inch and 881 feet of 8-inch cast iron pipe in S. Depew St. between W. Rowland Pl. and W. Fremont Dr. with 1830 feet of 8-inch C-900, class 150, PVC pipe. (Columbine Knolls). ($170,182)

**August 2002**

**Project CIP 02-1W**
Replaced 1,700 feet of 6-inch cast iron pipe in S. Sheridan Ct. between W. Canyon Trail and end of Sheridan Ct. cul-de-sac with 1,700 feet of 6-inch C-900, class 150
PVC pipe. (Columbine Hills). ($142,614)

**July 2002**

**Project CIP 02-3W**
Replaced 11 each 4¼-inch fire hydrants at the following locations:

On S. Ames Wy. at W. Ken Caryl Ave.  (F13-F12)
On S. Depew Wy. at S. Depew St.  (F13-F7)
On S. Depew Wy. at W. Caryl Pl.  (F13-F8)
On W. Canyon Dr. at W. Canyon Ave.  (F14-F2)
On W. Canyon Ave. at S. Fenton St.  (F14-F3)
On S. Eaton Wy. at S. Depew St.  (F14-F4)
On S. Depew Wy. at W. Canyon Trail  (F14-F5)
On W. Chestnut Dr. at W. Elmhurst Ave.  (F15-F2)
On W. Elmhurst Dr. at W. Elmhurst Ave.  (F15-F3)
On W. Chestnut Ave. 285’ west of Chestnut Wy. (F15-F5)
At 5123 S. Geddes Cir.  (E11-F5)

($17,775)

**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)

**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)

**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)

July 2001  Project 01-1S
Rehabilitated 2,676 feet of 10-inch concrete sewer pipe in an easement between S. Sheridan Blvd. and S. Platte Canyon Rd. (Normandy Estates Outfall Sewer) with cured in place lining. Rehabilitated 10 manholes located on the pipeline. ($106,810)

July 2001  Project 01-2S
Rehabilitated 1,200 feet of 8-inch clay tile pipe in an easement between S. Sheridan Blvd. and Shasta Circle north of Bowles Ave. with cured in place lining. ($40,579)

December 2000  Project 00-2S
Rehabilitated 15 manholes (OF1 to OF14) on the District’s outfall sewer main. ($26,669)

September 2000  Project 00-1W
Replaced 1,050 feet of 18-inch steel water main in S. Sheridan Blvd. between W. Portland Dr. and W. Fremont Ave. with 1,050 feet of 16-inch ductile iron pipe. ($236,106)

September 2000  Project 00-2W
Replaced 1,573 feet of 6-inch cast iron pipe in W. Rowland Ave. between S. Sheridan Blvd. And W. Quarles Drive, including the Normandy Pl. cul-de-sac with 1, 573 feet of C-900, class 150, PVC pipe. ($145,663)

September 2000  Project 00-3W
Replaced 17 Pacific States fire hydrants at the following locations:

On S. Gray Ct. at W. Fair Dr. (F06-F1)
On W. Fair Dr. at W. Maplewood Dr. (F06-F2)
On S. Fenton Ct. 1000’ north of W. Weaver Dr. (F06-F3)
On S. Eaton Ct. at W. Maplewood Dr. (F06-F4)
On W. Leawood Dr. at W. Fair Dr. (F06-F5)
On W. Leawood Dr. at S. Chase St. (F60-F6)
On S. Gray Ct. 500’ north of Weaver Dr. (F07-F2)
On S. Fenton Ct. at W. Weaver Dr. (F07-F3)
On S. Depew Ct. 250’ north of Weaver Dr. (F07-F5)
On S. Chase Ct. 400’ north of Weaver Dr. (F07-F6)
On S. Chase St. 700’ north of Weaver Dr. (F07-F7)
On S. Chase St. at W. Weaver Dr. (F07-F8)
On W. Leawood Dr. 50’ northwest of Benton Wy. (F07-F9)
On W. Maple wood Dr. at S. Ingalls St. (G06-F9)
On W. Canyon Ave. at W. Nova Dr. (G14-F11)
On W. Canyon Ave. at St. Newland St. (G14-F2)
On S. Pierce St. 245’ south of Canyon Ave. (H14-F14)

($41,351)

**August 2000**

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

**December 1999**

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

**December 1999**

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

**September 1999**

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

**September 1999**

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

**September 1999**

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

**September 1999**

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

**November 1998**

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

**November 1998**

**Project 98-1S**
1. Sliplined 406 feet of 24-inch concrete pipe between manholes OF32 and OF33 and 1,016 feet of 18-inch concrete pipe between manholes OF61 and OF64 on the District’s outfall sewer main. ($68,534)
2. Insituformed 905 feet of 24-inch concrete pipe between manholes OF24
and OF30 on the District’s outfall sewer main. ($79,241)

**October 1998**  
**Project 98-1W**  
Replaced 760 feet of 6-inch cast iron pipe in W. Quarles Dr. between S. Sheridan Blvd. and Normandy Parkway with 760 feet of 6-inch C-900, class 150, PVC pipe. ($81,212)

**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)

**May 1998**  
**Project 97-1W**  
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)

**February 1998**  
**Project 97-1S**  
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)

**July 1997**  
**Project 97-2W**  
Replace IKOR variable speed motor controller at the Columbine West Water Pumping Station. ($58,536)

**July 1997**  
**Project 97-3W**  
Installed centralized, telemetered, computerized supervisory control and data acquisition (SCADA) system. ($55,908)

**October 1996**  
**Project 96-1S**  
Sliplined 1,517 feet of 27-inch sanitary sewer main between manhole OF3 and OF7. ($100,395)

**June 1996**  
**Project 96-1W**  
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)

**July 1995**  
**Project 95-2W**  
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
July 1995  
Project 95-3W  
Replaced 1,758 feet of 6-inch cast iron pipe with 1,758 feet of PVC pipe in W. Geddes Place between S. Sheridan Court and S. Depew Street in the Columbine Grove Subdivision. ($95,432)

July 1995  
Project 95-4W  
Replaced 1,179 feet of 6-inch cast iron water pipe with 1,179 feet of 6-inch PVC pipe in S. Ames Way between W. Caryl Avenue and W. Canyon Trail. ($66,744)

July 1995  
Project 95-1S  
Sliplined 1,064 feet of 27-inch concrete pipe between manholes OF7 and OF12 in S. Julian Street between W. Bowles Avenue and W. Alamo Place and 875 feet of 24-inch concrete sewer main between S. Julian Street and S. Lowell Way. ($170,332)

September 1994  
Unscheduled  
Replaced 500 feet of 6-inch cast iron pipe with 500 of 6-inch PVC in the W. Fremont Place cul-de-sac west of S. Sheridan Blvd. ($132,102)

August 1994  
Project 94-3W  
Replaced 1,550 feet of 6-inch cast iron water pipe with 1,550 feet of 8-inch PVC pipe in W. Fremont Avenue between Platte Canyon Road and S. Sheridan Boulevard. ($95,959)

July 1994  
Sliplined 1,375 feet of 21-inch concrete sewer main in Platte Canyon Road between manholes OF42 and OF47. ($64,757)

November 1994  
Insituform rehabilitated 500 feet of 8-inch vitrified clay sewer pipe in an easement between S. Ingalls Street and S. Jay Way. ($29,277)

September 1994  
Project 93-3W  
Replaced 1,500 feet of 18-inch steel water main with 1,600 feet of 16-inch ductile iron pipe between W. Bowles Avenue and W. Leawood Drive. ($123,000)

April 1993  
Project 93-1W  
Replaced 800 feet of 6-inch cast iron water pipe in W. Quarles Drive between S. Sheridan Blvd. and W. Rowland Ave. (Normandy Estates Subdivision) with 800 feet of 6-inch PVC pipe. ($36,000)

May 1993  
Project 93-1S and 93-2S  
Sliplined 545 feet of 21-inch concrete sewer between manholes 56.1 and 58,501 feet of 18-inch concrete sewer between manholes 58 and 59, and 1,000 feet of 27-inch concrete pipe between the sewage lift station and manhole 3 on the Platte Canyon outfall sewer main. ($128,410)

May 1992  
Project 92-1W
Replaced 1,150 feet of 6-inch cast iron water pipe in Sumac Lane west of Blue Sage Dr. to end of cul-de-sac with 8-inch PVC pipe (Bow Mar South Subdivision). ($62,120)

May 1992  
**Project 92-2W**  
Replaced 925 feet of 6-inch cast iron water pipe S. Kendall Ct. between W. Elmhurst Ave. and W. Elmhurst Dr. with 6-inch PVC pipe (Columbine Hills Subdivision). ($51,782)

March 1992  
**Project CIP 91-1S**  
Sewage Lift Station Rehabilitation Project. ($199,478)

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

August 1991  
**Project CIP 91-1W**  
Replaced 1,200 feet of 6-inch cast iron water pipe in S. Kendall Ct. between S. Kendall Blvd. and W. Rowland Pl. (Columbine Knolls Subdivision). ($ 58,066)

September 1990  
**Project CIP 90-1S**  
Slipped 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 1,250 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

Year

$1,800,000
$1,600,000
$1,400,000
$1,200,000
$1,000,000
$800,000
$600,000
$400,000
$200,000
$0

$1,808,031
$1,580,631
$803,105
$749,743
$582,001
$575,934
$550,561
$543,536
$535,232
$534,993
$525,443
$518,437
$513,380
$505,978
$316,687
$313,380
$311,444
$305,416
$292,818
$270,253
$235,744
$225,338
$220,780
$171,690
$171,680
$165,978
$137,480
$127,480
$76,276
$76,278
$22,738

1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
SECTION 6

CAPITAL IMPROVEMENT PROJECT MAP