Drinking Water State Revolving Fund Green Project Reserve

- Interim GPR –

Castle Mountain Creeks HOA Water System Project

SRF Loan #DW2009 (pop. 275)

$886,000

Interim Green Project Reserve Justification

Business Case GPR Documentation

1. REPLACEMENT OF LEAKING PVC TRANSMISSION AND DISTRIBUTION LINES (Water Efficiency). Business Case GPR per the criteria requirements 2.4-1…*reducing water consumption*; per 2.4-3: *Efficient water use*; also per 2.4-4: *Proper water infrastructure management should address where water losses could be occurring in the system and fix or avert them.* ($756,000).

Categorical GPR Documentation

2. INSTALLS PRESSURE SUSTAINING VALVES (Water Efficiency). Categorical GPR per 2.2-12: *Installing water efficient devices.* ($64,000).

Business Case

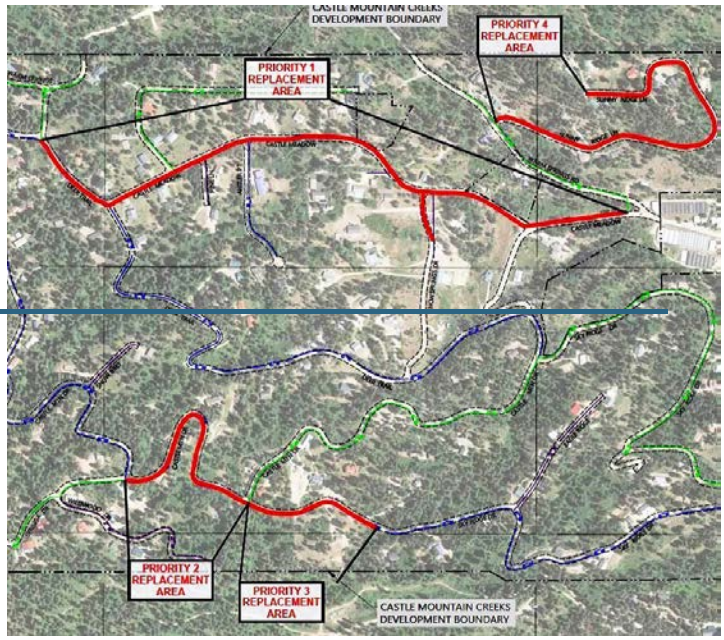
1. New Water Lines

Summary

- Existing leaking transmission line will be replaced to conserve water and to increase system reliability.
- Loan amount = $886,000
- GPR-eligible portion of loan = 85% ($756,000) (Engineering Cost Estimate)

Background

- As part of the Facility Plan[1] the priority alternative selected was the provision of new transmission and distribution lines.
- This project will replace 7,900 feet of existing old, poorly installed Class 160 PVC water line with C900 PVC pipe.



Water Savings[2]

- From May 2019 – April 2020 the total volume of water produced = 9,027,600 gallons; total volume metered = 5,586,600 gallons. Unaccounted for water = 3,441,000 gallons (38%), similar to the 37% reported in the Facility Plan.
- By installing 7,900 feet of new transmission and distribution line, the HOA will reduce its 38% unaccounted for water percentage.
- For the May 2019 – April 2020, operating expenses were $110,040, or $0.012/gallon produced. This includes both fixed and variable operating costs, so the value doesn't scale 1:1 if applied to the unaccounted for volume. The HOA doesn't have a fixed base rate plus a consumptive use rate the way a municipality typically would, it's a combination of HOA dues and consumptive use, and the dues vary year to year to cover expenses. They bill for metered use at $6.10/1,000 gallons, so if the consumptive rate is applied to the volume of water loss, savings would equal $21,000/year.
- The HOA would save approximately $1,050,000 over the 50-year life of the C-900 PVC pipe.

Conclusion

- The project has an attractive payback period, well within the life of the installed components and is GPR-eligible by a Business Case.
- **GPR Costs**: 7,900-foot transmission line = $756,000 (Engineering Cost Estimate)
- **GPR Justification**: The project is Business Case GPR-eligible (Water Efficient) per 2.4-1 …*reducing water consumption*; per 2.4-3: *Efficient water use*; also per 2.4-4: *Proper water infrastructure management should address where water losses could be occurring in the system and fix or avert them.*

[1] Facility Planning Study, 2019, Mountain Waterworks
[2] Per email Ed Stowe – K McNeill June 24, 2020 (data furnished by the HOA)

2. PRESSURE REDUCING VALVES

Summary

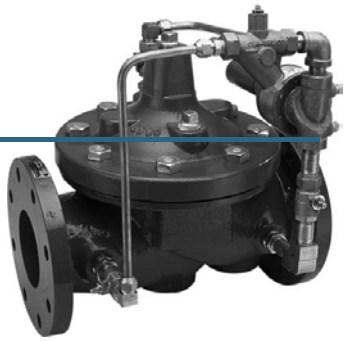
- Three Pressure Reducing Valve vaults will be upgraded and 3 new PRVs installed to ensure a preset pressure in the system is maintained.
- Loan amount = $886,000
- GPR-eligible = 7.2% ($64,000) (Engineering Estimate)

Background

- PRV stations 3, 4, and 6 are in sections of distribution main slated for replacement. These valves are to be fully replaced with 3-inch PRVs with low-flow bypass valves installed in pilot trim to handle flow up to 30 gpm and main valves to handle flow to 460 gpm.
- The existing 6-inch valves are in poor condition and are greatly oversized for average system flow rates. When used to meet low demand, the existing 6-inch valves are prone to rapid opening and closing that can cause pressure surges in the distribution piping and can contribute to water main breaks. Installing new, appropriately sized valves to handle both low and high flows will eliminate pressure surges and ensure a steady, reliable pressure is maintained in the supplied water.

Results

- Installing pressure-reducing valves (PRVs) – is the most important feature for controlling the pressure fluctuations in a system, improving reliability, and reducing inefficiencies.



Conclusion

- Pressure Regulating valve (PRV) installation = $64,000
- The PRVs are categorically GPR-eligible as they are a water-efficient device.
- **GRP Costs Identified**:
  3 PRVs installed = $64,000 (Engineering Cost Estimate)
- **GPR Justification:** PRVs are Categorically GPR-eligible (Water Efficiency) per Section 2.2-123: *Installing water efficient devices…*

[3] Attachment 2. April 21, 2011 EPA Guidance for Determining Project Eligibility