



## **Alpine Meadows W&SD FY13 Water System Project**

**SRF Loan #DW 1305 (pop. 240)**

**\$1,800,000**

### **Final Green Project Reserve Justification**

#### **Business Case GPR Documentation**

INSTALLS NEW PVC WATER SYSTEM PIPING (Water Efficiency). Business Case GPR per the criteria requirements 2.4-1...*reducing water consumption*; per 2.4-3: *Efficient water use...reducing the amount of energy required by a drinking water system...therefore, there are also energy and financial savings*; 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*; also Business Case GPR per 3.5-5: *Projects that achieve the remaining increments of energy efficiency. (\$1,015,754).*

## Distribution System Upgrade

### Summary

The deteriorated and undersized water distribution and transmission system piping in the Alpine Meadows Water and Sewer District requires replacement in order to: (i) reduce water losses; (ii) reduce pumping costs; and (iii) provide adequate drinking water flow and pressure.

- Estimated loan amount = \$1,800,000
- Estimated energy efficient (green) portion of loan = \$1,015,754 (56%) (Construction Cost)

### Background<sup>1</sup>

- The existing pipelines in the District are old and undersized.
- Current peak daily water demand = 52 gpm.
- There are currently 7400 LF of undersized 4" diameter distribution pipe and 2" service lines. Phase 1 of the project replaced that pipe with 7400 LF of 10", 8" and 6" diameter PVC distribution pipe.
- Phase 2 of the project replaces the 3400 LF of undersized existing 6" diameter transmission main from the wells to Grant Tour with 10" diameter main.



### Results

Replacing these lines with properly sized lines will result in:

- Saving water as it has been calculated the existing system currently experiences losses of 21.8%; and
- Saving energy through reduced pumping costs for less energy to pump through properly sized lines (reduced friction factor).

### Conclusion<sup>2</sup>

- The replacement of undersized water pipe with properly sized pipe decreases system friction, increases water flow, and saves energy by reducing the amount of pumping required.
- **GPR Costs:** Distribution (\$828,554) + Transmission System (\$187,200) Upgrades = \$1,015,754
- **GPR Justification:** The prioritized replacement of undersized water distribution piping as recommended in the Facility Planning Study is GPR-eligible by a Business Case (Water Efficiency) GPR per 2.4-1...*reducing water consumption*; 2.4-3: *Efficient water use...reducing the amount of energy required by a drinking water system...therefore, there are also energy and financial savings*; also GPR per 3.5-5: *Projects that achieve the remaining increments of energy efficiency*.

<sup>1</sup> Alpine Meadows W&SD Facility Plan, May 2012, Welch Comer & Associates

<sup>2</sup> 7-1-15; 8-3-16; 7-18-17 Communications, Karen Osterdock P.E., Welch Comer & Associates – McNeill, IDEQ SRF