

Executive Summary

CURRENT CONDITIONS

These are the current annual conditions for Redmond's Public Safety Building and City Facilities involved.



3,948,000
Annual kWh
Consumption

OUTCOME SNAPSHOT

McKinstry estimates that Redmond could see these yearly savings if proposed improvement measures are installed:



\$25,000
Utility savings



\$10,000
Operational
savings



275,000
Annual kWh
savings



434,244 lbs.
CO₂ emissions
reduced

*Carbon dioxide emissions
reductions would equal
(either or):*



54 acres of
Trees planted



202,918 lbs
Coal not
burned per
year



38 cars
Off the road



19 Homes
Removed from
Grid (Avg
Sized)

Overview

Within the past few years, the City of Redmond has been experiencing failures in the heat pumps that serve the Public Safety Building. These heat pumps provide heating and cooling to the facility which supports critical operations for civic services. The identified mechanical equipment has surpassed the expected useful life according to industry guidelines and is in need of replacement. The facilities team is unable to access many of the heat pumps which serve critical areas, which means failures result in unconditioned spaces. Of the 70+ heat pumps in the facility, the City of Redmond replaced 12 of the most challenging access heat pumps in a first phase of conversions this past year. The proposed second phase project would upgrade nearly 20 additional heat pumps which serve critical areas and are not currently able to be supported by the facilities staff.

The City of Redmond has also begun converting existing building lighting systems to LED. The proposed project would also convert the lighting at the MOC campus, Teen Center, City Hall and Fire Stations 14, 16, 17 and 18 to LED technology. This will reduce lighting power consumption by 50% and drive energy conservation and utility and operation cost savings.

Summary of Benefits

- Replace/upgrade heat pumps which serve critical areas of the Public Safety Building.
- Provide new equipment in these areas which will last another 15-20 years if maintained appropriately.
- Maintenance access will be provided to the heat pumps so maintenance staff can maintain the new equipment appropriately (not the case currently).
- Regular maintenance will extend the life of equipment and prevent early failures.
- New equipment will exceed existing energy code and provide better overall efficiency of the facility.
- Provide better reliability to a critical facility and allow maintenance teams to focus on other needs around the City of Redmond.
- Project will reduce the number of lighting fixtures diverted to landfills with fewer replacement cycles.
- Project will save over 275,000 kWh annually, which equates to over 400,000 lbs of CO_{2e} reduction.

Project Funding

The total project is expected to cost approximately \$1.4M. The funding sources for this project are expected to be as follows:

- \$40,000 rebate from Puget Sound Energy for lighting system
- \$1,000,000 capital budget from COR Public Works
- \$375,000 from energy efficiency funds

With positive cash flow from the energy savings this project will generate, the balance can be financed for a period of six years with the money saved through the energy savings on a cash-flow neutral basis.