

SIEMENS ENERGY AUDIT

December 4, 2017



Aspiring. Achieving. Accelerating.

BACKGROUND

- March 2003 – contract to install central chiller plant at new City Hall complex
- May 15, 2017 – Council approved guaranteed energy savings contract with Siemens Industry to evaluate if energy cost savings of a new chiller plant would exceed to cost of a new chiller plant
- November 2017 – technical energy audit completed identifying 8 Facility Improvement Measures (FIMs) that can be implemented with energy cost savings

FACILITY IMPROVEMENT MEASURES

1. LED lighting retrofits
2. Building Automation Systems
3. Central chiller plant upgrade
4. Cooler replacement
5. Variable frequency refrigerant system replace
6. Building envelope improvements
7. HVAC armor ad maintenance
8. Dynamic air filter

IMPLEMENTATION COST

FIM	Description	Implementation Cost	Savings per year	Payback (Yrs)
1	Lighting retrofit	\$770,820	\$78,426	9.8
2	Building Automation	\$215,837	\$37,067	5.8
3	Chiller upgrade	\$1,283,156	\$40,533	31.7
4	Cooler replacement	\$393,334	\$0	NA
5	VFR System	\$348,267	\$8,851	39.3
6	Building Envelope	\$189,949	\$14,748	12.9
7	HVAC Armor	\$52,900	\$3,960	13.4
8	Dynamic air filter	<u>\$40,858</u>	<u>\$3,555</u>	11.5
	Subtotal	\$3,295,120	\$187,140	17.6
	Contingency/overhead	<u>\$532,189</u>		
	Total	\$3,827,308		20.5

RESULTS

- Replacement of chiller plant does not generate adequate savings alone
- Siemens identified other facility improvement measures to generate additional savings to make the project financially feasible
- Staff requested to add to the project replacement of assets that were not functioning or past useful life
- Total savings over 20 years is \$4,884,259

RESULTS

- Total Guaranteed electric energy saved 35,938,540 kWh
- Emission reductions:

Pollutants	Annual reduction	15 Year reduction
CARBON DIOXIDE (LBS)	2,781,034	41,715,505
NITRIC OXIDE (LBS)	4,147	62,210
SULFUR DIOXIDE (LBS)	3,707	55,606

RECOMMENDATION

Staff recommends that Council provide direction to proceed with the Performance Contracting Agreement with Siemens and implement the results of the energy audit.