

COUNCIL ACTION FORM

SUBJECT: CITY FACILITY ENERGY EFFICIENCY IMPROVEMENTS

BACKGROUND:

The City Council previously designated \$400,000 for energy efficiency improvement projects in City-owned facilities through the Capital Improvements Plan (CIP) over a two-year period – FY 09/10 & 10/11. These funds were allocated to help accomplish the Council's internal goal for carbon emission reductions (a 15% reduction by 2014).

Using \$24,000 from this project, the City contracted with Alliant Energy to conduct a comprehensive audit of energy efficiency in City buildings. Their report listed 81 specific energy improvement opportunities, along with each project's estimated construction cost, annual energy reduction, and payback period. In some cases, the equipment identified has reached the end of its useful life and the audit recommends replacement of the equipment with a high-efficiency model. In these instances, individual departments will cover the cost of the simple replacement of the equipment from their budgets, while funds from this program will be used to pay for the difference between the base model's cost and the higher-efficiency upgrade.

In order for these projects to fit into the City's goals of reducing the City's carbon footprint to promote sustainability and save on energy costs, staff has created the attached possible models for project prioritization. Once a prioritization is approved, it is staff's intent to pursue as many projects as possible until the remaining \$376,000 in the CIP has been exhausted. At that point, the City would collect the utility rebates from each project and apply those funds toward an additional set of projects further down the list.

Four possible prioritization packages for these projects are attached, with a summary of the packages shown on Attachment I.

ALTERNATIVES:

1. Authorize staff to spend the funds remaining in this Capital Improvement Project based on Prioritization #1 (Prioritized based on combined scores of low payback period and high CO2 reduction).
2. Authorize staff to spend the funds remaining in this Capital Improvement Project based on Prioritization #2 (prioritized to complete the projects that allow the most CO2 reduced in total).

3. Authorize staff to spend the funds remaining in this Capital Improvement Project based on Prioritization #3 (prioritized to complete the fewest projects, largest CO2-reducing projects first).
4. Authorize staff to spend the funds remaining in this Capital Improvement Project based on Prioritization #4 (prioritized to complete the greatest number of projects, least costly projects first).
5. Do not authorize expenditure of these funds.

MANAGER'S RECOMMENDED ACTION:

Project Prioritization #1 will help the City achieve its goals of reducing its carbon footprint while reducing energy costs for City facilities and saving taxpayers' dollars. It balances the reduction of carbon and energy consumption with cost-effectiveness for each of the projects, while keeping the total number of projects manageable.

Therefore, it is the recommendation of the City Manager that the City Council adopt Alternative No. 1, thereby approving Project Prioritization #1 (as shown on Attachment II).

ATTACHMENT I

Option	Model	Cost	Number of Projects	Tons of CO2 Reduced	Building Sector CO2 Footprint Reduction (from baseline)	Average Project Payback
Prioritization #1 (Attachment II)	2-Factor (Payback Period & CO2 Reduction)	\$376,000	33	752.5	19.9%	4.0 Years
Prioritization #2 (Attachment III)	Most CO2 Reduced in Total	\$376,000	50	761.4	20.1%	5.5 Years
Prioritization #3 (Attachment IV)	Largest CO2-Reducing Projects	\$376,000	14	715.6	19.2%	5.5 Years
Prioritization #4 (Attachment V)	Greatest Number of Projects	\$376,000	66	450.5	13.8%	26.8 Years

ATTACHMENT II (Prioritization #1)

Prioritized Based on Combined Scores of Low Payback Period and High CO2 Reduction

Bldg. ID	Energy Conservation Measures	Cost to CIP (excludes end-of-life costs)	Annual Savings	Estimated CO2 Reduction (lbs.)	Payback (Yrs.)
Ice Arena	Install a Brine Pump VFD	\$10,600	\$8,620	181,100	1.2
FS - 3	RCx Temperature Controls	\$10,500	\$6,430	100,200	1.6
Ice Arena	Install a Condenser Fan VFD	\$7,100	\$3,910	82,300	1.8
Tech Serv	Automatic Time Clocks on Ovens	\$400	\$1,640	31,800	0.2
Ice Arena	Install Low-Emissivity Ceiling	\$66,700	\$14,160	297,600	4.7
Ice Arena	Install Cooling Plant Optimization Controls	\$15,000	\$3,500	73,600	4.3
City Hall	Install Motion Activated Switches	\$10,600	\$2,460	48,800	4.3
City Hall	Install Loop Pump VFD and Isolation Valves	\$77,400	\$12,760	253,600	6.1
Fleet Mtc	Install Motion Activated Switches	\$400	\$340	5,900	1.2
Elec Adm	Install Motion Activated Switches	\$900	\$440	8,200	2.0
FS - 2	Convert T12 Fixtures to T8	\$900	\$450	8,000	2.0
FS - 1	Replace End of Life Furnaces and Condensers	\$3,000	\$760	15,000	3.9
City Hall	Replace Gym HID and Install Occupancy Sensors	\$3,900	\$920	18,300	4.2
Elec Dist	Install Dock Apron Seals	\$1,000	\$350	6,900	2.9
Fleet Mtc	Convert T12 Fixtures to T8	\$13,600	\$2,360	40,900	5.8
Ice Arena	Replace Motors w/NEMA Premium Efficient	\$13,700	\$1,930	40,500	7.1
City Hall	Install Vented IT Storage Racks	\$20,000	\$2,440	48,600	8.2
Ice Arena	Replace Metal Halide Fixtures	\$18,000	\$2,080	43,800	8.7
Fleet Mtc	Replace Metal Halide Fixtures	\$600	\$280	4,900	2.1
City Hall	Convert T12 Fixtures to T8	\$74,700	\$5,400	107,400	13.8
Elec Dist	Install DDC Controls	\$10,100	\$1,390	27,600	7.3
Elec Dist	Redesign Lighting Layout	\$800	\$250	4,900	3.2
FS - 2	Install Motion Activated Switches	\$200	\$160	2,700	1.3
FS - 3	Install Motion Activated Switches	\$300	\$180	3,300	1.7
Elec Dist	Install Motion Activated Switches	\$700	\$220	4,300	3.2
Ice Arena	Convert Thermosyphon Oil Cooling	\$10,000	\$1,020	21,400	9.8
Parks M	Replace End of Life Furnaces and Condensers	\$1,000	\$260	4,300	3.8
FS - 1	Install Motion Activated Light Switches	\$1,200	\$270	5,200	4.4
Elec Adm	Install 25W T8 Lamps	\$1,300	\$290	5,500	4.5
FS - 2	Install CFLs	\$100	\$70	1,300	1.4
Cemetery	Replace Atmospheric Water Heaters	\$0	\$100	900	0.0
Golf CH	Install Programmable Thermostats	\$200	\$120	1,300	1.7
City Hall	Replace Non-LED Exit Signs	\$1,100	\$240	4,900	4.6
Fleet Mtc	Install Natural Gas Infrared Heating	\$12,000	\$740	10,900	16.2
Ice Arena	Replace Atmospheric Water Heaters	\$16,000	\$800	13,000	20.0
Golf CH	Convert T12 Fixtures to T8	\$600	\$150	2,200	4.0
City Hall	Convert Constant Volume Vent. System to VAV	\$39,000	\$950	18,800	41.1
City Hall	Replace Ventilation Heat Recovery Equip.	\$15,100	\$640	12,600	23.6
City Hall	Install Fluid Cooler Fan VFDs	\$7,700	\$470	9,300	16.4
Parks M	Convert T12 Fixtures to T8	\$4,100	\$380	6,300	10.8

Parks O	Convert T12 Fixtures to T8	\$3,300	\$340	5,100	9.7
Parks O	Install Motion Activated Switches	\$800	\$170	2,500	4.7
City Hall	Install DDC Controls	\$179,600	\$1,860	36,900	96.6
Tech Serv	Install DDC Controls	\$13,600	\$480	7,000	28.3
Fleet Mtc	Install New RTU	\$28,000	\$660	10,400	42.4
Elec Dist	Replace Non-LED Exit Signs	\$100	\$30	500	3.3
Parks M	Replace Non-LED Exit Signs	\$100	\$30	500	3.3
Fleet Mtc	Install De-Stratification Fans	\$14,400	\$390	5,700	36.9
Fleet Mtc	Install Vending Miser Controls	\$400	\$70	1,200	5.7
FS - 1	Install Condensing Boilers	\$28,000	\$480	7,300	58.3
Parks O	Replace End of Life Furnaces and Condensers	\$23,000	\$450	6,400	51.1
Tech Serv	Convert Constant Volume Vent. System to VAV	\$166,000	\$680	13,100	244.1
City Hall	Install Vending Miser Controls	\$400	\$60	1,200	6.7
FS - 1	Install Natural Gas Infrared Heating	\$3,000	\$190	2,900	15.8
FS - 1	Install Vending Miser Controls	\$100	\$20	400	5.0
Ice Arena	Install Vending Miser Controls	\$300	\$40	800	7.5
Parks M	Install Motion Activated Switches	\$100	\$20	300	5.0
Parks M	Install Natural Gas Infrared Heating	\$1,500	\$110	1,500	13.6
City Hall	Replace Atmospheric Water Heaters	\$10,500	\$250	3,500	42.0
Elec Adm	Install DDC Controls	\$9,100	\$190	3,500	47.9
Cemetery	Convert T12 Fixtures to T8	\$500	\$50	800	10.0
Golf CH	Replace End of Life Furnaces and Condensers	\$20,000	\$330	4,000	60.6
Cemetery	Replace End of Life Furnaces and Condensers	\$500	\$50	700	10.0
Parks O	Install DDC Controls	\$9,100	\$190	2,600	47.9
Tech Serv	Install Condensing Boilers	\$32,000	\$290	4,200	110.3
Fleet Mtc	Install DDC Controls	\$13,100	\$200	2,900	65.5
Parks M	Install De-Stratification Fans	\$3,600	\$90	1,200	40.0
FS - 2	Replace Atmospheric Water Heaters	\$4,500	\$100	1,300	45.0
FS - 1	Replace Atmospheric Water Heaters	\$8,500	\$140	2,100	60.7
Ice Arena	Install DDC Controls	\$13,600	\$100	1,600	136.0
Golf CH	Replace Atmospheric Water Heaters	\$2,500	\$30	400	83.3
FS - 2	Install DDC Controls	\$7,900	\$50	600	158.0
Parks M	Install DDC Controls	\$9,400	\$40	600	235.0
Parks M	Replace Atmospheric Water Heaters	\$4,500	\$10	200	450.0
Elec Dist	Add Vehicle Storage Ventilation	\$24,300	(\$110)	(2,100)	∞
Fleet Mtc	Add Vehicle Storage Ventilation	\$45,400	(\$100)	(1,500)	∞
FS - 1	Add Vehicle Storage Ventilation	\$13,900	(\$70)	(1,100)	∞
FS - 2	Add Vehicle Storage Ventilation	\$11,700	(\$70)	(900)	∞
FS - 3	Add Vehicle Storage Ventilation	\$10,600	(\$50)	(700)	∞
Parks M	Add Vehicle Storage Ventilation	\$9,100	(\$10)	(100)	∞
City Hall	Replace End of Life Furnaces and Condensers	\$37,500	\$4,070	81,000	9.2

ATTACHMENT III (Prioritization #2)

Prioritized to Complete the Projects That Allow the Most CO2 Reduced in Total

Bldg. ID	Energy Conservation Measures	Cost to CIP (excludes end-of-life costs)	Annual Savings	Estimated CO2 Reduction (lbs.)	Payback (Yrs.)
Cemetery	Replace Atmospheric Water Heaters	\$0	\$100	900	0.0
Tech Serv	Automatic Time Clocks on Ovens	\$400	\$1,640	31,800	0.2
Fleet Mtc	Install Motion Activated Switches	\$400	\$340	5,900	1.2
Ice Arena	Install a Brine Pump VFD	\$10,600	\$8,620	181,100	1.2
FS - 2	Install Motion Activated Switches	\$200	\$160	2,700	1.3
FS - 2	Install CFLs	\$100	\$70	1,300	1.4
FS - 3	RCx Temperature Controls	\$10,500	\$6,430	100,200	1.6
FS - 3	Install Motion Activated Switches	\$300	\$180	3,300	1.7
Golf CH	Install Programmable Thermostats	\$200	\$120	1,300	1.7
Ice Arena	Install a Condenser Fan VFD	\$7,100	\$3,910	82,300	1.8
FS - 2	Convert T12 Fixtures to T8	\$900	\$450	8,000	2.0
Elec Adm	Install Motion Activated Switches	\$900	\$440	8,200	2.0
Fleet Mtc	Replace Metal Halide Fixtures	\$600	\$280	4,900	2.1
Elec Dist	Install Dock Apron Seals	\$1,000	\$350	6,900	2.9
Elec Dist	Install Motion Activated Switches	\$700	\$220	4,300	3.2
Elec Dist	Redesign Lighting Layout	\$800	\$250	4,900	3.2
Elec Dist	Replace Non-LED Exit Signs	\$100	\$30	500	3.3
Parks M	Replace Non-LED Exit Signs	\$100	\$30	500	3.3
Parks M	Replace End of Life Furnaces and Condensers	\$1,000	\$260	4,300	3.8
FS - 1	Replace End of Life Furnaces and Condensers	\$3,000	\$760	15,000	3.9
Golf CH	Convert T12 Fixtures to T8	\$600	\$150	2,200	4.0
City Hall	Replace Gym HID and Install Occupancy Sensors	\$3,900	\$920	18,300	4.2
Ice Arena	Install Cooling Plant Optimization Controls	\$15,000	\$3,500	73,600	4.3
City Hall	Install Motion Activated Switches	\$10,600	\$2,460	48,800	4.3
FS - 1	Install Motion Activated Light Switches	\$1,200	\$270	5,200	4.4
Elec Adm	Install 25W T8 Lamps	\$1,300	\$290	5,500	4.5
City Hall	Replace Non-LED Exit Signs	\$1,100	\$240	4,900	4.6
Parks O	Install Motion Activated Switches	\$800	\$170	2,500	4.7
Ice Arena	Install Low-Emissivity Ceiling	\$66,700	\$14,160	297,600	4.7
FS - 1	Install Vending Miser Controls	\$100	\$20	400	5.0
Parks M	Install Motion Activated Switches	\$100	\$20	300	5.0
Fleet Mtc	Install Vending Miser Controls	\$400	\$70	1,200	5.7
Fleet Mtc	Convert T12 Fixtures to T8	\$13,600	\$2,360	40,900	5.8
City Hall	Install Loop Pump VFD and Isolation Valves	\$77,400	\$12,760	253,600	6.1
City Hall	Install Vending Miser Controls	\$400	\$60	1,200	6.7
Ice Arena	Replace Motors w/NEMA Premium Efficient	\$13,700	\$1,930	40,500	7.1
Elec Dist	Install DDC Controls	\$10,100	\$1,390	27,600	7.3
Ice Arena	Install Vending Miser Controls	\$300	\$40	800	7.5
City Hall	Install Vented IT Storage Racks	\$20,000	\$2,440	48,600	8.2
Ice Arena	Replace Metal Halide Fixtures	\$18,000	\$2,080	43,800	8.7
City Hall	Replace End of Life Furnaces and Condensers	\$37,500	\$4,070	81,000	9.2

Parks O	Convert T12 Fixtures to T8	\$3,300	\$340	5,100	9.7
Ice Arena	Convert Thermosyphon Oil Cooling	\$10,000	\$1,020	21,400	9.8
Cemetery	Convert T12 Fixtures to T8	\$500	\$50	800	10.0
Cemetery	Replace End of Life Furnaces and Condensers	\$500	\$50	700	10.0
Parks M	Convert T12 Fixtures to T8	\$4,100	\$380	6,300	10.8
Parks M	Install Natural Gas Infrared Heating	\$1,500	\$110	1,500	13.6
City Hall	Convert T12 Fixtures to T8	\$74,700	\$5,400	107,400	13.8
FS - 1	Install Natural Gas Infrared Heating	\$3,000	\$190	2,900	15.8
Fleet Mtc	Install Natural Gas Infrared Heating	\$12,000	\$740	10,900	16.2
City Hall	Install Fluid Cooler Fan VFDs	\$7,700	\$470	9,300	16.4
Ice Arena	Replace Atmospheric Water Heaters	\$16,000	\$800	13,000	20.0
City Hall	Replace Ventilation Heat Recovery Equip.	\$15,100	\$640	12,600	23.6
Tech Serv	Install DDC Controls	\$13,600	\$480	7,000	28.3
Fleet Mtc	Install De-Stratification Fans	\$14,400	\$390	5,700	36.9
Parks M	Install De-Stratification Fans	\$3,600	\$90	1,200	40.0
City Hall	Convert Constant Volume Vent. System to VAV	\$39,000	\$950	18,800	41.1
City Hall	Replace Atmospheric Water Heaters	\$10,500	\$250	3,500	42.0
Fleet Mtc	Install New RTU	\$28,000	\$660	10,400	42.4
FS - 2	Replace Atmospheric Water Heaters	\$4,500	\$100	1,300	45.0
Elec Adm	Install DDC Controls	\$9,100	\$190	3,500	47.9
Parks O	Install DDC Controls	\$9,100	\$190	2,600	47.9
Parks O	Replace End of Life Furnaces and Condensers	\$23,000	\$450	6,400	51.1
FS - 1	Install Condensing Boilers	\$28,000	\$480	7,300	58.3
Golf CH	Replace End of Life Furnaces and Condensers	\$20,000	\$330	4,000	60.6
FS - 1	Replace Atmospheric Water Heaters	\$8,500	\$140	2,100	60.7
Fleet Mtc	Install DDC Controls	\$13,100	\$200	2,900	65.5
Golf CH	Replace Atmospheric Water Heaters	\$2,500	\$30	400	83.3
City Hall	Install DDC Controls	\$179,600	\$1,860	36,900	96.6
Tech Serv	Install Condensing Boilers	\$32,000	\$290	4,200	110.3
Ice Arena	Install DDC Controls	\$13,600	\$100	1,600	136.0
FS - 2	Install DDC Controls	\$7,900	\$50	600	158.0
Parks M	Install DDC Controls	\$9,400	\$40	600	235.0
Tech Serv	Convert Constant Volume Vent. System to VAV	\$166,000	\$680	13,100	244.1
Parks M	Replace Atmospheric Water Heaters	\$4,500	\$10	200	450.0
Parks M	Add Vehicle Storage Ventilation	\$9,100	(\$10)	(100)	∞
FS - 3	Add Vehicle Storage Ventilation	\$10,600	(\$50)	(700)	∞
FS - 2	Add Vehicle Storage Ventilation	\$11,700	(\$70)	(900)	∞
FS - 1	Add Vehicle Storage Ventilation	\$13,900	(\$70)	(1,100)	∞
Fleet Mtc	Add Vehicle Storage Ventilation	\$45,400	(\$100)	(1,500)	∞
Elec Dist	Add Vehicle Storage Ventilation	\$24,300	(\$110)	(2,100)	∞

ATTACHMENT IV (Prioritization #3)

Prioritized to Complete the Fewest Projects (Largest CO2-Reducing Projects First)

Bldg. ID	Energy Conservation Measures	Cost to CIP (excludes end-of-life costs)	Annual Savings	Estimated CO2 Reduction (lbs.)	Payback (Yrs.)
Ice Arena	Install Low-Emissivity Ceiling	\$66,700	\$14,160	297,600	4.7
City Hall	Install Loop Pump VFD and Isolation Valves	\$77,400	\$12,760	253,600	6.1
Ice Arena	Install a Brine Pump VFD	\$10,600	\$8,620	181,100	1.2
City Hall	Convert T12 Fixtures to T8	\$74,700	\$5,400	107,400	13.8
FS - 3	RCx Temperature Controls	\$10,500	\$6,430	100,200	1.6
Ice Arena	Install a Condenser Fan VFD	\$7,100	\$3,910	82,300	1.8
City Hall	Replace End of Life Furnaces and Condensers	\$37,500	\$4,070	81,000	9.2
Ice Arena	Install Cooling Plant Optimization Controls	\$15,000	\$3,500	73,600	4.3
City Hall	Install Motion Activated Switches	\$10,600	\$2,460	48,800	4.3
City Hall	Install Vented IT Storage Racks	\$20,000	\$2,440	48,600	8.2
Ice Arena	Replace Metal Halide Fixtures	\$18,000	\$2,080	43,800	8.7
Fleet Mtc	Convert T12 Fixtures to T8	\$13,600	\$2,360	40,900	5.8
Ice Arena	Replace Motors w/NEMA Premium Efficient	\$13,700	\$1,930	40,500	7.1
City Hall	Install DDC Controls	\$179,600	\$1,860	36,900	96.6
Tech Serv	Automatic Time Clocks on Ovens	\$400	\$1,640	31,800	0.2
Elec Dist	Install DDC Controls	\$10,100	\$1,390	27,600	7.3
Ice Arena	Convert Thermosyphon Oil Cooling	\$10,000	\$1,020	21,400	9.8
City Hall	Convert Constant Volume Vent. System to VAV	\$39,000	\$950	18,800	41.1
City Hall	Replace Gym HID and Install Occupancy Sensors	\$3,900	\$920	18,300	4.2
FS - 1	Replace End of Life Furnaces and Condensers	\$3,000	\$760	15,000	3.9
Tech Serv	Convert Constant Volume Vent. System to VAV	\$166,000	\$680	13,100	244.1
Ice Arena	Replace Atmospheric Water Heaters	\$16,000	\$800	13,000	20.0
City Hall	Replace Ventilation Heat Recovery Equip.	\$15,100	\$640	12,600	23.6
Fleet Mtc	Install Natural Gas Infrared Heating	\$12,000	\$740	10,900	16.2
Fleet Mtc	Install New RTU	\$28,000	\$660	10,400	42.4
City Hall	Install Fluid Cooler Fan VFDs	\$7,700	\$470	9,300	16.4
Elec Adm	Install Motion Activated Switches	\$900	\$440	8,200	2.0
FS - 2	Convert T12 Fixtures to T8	\$900	\$450	8,000	2.0
FS - 1	Install Condensing Boilers	\$28,000	\$480	7,300	58.3
Tech Serv	Install DDC Controls	\$13,600	\$480	7,000	28.3
Elec Dist	Install Dock Apron Seals	\$1,000	\$350	6,900	2.9
Parks O	Replace End of Life Furnaces and Condensers	\$23,000	\$450	6,400	51.1
Parks M	Convert T12 Fixtures to T8	\$4,100	\$380	6,300	10.8
Fleet Mtc	Install Motion Activated Switches	\$400	\$340	5,900	1.2
Fleet Mtc	Install De-Stratification Fans	\$14,400	\$390	5,700	36.9
Elec Adm	Install 25W T8 Lamps	\$1,300	\$290	5,500	4.5
FS - 1	Install Motion Activated Light Switches	\$1,200	\$270	5,200	4.4
Parks O	Convert T12 Fixtures to T8	\$3,300	\$340	5,100	9.7
Fleet Mtc	Replace Metal Halide Fixtures	\$600	\$280	4,900	2.1
Elec Dist	Redesign Lighting Layout	\$800	\$250	4,900	3.2
City Hall	Replace Non-LED Exit Signs	\$1,100	\$240	4,900	4.6

Elec Dist	Install Motion Activated Switches	\$700	\$220	4,300	3.2
Parks M	Replace End of Life Furnaces and Condensers	\$1,000	\$260	4,300	3.8
Tech Serv	Install Condensing Boilers	\$32,000	\$290	4,200	110.3
Golf CH	Replace End of Life Furnaces and Condensers	\$20,000	\$330	4,000	60.6
Elec Adm	Install DDC Controls	\$9,100	\$190	3,500	47.9
City Hall	Replace Atmospheric Water Heaters	\$10,500	\$250	3,500	42.0
FS - 3	Install Motion Activated Switches	\$300	\$180	3,300	1.7
FS - 1	Install Natural Gas Infrared Heating	\$3,000	\$190	2,900	15.8
Fleet Mtc	Install DDC Controls	\$13,100	\$200	2,900	65.5
FS - 2	Install Motion Activated Switches	\$200	\$160	2,700	1.3
Parks O	Install DDC Controls	\$9,100	\$190	2,600	47.9
Parks O	Install Motion Activated Switches	\$800	\$170	2,500	4.7
Golf CH	Convert T12 Fixtures to T8	\$600	\$150	2,200	4.0
FS - 1	Replace Atmospheric Water Heaters	\$8,500	\$140	2,100	60.7
Ice Arena	Install DDC Controls	\$13,600	\$100	1,600	136.0
Parks M	Install Natural Gas Infrared Heating	\$1,500	\$110	1,500	13.6
FS - 2	Install CFLs	\$100	\$70	1,300	1.4
Golf CH	Install Programmable Thermostats	\$200	\$120	1,300	1.7
FS - 2	Replace Atmospheric Water Heaters	\$4,500	\$100	1,300	45.0
Fleet Mtc	Install Vending Miser Controls	\$400	\$70	1,200	5.7
City Hall	Install Vending Miser Controls	\$400	\$60	1,200	6.7
Parks M	Install De-Stratification Fans	\$3,600	\$90	1,200	40.0
Cemetery	Replace Atmospheric Water Heaters	\$0	\$100	900	0.0
Ice Arena	Install Vending Miser Controls	\$300	\$40	800	7.5
Cemetery	Convert T12 Fixtures to T8	\$500	\$50	800	10.0
Cemetery	Replace End of Life Furnaces and Condensers	\$500	\$50	700	10.0
FS - 2	Install DDC Controls	\$7,900	\$50	600	158.0
Parks M	Install DDC Controls	\$9,400	\$40	600	235.0
Elec Dist	Replace Non-LED Exit Signs	\$100	\$30	500	3.3
Parks M	Replace Non-LED Exit Signs	\$100	\$30	500	3.3
FS - 1	Install Vending Miser Controls	\$100	\$20	400	5.0
Golf CH	Replace Atmospheric Water Heaters	\$2,500	\$30	400	83.3
Parks M	Install Motion Activated Switches	\$100	\$20	300	5.0
Parks M	Replace Atmospheric Water Heaters	\$4,500	\$10	200	450.0
Parks M	Add Vehicle Storage Ventilation	\$9,100	(\$10)	(100)	∞
FS - 3	Add Vehicle Storage Ventilation	\$10,600	(\$50)	(700)	∞
FS - 2	Add Vehicle Storage Ventilation	\$11,700	(\$70)	(900)	∞
FS - 1	Add Vehicle Storage Ventilation	\$13,900	(\$70)	(1,100)	∞
Fleet Mtc	Add Vehicle Storage Ventilation	\$45,400	(\$100)	(1,500)	∞
Elec Dist	Add Vehicle Storage Ventilation	\$24,300	(\$110)	(2,100)	∞

ATTACHMENT V (Prioritization #4)

Prioritized to Complete the Greatest Number of Projects (Least Costly Projects First)

Bldg. ID	Energy Conservation Measures	Cost to CIP (excludes end-of-life costs)	Annual Savings	Estimated CO2 Reduction (lbs.)	Payback (Yrs.)
Cemetery	Replace Atmospheric Water Heaters	\$0	\$100	900	0.0
FS - 2	Install CFLs	\$100	\$70	1,300	1.4
Elec Dist	Replace Non-LED Exit Signs	\$100	\$30	500	3.3
Parks M	Replace Non-LED Exit Signs	\$100	\$30	500	3.3
FS - 1	Install Vending Miser Controls	\$100	\$20	400	5.0
Parks M	Install Motion Activated Switches	\$100	\$20	300	5.0
FS - 2	Install Motion Activated Switches	\$200	\$160	2,700	1.3
Golf CH	Install Programmable Thermostats	\$200	\$120	1,300	1.7
FS - 3	Install Motion Activated Switches	\$300	\$180	3,300	1.7
Ice Arena	Install Vending Miser Controls	\$300	\$40	800	7.5
Tech Serv	Automatic Time Clocks on Ovens	\$400	\$1,640	31,800	0.2
Fleet Mtc	Install Motion Activated Switches	\$400	\$340	5,900	1.2
Fleet Mtc	Install Vending Miser Controls	\$400	\$70	1,200	5.7
City Hall	Install Vending Miser Controls	\$400	\$60	1,200	6.7
Cemetery	Convert T12 Fixtures to T8	\$500	\$50	800	10.0
Cemetery	Replace End of Life Furnaces and Condensers	\$500	\$50	700	10.0
Fleet Mtc	Replace Metal Halide Fixtures	\$600	\$280	4,900	2.1
Golf CH	Convert T12 Fixtures to T8	\$600	\$150	2,200	4.0
Elec Dist	Install Motion Activated Switches	\$700	\$220	4,300	3.2
Elec Dist	Redesign Lighting Layout	\$800	\$250	4,900	3.2
Parks O	Install Motion Activated Switches	\$800	\$170	2,500	4.7
Elec Adm	Install Motion Activated Switches	\$900	\$440	8,200	2.0
FS - 2	Convert T12 Fixtures to T8	\$900	\$450	8,000	2.0
Elec Dist	Install Dock Apron Seals	\$1,000	\$350	6,900	2.9
Parks M	Replace End of Life Furnaces and Condensers	\$1,000	\$260	4,300	3.8
City Hall	Replace Non-LED Exit Signs	\$1,100	\$240	4,900	4.6
FS - 1	Install Motion Activated Light Switches	\$1,200	\$270	5,200	4.4
Elec Adm	Install 25W T8 Lamps	\$1,300	\$290	5,500	4.5
Parks M	Install Natural Gas Infrared Heating	\$1,500	\$110	1,500	13.6
Golf CH	Replace Atmospheric Water Heaters	\$2,500	\$30	400	83.3
FS - 1	Replace End of Life Furnaces and Condensers	\$3,000	\$760	15,000	3.9
FS - 1	Install Natural Gas Infrared Heating	\$3,000	\$190	2,900	15.8
Parks O	Convert T12 Fixtures to T8	\$3,300	\$340	5,100	9.7
Parks M	Install De-Stratification Fans	\$3,600	\$90	1,200	40.0
City Hall	Replace Gym HID and Install Occupancy Sensors	\$3,900	\$920	18,300	4.2
Parks M	Convert T12 Fixtures to T8	\$4,100	\$380	6,300	10.8
FS - 2	Replace Atmospheric Water Heaters	\$4,500	\$100	1,300	45.0
Parks M	Replace Atmospheric Water Heaters	\$4,500	\$10	200	450.0
Ice Arena	Install a Condenser Fan VFD	\$7,100	\$3,910	82,300	1.8
City Hall	Install Fluid Cooler Fan VFDs	\$7,700	\$470	9,300	16.4
FS - 2	Install DDC Controls	\$7,900	\$50	600	158.0

FS - 1	Replace Atmospheric Water Heaters	\$8,500	\$140	2,100	60.7
Elec Adm	Install DDC Controls	\$9,100	\$190	3,500	47.9
Parks O	Install DDC Controls	\$9,100	\$190	2,600	47.9
Parks M	Add Vehicle Storage Ventilation	\$9,100	(\$10)	(100)	∞
Parks M	Install DDC Controls	\$9,400	\$40	600	235.0
Ice Arena	Convert Thermosyphon Oil Cooling	\$10,000	\$1,020	21,400	9.8
Elec Dist	Install DDC Controls	\$10,100	\$1,390	27,600	7.3
FS - 3	RCx Temperature Controls	\$10,500	\$6,430	100,200	1.6
City Hall	Replace Atmospheric Water Heaters	\$10,500	\$250	3,500	42.0
Ice Arena	Install a Brine Pump VFD	\$10,600	\$8,620	181,100	1.2
City Hall	Install Motion Activated Switches	\$10,600	\$2,460	48,800	4.3
FS - 3	Add Vehicle Storage Ventilation	\$10,600	(\$50)	(700)	∞
FS - 2	Add Vehicle Storage Ventilation	\$11,700	(\$70)	(900)	∞
Fleet Mtc	Install Natural Gas Infrared Heating	\$12,000	\$740	10,900	16.2
Fleet Mtc	Install DDC Controls	\$13,100	\$200	2,900	65.5
Fleet Mtc	Convert T12 Fixtures to T8	\$13,600	\$2,360	40,900	5.8
Tech Serv	Install DDC Controls	\$13,600	\$480	7,000	28.3
Ice Arena	Install DDC Controls	\$13,600	\$100	1,600	136.0
Ice Arena	Replace Motors w/NEMA Premium Efficient	\$13,700	\$1,930	40,500	7.1
FS - 1	Add Vehicle Storage Ventilation	\$13,900	(\$70)	(1,100)	∞
Fleet Mtc	Install De-Stratification Fans	\$14,400	\$390	5,700	36.9
Ice Arena	Install Cooling Plant Optimization Controls	\$15,000	\$3,500	73,600	4.3
City Hall	Replace Ventilation Heat Recovery Equip.	\$15,100	\$640	12,600	23.6
Ice Arena	Replace Atmospheric Water Heaters	\$16,000	\$800	13,000	20.0
Ice Arena	Replace Metal Halide Fixtures	\$18,000	\$2,080	43,800	8.7
City Hall	Install Vented IT Storage Racks	\$20,000	\$2,440	48,600	8.2
Golf CH	Replace End of Life Furnaces and Condensers	\$20,000	\$330	4,000	60.6
Parks O	Replace End of Life Furnaces and Condensers	\$23,000	\$450	6,400	51.1
Elec Dist	Add Vehicle Storage Ventilation	\$24,300	(\$110)	(2,100)	∞
Fleet Mtc	Install New RTU	\$28,000	\$660	10,400	42.4
FS - 1	Install Condensing Boilers	\$28,000	\$480	7,300	58.3
Tech Serv	Install Condensing Boilers	\$32,000	\$290	4,200	110.3
City Hall	Replace End of Life Furnaces and Condensers	\$37,500	\$4,070	81,000	9.2
City Hall	Convert Constant Volume Vent. System to VAV	\$39,000	\$950	18,800	41.1
Fleet Mtc	Add Vehicle Storage Ventilation	\$45,400	(\$100)	(1,500)	∞
Ice Arena	Install Low-Emissivity Ceiling	\$66,700	\$14,160	297,600	4.7
City Hall	Convert T12 Fixtures to T8	\$74,700	\$5,400	107,400	13.8
City Hall	Install Loop Pump VFD and Isolation Valves	\$77,400	\$12,760	253,600	6.1
Tech Serv	Convert Constant Volume Vent. System to VAV	\$166,000	\$680	13,100	244.1
City Hall	Install DDC Controls	\$179,600	\$1,860	36,900	96.6