



January 7, 2019

Memorandum

City of Jersey City

ESIP Scoping/Business Planning Update

Introduction

The City of Jersey City has been interested and proactive in its sustainability efforts by exploring various energy efficiency improvements, load management, renewable energy and new energy purchasing strategies in the past.

In 2016, the City of Jersey City participated in the New Jersey Board of Public Utilities' (NJBPU) Office of Clean Energy Local Government Energy Audit Program (LGEA). The LGEA program provided the City with the opportunity to engage an engineering firm to perform an energy audit at no cost to the City. The assessment included 26 buildings totaling approximately 412,000 square feet and resulted in a list of Energy Conservation Measures (ECMs) that could potentially save approximately \$223,600 in energy costs per year. The audit has also provided a benchmarking of energy costs and usage by establishing a baseline for both electricity and natural gas use, and an inventory of energy consuming equipment.

To continue towards the goal of further lowering energy costs, the City engaged Gabel Associates to identify new opportunities and assist in determining strategies for implementing these cost saving measures. The following is an update on the current status of this effort.

Tasks completed

The first step was to review and analyze findings of the LGEA audit and to develop a simple process of benchmarking energy usage and costs. Once a baseline is determined, implementation of potential energy efficiency initiatives and cost reducing measures can properly be quantified by measuring new energy usage and costs and comparing to its baseline.

Gabel Associates reviewed all energy conservation measures (ECMs) listed in the LGEA audit and compiled an analysis of the savings with respect to ECM type in general as well as to individual savings per site. These results were initially presented in a meeting with the City of Jersey City professional staff. As per the analysis, the most savings were associated with lighting retrofit measures (83% of all energy cost savings). Most of these savings were projected at the largest facilities including Mary McLeod Bethune Community Center, Municipal Courthouse, City Hall and Pershing Field Athletic Center. These four facilities contribute to more than 50% of all cost savings. Furthermore, an analysis and review of Energy Star Portfolio Manager was completed in order to create a list of buildings based on their efficiency (EUI). The EUI is a measure of energy consumption per square foot, which can be compared to EUI data of other similar buildings in this

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region or throughout the US. Based on this analysis, it was found that the least efficient buildings audited were typically firehouses which was expected given the nature of these sites (24/7 operation).

The initial review of the LGEA reports was then followed by site visits at selected sites. The goal of the site visits was to:

- a. Verify LGEA results
- b. Review recent and planned equipment replacements
- c. Review building envelope improvements and other building upgrades
- d. Identify additional facilities and ECMs for inclusion energy efficiency projects

Site Visit Results

The site visits included six buildings as listed below. These buildings were selected based on size and total energy used (most energy use intensive) as well as the EUI metrics. The visits comprised of Level I walkthroughs only with an intention to finding additional ECMs not previously considered during the LGEA process.

	Facility	Building Area (SF)	EUI (kBtu/SF)
1	City Hall	100,000	91.2
2	Municipal Courthouse	60,000	110.5
3	Mary Bethune Community Center	26,350	198.3
4	Firehouse – 255 Kearney Ave	8,829	291.6
5	Police Precinct – South District	6,000	216.1
6	DPW complex	N/A	N/A

In general, the walkthrough confirmed that information provided in the LGEA reports (equipment inventory, operating hours etc.) is accurate. On the other hand, it was found that some of larger HVAC equipment such as boilers and package rooftop units is approaching the end of useful life, and therefore, should be considered for replacement/upgrade either through an ESIP process or capital improvement. More details about these ECMs at each site can be found in the tables below.

City Hall

ECMs listed in LGEA	Additional ECMs
Install LED Fixtures Retrofit Fluorescent Fixtures with LED Lamps and Drivers Retrofit Fixtures with LED Lamps Install LED Exit Signs Install Occupancy Sensor Lighting Controls Install Daylight Dimming Controls Install Low-Flow Domestic Hot Water Devices	Replace Window AC with Split-system AC Repair/Replace Windows Install Thermostatic Radiator Valves (TRV) Plug Load Management

Municipal Courthouse

ECMs listed in LGEA	Additional ECMs
Install LED Fixtures Retrofit Fixtures with LED Lamps Install LED Exit Signs Install Occupancy Sensor Lighting Controls Install Daylight Dimming Controls Install VFDs on Hot Water Pumps Install Low-Flow Domestic Hot Water Devices Vending Machine Control	Install Building Management System Retro commissioning of HVAC System Roof-top Units Replacement (Note: units are 18 years old) Replace Boilers with Condensing Modulating Boilers (Note: existing boilers are 13 years old) Plug Load Management

Mary Bethune Community Center

ECMs listed in LGEA	Additional ECMs
Install LED Fixtures Retrofit Fixtures with LED Lamps Install LED Exit Signs Install Occupancy Sensor Lighting Controls Premium Efficiency Motors Install High Efficiency Electric AC Install High Efficiency Furnaces Install Dual Enthalpy Outside Economizer Control Install Low-Flow Domestic Hot Water Devices	Replace existing building management system with new, open-protocol BMS Retro commissioning of HVAC System Replace roof-top units (Note: existing units are 16 years old)

Firehouse – 255 Kearney Ave

ECMs listed in LGEA	Additional ECMs
Install LED Fixtures Retrofit Fluorescent Fixtures with LED Lamps and Drivers Retrofit Fixtures with LED Lamps Install LED Exit Signs Install Occupancy Sensor Lighting Controls Install High Efficiency Electric AC Install Low-Flow Domestic Hot Water Devices	Replace unit heaters with IR gas-fired heaters (Note: existing units are 7 years old)

Police Precinct – South District

ECMs listed in LGEA	Additional ECMs
Install LED Fixtures Retrofit Fluorescent Fixtures with LED Lamps and Drivers Retrofit Fixtures with LED Lamps Install LED Exit Signs Install Occupancy Sensor Lighting Controls Install High Efficiency Electric AC Install Low-Flow Domestic Hot Water Devices Vending Machine Control	Install central AC Replace hot water boiler with modular condensing boiler

DPW complex

Since the DPW complex was not originally included in the LGEA process, the following section provides a short description of the site. This site consists of several detached buildings varying in size and age: Office Buildings & Automotive Garage, Shops & Warehouse, Records Building and Emergency Services Unit (ESU) Building. A short description of each of these structures is listed below:

Office/Garage – a three-story office building with a one-story large automotive shop attached. As per facility personnel, the structure has been designed and built to achieve LEED certification. Heating for both office area and garage is provided by three high-efficiency hot water boilers where hot water is supplied either to heat pumps (office) or radiant floor coils (garage). Cooling is provided in the office area only through heat pumps by utilizing a single cooling tower. Pumps and large exhaust fans are controlled by variable frequency drives. All units appear to be in very good condition

Shops/Warehouse – One story structure consisting mostly of open space shops and smaller office areas. Heating in offices is provided by one gas-fired roof package unit while cooling is provided by several ductless mini-split ACs. For the shops, heating is provided by approximately 13 gas-fired unit heaters. Two large exhaust fans provide ventilation for the shop area, both controlled by VFDs. All units are in very good condition.

ESU Building – one story building consisting of an office area, garage and gun repair shop. Heating and cooling for the office area is provided by one package gas-fired rooftop unit and additional cooling is provided to the gun repair shop via a split system AC. In garage area there is a heating system only consisting of gas-fired IR heaters. All HVAC units appear to be in very good condition.

Records Building – two story structure, first floor used as a warehouse for documents storage, while the second floor is mostly used as police firing range. Both heating and cooling is mostly provided by five package gas-fired rooftop units and one indoor furnace/split system unit. Additional cooling is provided by two ductless, mini-split units. The rooftop units are approximately 16 years old and in good condition.

ECMs listed in LGEA	Additional ECMs
Building not included in the LGEA program	Retrofit or Replace Fluorescent Fixtures with LED-based fixtures/lamps Insulate AC ducts in non-conditioned areas Repair roof leaks Replace rooftop units (Records building). Note: the existing units are 16 years old.

Measure Analysis

Next step was for Gabel to update the energy use and cost analysis based on most recent data. Usage and cost data were collected from the City and directly from PSE&G through the Electronic Data Interface, as well as, third-party energy supplier agreements. Using these current rates, we refined the energy savings and implementation cost estimates included in the LGEA to reflect current estimates of energy savings and costs.

The additional ECMs identified during the site visits and listed in the previous section of this memorandum were added to the list of potential ECMs. Savings, costs, and simple payback period estimates were calculated for each new ECM. During our site visits we visited six locations. We used the knowledge gained from visiting a sample fire house and police station, and the LGEA report, to develop a list of potential measures for the other fire houses and police stations. The majority of the new ECMs identified at the DPW complex are maintenance items that will yield savings and improve the buildings, but the DPW was not included in the original LGEA process. Therefore, energy savings calculations were only performed on the one replacement recommendation for the Record Hall not the maintenance recommendations.

ECMs types are categorized based on the building system that is impacted by the measure. The five categories or types are building envelope improvements, heating ventilation air conditioning (HVAC) improvement, lighting improvements, water conservation and other. The building envelope consists of the roof, walls, windows, and doors of each building. HVAC equipment consists of boilers, furnaces, rooftop units, air handlers, cooling towers, chillers, unit ventilators, and associated pumps and motors. Lighting improvements consist of both replacements and new controls. Water conservation measures consist of low flow fixtures, fixing leaks, and other actions to reduce water consumption. Other is a catchall for ECMs that do not clearly fall into any of the other categories or types.

All ECMs were summarized by location, type, and measure. The four attached tables include this summary of the updated analysis of the energy savings opportunities. ECMs listed in green are measures Gabel identified during our walkthrough, in addition to the LGEA recommendations.

Through the site visits and LGEA report we were able to identify and estimate the costs and savings for 194 ECMs across twenty-seven City-owned facilities. Based on current market rates we estimate that the total installed cost of all of the ECMs is approximately \$4 Million. The ECMs would yield savings of approximately 2,000,000 kWh of electricity, approximately 49,000 therms of natural gas, and a demand reduction of approximately 390 kW. The total annual savings for all ECMs combined is approximately \$330,000, which yields a 12.4 year simple payback if all ECMs were implemented and combined.

The largest savings opportunities come from lighting improvements. Next most savings is associated with HVAC improvements. The most expensive ECMs are window replacements. Typically, envelop improvements have the most associated costs. Implementing all of the recommended ECMs would potentially yield a payback of less than 15 years. Choosing an implementation path for these projects and facilities is dependent of the City's budget and goals.

Implementation Strategies

The measure analysis as well as available incentives, the City's defined energy goals, potential to complete projects in house, and other factors were used to categorize ECMs into the different implementation paths; ESIP, SmartStart, Direct Install, capital planning, and ongoing maintenance.

Ongoing maintenance projects are mostly not listed as ECMs. While having potential to lead to savings, these items are also good practice to maintain equipment and facilities. At all facilities we recommend changing filters and belts as required by the manufacturers on all HVAC equipment that require it. We recommend insulating all ducts in unconditioned spaces. We recommend continuing with regular preventative maintenance on all equipment and to replace equipment before failure. In addition to these recommendations, we also recommend that all HVAC set points and lighting timers and reminders be revisited to ensure they are consistent with current needs and operations and within the design limits.

Water conservation ECMs are not eligible for incentives and often yield less savings than other ECMs. While we recommend installing low flow faucets and other water conservation measures, we only recommend including them with the other ECMs if the other ECMs are going to be implemented through an ESIP. Otherwise, we recommend installing water conservation measures as ongoing maintenance.

While the City and Gabel discussed multiple capital improvement projects and renovations that are planned for City Hall and other facilities, our site visits and update of the LGEA results yielded only one project type that may fall into capital improvements, window replacements. Window replacements are costly and while they do deliver energy savings, the reasons for replacing windows often included more than just energy savings. Based on our analysis, the other ECMs provide enough savings to perform the recommended window replacements and still yield a favorable simple payback. Therefore, the City could include the window replacements in a larger project that includes the other ECMs.

The remaining recommended ECMs are compatible with an ESIP implementation path. These ECMs can be bundled together to yield a total project simple payback less than 15 years and would allow the City to potentially use funds from outside the City to finance the ESIP. In New Jersey all ESIP projects must seek all available incentives for each project. The majority of the facilities with recommended ECMs are eligible for Direct Install program incentives. Both the NJCEP and PSE&G have Direct Install programs where the program pays up to 70% of the project costs. The NJCEP Direct Install program has annual financial caps for participating entities. The PSE&G program does not include caps, to our knowledge, and offer the City the additional opportunity to finance the remaining 30% of the project cost through 0% interest, on-bill repayment. The City will require a selected energy service company that is performing the ESIP to participate in the PSE&G Direct Install program.

Recommendation

Gabel Associates recommends, after discussion with the City's Office of Sustainability and Architect, that implementation of the recommended ECMs be pursued through an ESCO based ESIP process that takes advantage of the PSE&G Direct Install program. This approach would allow for the largest number of projects to be completed at once, with support and assistance from an ESCO, and financing through the energy savings derived from the ECMs. With an ESIP, the City can choose to bond for the costs of the projects, ask the county improvement authority to bond for the costs, or can use private market money through the ESCO. Typically, public entities in New Jersey find that their cost of money is lower than that of the private market. This choice does not need to be made at this time. The next steps are to authorize the development and release of a request for proposals for the development of an ESIP.

Sum of Energy Conservation Measures by ECM Type

Row Labels	Sum of Annual Electric Savings (kWh)	Sum of Peak Demand Savings (kW)	Sum of Annual Natural Gas Savings (Therms)	Sum of Updated Energy Cost Savings	Sum of Updated Installation Costs	Simple Payback
Envelope	16,730	-	5,369	\$ 7,335	\$ 1,000,000	136.3
HVAC	794,224	97.4	24,902	\$ 128,341	\$ 2,278,849	17.8
Lighting	1,247,648	295.7	-	\$ 172,341	\$ 829,652	4.8
Other	24,803	-	-	\$ 3,526	\$ 7,476	2.1
Water	4,158	-	17,551	\$ 16,749	\$ 8,515	0.5
Grand Total	2,087,563	393	47,822	\$ 328,292	\$ 4,124,491	12.6

Sum of Energy Conservation Measures by Location

Location	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Simple Payback Period (yrs)
Municipal Courthouse	614,138	60.0	978.6	\$ 88,476	\$ 1,014,691	11.5
Mary McLeod Bethune Community Center	373,039	59.3	714.8	\$ 56,349	\$ 540,835	9.6
City Hall	222,334	62.2	830.8	\$ 41,995	\$ 1,512,094	36.0
Pershing Field Athletic Complex	155,982	72.3	914.1	\$ 29,957	\$ 205,457	6.9
Firehouse & OEM	121,353	13.9	84.1	\$ 16,408	\$ 119,890	7.3
FH 595 Palisade Ave (Engine 14)	101,763	11.4	62.1	\$ 13,094	\$ 92,664	7.1
Police Precinct - East District	68,788	16.6	89.8	\$ 10,098	\$ 83,297	8.2
FH Consolidated	70,395	11.1	101.8	\$ 9,786	\$ 90,930	9.3
Fire HQ	70,468	16.9	69.4	\$ 9,320	\$ 46,834	5.0
Laffayette Pool	16,370	6.5	0.0	\$ 5,730	\$ 43,888	7.7
FH 2 Bergen Ave	35,963	4.3	53.8	\$ 5,294	\$ 13,707	2.6
Police Precinct - South District	21,814	4.6	177.1	\$ 4,829	\$ 80,084	16.6
DPW	22,373	2.2	119.6	\$ 4,619	\$ 75,000	16.2
FH 468 Ocean Ave (Engine Co. 22)	22,102	4.0	134.5	\$ 4,217	\$ 14,516	3.4
Joseph Connors Senior Center	19,303	8.8	71.2	\$ 4,165	\$ 32,878	7.9
FH 255 Kearney Ave	24,141	4.3	82.3	\$ 4,009	\$ 23,368	5.8
Police Precinct - North District	20,931	6.0	51.2	\$ 3,406	\$ 23,061	6.8
FH Bergen & Duncan (9)	17,184	5.4	60.4	\$ 2,842	\$ 29,929	10.5
Maureen Collier SC	15,837	5.6	31.7	\$ 2,414	\$ 18,666	7.7
FH 160 Grand St	13,736	1.8	30.3	\$ 2,118	\$ 6,295	3.0
Pavonia Pool	14,284	5.6	15.1	\$ 2,036	\$ 13,028	6.4
FH 152 Lincoln St	11,164	3.5	47.2	\$ 1,978	\$ 9,933	5.0
Commerce Division	14,773	4.0	0.0	\$ 1,965	\$ 20,661	10.5
FH 14 Orient Ave	11,606	2.1	29.4	\$ 1,838	\$ 7,365	4.0
FH 152 Linden Ave	7,722	0.8	33.0	\$ 1,350	\$ 5,419	4.0
All sites Total	2,087,563	393.1	4,782	328,292	\$ 4,124,491	12.6

Sum of Energy Conservation Measures by Measure

Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Natural Gas Savings (Therms)	Updated Energy Cost Savings	Updated Installation Costs	Simple Payback (yrs)
Retrofit Fixtures with LED Lamps	410,610	77	-	\$ 55,783	\$ 202,173	3.6
Retrofit Fluorescent Fixtures with LED Lamps and Drivers	380,448	98	-	\$ 53,226	\$ 271,849	5.1
Install LED Fixtures	304,118	92	-	\$ 41,866	\$ 265,588	6.3
Retro commissioning of HVAC System	199,152	-	5,062	\$ 30,648	\$ 86,350	2.8
Install Building Management System	177,081	-	2,788	\$ 25,483	\$ 300,000	11.8
Install Low-Flow Domestic Hot Water Devices	4,158	-	17,551	\$ 16,749	\$ 8,515	0.5
Install High Efficiency Electric AC	117,734	62	-	\$ 15,979	\$ 471,548	29.5
Replace existing BMS with open-protocol BMS	91,335	-	3,421	\$ 15,284	\$ 131,750	8.6
Install Occupancy Sensor Lighting Controls	107,461	24	-	\$ 14,571	\$ 58,760	4.0
Roof-top Units Replacement (Note: units are 18 years old)	58,423	6	3,285	\$ 10,347	\$ 360,000	34.8
Install Dual Enthalpy Outside Economizer Control	59,430	14	-	\$ 7,746	\$ 17,485	2.3
Repair/Replace Windows	16,730	-	5,369	\$ 7,335	\$ 1,000,000	136.3
Install LED Exit Signs	42,251	4	-	\$ 6,459	\$ 28,318	4.4
Replace Window AC with Split-system AC	32,202	3	-	\$ 5,024	\$ 300,000	59.7
Roof-top Units Replacement	22,373	2	1,196	\$ 4,619	\$ 75,000	16.2
Install VFDs on Hot Water Pumps	19,818	3	-	\$ 2,550	\$ 12,756	5.0
Plug Load Management	14,850	-	-	\$ 2,193	\$ -	-
Install High Efficiency Hot Water Boilers	-	-	1,648	\$ 1,462	\$ 83,980	57.4
Install Thermostatic Radiator Valves (TRV)	-	-	2,197	\$ 1,933	\$ 65,000	33.6
Install Low-Intensity Infrared Heating	-	-	890	\$ 846	\$ 3,825	4.5
Vending Machine Control	9,953	-	-	\$ 1,333	\$ 7,476	5.6
Replace HW boiler with modular cond. boiler	-	-	1,247	\$ 1,235	\$ 35,000	28.3
Premium Efficiency Motors	8,701	5	-	\$ 1,204	\$ 13,741	11.4
Install High Efficiency Furnaces	-	-	1,043	\$ 976	\$ 70,470	72.2
Replace unit heaters with IR gas-fired heaters (Note: existing ur	-	-	746	\$ 723	\$ 6,000	8.3
Install High Efficiency Gas Water Heater	-	-	756	\$ 699	\$ 26,840	38.4
Install VFDs on Boiler Feedwater Pumps	4,351	1	-	\$ 627	\$ 7,820	12.5
Replace Boilers with Condensing Modulating Boilers (Note: exis	-	-	624	\$ 511	\$ 150,000	293.3
Install High Efficiency Heat Pumps	3,625	1	-	\$ 446	\$ 61,284	137.4
Install Daylight Dimming Controls	1,838	1	-	\$ 314	\$ 1,950	6.2
Install Occupancy Sensor Lighting Controls	732	0	-	\$ 97	\$ 754	7.7
Install High/Low Lighting Controls	190	0	-	\$ 25	\$ 260	10.3
Total	2,087,563	393.1	47,822	\$ 328,292	\$ 4,124,491	12.6

Energy Conservation Measures (updated December 2018 by Gabel Associates)

Location	ECM #	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Natural Gas Savings (Therms)	Annual Fuel Savings (MMBtu)	Updated Energy Cost Savings	Updated Installation Costs	Simple Payback (yrs)	Proposed Implementation Path
FH 468 Ocean Ave (Engine Co. 22)	ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Driver	10,877	1.6	0	0	\$ 1,447	\$ 4,103	2.8	DI through ESIP
FH 468 Ocean Ave (Engine Co. 22)	ECM 2	Retrofit Fixtures with LED Lamps	6,868	1.1	0	0	\$ 913	\$ 1,533	1.7	DI through ESIP
FH 468 Ocean Ave (Engine Co. 22)	ECM 3	Install Occupancy Sensor Lighting Controls	1,307	0.2	0	0	\$ 174	\$ 905	5.2	DI through ESIP
FH 468 Ocean Ave (Engine Co. 22)	ECM 4	Install High Efficiency Electric AC	1,438	1.1	0	0	\$ 191	\$ 2,831	14.8	DI through ESIP
FH 468 Ocean Ave (Engine Co. 22)	ECM 5	Install Low-Intensity Infrared Heating	0	0	890	89	\$ 846	\$ 3,825	4.5	DI through ESIP
FH 468 Ocean Ave (Engine Co. 22)	ECM 6	Install Low-Flow Domestic Hot Water Devices	0	0	455	45.5	\$ 432	\$ 386	0.9	ESIP
FH 468 Ocean Ave (Engine Co. 22)	ECM 7	Vending Machine Control	1,612	0	0	0	\$ 214	\$ 934	4.4	ESIP
FH 468 Ocean Ave (Engine Co. 22)		TOTALS	22,102	4.0	1,345	134.5	\$ 4,217	\$ 14,516	3.4	
Police Precinct - South District	ECM 1	Install LED Fixtures	206	0.1	0	0	\$ 29	\$ 414	14.2	DI through ESIP
Police Precinct - South District	ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Driver	8,659	2.5	0	0	\$ 1,221	\$ 5,909	4.8	DI through ESIP
Police Precinct - South District	ECM 3	Retrofit Fixtures with LED Lamps	5,738	1.2	0	0	\$ 809	\$ 3,476	4.3	DI through ESIP
Police Precinct - South District	ECM 4	Install LED Exit Signs	23	0	0	0	\$ 3	\$ 140	43.1	DI through ESIP
Police Precinct - South District	ECM 5	Install Occupancy Sensor Lighting Controls	1,609	0.5	0	0	\$ 227	\$ 2,764	12.2	DI through ESIP
Police Precinct - South District	ECM 6	Install High Efficiency Electric AC	3,625	0.29	-	0.0	\$ 511	\$ 30,000	58.7	DI through ESIP
Police Precinct - South District	ECM 7	Replace HW boiler with modular cond. boiler	0	0	1,247	124.7	\$ 1,235	\$ 35,000	28.3	DI through ESIP
Police Precinct - South District	ECM 8	Install Low-Flow Domestic Hot Water Devices	0	0	524	52.4	\$ 519	\$ 513	1.0	ESIP
Police Precinct - South District	ECM 9	Vending Machine Control	1,954	0	0	0	\$ 276	\$ 1,869	6.8	ESIP
Police Precinct - South District		TOTALS	21,814	4.6	1,771	177	\$ 4,829	\$ 80,084	16.6	
Firehouse & OEM	ECM 1	Install LED Fixtures	24,719	2	0	0	\$ 3,164	\$ 6,329	2.0	DI through ESIP
Firehouse & OEM	ECM 2	Retrofit Fixtures with LED Lamps	68,056	5.8	0	0	\$ 8,711	\$ 19,589	2.2	DI through ESIP
Firehouse & OEM	ECM 3	Install LED Exit Signs	792	0.1	0	0	\$ 101	\$ 1,398	13.8	DI through ESIP
Firehouse & OEM	ECM 4	Install Occupancy Sensor Lighting Controls	11,828	1	0	0	\$ 1,514	\$ 4,072	2.7	DI through ESIP
Firehouse & OEM	ECM 5	Install High Efficiency Electric AC	7,854	3.5	0	0	\$ 1,005	\$ 55,543	55.2	DI through ESIP
Firehouse & OEM	ECM 6	Install High Efficiency Furnaces	0	0	318	31.8	\$ 331	\$ 29,749	90.0	DI through ESIP
Firehouse & OEM	ECM 7	Install Dual Enthalpy Outside Economizer Control	6,492	1.5	0	0	\$ 831	\$ 2,145	2.6	DI through ESIP
Firehouse & OEM	ECM 8	Install Low-Flow Domestic Hot Water Devices	0	0	523	52.3	\$ 544	\$ 130	0.2	ESIP
Firehouse & OEM	ECM 9	Vending Machine Control	1,612	0	0	0	\$ 206	\$ 934	4.5	ESIP
Firehouse & OEM		TOTALS	121,353	13.9	841	84.1	\$ 16,408	\$ 119,890	7.3	
FH 595 Palisade Ave (Engine 14)	ECM 1	Install LED Fixtures	27,720	2.3	0	0	\$ 3,410	\$ 7,124	2.1	DI through ESIP
FH 595 Palisade Ave (Engine 14)	ECM 2	Retrofit Fixtures with LED Lamps	44,377	3.7	0	0	\$ 5,458	\$ 10,116	1.9	DI through ESIP
FH 595 Palisade Ave (Engine 14)	ECM 3	Install LED Exit Signs	238	0	0	0	\$ 29	\$ 419	14.3	DI through ESIP
FH 595 Palisade Ave (Engine 14)	ECM 4	Install Occupancy Sensor Lighting Controls	7,087	0.6	0	0	\$ 872	\$ 1,659	1.9	DI through ESIP
FH 595 Palisade Ave (Engine 14)	ECM 5	Install VFDs on Hot Water Pumps	8,238	1	0	0	\$ 1,013	\$ 4,259	4.2	DI through ESIP
FH 595 Palisade Ave (Engine 14)	ECM 6	Install High Efficiency Heat Pumps	3,625	1.4	0	0	\$ 446	\$ 61,284	137.4	DI through ESIP
FH 595 Palisade Ave (Engine 14)	ECM 7	Install Dual Enthalpy Outside Economizer Control	10,478	2.4	0	0	\$ 1,289	\$ 1,430	1.1	DI through ESIP
FH 595 Palisade Ave (Engine 14)	ECM 8	Install High Efficiency Gas Water Heater	0	0	189	18.9	\$ 176	\$ 5,710	32.5	DI through ESIP

FH 595 Palisade Ave (Engine 14)	ECM 9	Install Low-Flow Domestic Hot Water Devices	0	0	432	43.2	\$ 402	\$ 664	1.7	ESIP
FH 595 Palisade Ave (Engine 14)	TOTALS		101,763	11.4	621	62	\$ 13,094	\$ 92,664	7.1	
Pavonia Pool	ECM 1	Install LED Fixtures	4,863	1.1	0	0	\$ 627	\$ 2,566	4.1	DI through ESIP
Pavonia Pool	ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Driver	4,899	2.1	0	0	\$ 632	\$ 6,155	9.7	DI through ESIP
Pavonia Pool	ECM 3	Retrofit Fixtures with LED Lamps	595	0.3	0	0	\$ 77	\$ 761	9.9	DI through ESIP
Pavonia Pool	ECM 4	Install LED Exit Signs	387	0.1	0	0	\$ 50	\$ 774	15.5	DI through ESIP
Pavonia Pool	ECM 5	Install Occupancy Sensor Lighting Controls	769	0.3	0	0	\$ 99	\$ 603	6.1	DI through ESIP
Pavonia Pool	ECM 6	Premium Efficiency Motors	2,771	1.7	0	0	\$ 357	\$ 2,114	5.9	DI through ESIP
Pavonia Pool	ECM 7	Install Low-Flow Domestic Hot Water Devices	0	0	151	15.1	\$ 193	\$ 56	0.3	ESIP
Pavonia Pool	TOTALS		14,284	5.6	151	15.1	\$ 2,036	\$ 13,028	6.4	
Mary McLeod Bethune Community Center	ECM 1	Install LED Fixtures	63,928	9.5	0	0	\$ 8,566	\$ 40,867	4.8	DI through ESIP
Mary McLeod Bethune Community Center	ECM 2	Retrofit Fixtures with LED Lamps	46,427	6.8	0	0	\$ 6,221	\$ 18,699	3.0	DI through ESIP
Mary McLeod Bethune Community Center	ECM 3	Install LED Exit Signs	3,009	0.2	0	0	\$ 403	\$ 5,313	13.2	DI through ESIP
Mary McLeod Bethune Community Center	ECM 4	Install Occupancy Sensor Lighting Controls	8,755	1.3	0	0	\$ 1,173	\$ 6,032	5.1	DI through ESIP
Mary McLeod Bethune Community Center	ECM 5	Premium Efficiency Motors	741	0.3	0	0	\$ 99	\$ 2,011	20.3	DI through ESIP
Mary McLeod Bethune Community Center	ECM 6	Install High Efficiency Electric AC	57,002	33.8	0	0	\$ 7,638	\$ 258,859	33.9	DI through ESIP
Mary McLeod Bethune Community Center	ECM 7	Install High Efficiency Furnaces	0	0	725	72.5	\$ 645	\$ 40,721	63.1	DI through ESIP
Mary McLeod Bethune Community Center	ECM 8	Install Dual Enthalpy Outside Economizer Control	32,675	7.4	0	0	\$ 4,378	\$ 10,140	2.3	DI through ESIP
Mary McLeod Bethune Community Center	ECM 9	Replace existing BMS with open-protocol BMS	91,335	0	3,421	342.12	\$ 15,284	\$ 131,750	8.6	ESIP
Mary McLeod Bethune Community Center	ECM 10	Retro commissioning of HVAC System	69,167	0	2,866	286.55	\$ 11,819	\$ 26,350	2.2	ESIP
Mary McLeod Bethune Community Center	ECM 11	Install Low-Flow Domestic Hot Water Devices	0	0	136	13.6	\$ 121	\$ 93	0.8	ESIP
Mary McLeod Bethune Community Center	TOTALS		373,039	59.3	7,148	714.8	\$ 56,349	\$ 540,835	9.6	
FH 2 Bergen Ave	ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Driver	21,958	1.8	0	0	\$ 2,920	\$ 4,691	1.6	DI through ESIP
FH 2 Bergen Ave	ECM 2	Retrofit Fixtures with LED Lamps	10,137	2.1	0	0	\$ 1,348	\$ 6,195	4.6	DI through ESIP
FH 2 Bergen Ave	ECM 3	Install LED Exit Signs	1,708	0.1	0	0	\$ 227	\$ 979	4.3	DI through ESIP
FH 2 Bergen Ave	ECM 4	Install Occupancy Sensor Lighting Controls	2,160	0.3	0	0	\$ 287	\$ 1,206	4.2	DI through ESIP
FH 2 Bergen Ave	ECM 5	Install Low-Flow Domestic Hot Water Devices	0	0	538	53.8	\$ 511	\$ 636	1.2	ESIP
FH 2 Bergen Ave	TOTALS		35,963	4.3	538	53.8	\$ 5,294	\$ 13,707	2.6	
FH 14 Orient Ave	ECM 1	Install LED Fixtures	1,329	0.3	0	0	\$ 177	\$ 655	3.7	DI through ESIP
FH 14 Orient Ave	ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Driver	777	0.2	0	0	\$ 103	\$ 359	3.5	DI through ESIP
FH 14 Orient Ave	ECM 3	Retrofit Fixtures with LED Lamps	8,109	1.4	0	0	\$ 1,078	\$ 5,346	5.0	DI through ESIP
FH 14 Orient Ave	ECM 4	Install LED Exit Signs	933	0.1	0	0	\$ 124	\$ 559	4.5	DI through ESIP
FH 14 Orient Ave	ECM 5	Install Occupancy Sensor Lighting Controls	458	0.1	0	0	\$ 61	\$ 302	5.0	DI through ESIP
FH 14 Orient Ave	ECM 6	Install Low-Flow Domestic Hot Water Devices	0	0	294	29.4	\$ 294	\$ 144	0.5	ESIP
FH 14 Orient Ave	TOTALS		11,606	2.1	294	29.4	\$ 1,838	\$ 7,365	4.0	
Police Precinct - North District	ECM 1	Install LED Fixtures	1,107	0.4	0	0	\$ 153	\$ 662	4.3	DI through ESIP
Police Precinct - North District	ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Driver	10,344	3	0	0	\$ 1,427	\$ 7,504	5.3	DI through ESIP
Police Precinct - North District	ECM 3	Retrofit Fixtures with LED Lamps	3,426	1	0	0	\$ 473	\$ 4,966	10.5	DI through ESIP

Police Precinct - North District	ECM 4	Install LED Exit Signs	815	0.1	0	0	\$ 112	\$ 1,538	13.7	DI through ESIP
Police Precinct - North District	ECM 5	Install Occupancy Sensor Lighting Controls	3,014	0.9	0	0	\$ 416	\$ 1,508	3.6	DI through ESIP
Police Precinct - North District	ECM 6	Install High Efficiency Electric AC	1,016	0.6	0	0	\$ 140	\$ 5,662	40.4	DI through ESIP
Police Precinct - North District	ECM 7	Install Low-Flow Domestic Hot Water Devices	0	0	512	51.2	\$ 517	\$ 288	0.6	ESIP
Police Precinct - North District	ECM 8	Vending Machine Control	1,209	0	0	0	\$ 167	\$ 934	5.6	ESIP
Police Precinct - North District	TOTALS		20,931	6.0	512	51.2	\$ 3,406	\$ 23,061	6.8	
FH 160 Grand St	ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Driver	7,298	0.9	0	0	\$ 971	\$ 2,696	2.8	DI through ESIP
FH 160 Grand St	ECM 2	Retrofit Fixtures with LED Lamps	5,191	0.7	0	0	\$ 690	\$ 1,631	2.4	DI through ESIP
FH 160 Grand St	ECM 3	Install Occupancy Sensor Lighting Controls	883	0.1	0	0	\$ 117	\$ 302	2.6	DI through ESIP
FH 160 Grand St	ECM 4	Install High Efficiency Electric AC	364	0.1	0	0	\$ 48	\$ 1,415	29.2	DI through ESIP
FH 160 Grand St	ECM 5	Install Low-Flow Domestic Hot Water Devices	0	0	303	30.3	\$ 291	\$ 251	0.9	
FH 160 Grand St	TOTALS		13,736	1.8	303	30.3	\$ 2,118	\$ 6,295	3.0	
Maureen Collier SC	ECM 1	Install LED Fixtures	1443	0.5	0	0	\$ 192	\$ 5,079	26.5	DI through ESIP
Maureen Collier SC	ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Driver	9552	4.1	0	0	\$ 1,270	\$ 10,978	8.6	DI through ESIP
Maureen Collier SC	ECM 3	Retrofit Fixtures with LED Lamps	17	0	0	0	\$ 2	\$ 70	30.8	DI through ESIP
Maureen Collier SC	ECM 4	Install LED Exit Signs	3127	0.3	0	0	\$ 416	\$ 1,119	2.7	DI through ESIP
Maureen Collier SC	ECM 5	Install Occupancy Sensor Lighting Controls	1508	0.6	0	0	\$ 201	\$ 1,105	5.5	DI through ESIP
Maureen Collier SC	ECM 6	Install High/Low Lighting Controls	190	0.1	0	0	\$ 25	\$ 260	10.3	DI through ESIP
Maureen Collier SC	ECM 7	Install Low-Flow Domestic Hot Water Devices	0	0	317	31.7	\$ 307	\$ 56	0.2	ESIP
Maureen Collier SC	TOTALS		15,837	5.6	317	31.7	\$ 2,414	\$ 18,666	7.7	
City Hall	ECM 1	Install LED Fixtures	941	0.2	0	0	\$ 147	\$ 1,016	6.9	ESIP
City Hall	ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Driver	111,058	42.9	0	0	\$ 17,325	\$ 107,438	6.2	ESIP
City Hall	ECM 3	Retrofit Fixtures with LED Lamps	18,989	8.8	0	0	\$ 2,962	\$ 23,443	7.9	ESIP
City Hall	ECM 4	Install LED Exit Signs	15,442	1.3	0	0	\$ 2,409	\$ 5,593	2.3	ESIP
City Hall	ECM 5	Install Occupancy Sensor Lighting Controls	16,657	6.2	0	0	\$ 2,598	\$ 8,294	3.2	ESIP
City Hall	ECM 6	Install Daylight Dimming Controls	415	0.1	0	0	\$ 65	\$ 975	15.1	ESIP
City Hall	ECM 7	Install Low-Flow Domestic Hot Water Devices	0	0	742	74.2	\$ 653	\$ 335	0.5	ESIP
City Hall	ECM 8	Replace Window AC with Split-system AC	32,202	2.71	-	-	\$ 5,024	\$ 300,000	59.7	ESIP
City Hall	ECM 9	Repair/Replace Windows	16,730	0	5,369	537	\$ 7,335	\$ 1,000,000	136.3	ESIP
City Hall	ECM 10	Install Thermostatic Radiator Valves (TRV)	-	0	2,197	220	\$ 1,933	\$ 65,000	33.6	ESIP
City Hall	ECM 11	Plug Load Management	9,900	0	-	-	\$ 1,544	\$ -	0.0	ESIP
City Hall	TOTALS		222,334	62.2	8,308	830.8	\$ 41,995	\$ 1,512,094	36.0	
Municipal Courthouse	ECM 1	Install LED Fixtures	38,194	10.4	0	0	\$ 5,003	\$ 40,950	8.2	ESIP
Municipal Courthouse	ECM 2	Retrofit Fixtures with LED Lamps	153,051	32.7	0	0	\$ 20,050	\$ 76,802	3.8	ESIP
Municipal Courthouse	ECM 3	Install LED Exit Signs	950	0.1	0	0	\$ 124	\$ 1,678	13.5	ESIP
Municipal Courthouse	ECM 4	Install Occupancy Sensor Lighting Controls	38,351	8.2	0	0	\$ 5,024	\$ 17,644	3.5	ESIP
Municipal Courthouse	ECM 5	Install Daylight Dimming Controls	1,138	0.5	0	0	\$ 149	\$ 650	4.4	ESIP
Municipal Courthouse	ECM 6	Install VFDs on Hot Water Pumps	10,062	1.7	0	0	\$ 1,318	\$ 4,950	3.8	ESIP

Municipal Courthouse	ECM 7	Install Low-Flow Domestic Hot Water Devices	0	0	893	89.3	\$ 732	\$ 149	0.2	ESIP
Municipal Courthouse	ECM 8	Vending Machine Control	1,954	0	0	0	\$ 256	\$ 1,869	7.3	ESIP
Municipal Courthouse	ECM 9	Install Building Management System	177,081	0	2,788	278.76	\$ 25,483	\$ 300,000	11.8	ESIP
Municipal Courthouse	ECM 10	Retro commissioning of HVAC System	129,984	0	2,197	219.65	\$ 18,829	\$ 60,000	3.2	ESIP
Municipal Courthouse	ECM 11	Roof-top Units Replacement (Note: units are 18 years old)	58,423	6.37	3,285	328.51	\$ 10,347	\$ 360,000	34.8	ESIP
Municipal Courthouse	ECM 12	Replace Boilers with Condensing Modulating Boilers (Note: existing boilers are 13 years old)	0	0	624	62.37	\$ 511	\$ 150,000	293.3	ESIP
Municipal Courthouse	ECM 13	Plug Load Management	4,950	0	-	-	\$ 648	\$ -	0.0	ESIP
Municipal Courthouse	TOTALS		614,138	60.0	9,786	978.6	\$ 88,476	\$ 1,014,691	11.5	
FH 152 Linden Ave	ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Driver	4,305	0.6	0	0	\$ 573	\$ 3,048	5.3	DI through ESIP
FH 152 Linden Ave	ECM 2	Retrofit Fixtures with LED Lamps	915	0.1	0	0	\$ 122	\$ 133	1.1	DI through ESIP
FH 152 Linden Ave	ECM 3	Install LED Exit Signs	158	0	0	0	\$ 21	\$ 280	13.3	DI through ESIP
FH 152 Linden Ave	ECM 4	Install Occupancy Sensor Lighting Controls	732	0.1	0	0	\$ 97	\$ 754	7.7	DI through ESIP
FH 152 Linden Ave	ECM 5	Install Low-Flow Domestic Hot Water Devices	0	0	330	33	\$ 323	\$ 269	0.8	DI through ESIP
FH 152 Linden Ave	ECM 6	Vending Machine Control	1,612	0	0	0	\$ 214	\$ 934	4.4	ESIP
FH 152 Linden Ave	TOTALS		7,722	0.8	330	33.0	\$ 1,350	\$ 5,419	4.0	
Commerce Division	ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Driver	8,859	2.4	0	0	\$ 1,178	\$ 4,710	4.0	DI through ESIP
Commerce Division	ECM 2	Retrofit Fixtures with LED Lamps	584	0.2	0	0	\$ 78	\$ 304	3.9	DI through ESIP
Commerce Division	ECM 3	Install LED Exit Signs	400	0	0	0	\$ 53	\$ 140	2.6	DI through ESIP
Commerce Division	ECM 4	Install Occupancy Sensor Lighting Controls	1,139	0.3	0	0	\$ 151	\$ 603	4.0	DI through ESIP
Commerce Division	ECM 5	Install High Efficiency Electric AC	779	0.7	0	0	\$ 104	\$ 13,900	134.2	DI through ESIP
Commerce Division	ECM 6	Install Dual Enthalpy Outside Economizer Control	1,659	0.4	0	0	\$ 221	\$ 975	4.4	DI through ESIP
Commerce Division	ECM 7	Install Low-Flow Domestic Hot Water Devices	1,353	0	0	0	\$ 180	\$ 28	0.2	ESIP
Commerce Division	TOTALS		14,773	4.0	0	0.0	\$ 1,965	\$ 20,661	10.5	
Police Precinct - East District	ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Driver	49,134	7.3	0	0	\$ 6,584	\$ 18,389	2.8	DI through ESIP
Police Precinct - East District	ECM 2	Retrofit Fixtures with LED Lamps	1,022	0.4	0	0	\$ 137	\$ 686	5.0	DI through ESIP
Police Precinct - East District	ECM 3	Install Occupancy Sensor Lighting Controls	1,918	0.3	0	0	\$ 257	\$ 1,206	4.7	DI through ESIP
Police Precinct - East District	ECM 4	Install High Efficiency Electric AC	16,714	8.6	0	0	\$ 2,240	\$ 25,477	11.4	DI through ESIP
Police Precinct - East District	ECM 5	Install High Efficiency Hot Water Boilers	0	0	636	63.6	\$ 623	\$ 37,445	60.1	DI through ESIP
Police Precinct - East District	ECM 6	Install Low-Flow Domestic Hot Water Devices	0	0	262	26.2	\$ 257	\$ 93	0.4	ESIP
Police Precinct - East District	TOTALS		68,788	16.6	898	89.8	\$ 10,098	\$ 83,297	8.2	
Fire HQ	ECM 1	Install LED Fixtures	2108	0.4	0	0	\$ 259	\$ 2,607	10.1	DI through ESIP
Fire HQ	ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Driver	55944	13.6	0	0	\$ 6,881	\$ 36,043	5.2	DI through ESIP
Fire HQ	ECM 3	Retrofit Fixtures with LED Lamps	820	0.6	0	0	\$ 101	\$ 908	9.0	DI through ESIP
Fire HQ	ECM 4	Install LED Exit Signs	4783	0.4	0	0	\$ 588	\$ 1,958	3.3	DI through ESIP
Fire HQ	ECM 5	Install Occupancy Sensor Lighting Controls	4649	1.4	0	0	\$ 572	\$ 4,222	7.4	DI through ESIP

Fire HQ	ECM 6	Install Dual Enthalpy Outside Economizer Control	2164	0.5	0	0	\$ 266	\$ 975	3.7	DI through ESIP
Fire HQ	ECM 7	Install Low-Flow Domestic Hot Water Devices	0	0	694	69.4	\$ 652	\$ 121	0.2	ESIP
Fire HQ	TOTALS		70,468	16.9	694	69.4	\$ 9,320	\$ 46,834	5.0	
FH 152 Lincoln St	ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Driver	4,192	0.6	0	0	\$ 574	\$ 2,955	5.1	DI through ESIP
FH 152 Lincoln St	ECM 2	Retrofit Fixtures with LED Lamps	3,295	0.7	0	0	\$ 451	\$ 666	1.5	DI through ESIP
FH 152 Lincoln St	ECM 3	Install Occupancy Sensor Lighting Controls	622	0.1	0	0	\$ 85	\$ 603	7.1	DI through ESIP
FH 152 Lincoln St	ECM 4	Install High Efficiency Electric AC	3,055	2.1	0	0	\$ 419	\$ 5,662	13.5	DI through ESIP
FH 152 Lincoln St	ECM 5	Install Low-Flow Domestic Hot Water Devices	0	0	472	47.2	\$ 448	\$ 47	0.1	ESIP
FH 152 Lincoln St	TOTALS		11,164	3.5	472	47.2	\$ 1,978	\$ 9,933	5.0	
FH 255 Kearney Ave	ECM 1	Install LED Fixtures	1,777	0.4	0	0	\$ 236	\$ 488	2.1	DI through ESIP
FH 255 Kearney Ave	ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Driver	10,056	1.3	0	0	\$ 1,337	\$ 4,610	3.4	DI through ESIP
FH 255 Kearney Ave	ECM 3	Retrofit Fixtures with LED Lamps	4,694	1.4	0	0	\$ 624	\$ 2,637	4.2	DI through ESIP
FH 255 Kearney Ave	ECM 4	Install LED Exit Signs	4,403	0.5	0	0	\$ 586	\$ 2,097	3.6	DI through ESIP
FH 255 Kearney Ave	ECM 5	Install Occupancy Sensor Lighting Controls	446	0.1	0	0	\$ 59	\$ 754	12.7	DI through ESIP
FH 255 Kearney Ave	ECM 6	Install High Efficiency Electric AC	2,765	0.6	0	0	\$ 368	\$ 6,369	17.3	DI through ESIP
FH 255 Kearney Ave	ECM 7	Replace unit heaters with IR gas-fired heaters (Note: existing units are 7 years old)	-	0	745.52	74.55	\$ 723	\$ 6,000	8.3	DI through ESIP
FH 255 Kearney Ave	ECM 8	Install Low-Flow Domestic Hot Water Devices	-	0	77.3	7.73	\$ 75	\$ 414	5.5	ESIP
FH 255 Kearney Ave	TOTALS		24,141	4.3	822.8	82.3	\$ 4,009	\$ 23,368	5.8	
FH Bergen & Duncan (9)	ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Driver	775	0.3	0	0	\$ 102	\$ 540	5.3	DI through ESIP
FH Bergen & Duncan (9)	ECM 2	Retrofit Fixtures with LED Lamps	7,542	1.1	0	0	\$ 996	\$ 4,728	4.7	DI through ESIP
FH Bergen & Duncan (9)	ECM 3	Install LED Exit Signs	1,025	0.1	0	0	\$ 135	\$ 419	3.1	DI through ESIP
FH Bergen & Duncan (9)	ECM 4	Install Occupancy Sensor Lighting Controls	429	0.1	0	0	\$ 57	\$ 302	5.3	DI through ESIP
FH Bergen & Duncan (9)	ECM 5	Install High Efficiency Electric AC	5,779	3.4	0	0	\$ 763	\$ 16,164	21.2	DI through ESIP
FH Bergen & Duncan (9)	ECM 6	Install Dual Enthalpy Outside Economizer Control	1,634	0.4	0	0	\$ 216	\$ 650	3.0	DI through ESIP
FH Bergen & Duncan (9)	ECM 7	Install High Efficiency Gas Water Heater	0	0	255	25.5	\$ 242	\$ 6,856	28.3	DI through ESIP
FH Bergen & Duncan (9)	ECM 8	Install Low-Flow Domestic Hot Water Devices	0	0	349	34.9	\$ 332	\$ 269	0.8	ESIP
FH Bergen & Duncan (9)	TOTALS		17,184	5.4	604	60.4	\$ 2,842	\$ 29,929	10.5	
FH Consolidated	ECM 1	Install LED Fixtures	1,293	0.3	0	0	\$ 163	\$ 1,524	9.4	DI through ESIP
FH Consolidated	ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Driver	44,364	5.2	0	0	\$ 5,590	\$ 31,129	5.6	DI through ESIP
FH Consolidated	ECM 3	Retrofit Fixtures with LED Lamps	8,627	1.1	0	0	\$ 1,087	\$ 2,924	2.7	DI through ESIP
FH Consolidated	ECM 4	Install Occupancy Sensor Lighting Controls	1,796	0.6	0	0	\$ 226	\$ 1,206	5.3	DI through ESIP
FH Consolidated	ECM 5	Install High Efficiency Electric AC	9,987	2.9	0	0	\$ 1,258	\$ 27,180	21.6	DI through ESIP
FH Consolidated	ECM 6	Install High Efficiency Hot Water Boilers	-	-	109	10.9	\$ 98	\$ 11,448	116.7	DI through ESIP
FH Consolidated	ECM 7	Install Dual Enthalpy Outside Economizer Control	4,328	1.0	0	0	\$ 545	\$ 1,170	2.1	DI through ESIP
FH Consolidated	ECM 8	Install High Efficiency Gas Water Heater	-	-	312	31.2	\$ 281	\$ 14,274	50.8	DI through ESIP
FH Consolidated	ECM 9	Install Low-Flow Domestic Hot Water Devices	-	-	597	59.7	\$ 537	\$ 75	0.1	ESIP
FH Consolidated	TOTALS		70,395	11.1	1018	101.8	\$ 9,786	\$ 90,930	9.3	

Joseph Connors Senior Center	ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Driver	7,743	3.1	0	0	\$ 1,394	\$ 6,796	4.9	DI through ESIP
Joseph Connors Senior Center	ECM 2	Retrofit Fixtures with LED Lamps	3,803	1.5	0	0	\$ 685	\$ 4,294	6.3	DI through ESIP
Joseph Connors Senior Center	ECM 3	Install LED Exit Signs	396	0	0	0	\$ 71	\$ 699	9.8	DI through ESIP
Joseph Connors Senior Center	ECM 4	Install Occupancy Sensor Lighting Controls	841	0.3	0	0	\$ 151	\$ 1,056	7.0	DI through ESIP
Joseph Connors Senior Center	ECM 5	Install High Efficiency Electric AC	6,520	3.9	0	0	\$ 1,174	\$ 19,815	16.9	DI through ESIP
Joseph Connors Senior Center	ECM 6	Install Low-Flow Domestic Hot Water Devices	0	0	712	71.2	\$ 691	\$ 218	0.3	ESIP
Joseph Connors Senior Center	TOTALS		19,303	8.8	712	71.2	\$ 4,165	\$ 32,878	7.9	
Laffayette Pool	ECM 1	Install LED Fixtures	1,810	1.2	0	0	\$ 634	\$ 25,389	40.1	DI through ESIP
Laffayette Pool	ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Driver	1,481	0.8	0	0	\$ 518	\$ 3,650	7.0	DI through ESIP
Laffayette Pool	ECM 3	Retrofit Fixtures with LED Lamps	7,329	3.9	0	0	\$ 2,565	\$ 11,916	4.6	DI through ESIP
Laffayette Pool	ECM 4	Install LED Exit Signs	2,316	0.2	0	0	\$ 811	\$ 839	1.0	DI through ESIP
Laffayette Pool	ECM 5	Install Occupancy Sensor Lighting Controls	344	0.2	0	0	\$ 120	\$ 302	2.5	DI through ESIP
Laffayette Pool	ECM 6	Install Daylight Dimming Controls	285	0.2	0	0	\$ 100	\$ 325	3.3	DI through ESIP
Laffayette Pool	ECM 7	Install Low-Flow Domestic Hot Water Devices	2,805	0	0	0	\$ 982	\$ 1,468	1.5	ESIP
Laffayette Pool	TOTALS		16,370	6.5	0	0	\$ 5,730	\$ 43,888	7.7	
Pershing Field Athletic Complex	ECM 1	Install LED Fixtures	132,680	62.5	0	0	\$ 19,106	\$ 129,921	6.8	ESIP
Pershing Field Athletic Complex	ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Driver	8,173	3.9	0	0	\$ 1,177	\$ 10,143	8.6	ESIP
Pershing Field Athletic Complex	ECM 3	Retrofit Fixtures with LED Lamps	998	0.5	0	0	\$ 144	\$ 352	2.4	ESIP
Pershing Field Athletic Complex	ECM 4	Install LED Exit Signs	1,346	0.1	0	0	\$ 194	\$ 2,377	12.3	ESIP
Pershing Field Athletic Complex	ECM 5	Install Occupancy Sensor Lighting Controls	891	0.4	0	0	\$ 128	\$ 2,111	16.5	ESIP
Pershing Field Athletic Complex	ECM 6	Premium Efficiency Motors	5,189	3.4	0	0	\$ 747	\$ 9,616	12.9	ESIP
Pershing Field Athletic Complex	ECM 7	Install VFDs on Hot Water Pumps	1,518	0.4	0	0	\$ 219	\$ 3,548	16.2	ESIP
Pershing Field Athletic Complex	ECM 8	Install VFDs on Boiler Feedwater Pumps	4,351	1	0	0	\$ 627	\$ 7,820	12.5	ESIP
Pershing Field Athletic Complex	ECM 9	Install High Efficiency Electric AC	836	0.1	0	0	\$ 120	\$ 2,671	22.2	ESIP
Pershing Field Athletic Complex	ECM 10	Install High Efficiency Hot Water Boilers	0	0	903	90.3	\$ 740	\$ 35,086	47.4	ESIP
Pershing Field Athletic Complex	ECM 11	Install Low-Flow Domestic Hot Water Devices	0	0	8238	823.8	\$ 6,755	\$ 1,812	0.3	ESIP
Pershing Field Athletic Complex	TOTALS		155,982	72.30	9,141.00	914.10	\$ 29,957	\$ 205,457	6.9	
DPW	ECM 1	Roof-top Units Replacement	22,373	2.15	1,196	119.6	\$ 4,619	\$ 75,000	16.2	DI through ESIP
DPW			22,373	2.15	1,196	120	\$ 4,619	\$ 75,000	16.2	
			2,087,563	393	47,822	4,782	\$ 328,292	\$ 4,124,491	12.6	

New Measures Added