



# City of Redmond

## Upgrades; Lighting to LED and Public Safety Building Heat Pumps

Investment Grade Audit

REDMOND, WASHINGTON

SEPTEMBER 20, 2019

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## 5.1 PURPOSE AND ORGANIZATION

This exhibit documents the analysis performed to establish the utility and operational savings for the project.

The information is organized by FIM (Facility Improvement Measure) as follows:

- FIM Narrative with key assumptions and criteria
- Savings calculation methodology and analysis

Additionally, relevant site survey data, measurement and verification data, utility information and miscellaneous back-up information are provided in the sections following the various FIM sections.

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## 5.2 EXISTING FACILITY DESCRIPTION

### REDMOND PUBLIC SAFETY BUILDING

#### Building Overview

The Redmond Public Safety Building (PSB) is a two-story office building with an underground parking garage. The conditioned gross area of the building is 53,328 ft<sup>2</sup> and the parking garage below is 41,647 ft<sup>2</sup>. The building was originally constructed in 1990. A laboratory and a vehicle bay was added to the building through 2006 and 2007. Most of the building is dedicated to the Redmond Police Department and its support offices. Areas and functions of the building include a city jail, a 911 Emergency Dispatch center, an auditorium, detective and administrative offices as well as a community outreach office. While the building is open to public access from 7:30AM to 6:00PM, due to the nature of the building's multiple functions operation is 24 hours a day, 7 days a week.



Figure 1: Main Entrance to Redmond PSB

#### Electricity

Plug load use is above average for an office building due to the 911 Dispatch center as well as the jail. The 911 Dispatch center has multiple workstations suited with computer towers and laptops. Most workstations have between 6 to 9 monitors as well a space heater. Several television monitors surround the room displaying local and national news networks around the clock. Electricity is provided and metered by Puget Sound Energy. During the period of 5/1/2016 through 5/1/2019, the building consumed about 1,475,500 kWh per year. As of this study, the General Service Rate was approximately \$0.073/kWh and a demand rate at \$8.51 per kW. Using those rates as the basis of energy cost, the annual electricity cost for the Redmond PSB was about \$126,100 for the same period. See Section 5.5 for detailed utility history.

#### Envelope

The Redmond PSB is roughly a rectangular-shaped building. The roof is comprised of a steel deck with board insulation on top and either pitched metal or torch down roofing. External wall construction is metal frame with batt insulation and exterior stucco. Floor construction is slab on grade on the first floor at ground level and concrete floors on steel deck between floors and above the parking garage. The fenestration is double-pane glass with aluminum framing and makes up about 9% of gross wall area from floor to floor. Most of the first and second floors are 12 feet, floor to floor with 9-foot-high t-bar acoustical tile ceilings.

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## Lighting

In the City of Redmond Phase 1 project, McKinstry upgraded the existing 32-Watt T8 fixtures with LED lamp and drivers. Typical interior lighting is recessed 2 feet by 4 feet prismatic lens fixtures with two LED lamps and driver. Some stairways and all exterior lights are high intensity discharge fixtures. There are no occupancy or daylighting controls currently in the building. See the lighting audit summary for more detail.



*Figure 2: Typical Interior Lighting*

## HVAC

Redmond PSB is served by sixty-three water source heat pumps (WSHP). Most heat pumps are located in ceiling plenums and mechanical mezzanines. As part of the Phase 1 project, 15 WSHPs were replaced and re-positioned as needed with higher efficiency models. Return air is directed through an open ceiling plenum to main return ducts. Heat pumps are connected to a hydronic loop and features two gas-fired boilers, a cooling tower and two condenser water circulation pumps. One large Air Handling Unit (AHU-1) serves the bulk of the building's ventilation. The evidence garage to the northwest is served by two roof top units. Parking garages are served by gas-fired overhead unit heaters and a set of exhaust fans and intake louvers. The gun range located in the northeastern corner of the parking garage is served by a gas-fired make-up air unit and an industrial exhaust fan.



*Figure 3: Typical Heat Pump and Exterior Cooling Tower*

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## HVAC Controls

Redmond PSB is controlled by the campus DDC system and allows for constant monitoring of the most of the building's heat pumps and thermostats, some heat pumps are not visible. Trend data and set point information is also available through the DDC system, but is limited. Heat pump set points are generally at set points between 65°F and 74°F, with most around 69°F. Heat pumps are on 24 hours a day, 7 days a week.

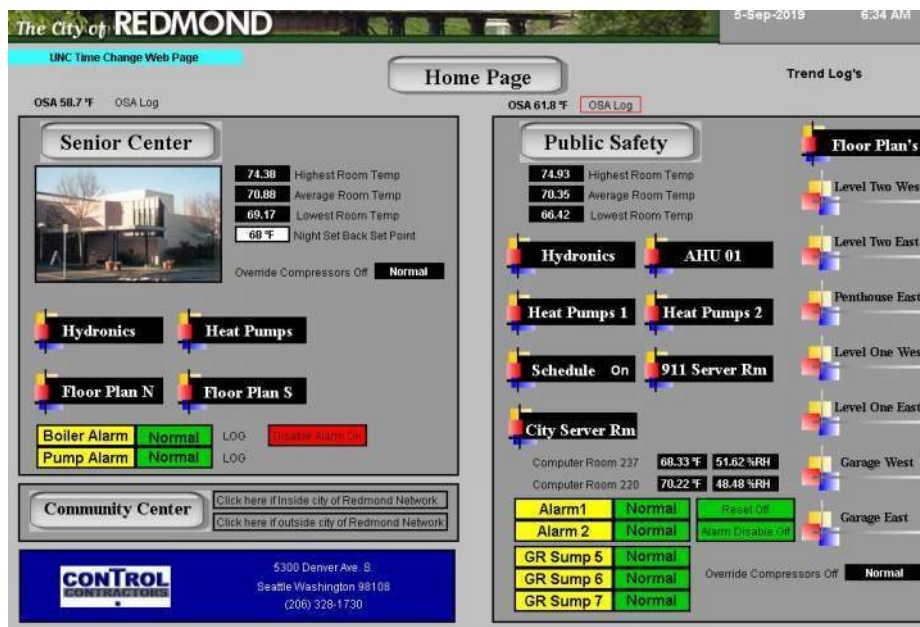


Figure 4: DDC Dashboard

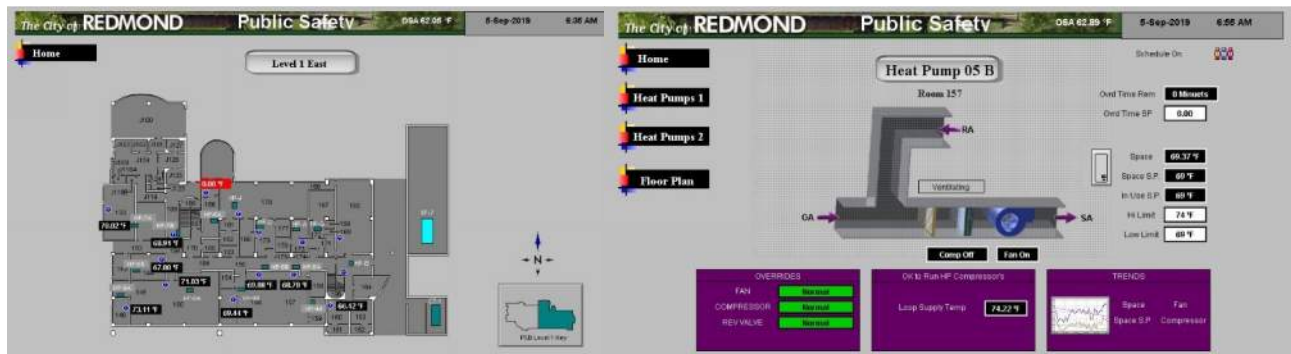


Figure 5: Level 1 Thermostat Data and HP-05B Interface



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## REDMOND CITY HALL

*Building Address:* 15670 NE 85th St, Redmond, WA 98052

*Building Area:* 107,212 ft<sup>2</sup>

*Property Type:* Office



*Figure 6: Redmond City Hall*

## FIRE STATION 14

*Building Address:* 5021 264<sup>th</sup> Ave NE, Redmond, WA 98053

*Building Area:* 9,441 ft<sup>2</sup>

*Property Type:* Fire Station



*Figure 7: Fire Station 14*

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## **FIRE STATION 16 & SHOP**

*Building Address:* 6502 185<sup>th</sup> Ave NE, Redmond, WA 98052

*Building Area:* 9,852 ft<sup>2</sup> (Fire Station), 5,625 ft<sup>2</sup> (Shop)

*Property Type:* Fire Station



*Figure 8: Fire Station 16*

## **FIRE STATION 17**

*Building Address:* 16917 NE 116<sup>th</sup> St, Redmond, WA 98052

*Building Area:* 16,899 ft<sup>2</sup>

*Property Type:* Fire Station



*Figure 9: Fire Station 17*

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## **FIRE STATION 18**

*Building Address:* 22710 Alder Crest Dr, Redmond, WA 98053

*Building Area:* 7,714 ft<sup>2</sup>

*Property Type:* Fire Station



*Figure 10: Fire Station 18*

## **REDMOND TEEN CENTER**

*Building Address:* 16510 NE 79<sup>th</sup> St, Redmond, WA 98052

*Building Area:* 8,650 ft<sup>2</sup>

*Property Type:* Community Center



*Figure 11: Teen Center*



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## MOC CAMPUS

*Building Address:* 18080 NE 76<sup>th</sup> St, Redmond, WA 98052

*Building Area:* 42,000 ft<sup>2</sup>

*Property Type:* Office/Warehouse/Storage/Shop



Figure 12: MOC Campus

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## 5.3 FACILITY IMPROVEMENT MEASURES – CALCULATIONS

**FIM # 03.01-PSB: PH 2 UPGRADES OF HEAT PUMPS**

**FIM # 09.01-VAR: UPGRADE LIGHTING TO LED**

# Facility Improvement Measure (FIM) Detail



Project	City of Redmond Lighting
Scenario	Lighting and PSB Heat
Date	September 20, 2019

FIM ID	41866	Facility	Redmond Public Safety Building
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FIM Name	03.01-PSB: Ph 2 Upgrades of Heat Pumps
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<b>FIM Description</b>
Replace thirteen (13) existing hydronic heat pumps (HPs) with high efficiency models. Provide manual shutoff valves for the new heat pumps, as well as automatic shutoff valves to convert the condenser water loop to variable flow per the WA Energy Code. Replace one (1) 25 hp condenser water pump with a high efficiency pump and variable frequency drive (VFD). Second existing 25 hp condenser water pump to remain as emergency back-up to new variable speed pump. Provide new controls for the thirteen (13) heat pumps and one (1) pump with VFD.

<b>Savings Methodology</b>
Whole building energy model using eQUEST v.3.65, comparing existing heat pump efficiencies with the proposed heat pump efficiencies.

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## FIM 03.01-PSB: Ph 2 Upgrades of Heat Pumps

### EQUEST MODEL

An eQUEST energy simulation model was generated for the Redmond Public Safety Building Phase 2 Heat Pump calculation to simulate energy consumption over a year period. The model was calibrated using recently utility bills. The model is updated to include the heat pumps that were upgraded during the Phase 1 Project.

### Building Geometry

See the figures below for images of the Redmond Public Safety Building's model geometry. The model's zoning is based on the HVAC zoning.



*North Facade*



*South Façade*

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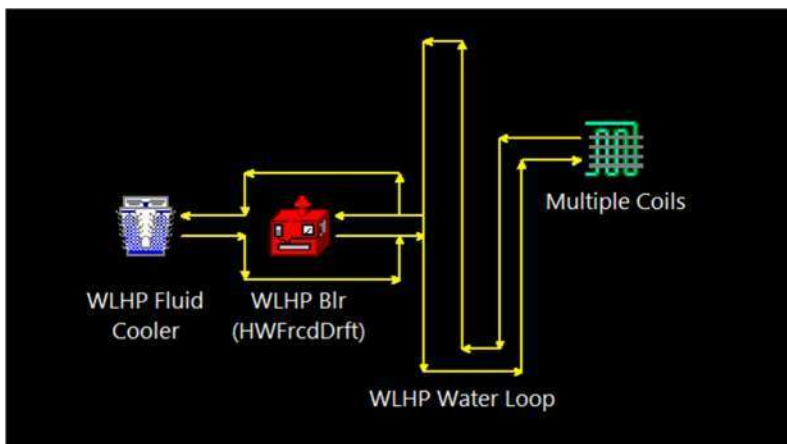
## Air-Side HVAC

The air-side systems at the Public Safety Building were modeled as water to water heat pumps. Existing and proposed unit sizes and efficiencies were based on as-built drawings from previous phases of work, site survey information, and proposed submittal information. The zones are modeled to represent the space that the heat pumps are serving.



## Water-Side HVAC

The water-side HVAC is modeled to include the water loop boiler and cooler serving the water-source heat pump water loop. In the proposed scenario, the pump serving the water loop has variable speed control.





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## Proposed Changes

Unit	Baseline	Proposed
HP-5A	<p>eQUEST DD Wizard: Air-Side System Type -- HP-5A (F)</p> <p><b>Packaged HVAC Equipment</b></p> <p>HVAC System 1: Water-Source HP (single/multi-zone)</p> <p>Cooling</p> <p>Overall Size: Specify 2.5 tr</p> <p>Typical Unit Size: &gt; 135 kBtuh or 11.25 tons</p> <p>Efficiency: EER 10.300</p> <p><input checked="" type="checkbox"/> Allow Crankcase Heating</p> <p>Heating</p> <p>Size: Specify 36.6 kBtuh</p> <p>Efficiency: COP 3.700</p> <p>Wizard Screen 3 of 7</p>	<p>eQUEST DD Wizard: Air-Side System Type -- HP-5A (F)</p> <p><b>Packaged HVAC Equipment</b></p> <p>HVAC System 1: Water-Source HP (single/multi-zone)</p> <p>Cooling</p> <p>Overall Size: Specify 2.4 tr</p> <p>Typical Unit Size: &gt; 135 kBtuh or 11.25 tons</p> <p>Efficiency: EER 14.300</p> <p><input checked="" type="checkbox"/> Allow Crankcase Heating</p> <p>Heating</p> <p>Size: Specify 35.6 kBtuh</p> <p>Efficiency: COP 4.800</p> <p>Wizard Screen 3 of 7</p>
	<p>eQUEST DD Wizard: Air-Side System Type -- HP-5A (F)</p> <p><b>HVAC System Fans</b></p> <p>System(s): 1: Water-Source HP (single/multi-zone) 792 SqFt Served (all perimeter)</p> <p>Supply Fans</p> <p>Power &amp; Mtr Eff: 10.15 in. WG Standard</p> <p>Fan Flow &amp; OSA: 1,000 cfm 10.00% OSA</p> <p>Return Fans</p> <p><input checked="" type="radio"/> None <input type="radio"/> Return <input type="radio"/> Relief</p> <p>Wizard Screen 4 of 7</p>	<p>eQUEST DD Wizard: Air-Side System Type -- HP-5A (F)</p> <p><b>HVAC System Fans</b></p> <p>System(s): 1: Water-Source HP (single/multi-zone) 792 SqFt Served (all perimeter)</p> <p>Supply Fans</p> <p>Power &amp; Mtr Eff: 10.15 in. WG Premium</p> <p>Fan Flow &amp; OSA: 1,000 cfm 10.00% OSA</p> <p>Return Fans</p> <p><input checked="" type="radio"/> None <input type="radio"/> Return <input type="radio"/> Relief</p> <p>Wizard Screen 4 of 7</p>

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## Proposed Changes (Cont.)

Unit	Baseline	Proposed
HP-5B	<p>eQUEST DD Wizard: Air-Side System Type -- HP-5B (H)</p> <p><b>Packaged HVAC Equipment</b></p> <p>HVAC System 1: Water-Source HP (single/multi-zone)</p> <p>Cooling</p> <p>Overall Size: Specify 3.5 tr</p> <p>Typical Unit Size: &gt; 135 kBtuh or 11.25 tons</p> <p>Efficiency: EER 10.400</p> <p><input checked="" type="checkbox"/> Allow Crankcase Heating</p> <p>Heating</p> <p>Size: Specify 51.6 kBtuh</p> <p>Efficiency: COP 3.800</p> <p>Wizard Screen 3 of 7</p> <p>Help Previous Screen</p>	<p>eQUEST DD Wizard: Air-Side System Type -- HP-5B (H)</p> <p><b>Packaged HVAC Equipment</b></p> <p>HVAC System 1: Water-Source HP (single/multi-zone)</p> <p>Cooling</p> <p>Overall Size: Specify 3.5 tr</p> <p>Typical Unit Size: &gt; 135 kBtuh or 11.25 tons</p> <p>Efficiency: EER 14.900</p> <p><input checked="" type="checkbox"/> Allow Crankcase Heating</p> <p>Heating</p> <p>Size: Specify 50.4 kBtuh</p> <p>Efficiency: COP 4.500</p> <p>Wizard Screen 3 of 7</p> <p>Help Previous Screen</p>
	<p>eQUEST DD Wizard: Air-Side System Type -- HP-5B (H)</p> <p><b>HVAC System Fans</b></p> <p>System(s): 1: Water-Source HP (single/multi-zone) 654 SqFt Served (all perimeter)</p> <p>Supply Fans</p> <p>Power &amp; Mtr Eff: 1.08 in. WG Standard</p> <p>Fan Flow &amp; OSA: 1,450 cfm 10.00% OSA</p> <p>Return Fans</p> <p><input checked="" type="radio"/> None <input type="radio"/> Return <input type="radio"/> Relief</p> <p>Wizard Screen 4 of 7</p> <p>Help Previous Screen</p>	<p>eQUEST DD Wizard: Air-Side System Type -- HP-5B (H)</p> <p><b>HVAC System Fans</b></p> <p>System(s): 1: Water-Source HP (single/multi-zone) 654 SqFt Served (all perimeter)</p> <p>Supply Fans</p> <p>Power &amp; Mtr Eff: 1.08 in. WG Premium</p> <p>Fan Flow &amp; OSA: 1,450 cfm 10.00% OSA</p> <p>Return Fans</p> <p><input checked="" type="radio"/> None <input type="radio"/> Return <input type="radio"/> Relief</p> <p>Wizard Screen 4 of 7</p> <p>Help Previous Screen</p>

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## Proposed Changes (Cont.)

Unit	Baseline	Proposed
HP-6A	<p>eQUEST DD Wizard: Air-Side System Type -- HP-6A (A)</p> <p><b>Packaged HVAC Equipment</b></p> <p>HVAC System 1: Water-Source HP (single/multi-zone)</p> <p>Cooling</p> <p>Overall Size: Specify 0.8 tr</p> <p>Typical Unit Size: &gt; 135 kBtuh or 11.25 tons</p> <p>Efficiency: EER 11.000</p> <p><input checked="" type="checkbox"/> Allow Crankcase Heating</p> <p>Heating</p> <p>Size: Specify 9.8 kBtuh</p> <p>Efficiency: COP 3.700</p> <p>Wizard Screen 3 of 7</p> <p>Help Previous Screen</p>	<p>eQUEST DD Wizard: Air-Side System Type -- HP-6A (A)</p> <p><b>Packaged HVAC Equipment</b></p> <p>HVAC System 1: Water-Source HP (single/multi-zone)</p> <p>Cooling</p> <p>Overall Size: Specify 0.7 tr</p> <p>Typical Unit Size: &gt; 135 kBtuh or 11.25 tons</p> <p>Efficiency: EER 13.400</p> <p><input checked="" type="checkbox"/> Allow Crankcase Heating</p> <p>Heating</p> <p>Size: Specify 11.6 kBtuh</p> <p>Efficiency: COP 4.300</p> <p>Wizard Screen 3 of 7</p> <p>Help Previous Screen</p>
	<p>eQUEST DD Wizard: Air-Side System Type -- HP-6A (A)</p> <p><b>HVAC System Fans</b></p> <p>System(s): 1: Water-Source HP (single/multi-zone) 481 SqFt Served (all perimeter)</p> <p>Supply Fans</p> <p>Power &amp; Mtr Eff: 0.88 in. WG Standard</p> <p>Fan Flow &amp; OSA: 350 cfm 10.00% OSA</p> <p>Return Fans</p> <p><input checked="" type="radio"/> None <input type="radio"/> Return <input type="radio"/> Relief</p> <p>Wizard Screen 4 of 7</p> <p>Help Previous Screen</p>	<p>eQUEST DD Wizard: Air-Side System Type -- HP-6A (A)</p> <p><b>HVAC System Fans</b></p> <p>System(s): 1: Water-Source HP (single/multi-zone) 481 SqFt Served (all perimeter)</p> <p>Supply Fans</p> <p>Power &amp; Mtr Eff: 0.88 in. WG High</p> <p>Fan Flow &amp; OSA: 350 cfm 10.00% OSA</p> <p>Return Fans</p> <p><input checked="" type="radio"/> None <input type="radio"/> Return <input type="radio"/> Relief</p> <p>Wizard Screen 4 of 7</p> <p>Help Previous Screen</p>

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## Proposed Changes (Cont.)

Unit	Baseline	Proposed
HP-9B	<p>eQUEST DD Wizard: Air-Side System Type -- HP-9B (H)</p> <p><b>Packaged HVAC Equipment</b></p> <p>HVAC System 1: Water-Source HP (single/multi-zone)</p> <p>Cooling</p> <p>Overall Size: Specify 3.5 tr</p> <p>Typical Unit Size: &gt; 135 kBtuh or 11.25 tons</p> <p>Efficiency: EER 10.400</p> <p><input checked="" type="checkbox"/> Allow Crankcase Heating</p> <p>Heating</p> <p>Size: Specify 51.6 kBtuh</p> <p>Efficiency: COP 3.800</p> <p>Wizard Screen 3 of 7</p>	<p>eQUEST DD Wizard: Air-Side System Type -- HP-9B (H)</p> <p><b>Packaged HVAC Equipment</b></p> <p>HVAC System 1: Water-Source HP (single/multi-zone)</p> <p>Cooling</p> <p>Overall Size: Specify 2.0 tr</p> <p>Typical Unit Size: &gt; 135 kBtuh or 11.25 tons</p> <p>Efficiency: EER 14.300</p> <p><input checked="" type="checkbox"/> Allow Crankcase Heating</p> <p>Heating</p> <p>Size: Specify 27.7 kBtuh</p> <p>Efficiency: COP 4.900</p> <p>Wizard Screen 3 of 7</p>
	<p>eQUEST DD Wizard: Air-Side System Type -- HP-9B (H)</p> <p><b>HVAC System Fans</b></p> <p>System(s): 1: Water-Source HP (single/multi-zone) 1,299 SqFt Served (all core)</p> <p>Supply Fans</p> <p>Power &amp; Mtr Eff: 1.06 in. WG Standard</p> <p>Fan Flow &amp; OSA: 1,450 cfm 10.00% OSA</p> <p>Return Fans</p> <p><input checked="" type="radio"/> None <input type="radio"/> Return <input type="radio"/> Relief</p> <p>Wizard Screen 4 of 7</p>	<p>eQUEST DD Wizard: Air-Side System Type -- HP-9B (H)</p> <p><b>HVAC System Fans</b></p> <p>System(s): 1: Water-Source HP (single/multi-zone) 1,299 SqFt Served (all core)</p> <p>Supply Fans</p> <p>Power &amp; Mtr Eff: 1.06 in. WG Premium</p> <p>Fan Flow &amp; OSA: 1,450 cfm 10.00% OSA</p> <p>Return Fans</p> <p><input checked="" type="radio"/> None <input type="radio"/> Return <input type="radio"/> Relief</p> <p>Wizard Screen 4 of 7</p>

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## Proposed Changes (Cont.)

Unit	Baseline	Proposed
HP-17B	<p>eQUEST DD Wizard: Air-Side System Type -- HP-17B (C)</p> <p><b>Packaged HVAC Equipment</b></p> <p>HVAC System 1: Water-Source HP (single/multi-zone)</p> <p>Cooling</p> <p>Overall Size: Specify 1.2 tr</p> <p>Typical Unit Size: &gt; 135 kBtuh or 11.25 tons</p> <p>Efficiency: EER 10.400</p> <p><input checked="" type="checkbox"/> Allow Crankcase Heating</p> <p>Heating</p> <p>Size: Specify 17.2 kBtuh</p> <p>Efficiency: COP 3.500</p> <p>Wizard Screen 3 of 7 Help Previous Screen</p>	<p>eQUEST DD Wizard: Air-Side System Type -- HP-17B (C)</p> <p><b>Packaged HVAC Equipment</b></p> <p>HVAC System 1: Water-Source HP (single/multi-zone)</p> <p>Cooling</p> <p>Overall Size: Specify 1.2 tr</p> <p>Typical Unit Size: &gt; 135 kBtuh or 11.25 tons</p> <p>Efficiency: EER 15.400</p> <p><input checked="" type="checkbox"/> Allow Crankcase Heating</p> <p>Heating</p> <p>Size: Specify 17.3 kBtuh</p> <p>Efficiency: COP 5.000</p> <p>Wizard Screen 3 of 7 Help Previous Screen</p>
	<p>eQUEST DD Wizard: Air-Side System Type -- HP-17B (C)</p> <p><b>HVAC System Fans</b></p> <p>System(s): 1: Water-Source HP (single/multi-zone) 451 SqFt Served (all perimeter)</p> <p>Supply Fans</p> <p>Power &amp; Mtr Eff: 0.18 in. WG Standard</p> <p>Fan Flow &amp; OSA: 1,000 cfm 10.00% OSA</p> <p>Return Fans</p> <p><input checked="" type="radio"/> None <input type="radio"/> Return <input type="radio"/> Relief</p> <p>Wizard Screen 4 of 7 Help Previous Screen</p>	<p>eQUEST DD Wizard: Air-Side System Type -- HP-17B (C)</p> <p><b>HVAC System Fans</b></p> <p>System(s): 1: Water-Source HP (single/multi-zone) 451 SqFt Served (all perimeter)</p> <p>Supply Fans</p> <p>Power &amp; Mtr Eff: 0.18 in. WG High</p> <p>Fan Flow &amp; OSA: 1,000 cfm 10.00% OSA</p> <p>Return Fans</p> <p><input checked="" type="radio"/> None <input type="radio"/> Return <input type="radio"/> Relief</p> <p>Wizard Screen 4 of 7 Help Previous Screen</p>

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## Proposed Changes (Cont.)

Unit	Baseline	Proposed
HP-24A	<p>eQUEST DD Wizard: Air-Side System Type -- HP-24A (B)</p> <p><b>Packaged HVAC Equipment</b></p> <p>HVAC System 1: Water-Source HP (single/multi-zone)</p> <p>Cooling</p> <p>Overall Size: Specify 1.0 tr</p> <p>Typical Unit Size: &gt; 135 kBtuh or 11.25 tons</p> <p>Efficiency: EER 10.200</p> <p><input checked="" type="checkbox"/> Allow Crankcase Heating</p> <p>Heating</p> <p>Size: Specify 14.2 kBtuh</p> <p>Efficiency: COP 3.500</p> <p>Wizard Screen 3 of 7</p> <p>Help Previous Screen</p>	<p>eQUEST DD Wizard: Air-Side System Type -- HP-24A (B)</p> <p><b>Packaged HVAC Equipment</b></p> <p>HVAC System 1: Water-Source HP (single/multi-zone)</p> <p>Cooling</p> <p>Overall Size: Specify 1.0 tr</p> <p>Typical Unit Size: &gt; 135 kBtuh or 11.25 tons</p> <p>Efficiency: EER 13.500</p> <p><input checked="" type="checkbox"/> Allow Crankcase Heating</p> <p>Heating</p> <p>Size: Specify 15.2 kBtuh</p> <p>Efficiency: COP 4.300</p> <p>Wizard Screen 3 of 7</p> <p>Help Previous Screen</p>
	<p>eQUEST DD Wizard: Air-Side System Type -- HP-24A (B)</p> <p><b>HVAC System Fans</b></p> <p>System(s): 1: Water-Source HP (single/multi-zone) 590 SqFt Served (all perimeter)</p> <p>Supply Fans</p> <p>Power &amp; Mtr Eff: 1.00 in. WG Standard</p> <p>Fan Flow &amp; OSA: 400 cfm 10.00% OSA</p> <p>Return Fans</p> <p><input checked="" type="radio"/> None <input type="radio"/> Return <input type="radio"/> Relief</p> <p>Wizard Screen 4 of 7</p> <p>Help Previous Screen Next Screen</p>	<p>eQUEST DD Wizard: Air-Side System Type -- HP-24A (B)</p> <p><b>HVAC System Fans</b></p> <p>System(s): 1: Water-Source HP (single/multi-zone) 590 SqFt Served (all perimeter)</p> <p>Supply Fans</p> <p>Power &amp; Mtr Eff: 1.00 in. WG High</p> <p>Fan Flow &amp; OSA: 400 cfm 10.00% OSA</p> <p>Return Fans</p> <p><input checked="" type="radio"/> None <input type="radio"/> Return <input type="radio"/> Relief</p> <p>Wizard Screen 4 of 7</p> <p>Help Previous Screen</p>

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## Proposed Changes (Cont.)

Unit	Baseline	Proposed
HP-25A	<p>eQUEST DD Wizard: Air-Side System Type -- HP-25A (G)</p> <p><b>Packaged HVAC Equipment</b></p> <p>HVAC System 1: Water-Source HP (single/multi-zone)</p> <p>Cooling</p> <p>Overall Size: Specify 3.0 tr</p> <p>Typical Unit Size: &gt; 135 kBtuh or 11.25 tons</p> <p>Efficiency: EER 10.600</p> <p><input checked="" type="checkbox"/> Allow Crankcase Heating</p> <p>Heating</p> <p>Size: Specify 38.6 kBtuh</p> <p>Efficiency: COP 3.500</p> <p>Wizard Screen 3 of 7</p>	<p>eQUEST DD Wizard: Air-Side System Type -- HP-25A (G)</p> <p><b>Packaged HVAC Equipment</b></p> <p>HVAC System 1: Water-Source HP (single/multi-zone)</p> <p>Cooling</p> <p>Overall Size: Specify 2.9 tr</p> <p>Typical Unit Size: &gt; 135 kBtuh or 11.25 tons</p> <p>Efficiency: EER 15.100</p> <p><input checked="" type="checkbox"/> Allow Crankcase Heating</p> <p>Heating</p> <p>Size: Specify 42.0 kBtuh</p> <p>Efficiency: COP 4.600</p> <p>Wizard Screen 3 of 7</p>
	<p>eQUEST DD Wizard: Air-Side System Type -- HP-25A (G)</p> <p><b>HVAC System Fans</b></p> <p>System(s): 1: Water-Source HP (single/multi-zone) 1,053 SqFt Served (all perimeter)</p> <p>Supply Fans</p> <p>Power &amp; Mtr Eff: 1.15 in. WG Standard</p> <p>Fan Flow &amp; OSA: 1,250 cfm 10.00% OSA</p> <p>Return Fans</p> <p><input checked="" type="radio"/> None <input type="radio"/> Return <input type="radio"/> Relief</p> <p>Wizard Screen 4 of 7</p>	<p>eQUEST DD Wizard: Air-Side System Type -- HP-25A (G)</p> <p><b>HVAC System Fans</b></p> <p>System(s): 1: Water-Source HP (single/multi-zone) 1,053 SqFt Served (all perimeter)</p> <p>Supply Fans</p> <p>Power &amp; Mtr Eff: 1.15 in. WG Premium</p> <p>Fan Flow &amp; OSA: 1,250 cfm 10.00% OSA</p> <p>Return Fans</p> <p><input checked="" type="radio"/> None <input type="radio"/> Return <input type="radio"/> Relief</p> <p>Wizard Screen 4 of 7</p>

# Investment Grade Audit

## Proposed Changes (Cont.)

Unit	Baseline	Proposed
HP-26B	<p>eQUEST DD Wizard: Air-Side System Type -- HP-26B (A)</p> <p><b>Packaged HVAC Equipment</b></p> <p>HVAC System 1: Water-Source HP (single/multi-zone)</p> <p>Cooling</p> <p>Overall Size: Specify 0.8 tr</p> <p>Typical Unit Size: &gt; 135 kBtuh or 11.25 tons</p> <p>Efficiency: EER 11.000</p> <p><input checked="" type="checkbox"/> Allow Crankcase Heating</p> <p>Heating</p> <p>Size: Specify 9.8 kBtuh</p> <p>Efficiency: COP 3.700</p> <p>Wizard Screen 3 of 7</p>	<p>eQUEST DD Wizard: Air-Side System Type -- HP-26B (A)</p> <p><b>Packaged HVAC Equipment</b></p> <p>HVAC System 1: Water-Source HP (single/multi-zone)</p> <p>Cooling</p> <p>Overall Size: Specify 0.7 tr</p> <p>Typical Unit Size: &gt; 135 kBtuh or 11.25 tons</p> <p>Efficiency: EER 13.400</p> <p><input checked="" type="checkbox"/> Allow Crankcase Heating</p> <p>Heating</p> <p>Size: Specify 11.6 kBtuh</p> <p>Efficiency: COP 4.300</p> <p>Wizard Screen 3 of 7</p>
	<p>eQUEST DD Wizard: Air-Side System Type -- HP-26B (A)</p> <p><b>HVAC System Fans</b></p> <p>System(s): 1: Water-Source HP (single/multi-zone) 237 SqFt Served (all perimeter)</p> <p>Supply Fans</p> <p>Power &amp; Mtr Eff: 0.86 in. WG Standard</p> <p>Fan Flow &amp; OSA: 350 cfm 10.00% OSA</p> <p>Return Fans</p> <p><input checked="" type="radio"/> None <input type="radio"/> Return <input type="radio"/> Relief</p> <p>Wizard Screen 4 of 7</p>	<p>eQUEST DD Wizard: Air-Side System Type -- HP-26B (A)</p> <p><b>HVAC System Fans</b></p> <p>System(s): 1: Water-Source HP (single/multi-zone) 237 SqFt Served (all perimeter)</p> <p>Supply Fans</p> <p>Power &amp; Mtr Eff: 0.86 in. WG High</p> <p>Fan Flow &amp; OSA: 350 cfm 10.00% OSA</p> <p>Return Fans</p> <p><input checked="" type="radio"/> None <input type="radio"/> Return <input type="radio"/> Relief</p> <p>Wizard Screen 4 of 7</p>



# Investment Grade Audit

## Proposed Changes (Cont.)

Unit	Baseline	Proposed
HP-27A	<p>eQUEST DD Wizard: Air-Side System Type -- HP-27A (G)</p> <p><b>Packaged HVAC Equipment</b></p> <p>HVAC System 1: Water-Source HP (single/multi-zone)</p> <p>Cooling</p> <p>Overall Size: Specify 3.0 tr</p> <p>Typical Unit Size: &gt; 135 kBtuh or 11.25 tons</p> <p>Efficiency: EER 10.600</p> <p><input checked="" type="checkbox"/> Allow Crankcase Heating</p> <p>Heating</p> <p>Size: Specify 38.6 kBtuh</p> <p>Efficiency: COP 3.500</p> <p>Wizard Screen 3 of 7</p>	<p>eQUEST DD Wizard: Air-Side System Type -- HP-27A (G)</p> <p><b>Packaged HVAC Equipment</b></p> <p>HVAC System 1: Water-Source HP (single/multi-zone)</p> <p>Cooling</p> <p>Overall Size: Specify 2.9 tr</p> <p>Typical Unit Size: &gt; 135 kBtuh or 11.25 tons</p> <p>Efficiency: EER 15.100</p> <p><input checked="" type="checkbox"/> Allow Crankcase Heating</p> <p>Heating</p> <p>Size: Specify 42.0 kBtuh</p> <p>Efficiency: COP 4.600</p> <p>Wizard Screen 3 of 7</p>
	<p>eQUEST DD Wizard: Air-Side System Type -- HP-27A (G)</p> <p><b>HVAC System Fans</b></p> <p>System(s): 1: Water-Source HP (single/multi-zone) 1,046 SqFt Served (all perimeter)</p> <p>Supply Fans</p> <p>Power &amp; Mtr Eff: 1.15 in. WG Standard</p> <p>Fan Flow &amp; OSA: 1,250 cfm 10.00% OSA</p> <p>Return Fans</p> <p><input checked="" type="radio"/> None <input type="radio"/> Return <input type="radio"/> Relief</p> <p>Wizard Screen 4 of 7</p>	<p>eQUEST DD Wizard: Air-Side System Type -- HP-27A (G)</p> <p><b>HVAC System Fans</b></p> <p>System(s): 1: Water-Source HP (single/multi-zone) 1,046 SqFt Served (all perimeter)</p> <p>Supply Fans</p> <p>Power &amp; Mtr Eff: 1.15 in. WG Premium</p> <p>Fan Flow &amp; OSA: 1,250 cfm 10.00% OSA</p> <p>Return Fans</p> <p><input checked="" type="radio"/> None <input type="radio"/> Return <input type="radio"/> Relief</p> <p>Wizard Screen 4 of 7</p>

# Investment Grade Audit

## Proposed Changes (Cont.)

Unit	Baseline	Proposed
HP-33B	<p>eQUEST DD Wizard: Air-Side System Type -- HP-33B (K)</p> <p><b>Packaged HVAC Equipment</b></p> <p>HVAC System 1: Water-Source HP (single/multi-zone)</p> <p>Cooling</p> <p>Overall Size: Specify 10.2 tr</p> <p>Typical Unit Size: &gt; 135 kBtuh or 11.25 tons</p> <p>Efficiency: EER 11.400</p> <p><input checked="" type="checkbox"/> Allow Crankcase Heating</p> <p>Heating</p> <p>Size: Specify 119.0 kBtuh</p> <p>Efficiency: COP 3.300</p> <p>Wizard Screen 3 of 7</p>	<p>eQUEST DD Wizard: Air-Side System Type -- HP-33B (K)</p> <p><b>Packaged HVAC Equipment</b></p> <p>HVAC System 1: Water-Source HP (single/multi-zone)</p> <p>Cooling</p> <p>Overall Size: Specify 13.3 tr</p> <p>Typical Unit Size: &gt; 135 kBtuh or 11.25 tons</p> <p>Efficiency: EER 9.900</p> <p><input checked="" type="checkbox"/> Allow Crankcase Heating</p> <p>Heating</p> <p>Size: Specify 160.0 kBtuh</p> <p>Efficiency: COP 4.600</p> <p>Wizard Screen 3 of 7</p>
	<p>eQUEST DD Wizard: Air-Side System Type -- HP-33B (K)</p> <p><b>HVAC System Fans</b></p> <p>System(s): 1: Water-Source HP (single/multi-zone) 2,914 SqFt Served (all perimeter)</p> <p>Supply Fans</p> <p>Power &amp; Mtr Eff: 10.25 in. WG Standard</p> <p>Fan Flow &amp; OSA: 4,000 cfm 10.00% OSA</p> <p>Return Fans</p> <p><input checked="" type="radio"/> None <input type="radio"/> Return <input type="radio"/> Relief</p> <p>Wizard Screen 4 of 7</p>	<p>eQUEST DD Wizard: Air-Side System Type -- HP-33B (K)</p> <p><b>HVAC System Fans</b></p> <p>System(s): 1: Water-Source HP (single/multi-zone) 2,914 SqFt Served (all perimeter)</p> <p>Supply Fans</p> <p>Power &amp; Mtr Eff: 10.25 in. WG High</p> <p>Fan Flow &amp; OSA: 4,000 cfm 10.00% OSA</p> <p>Return Fans</p> <p><input checked="" type="radio"/> None <input type="radio"/> Return <input type="radio"/> Relief</p> <p>Wizard Screen 4 of 7</p>

# Investment Grade Audit

## Proposed Changes (Cont.)

Unit	Baseline	Proposed
HP-D	<p>eQUEST DD Wizard: Air-Side System Type -- HP-D (D)</p> <p><b>Packaged HVAC Equipment</b></p> <p>HVAC System 1: Water-Source HP (single/multi-zone)</p> <p>Cooling</p> <p>Overall Size: Specify 1.6 tr</p> <p>Typical Unit Size: &gt; 135 kBtuh or 11.25 tons</p> <p>Efficiency: EER 10.900</p> <p><input checked="" type="checkbox"/> Allow Crankcase Heating</p> <p>Heating</p> <p>Size: Specify 20.8 kBtuh</p> <p>Efficiency: COP 3.600</p> <p>Wizard Screen 3 of 7</p>	<p>eQUEST DD Wizard: Air-Side System Type -- HP-D (D)</p> <p><b>Packaged HVAC Equipment</b></p> <p>HVAC System 1: Water-Source HP (single/multi-zone)</p> <p>Cooling</p> <p>Overall Size: Specify 1.0 tr</p> <p>Typical Unit Size: &gt; 135 kBtuh or 11.25 tons</p> <p>Efficiency: EER 13.500</p> <p><input checked="" type="checkbox"/> Allow Crankcase Heating</p> <p>Heating</p> <p>Size: Specify 15.2 kBtuh</p> <p>Efficiency: COP 4.300</p> <p>Wizard Screen 3 of 7</p>
	<p>eQUEST DD Wizard: Air-Side System Type -- HP-D (D)</p> <p><b>HVAC System Fans</b></p> <p>System(s): 1: Water-Source HP (single/multi-zone) 506 SqFt Served (all core)</p> <p>Supply Fans</p> <p>Power &amp; Mtr Eff: 1.17 in. WG High</p> <p>Fan Flow &amp; OSA: 650 cfm 10.00% OSA</p> <p>Return Fans</p> <p><input checked="" type="radio"/> None <input type="radio"/> Return <input type="radio"/> Relief</p> <p>Wizard Screen 4 of 7</p>	<p>eQUEST DD Wizard: Air-Side System Type -- HP-D (D)</p> <p><b>HVAC System Fans</b></p> <p>System(s): 1: Water-Source HP (single/multi-zone) 506 SqFt Served (all core)</p> <p>Supply Fans</p> <p>Power &amp; Mtr Eff: 1.17 in. WG High</p> <p>Fan Flow &amp; OSA: 650 cfm 10.00% OSA</p> <p>Return Fans</p> <p><input checked="" type="radio"/> None <input type="radio"/> Return <input type="radio"/> Relief</p> <p>Wizard Screen 4 of 7</p>

# Investment Grade Audit

## Proposed Changes (Cont.)

Unit	Baseline	Proposed
HP-G	 <p>Wizard Screen 3 of 7</p>	 <p>Wizard Screen 3 of 7</p>
	 <p>Wizard Screen 4 of 7</p>	 <p>Wizard Screen 4 of 7</p>

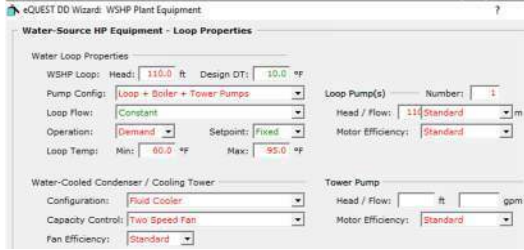
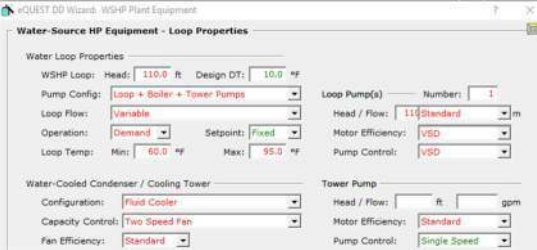
# Investment Grade Audit

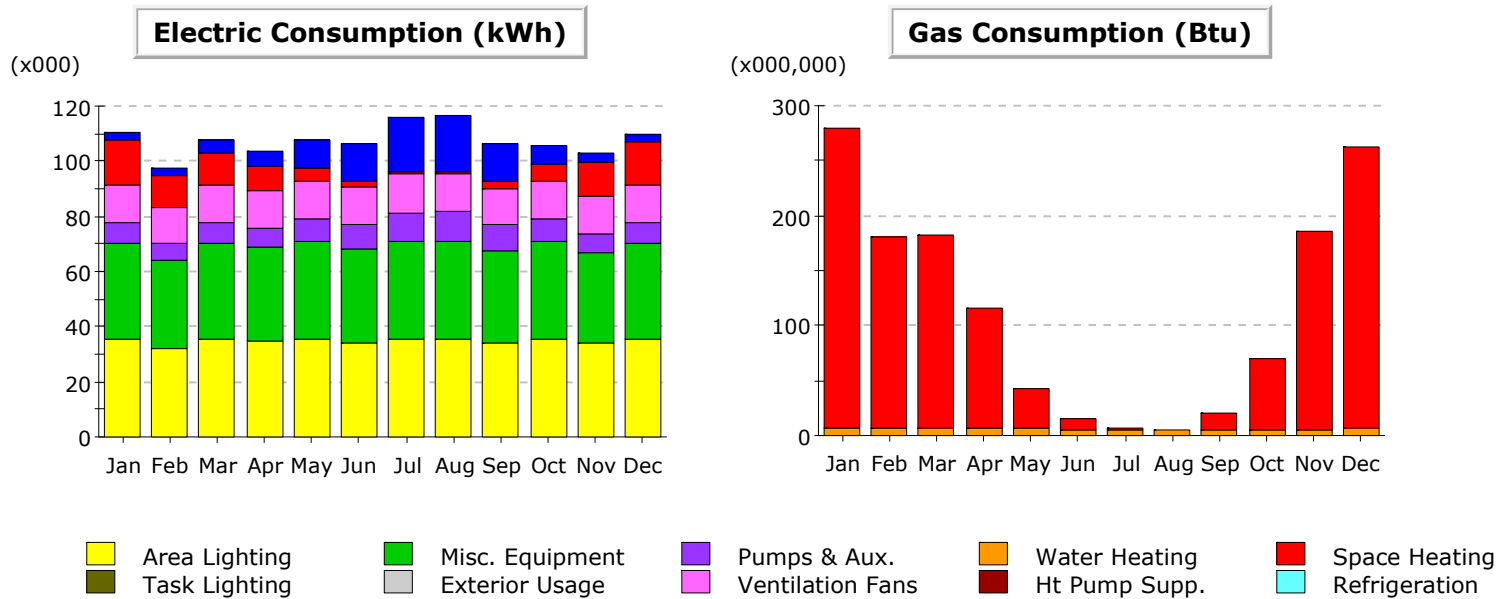
## Proposed Changes (Cont.)

Unit	Baseline	Proposed
HP-J (UNIT 3)	<p>eQUEST DD Wizard: Air-Side System Type -- HP-J (Unit 3)</p> <p><b>Packaged HVAC Equipment</b></p> <p>HVAC System 1: Water-Source HP (single/multi-zone)</p> <p>Cooling</p> <p>Overall Size: <b>Auto-size</b></p> <p>Typical Unit Size: <b>&gt; 135 kBtuh or 11.25 tons</b></p> <p>Efficiency: <b>EER</b> <b>10.200</b></p> <p><input checked="" type="checkbox"/> Allow Crankcase Heating</p> <p>Heating</p> <p>Size: <b>Auto-size</b></p> <p>Efficiency: <b>COP</b> <b>3.600</b></p> <p>Wizard Screen 3 of 7</p>	<p>eQUEST DD Wizard: Air-Side System Type -- HP-J (Unit 3)</p> <p><b>Packaged HVAC Equipment</b></p> <p>HVAC System 1: Water-Source HP (single/multi-zone)</p> <p>Cooling</p> <p>Overall Size: <b>Specify</b> <b>0.7</b> <b>ts</b></p> <p>Typical Unit Size: <b>&gt; 135 kBtuh or 11.25 tons</b></p> <p>Efficiency: <b>EER</b> <b>13.400</b></p> <p><input checked="" type="checkbox"/> Allow Crankcase Heating</p> <p>Heating</p> <p>Size: <b>Specify</b> <b>11.6</b> <b>kBtuh</b></p> <p>Efficiency: <b>COP</b> <b>4.300</b></p> <p>Wizard Screen 3 of 7</p>
	<p>eQUEST DD Wizard: Air-Side System Type -- HP-J (Unit 3)</p> <p><b>HVAC System Fans</b></p> <p>System(s): 1: Water-Source HP (single/multi-zone) (no area served)</p> <p>Supply Fans</p> <p>Power &amp; Mtr Eff: <b>0.16</b> <b>in. WG</b> <b>Standard</b></p> <p>Fan Flow &amp; OSA: <b>Auto-size Flow (with 1.15 safety factor)</b></p> <p>Return Fans</p> <p><input checked="" type="radio"/> None <input type="radio"/> Return <input type="radio"/> Relief</p> <p>Wizard Screen 4 of 7</p>	<p>eQUEST DD Wizard: Air-Side System Type -- HP-J (Unit 3)</p> <p><b>HVAC System Fans</b></p> <p>System(s): 1: Water-Source HP (single/multi-zone) (no area served)</p> <p>Supply Fans</p> <p>Power &amp; Mtr Eff: <b>0.16</b> <b>in. WG</b> <b>High</b></p> <p>Fan Flow &amp; OSA: <b>Auto-size Flow (with 1.15 safety factor)</b></p> <p>Return Fans</p> <p><input checked="" type="radio"/> None <input type="radio"/> Return <input type="radio"/> Relief</p> <p>Wizard Screen 4 of 7</p>

# Investment Grade Audit

## Proposed Changes (Cont.)

Unit	Baseline	Proposed
WSHP PLANT EQUIPMENT		

**Electric Consumption (kWh x000)**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	2.5	3.0	4.2	5.5	10.5	13.9	20.0	20.0	13.5	6.6	3.3	2.6	105.7
Heat Reject.	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	0.1
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	16.6	11.5	11.9	8.5	4.3	2.2	0.9	0.7	2.7	6.3	12.5	15.9	94.0
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	13.8	12.5	13.8	13.4	13.8	13.3	13.8	13.8	13.3	13.9	13.2	13.8	162.5
Pumps & Aux.	7.5	6.5	7.4	7.2	8.5	9.1	10.8	10.9	8.9	7.6	7.0	7.4	98.9
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	34.8	31.7	34.8	34.2	35.1	33.6	35.1	35.1	33.6	35.4	32.9	34.8	411.0
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	35.4	32.2	35.5	34.5	35.6	34.3	35.6	35.6	34.3	35.7	34.0	35.5	418.3
<b>Total</b>	110.6	97.4	107.4	103.4	107.9	106.5	116.2	116.3	106.3	105.6	103.0	109.9	1,290.5

**Gas Consumption (Btu x000,000)**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	272.4	174.0	174.9	109.7	37.0	9.6	0.9	0.1	14.8	63.4	179.7	256.6	1,293.1
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	6.5	6.1	6.7	6.5	6.3	5.7	5.7	5.5	5.2	5.8	5.5	6.2	71.9
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	278.9	180.1	181.6	116.2	43.4	15.3	6.6	5.6	20.1	69.2	185.2	262.8	1,365.0

Annual Energy  
and Demand (pg 1 of 2)

## Annual Energy USE or DEMAND

Incremental SAVINGS												
(values are relative to previous measure (% savings are relative to base case use), negative entries indicate increased use)												
1	0+0901-PSB Lighting Upgrade	1,584	27.32 (9%)	175,360 (11%)	-2,120 (-21%)	151,977 (27%)	23,383 (4%)	-2,120 (-23%)	-132 (-5%)	35 (12%)	7 (8%)	
2	1+0301-PSB Ph2 Upgrade Heat Pumps - HP	123	2.12 (1%)	15,391 (1%)	-350 (-3%)	0 (0%)	15,390 (3%)	-350 (-4%)	18 (1%)	4 (1%)	0 (1%)	
3	2+0301-PSB Ph2 Upgrade Heat Pumps - VFD	448	7.73 (3%)	54,230 (4%)	-1,070 (-11%)	0 (0%)	54,230 (10%)	-1,070 (-11%)	78 (3%)	3 (1%)	-0 (-0%)	

## Cumulative SAVINGS

[illegible]



# Facility Improvement Measure (FIM) Detail



Project	City of Redmond Lighting
Scenario	Lighting and PSB Heat
Date	September 20, 2019

FIM ID	42078	Facility	City of Redmond
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FIM Name	09.01-VAR: Upgrade Lighting to LED
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<b>FIM Description</b>
<p>The City of Redmond has asked McKinstry to identify lighting upgrade opportunities to the City Hall, Teen Center, the MOC Campus, and Fire Stations 14, 16, 17, and 18. The intent of the upgrades at these facilities is to drive energy savings, while staying within a defined budget that was established from good payback. With that in mind, the extent of the upgrades at these sites cover interior spaces only and are not comprehensive. Instead, they focus on the areas of the buildings that yield the best return on investment.</p> <p>The existing lighting systems are a mix of fluorescent and HID sources. In the older facilities, many of the fixtures are original to the building and are beginning to show signs of wear and tear. The upgrade strategy across this project is a mix of retrofits and fixture replacements, based on McKinstry's discretion, to be sensitive to the City's allocated budget while driving the best return on investment.</p> <p>This project will save energy, reduce maintenance burden of legacy systems, and standardize most of their lighting to LED, while improving the lighting quality in the space.</p>

<b>Savings Methodology</b>
<p>McKinstry spreadsheet comparing existing lighting fixture wattages and runtimes to proposed lighting fixture wattages and runtimes.</p>

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						Existing												Proposed												Energy											
ID	Building	FIM Name	Floor/General Area	Room Name	ASHRAE Space Types	Time Code	Switching	Fixture Schedule	Fixture Type	Lamp & Ballast Type	Description	# of Fixtures	Fixture Code	Retrofit Type (Current Scope)	Description	# of Fixtures	Mounting (if different from existing)	Lamp Type	# of Lamps per Fixture	Watts per Fixture	# of Lamps	Operating Hours	Existing kW	Proposed kW	Existing kWh	Proposed kWh	kW Savings per Month	kW Savings per Year	kWh Savings per Year	Heating Penalty (kWh)	Heating Penalty (therms)	Cooling Credit (kWh)	Net kWh Savings per Year	Net Energy Cost Savings per Year							
1	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor	Sprinkler room (exterior access)	Maintenance Areas - Inactive	501 \$			4' Industrial w/reflectors	32T803E	4' Industrial w/reflectors / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Chain	N/A	0	86	6	261	0.2	0.2	45	45	0.00	0.0	0	0	0	0	0 \$	-							
2	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor	Exterior	Outside Areas	718 \$T			Fresnel		Fresnel /	6	N	No Retrofit - Payback/Budget	No Retrofit Proposed	6	Surface	N/A	0	0	0	6570	0.0	0.0	0	0	0.00	0.0	0	0	0	0	0 \$	-							
3	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor	Exterior	Outside Areas	718 \$T			Drum		Drum /	4	N	No Retrofit - Payback/Budget	No Retrofit Proposed	4	Surface	N/A	0	0	0	6570	0.0	0.0	0	0	0.00	0.0	0	0	0	0	0 \$	-							
4	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor North Wing	Council Conference Rm	Conf. Room	506 \$			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	6	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	6	Recessed	LED Lamp and Driver	2	30	12	1564	0.4	0.2	591	282	0.20	2.4	310	0	-1	17	326 \$	38							
5	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor South Wing	Water heater Plans 120	Janitor Closet	502 \$			2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Recessed	N/A	0	63	4	521	0.1	0.1	66	66	0.00	0.0	0	0	0	0	0 \$	-							
6	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor South Wing	Unisex bathroom	Restrooms, existing sensor	505 \$O			2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	2	30	2	1304	0.1	0.0	82	39	0.03	0.4	43	0	0	2	45 \$	6							
7	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor North Wing	Pantry	Halls & common areas	518 \$			2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	0	LED Lamp and Driver	2	30	2	4693	0.1	0.0	296	141	0.03	0.4	155	0	-1	8	163 \$	12							
8	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor North Wing	Copy Work Storage	Halls & common areas	518 \$3			2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	6	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	6	0	LED Lamp and Driver	2	30	12	4693	0.4	0.2	1,774	845	0.20	2.4	929	0	-3	50	979 \$	75							
9	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor South Wing	Mail room	Halls & common areas	518 \$T			4' Strip	32T802E	4' Strip / 32W Fluorescent, 4'-0" T8 / Electronic, T8	8	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	8	Chain	LED Lamp and Driver	2	30	16	4693	0.5	0.2	2,365	1,126	0.26	3.2	1,239	0	-5	66	1,305 \$	100							
10	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor South Wing	Mens lockers	Restrooms, existing sensor	505 \$O			Recessed Downlight	42CFL01H2T	Recessed Downlight / Compact Fluorescent, 42W Triple, Horizontal / N/A	2	L14HO	Retrofit Lamp	LED PL Bypass Lamp Upgrade, (1) Horizontal mount lamp with internal driver and remove existing ballast, 15.5W each, 1750 delivered lumens, GREEN CREATIVE: PL H 15.5W BYP	2	Recessed	LED Integral Driver	1	16	2	1304	0.1	0.0	115	40	0.06	0.7	74	0	0	4	78 \$	10							
11	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor South Wing	Mens lockers	Restrooms, existing sensor	505 \$O			2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	2	30	2	1304	0.1	0.0	82	39	0.03	0.4	43	0	0	2	45 \$	6							
12	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor South Wing	Mens lockers	Restrooms, existing sensor	505 \$O			2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	1304	0.1	0.1	164	78	0.07	0.8	86	0	0	5	91 \$	12							
13	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor South Wing	Vestibule @ lockers and fitness	Halls & common areas	518 \$T			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	2	30	2	4693	0.1	0.0	296	141	0.03	0.4	155	0	-1	8	163 \$	12							
14	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor South Wing	Janitor closet off kitchen	Janitor Closet	502 \$			2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	4	N	No Retrofit - Payback/Budget	No Retrofit Proposed	4	Recessed	N/A	0	63	8	521	0.3	0.3	131	131	0.00	0.0	0	0	0	0	0 \$	-							
15	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor South Wing	Cafeteria hall	Cafeteria	518 \$T			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	8	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	8	Recessed	LED Lamp and Driver	2	30	16	4693	0.5	0.2	2,365	1,126	0.26	3.2	1,239	0	-5	66	1,305 \$	100							
16	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor South Wing	Cafeteria	Cafeteria	518 \$T			Recessed Downlight	42CFL01H2T	Recessed Downlight / Compact Fluorescent, 42W Triple, Horizontal / N/A	8	L14HO	Retrofit Lamp	LED PL Bypass Lamp Upgrade, (1) Horizontal mount lamp with internal driver and remove existing ballast, 15.5W each, 1750 delivered lumens, GREEN CREATIVE: PL H 15.5W BYP	8	Recessed	LED Integral Driver	1	16	8	4693	0.4	0.1	1,652	582	0.23	2.7	1,070	0	-4	57	1,127 \$	86							
17	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor South Wing	Cafeteria	Cafeteria	518 \$T			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	15	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	15	Recessed	LED Lamp and Driver	2	30	30	4693	0.9	0.5	4,435	2,112	0.50	5.9	2,323	0	-9	124	2,447 \$	187							
18	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor South Wing	Camera room 114	Storage Areas	502 \$3			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	10	N	No Retrofit - Payback/Budget	No Retrofit Proposed	10	Recessed	N/A	0	63	20	521	0.6	0.6	329	329	0.00	0.0	0	0	0	0	0 \$	-							
19	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor South Wing	Traffic Eq. 115	Open Office	508 \$3			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	7	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	7	Recessed	LED Lamp and Driver	2	30	14	2086	0.4	0.2	920	438	0.23	2.8	482	0	-2	26	507 \$	51							
20	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor South Wing	Work 122	Storage Areas - Active	504 \$			4' Industrial w/reflectors	32T802E	4' Industrial w/reflectors / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	0	N/A	0	63	4	1043	0.1	0.1	131	131	0.00	0.0	0	0	0	0	0 \$	-							
21	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor South Wing	Work 123	Storage Areas - Active	504 \$			4' Industrial w/reflectors	32T802E	4' Industrial w/reflectors / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	0	N/A	0	63	4	1043	0.1	0.1	131	131	0.00	0.0	0	0	0	0	0 \$	-							
22	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor South Wing	Loading dock 127	Warehouse	512 \$			4' Strip	32T802E	4' Strip / 32W Fluorescent, 4'-0" T8 / Electronic, T8	8	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	8	Chain	LED Lamp and Driver	2	30	16	3129	0.5	0.2	1,577	751	0.26	3.2	826	0	-3	44	870 \$	75							
23	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor North Wing	Restroom vestibules	Halls & common areas	518 \$T			Recessed Downlight	LED	Recessed Downlight / LED Fixture / LED Driver	6	N	No Retrofit - LED	No Retrofit Proposed	6	Recessed	N/A	0	12	6	4693	0.1	0.1	338	338	0.00	0.0	0	0	0	0	0 \$	-							
24	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor North Wing	Conf. 137	Conf. Room, existing sensor	506 \$O			Recessed Downlight	42CFL01H2T	Recessed Downlight / Compact Fluorescent, 42W Triple, Horizontal / N/A	1	L14HO	Retrofit Lamp	LED PL Bypass Lamp Upgrade, (1																										



						Existing										Proposed										Energy											
ID	Building	FIM Name	Floor/General Area	Room Name	ASHRAE Space Types	Time Code	Switching	Fixture Schedule	Fixture Type	Lamp & Ballast Type	Description	# of Fixtures	Fixture Code	Retrofit Type (Current Scope)	Description	# of Fixtures	Mounting (if different from existing)	Lamp Type	# of Lamps per Fixture	Watts per Fixture	# of Lamps	Operating Hours	Existing kW	Proposed kW	Existing kWh	Proposed kWh	kW Savings per Month	kW Savings per Year	kWh Savings per Year	Heating Penalty (kWh)	Heating Penalty (therms)	Cooling Credit (kWh)	Net kWh Savings per Year	Net Energy Cost Savings per Year			
48	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor North Wing	Council Toilet 133	Restrooms, existing sensor	506 \$0			Recessed Downlight	42CFL01HZT	Recessed Downlight / Compact Fluorescent, 42W Triple, Horizontal / N/A	1	L14HO	Retrofit Lamp	LED PL Bypass Lamp Upgrade, (1) Horizontal mount lamp with internal driver and remove existing ballast, 15.5W each, 1750 delivered lumens, GREEN CREATIVE: PL H 15.5W BYP	1	Recessed	LED Integral Driver	1	16	1	1564	0.0	0.0	69	24	0.03	0.3	45	0	0	2	47 \$	5			
49	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor North Wing	Council Office	Offices	504 \$			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	3	N	No Retrofit - Payback/Budget	No Retrofit Proposed	3	Recessed	N/A	0	63	6	1043	0.2	0.2	197	197	0.00	0.0	0	0	0	0	0 \$	-			
50	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor North Wing	TV Booth 131	Offices	502 \$			Track	50PAR01	Track / Incandescent, PAR lamp / N/A	3	N	No Retrofit - Payback/Budget	No Retrofit Proposed	3	Track	N/A	0	50	3	521	0.2	0.2	78	78	0.00	0.0	0	0	0	0	0 \$	-			
51	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor North Wing	TV Booth 131	Offices	502 \$			Recessed Downlight	42CFL01HZT	Recessed Downlight / Compact Fluorescent, 42W Triple, Horizontal / N/A	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Recessed	N/A	0	44	2	521	0.1	0.1	46	46	0.00	0.0	0	0	0	0	0 \$	-			
52	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor North Wing	Council Chamber 130	Conf. Room	506 \$			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	3	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	3	Recessed	LED Lamp and Driver	2	30	6	1564	0.2	0.1	296	141	0.10	1.2	155	0	-1	8	163 \$	19			
53	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor North Wing	Council Chamber 130	Conf. Room	502 Remote			Recessed Downlight	42CFL01	Recessed Downlight / Compact Fluorescent, 42W Triple, Vertical / N/A	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Recessed	N/A	0	44	2	521	0.1	0.1	46	46	0.00	0.0	0	0	0	0	0 \$	-			
54	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor North Wing	Council Chamber 130	Conf. Room	502 Remote			Recessed Downlight	50MR16	Recessed Downlight / Halogen, MR16 / Dimming, Magnetic	3	N	No Retrofit - Payback/Budget	No Retrofit Proposed	3	Recessed	N/A	0	50	3	521	0.2	0.2	78	78	0.00	0.0	0	0	0	0	0 \$	-			
55	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor North Wing	Council Chamber 130	Conf. Room	502 Remote			Recessed Downlight	42CFL01	Recessed Downlight / Compact Fluorescent, 42W Triple, Vertical / N/A	4	N	No Retrofit - Payback/Budget	No Retrofit Proposed	4	Recessed	N/A	0	44	4	521	0.2	0.2	92	92	0.00	0.0	0	0	0	0	0 \$	-			
56	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor North Wing	Council Chamber 130	Conf. Room	502 Remote			Recessed Downlight	75A01	Recessed Downlight / Incandescent, A lamp / N/A	28	N	No Retrofit - Payback/Budget	No Retrofit Proposed	28	Recessed	N/A	0	75	28	521	2.1	2.1	1,095	1,095	0.00	0.0	0	0	0	0	0 \$	-			
57	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor	Lobby 101	Halls & common areas	518 \$T			Recessed Downlight	LED	Recessed Downlight / LED Fixture / LED Driver	12	N	No Retrofit - LED	No Retrofit Proposed	12	Recessed	N/A	0	12	12	4693	0.1	0.1	676	676	0.00	0.0	0	0	0	0	0 \$	-			
58	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor	Lobby 101	Halls & common areas	518 \$T			Recessed Downlight	42CFL01HZT	Recessed Downlight / Compact Fluorescent, 42W Triple, Horizontal / N/A	5	L14HO	Retrofit Lamp	LED PL Bypass Lamp Upgrade, (1) Horizontal mount lamp with internal driver and remove existing ballast, 15.5W each, 1750 delivered lumens, GREEN CREATIVE: PL H 15.5W BYP	5	Recessed	LED Integral Driver	1	16	5	4693	0.2	0.1	1,032	364	0.14	1.7	669	0	-2	36	704 \$	54			
59	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor	Lobby 101	Halls & common areas	518 \$T			Recessed Downlight	LED	Recessed Downlight / LED Fixture / LED Driver	11	N	No Retrofit - LED	No Retrofit Proposed	11	Recessed	N/A	0	12	11	4693	0.1	0.1	619	619	0.00	0.0	0	0	0	0	0 \$	-			
60	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor	Lobby 101	Halls & common areas	518 \$T			Recessed Downlight	LED	Recessed Downlight / LED Fixture / LED Driver	9	N	No Retrofit - LED	No Retrofit Proposed	9	Recessed	N/A	0	12	9	4693	0.1	0.1	507	507	0.00	0.0	0	0	0	0	0 \$	-			
61	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor North Wing	Womans Restroom	Restrooms	518 \$T			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	3	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	3	Recessed	LED Lamp and Driver	2	30	6	4693	0.2	0.1	887	422	0.10	1.2	465	0	-2	25	489 \$	37			
62	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor South Wing	Womans lockers	Gym lockers, existing sensor	509 \$0			Recessed Downlight	42CFL01HZT	Recessed Downlight / Compact Fluorescent, 42W Triple, Horizontal / N/A	2	L14HO	Retrofit Lamp	LED PL Bypass Lamp Upgrade, (1) Horizontal mount lamp with internal driver and remove existing ballast, 15.5W each, 1750 delivered lumens, GREEN CREATIVE: PL H 15.5W BYP	2	Recessed	LED Integral Driver	1	16	2	2346	0.1	0.0	206	73	0.06	0.7	134	0	0	7	141 \$	14			
63	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor South Wing	Womans lockers	Gym lockers, existing sensor	509 \$0			2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	2	30	2	2346	0.1	0.0	148	70	0.03	0.4	77	0	0	4	82 \$	8			
64	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor South Wing	Womans lockers	Gym lockers, existing sensor	509 \$0			2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	2346	0.1	0.1	296	141	0.07	0.8	155	0	-1	8	163 \$	16			
65	City Hall	09.01-RCH: Upgrade Lighting to LED	2nd Floor	Main FI Lobby	Halls & common areas	518 \$T			Recessed Downlight	LED	Recessed Downlight / LED Fixture / LED Driver	13	N	No Retrofit - LED	No Retrofit Proposed	13	Recessed	N/A	0	12	13	4693	0.2	0.2	732	732	0.00	0.0	0	0	0	0	0 \$	-			
66	City Hall	09.01-RCH: Upgrade Lighting to LED	2nd Floor South Wing	Conference 213	Conf. Room, existing sensor	506 \$0			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	1564	0.1	0.1	197	94	0.07	0.8	103	0	0	6	109 \$	13			
67	City Hall	09.01-RCH: Upgrade Lighting to LED	2nd Floor South Wing	Work copy 208	Offices	506 \$			Undercabinet	17T801E	Undercabinet / 17W Fluorescent, 2'-0" T8 / Electronic, T8	2	L8	Retrofit Lamp	LED 2FT T8 Bypass lamp Upgrade, (1) lamp, 9W (system), 1100 delivered lumens, SYLVANIA	2	Surface	LED Integral Driver	1	9	2	1564	0.0	0.0	56	28	0.02	0.2	28	0	0	2	30 \$	3			
68	City Hall	09.01-RCH: Upgrade Lighting to LED	2nd Floor South Wing	Work copy 208	Halls & common areas	510 \$0			2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	4	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	4	Recessed	LED Lamp and Driver	2	30	8	2607	0.3	0.1	657	313	0.13	1.6	344	0	-1	18	362 \$	33			
69	City Hall	09.01-RCH: Upgrade Lighting to LED	2nd Floor South Wing	Private office 207	Offices	506 \$			Undercabinet	17T801E	Undercabinet / 17W Fluorescent, 2'-0" T8 / Electronic, T8	2	L8	Retrofit Lamp	LED 2FT T8 Bypass lamp Upgrade, (1) lamp, 9W (system), 1100 delivered lumens, SYLVANIA	2	Surface	LED Integral Driver	1	9	2	1564	0.0	0.0	56	28	0.02	0.2	28	0	0	2	30 \$	3			
70	City Hall	09.01-RCH: Upgrade Lighting to LED	2nd Floor South Wing	Private office 207	Offices, existing sensor	508 \$0			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	2086	0.1	0.1	263	125	0.07	0.8	138	0	-1	7	145 \$	15			
71	City Hall	09.01-RCH: Upgrade Lighting to LED	2nd Floor South Wing	Private office 209	Offices	506 \$			Undercabinet	17T801E	Undercabinet / 17W Fluorescent, 2'-0" T8 / Electronic, T8	2	L8	Retrofit Lamp	LED 2FT T8 Bypass lamp Upgrade, (1) lamp, 9W (system), 1100 delivered lumens, SYLVANIA	2	Surface	LED Integral Driver	1	9	2	1564	0.0	0.0	56	28	0.02	0.2	28	0	0	2	30 \$	3			
72	City Hall	09.01-RCH: Upgrade Lighting to LED	2nd Floor South Wing																																		



					Existing										Proposed										Energy										
ID	Building	FIM Name	Floor/General Area	Room Name	ASHRAE Space Types	Time Code	Switching	Fixture Schedule	Fixture Type	Lamp & Ballast Type	Description	# of Fixtures	Fixture Code	Retrofit Type (Current Scope)	Description	# of Fixtures	Mounting (If different from existing)	Lamp Type	# of Lamps per Fixture	Watts per Fixture	# of Lamps	Operating Hours	Existing kW	Proposed kW	Existing kWh	Proposed kWh	kW Savings per Month	kW Savings per Year	kWh Savings per Year	Heating Penalty (kWh)	Heating Penalty (therms)	Cooling Credit (kWh)	Net kWh Savings per Year	Net Energy Cost Savings per Year	
95	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor North Wing	File Rm (near stairs)	Storage Areas - Active	503	\$0		2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Recessed	N/A	0	63	4	782	0.1	0.1	99	99	0.00	0.0	0	0	0	0	\$ -	-	
96	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor North Wing	Work Copy	Halls & common areas	510	\$0		2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	4	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	4	Recessed	LED Lamp and Driver	2	30	8	2607	0.3	0.1	657	313	0.13	1.6	344	0	-1	18	362	\$ 33	
97	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor North Wing	Private Office 244	Offices, existing sensor	508	\$0		2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	2086	0.1	0.1	263	125	0.07	0.8	138	0	-1	7	145	\$ 15	
98	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor North Wing	Private Office 232	Offices	506	\$		Undercabinet	17T801E	Undercabinet / 17W Fluorescent, 2'-0" T8 / Electronic, T8	2	L8	Retrofit Lamp	LED 2FT T8 Bypass lamp Upgrade, (1) lamp, 9W (system), 1100 delivered lumens, SYLVANIA	2	Surface	LED Integral Driver	1	9	2	1564	0.0	0.0	56	28	0.02	0.2	28	0	0	2	30	\$ 3	
99	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor North Wing	Private Office 232	Offices, existing sensor	508	\$0		2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	2086	0.1	0.1	263	125	0.07	0.8	138	0	-1	7	145	\$ 15	
100	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor North Wing	IDF	Maintenance Areas	502	\$		4' Strip	32T802E	4' Strip / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	0	N/A	0	63	4	521	0.1	0.1	66	66	0.00	0.0	0	0	0	0	0	\$	
101	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor North Wing	Pantry	Kitchen , existing sensor	506	\$0		2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	2	30	2	1564	0.1	0.0	99	47	0.03	0.4	52	0	0	3	54	\$ 6	
102	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor North Wing	Phone Room	Hallways, existing sensor	510	\$0		2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	2	30	2	2607	0.1	0.0	164	78	0.03	0.4	86	0	0	5	91	\$ 8	
103	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor North Wing	Open Office North	Offices	506	\$		Undercabinet	25T801E	Undercabinet / 25W Fluorescent, 3'-0" T8 / Electronic, T8	24	L9	Retrofit Lamp	LED 3FT T8 Bypass Lamp Upgrade, (1) lamp, 12W (system), 1600+ delivered lumens, SYLVANIA	24	Surface	LED Integral Driver	1	12	24	1564	0.6	0.3	976	451	0.34	4.0	526	0	-2	28	554	\$ 64	
104	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor North Wing	Open Office North	Open Office	518	\$T		2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	14	L2 DIM	Lamp and Driver	LED 4FT T8 Lamp and Dimmable Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	14	Recessed	LED Lamp and Driver	2	32	28	4693	0.9	0.4	4,139	2,102	0.43	5.2	2,037	0	-8	109	2,145	\$ 164	
105	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor North Wing	Open Office North	Open Office	518	\$T		2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	15	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	15	Recessed	LED Lamp and Driver	2	30	30	4693	0.9	0.5	4,435	2,112	0.50	5.9	2,323	0	-9	124	2,447	\$ 187	
106	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor North Wing	Open Office West	Offices	506	\$		Undercabinet	25T801E	Undercabinet / 25W Fluorescent, 3'-0" T8 / Electronic, T8	3	L9	Retrofit Lamp	LED 3FT T8 Bypass Lamp Upgrade, (1) lamp, 12W (system), 1600+ delivered lumens, SYLVANIA	3	Surface	LED Integral Driver	1	12	3	1564	0.1	0.0	122	56	0.04	0.5	66	0	0	4	69	\$ 8	
107	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor North Wing	Open Office West	Open Office	518	\$T		2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	4	L2 DIM	Lamp and Driver	LED 4FT T8 Lamp and Dimmable Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	4	Recessed	LED Lamp and Driver	2	32	8	4693	0.3	0.1	1,183	601	0.12	1.5	582	0	-2	31	613	\$ 47	
108	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor North Wing	Open Office West	Open Office	518	\$T		2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	4	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	4	Recessed	LED Lamp and Driver	2	30	8	4693	0.3	0.1	1,183	563	0.13	1.6	619	0	-2	33	652	\$ 50	
109	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor North Wing	Open Office South	Offices	506	\$		Undercabinet	25T801E	Undercabinet / 25W Fluorescent, 3'-0" T8 / Electronic, T8	22	L9	Retrofit Lamp	LED 3FT T8 Bypass Lamp Upgrade, (1) lamp, 12W (system), 1600+ delivered lumens, SYLVANIA	22	Surface	LED Integral Driver	1	12	22	1564	0.6	0.3	895	413	0.31	3.7	482	0	-2	26	507	\$ 59	
110	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor North Wing	Open Office South	Open Office	518	\$T		2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	15	L2 DIM	Lamp and Driver	LED 4FT T8 Lamp and Dimmable Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	15	Recessed	LED Lamp and Driver	2	32	30	4693	0.9	0.5	4,435	2,253	0.47	5.6	2,182	0	-8	116	2,299	\$ 176	
111	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor North Wing	Open Office South	Open Office	518	\$T		2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	26	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	26	Recessed	LED Lamp and Driver	2	30	52	4693	1.6	0.8	7,687	3,660	0.86	10.3	4,026	0	-15	215	4,241	\$ 325	
112	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor	Elevator Lobby	Halls & common areas	518	\$T		Recessed Downlight	42CFL01	Recessed Downlight / Compact Fluorescent, 42W Triple, Vertical / N/A	6	L16HO	Retrofit Lamp	LED PL Bypass Lamp Upgrade, (1) Vertical mount lamps with internal driver and remove existing ballast, 16.5W each, 1000 delivered lumens, GREEN CREATIVE: PL V 16.5W BYP	6	Recessed	LED Integral Driver	2	17	12	4693	0.3	0.1	1,239	465	0.17	2.0	774	0	-3	41	816	\$ 62	
113	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor South Wing	Permit Center	Open Office	518	\$T		2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	3	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	3	Recessed	LED Lamp and Driver	2	30	6	4693	0.2	0.1	887	422	0.10	1.2	465	0	-2	25	489	\$ 37	
114	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor South Wing	Permit Center	Open Office	518	\$T		Recessed Downlight	42CFL01	Recessed Downlight / Compact Fluorescent, 42W Triple, Vertical / N/A	13	L16HO	Retrofit Lamp	LED PL Bypass Lamp Upgrade, (1) Vertical mount lamps with internal driver and remove existing ballast, 16.5W each, 1000 delivered lumens, GREEN CREATIVE: PL V 16.5W BYP	13	Recessed	LED Integral Driver	2	17	26	4693	0.6	0.2	2,684	1,007	0.36	4.3	1,678	0	-6	89	1,767	\$ 135	
115	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor South Wing	Open Office 223	Offices	506	\$		Undercabinet	25T801E	Undercabinet / 25W Fluorescent, 3'-0" T8 / Electronic, T8	6	L9	Retrofit Lamp	LED 3FT T8 Bypass Lamp Upgrade, (1) lamp, 12W (system), 1600+ delivered lumens, SYLVANIA	6	Surface	LED Integral Driver	1	12	6	1564	0.2	0.1	244	113	0.08	1.0	131	0	0	7	138	\$ 16	
116	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor South Wing	Open Office 223	Open Office	518	\$T		2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2 DIM	Lamp and Driver	LED 4FT T8 Lamp and Dimmable Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	32	4	4693	0.1	0.1	591	300	0.06	0.7	291	0	-1	16	306	\$ 23	
117	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor South Wing	Open Office 223	Open Office	518	\$T		2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	6	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	6	Recessed	LED Lamp and Driver	2	30	12	4693	0.4	0.2	1,774	845	0.20	2.4	929	0	-3	50	979	\$ 75	
118	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor South Wing	Open Office 222	Offices	506	\$		Undercabinet	17T801E	Undercabinet / 17W Fluorescent, 2'-0" T8 / Electronic, T8	1	L8	Retrofit Lamp	LED 2FT T8 Bypass lamp Upgrade, (1) lamp, 9W (system), 1100 delivered lumens, SYLVANIA	1	Surface	LED Integral Driver	1	9	1	1564	0.0	0.0	28	14	0.01	0.1	14	0	0	1	15	\$ 2	
119	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor South Wing	Open Office 222	Offices	506	\$		Undercabinet	25T801E	Undercabinet / 25W Fluorescent, 3'-0" T8 / Electronic, T8	8	L9	Retrofit Lamp	LED 3FT T8 Bypass Lamp Upgrade, (1) lamp, 12W (system), 1600+ delivered lumens, SYLVANIA	8	Surface	LED Integral Driver	1	12	8	1564	0.2	0.1	325	150	0.11	1.3	175	0	-1	9	185	\$ 21	
120	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor South Wing	Open Office 222	Open Office	518	\$T		2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	6	L2 DIM	Lamp and Driver	LED 4FT T8 Lamp and Dimmable Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	6	Recessed	LED Lamp and Driver	2	32	12	4693	0.4	0.2	1,774	901	0.19	2.2	873	0	-3	47	919	\$ 70	
121	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor South Wing	Open Office 222	Open Office	518	\$T		2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	6	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	6	Recessed	LED Lamp and Driver	2	30	12	4693	0.4	0.2	1,774	845	0.20	2.4	929	0	-3	50	979	\$ 75	
122	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor South Wing	Pantry	Kitchen , existing sensor	506	\$0		2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	2	30	2	1564	0.1	0.0	99	47	0.03	0.4	52	0	0	3	54	\$ 6	
123	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor South Wing	Private Office 218	Offices	506	\$		Undercabinet	17T801E	Undercabinet / 17W Fluorescent, 2'-0" T8 / Electronic, T8	2	L8	Retrofit Lamp	LED 2FT T8 Bypass lamp Upgrade, (1) lamp, 9W (system), 1100 delivered lumens, SYLVANIA	2	Surface	LED Integral Driver	1	9	2	1564	0.0	0.0	56	28	0.02	0.2	28	0	0	2	30	\$ 3	
124	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor South Wing	Private Office 218	Offices, existing sensor	508	\$0		2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	2086	0.1	0.1	263	125	0.07	0.8	138	0	-1	7	145	\$ 15	
125	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor South Wing	Private Office 215	Offices	506	\$		Undercabinet	17T801E	Undercabinet / 17W Fluorescent, 2'-0" T8 / Electronic, T8	2	L8	Retrofit Lamp	LED 2FT T8 Bypass lamp Upgrade, (1) lamp, 9W (system), 1100 delivered lumens, SYLVANIA	2	Surface	LED Integral Driver	1	9	2	1564	0.0	0.0	56	28	0.02	0.2	28	0	0	2	30	\$ 3	
126	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor South Wing	Private Office 215	Offices, existing sensor	508	\$0		2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	2086	0.1	0.1	263	125	0.07	0.8	138	0	-1	7	145	\$ 15	
127	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor South Wing	Private Office 214	Offices	506	\$		Undercabinet	17T801E	Undercabinet / 17W Fluorescent, 2'-0" T8 / Electronic, T8	2	L8	Retrofit Lamp	LED 2FT T8 Bypass lamp Upgrade, (1) lamp, 9W (system), 1100 delivered lumens, SYLVANIA	2	Surface	LED Integral Driver	1	9	2	1564	0.0	0.0	56	28	0.02	0.2	28	0	0	2	30	\$ 3	
128	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor South Wing	Private Office 214	Offices, existing sensor	508	\$0		2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	2086	0.1	0.1	263	125	0.07	0.8	138	0	-1	7	145	\$ 15	
129	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor	Lobby Bridge 201	Halls & common areas	518	\$T		Recessed Downlight	42CFL01	Recessed Downlight / Compact Fluorescent, 42W Triple, Vertical / N/A	14	L16HO	Retrofit Lamp	LED PL Bypass Lamp Upgrade, (1) Vertical mount lamps with internal driver and remove existing ballast, 16.5W each, 1000 delivered lumens, GREEN CREATIVE: PL V 16.5W BYP	14	Recessed	LED Integral Driver	2	17	28	4693	0.6	0.2	2,891	1,084	0.39	4.6	1,807	0	-7	96	1,903	\$ 146	
130	City Hall	09-01-RCH: Upgrade Lighting to LED	2nd Floor North Wing	Mens 204	Restrooms	518	\$T		2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	3																							





						Existing							Proposed											Energy										
ID	Building	FIM Name	Floor/General Area	Room Name	ASHRAE Space Types	Time Code	Switching	Fixture Schedule	Fixture Type	Lamp & Ballast Type	Description	# of Fixtures	Fixture Code	Retrofit Type (Current Scope)	Description	# of Fixtures	Mounting (if different from existing)	Lamp Type	# of Lamps per Fixture	Watts per Fixture	# of Lamps	Operating Hours	Existing kW	Proposed kW	Existing kWh	Proposed kWh	kW Savings per Month	kW Savings per Year	kWh Savings per Year	Heating Penalty (kWh)	Heating Penalty (therms)	Cooling Credit (kWh)	Net kWh Savings per Year	Net Energy Cost Savings per Year
142	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor	Hall East	Halls & common areas	518 \$T			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	4	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	4	Recessed	LED Lamp and Driver	2	30	8	4693	0.3	0.1	1,183	563	0.13	1.6	619	0	-2	33	652 \$	50
143	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor South Wing	Pantry	Kitchen , existing sensor	506 \$O			2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	2	30	2	1564	0.1	0.0	99	47	0.03	0.4	52	0	0	3	54 \$	6
144	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor South Wing	Conference 327	Conf. Room, existing sensor	506 \$O			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	1564	0.1	0.1	197	94	0.07	0.8	103	0	0	6	109 \$	13
145	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor South Wing	Files 329	Storage Areas - Active	503 \$O			2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Recessed	N/A	0	63	4	782	0.1	0.1	99	99	0.00	0.0	0	0	0	0	0 \$	-
146	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor South Wing	Work Copy 330	Halls & common areas	510 \$O			2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	3	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	3	Recessed	LED Lamp and Driver	2	30	6	2607	0.2	0.1	493	235	0.10	1.2	258	0	-1	14	272 \$	25
147	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor South Wing	Private office 332	Offices	506 \$			Undercabinet	17T801E	Undercabinet / 17W Fluorescent, 2'-0" T8 / Electronic, T8	1	L8	Retrofit Lamp	LED 2FT T8 Bypass lamp Upgrade, (1) lamp, 9W (system), 1100 delivered lumens, SYLVANIA	1	Surface	LED Integral Driver	1	9	1	1564	0.0	0.0	28	14	0.01	0.1	14	0	0	1	15 \$	2
148	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor South Wing	Private office 332	Offices, existing sensor	508 \$O			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	2086	0.1	0.1	263	125	0.07	0.8	138	0	-1	7	145 \$	15
149	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor South Wing	Conference 333	Conf. Room, existing sensor	506 \$O			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	1564	0.1	0.1	197	94	0.07	0.8	103	0	0	6	109 \$	13
150	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor South Wing	Closet 319	Storage Areas, existing sensor	502 \$O			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Recessed	N/A	0	63	2	521	0.1	0.1	33	33	0.00	0.0	0	0	0	0	0 \$	-
151	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor South Wing	Open office	Offices	506 \$			Undercabinet	17T801E	Undercabinet / 17W Fluorescent, 2'-0" T8 / Electronic, T8	3	L8	Retrofit Lamp	LED 2FT T8 Bypass lamp Upgrade, (1) lamp, 9W (system), 1100 delivered lumens, SYLVANIA	3	Surface	LED Integral Driver	1	9	3	1564	0.1	0.0	84	42	0.03	0.3	42	0	0	2	44 \$	5
152	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor South Wing	Open office	Offices	506 \$			Undercabinet	25T801E	Undercabinet / 25W Fluorescent, 3'-0" T8 / Electronic, T8	29	L9	Retrofit Lamp	LED 3FT T8 Bypass Lamp Upgrade, (1) lamp, 12W (system), 1600+ delivered lumens, SYLVANIA	29	Surface	LED Integral Driver	1	12	29	1564	0.8	0.3	1,179	544	0.41	4.9	635	0	-2	34	669 \$	77
153	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor South Wing	Open office	Open Office	518 \$T			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	81	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	81	Recessed	LED Lamp and Driver	2	30	162	4693	5.1	2.4	23,948	11,404	2.67	32.1	12,544	0	-47	669	13,213 \$	1,012
154	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor South Wing	Corner Conference	Offices	506 \$			Undercabinet	17T801E	Undercabinet / 17W Fluorescent, 2'-0" T8 / Electronic, T8	1	L8	Retrofit Lamp	LED 2FT T8 Bypass lamp Upgrade, (1) lamp, 9W (system), 1100 delivered lumens, SYLVANIA	1	Surface	LED Integral Driver	1	9	1	1564	0.0	0.0	28	14	0.01	0.1	14	0	0	1	15 \$	2
155	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor South Wing	Corner Conference	Conf. Room, existing sensor	506 \$O			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	1564	0.1	0.1	197	94	0.07	0.8	103	0	0	6	109 \$	13
156	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor South Wing	Plotter 320	Hallways, existing sensor	510 \$O			2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	2607	0.1	0.1	329	156	0.07	0.8	172	0	-1	9	181 \$	17
157	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor South Wing	Computer 321	Offices	506 \$3			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	9	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	9	Recessed	LED Lamp and Driver	2	30	18	1564	0.6	0.3	887	422	0.30	3.6	465	0	-2	25	489 \$	56
158	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor South Wing	Private office 317	Offices	506 \$			Undercabinet	17T801E	Undercabinet / 17W Fluorescent, 2'-0" T8 / Electronic, T8	1	L8	Retrofit Lamp	LED 2FT T8 Bypass lamp Upgrade, (1) lamp, 9W (system), 1100 delivered lumens, SYLVANIA	1	Surface	LED Integral Driver	1	9	1	1564	0.0	0.0	28	14	0.01	0.1	14	0	0	1	15 \$	2
159	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor South Wing	Private office 317	Offices, existing sensor	508 \$O			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	2086	0.1	0.1	263	125	0.07	0.8	138	0	-1	7	145 \$	15
160	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor South Wing	Conference 316	Conf. Room, existing sensor	506 \$O			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	1564	0.1	0.1	197	94	0.07	0.8	103	0	0	6	109 \$	13
161	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor North Wing	Phone room 336	Hallways, existing sensor	510 \$O			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	2	30	2	2607	0.1	0.0	164	78	0.03	0.4	86	0	0	5	91 \$	8
162	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor North Wing	Private office 346	Offices	506 \$			Undercabinet	17T801E	Undercabinet / 17W Fluorescent, 2'-0" T8 / Electronic, T8	2	L8	Retrofit Lamp	LED 2FT T8 Bypass lamp Upgrade, (1) lamp, 9W (system), 1100 delivered lumens, SYLVANIA	2	Surface	LED Integral Driver	1	9	2	1564	0.0	0.0	56	28	0.02	0.2	28	0	0	2	30 \$	3
163	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor North Wing	Private office 346	Offices, existing sensor	508 \$O			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	2086	0.1	0.1	263	125	0.07	0.8	138	0	-1	7	145 \$	15
164	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor North Wing	Conference 347	Conf. Room, existing sensor	506 \$O			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2																			



						Existing										Proposed										Energy											
ID	Building	FIM Name	Floor/General Area	Room Name	ASHRAE Space Types	Time Code	Switching	Fixture Schedule	Fixture Type	Lamp & Ballast Type	Description	# of Fixtures	Fixture Code	Retrofit Type (Current Scope)	Description	# of Fixtures	Mounting (if different from existing)	Lamp Type	# of Lamps per Fixture	Watts per Fixture	# of Lamps	Operating Hours	Existing kW	Proposed kW	Existing kWh	Proposed kWh	kW Savings per Month	kW Savings per Year	kWh Savings per Year	Heating Penalty (kWh)	Heating Penalty (therms)	Cooling Credit (kWh)	Net kWh Savings per Year	Net Energy Cost Savings per Year			
189	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor North Wing	Work storage 335	Storage Areas, existing sensor	502 \$0			2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Recessed	N/A	0	63	4	521	0.1	0.1	66	66	0.00	0.0	0	0	0	0	\$ -				
190	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor North Wing	Private office 362	Offices	506 \$			Undercabinet	17T801E	Undercabinet / 17W Fluorescent, 2'-0" T8 / Electronic, T8	2	L8	Retrofit Lamp	LED 2FT T8 Bypass lamp Upgrade, (1) lamp, 9W (system), 1100 delivered lumens, SYLVANIA	2	Surface	LED Integral Driver	1	9	2	1564	0.0	0.0	56	28	0.02	0.2	28	0	0	2	30 \$ 3				
191	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor North Wing	Private office 362	Offices, existing sensor	508 \$0			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	2086	0.1	0.1	263	125	0.07	0.8	138	0	-1	7	145 \$ 15				
192	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor North Wing	Open office and Waiting area HR	Offices	506 \$			Undercabinet	17T801E	Undercabinet / 17W Fluorescent, 2'-0" T8 / Electronic, T8	4	L8	Retrofit Lamp	LED 2FT T8 Bypass lamp Upgrade, (1) lamp, 9W (system), 1100 delivered lumens, SYLVANIA	4	Surface	LED Integral Driver	1	9	4	1564	0.1	0.0	113	56	0.04	0.4	56	0	0	3	59 \$ 7				
193	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor North Wing	Open office and Waiting area HR	Offices	506 \$			Undercabinet	25T801E	Undercabinet / 25W Fluorescent, 3'-0" T8 / Electronic, T8	7	L9	Retrofit Lamp	LED 3FT T8 Bypass Lamp Upgrade, (1) lamp, 12W (system), 1600+ delivered lumens, SYLVANIA	7	Surface	LED Integral Driver	1	12	7	1564	0.2	0.1	285	131	0.10	1.2	153	0	-1	8	161 \$ 19				
194	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor North Wing	Open office and Waiting area HR	Open Office	518 \$T			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	5	L2 DIM	Lamp and Driver	LED 4FT T8 Lamp and Dimmable Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	5	Recessed	LED Lamp and Driver	2	32	10	4693	0.3	0.2	1,478	751	0.16	1.9	727	0	-3	39	766 \$ 59				
195	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor North Wing	Open office and Waiting area HR	Open Office	518 \$T			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	14	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	14	Recessed	LED Lamp and Driver	2	30	28	4693	0.9	0.4	4,139	1,971	0.46	5.5	2,168	0	-8	116	2,284 \$ 175				
196	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor North Wing	Private office 364	Offices	506 \$			Undercabinet	17T801E	Undercabinet / 17W Fluorescent, 2'-0" T8 / Electronic, T8	2	L8	Retrofit Lamp	LED 2FT T8 Bypass lamp Upgrade, (1) lamp, 9W (system), 1100 delivered lumens, SYLVANIA	2	Surface	LED Integral Driver	1	9	2	1564	0.0	0.0	56	28	0.02	0.2	28	0	0	2	30 \$ 3				
197	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor North Wing	Private office 364	Offices, existing sensor	508 \$0			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	2086	0.1	0.1	263	125	0.07	0.8	138	0	-1	7	145 \$ 15				
198	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor North Wing	Private office 363	Offices	506 \$			Undercabinet	17T801E	Undercabinet / 17W Fluorescent, 2'-0" T8 / Electronic, T8	2	L8	Retrofit Lamp	LED 2FT T8 Bypass lamp Upgrade, (1) lamp, 9W (system), 1100 delivered lumens, SYLVANIA	2	Surface	LED Integral Driver	1	9	2	1564	0.0	0.0	56	28	0.02	0.2	28	0	0	2	30 \$ 3				
199	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor North Wing	Private office 363	Offices, existing sensor	508 \$0			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	2086	0.1	0.1	263	125	0.07	0.8	138	0	-1	7	145 \$ 15				
200	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor North Wing	Woman&Circs restroom	Restrooms, existing sensor	506 \$0			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	3	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	3	Recessed	LED Lamp and Driver	2	30	6	1564	0.2	0.1	296	141	0.10	1.2	155	0	-1	8	163 \$ 19				
201	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor North Wing	Men restroom	Restrooms, existing sensor	506 \$0			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	3	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	3	Recessed	LED Lamp and Driver	2	30	6	1564	0.2	0.1	296	141	0.10	1.2	155	0	-1	8	163 \$ 19				
202	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor North Wing	Elevator lobby n Vestibule	Halls & common areas	518 \$T			Recessed Downlight	42CFL01	Recessed Downlight / Compact Fluorescent, 42W Triple, Vertical / N/A	12	L16HQ	Retrofit Lamp	LED PL Bypass Lamp Upgrade, (1) Vertical mount lamps with internal driver and remove existing ballast, 16.5W each, 1000 delivered lumens, GREEN CREATIVE: PL V 16.5W BVP	12	Recessed	LED Integral Driver	2	17	24	4693	0.5	0.2	2,478	929	0.33	4.0	1,549	0	-6	83	1,631 \$ 125				
203	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor North Wing	Elevator lobby n Vestibule	Halls & common areas	518 \$T			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	10	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	10	Recessed	LED Lamp and Driver	2	30	20	4693	0.6	0.3	2,957	1,408	0.33	4.0	1,549	0	-6	83	1,631 \$ 125				
204	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor North Wing	Conference 303	Conf. Room, existing sensor	506 \$0			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	6	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	6	Recessed	LED Lamp and Driver	2	30	12	1564	0.4	0.2	591	282	0.20	2.4	310	0	-1	17	326 \$ 38				
205	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor North Wing	Conference 304	Conf. Room, existing sensor	506 \$0			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	4	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	4	Recessed	LED Lamp and Driver	2	30	8	1564	0.3	0.1	394	188	0.13	1.6	206	0	-1	11	217 \$ 25				
206	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor North Wing	Conference 305	Conf. Room, existing sensor	506 \$0			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	4	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	4	Recessed	LED Lamp and Driver	2	30	8	1564	0.3	0.1	394	188	0.13	1.6	206	0	-1	11	217 \$ 25				
207	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor North Wing	Electrical 310	Maintenance Areas - Inactive	501 \$			4' Strip	32T802E	4' Strip / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Chain	N/A	0	63	2	261	0.1	0.1	16	16	0.00	0.0	0	0	0	0	\$ -				
208	City Hall	09.01-RCH: Upgrade Lighting to LED	3rd Floor South Wing	Electrical 322	Maintenance Areas - Inactive	501 \$			4' Strip	32T802E	4' Strip / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Chain	N/A	0	63	2	261	0.1	0.1	16	16	0.00	0.0	0	0	0	0	\$ -				
209	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor North Wing	Private office 437	Offices	506 \$			Undercabinet	17T801E	Undercabinet / 17W Fluorescent, 2'-0" T8 / Electronic, T8	2	L8	Retrofit Lamp	LED 2FT T8 Bypass lamp Upgrade, (1) lamp, 9W (system), 1100 delivered lumens, SYLVANIA	2	Surface	LED Integral Driver	1	9	2	1564	0.0	0.0	56	28	0.02	0.2	28	0	0	2	30 \$ 3				
210	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor North Wing	Private office 437	Offices, existing sensor	508 \$0			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	2086	0.1	0.1	263	125	0.07	0.8	138	0	-1	7	145 \$ 15				
211	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor North Wing	Office 448	Offices, existing sensor	508 \$0			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	2086	0.1	0.1	26												



						Existing							Proposed										Energy											
ID	Building	FIM Name	Floor/General Area	Room Name	ASHRAE Space Types	Time Code	Switching	Fixture Schedule	Fixture Type	Lamp & Ballast Type	Description	# of Fixtures	Fixture Code	Retrofit Type (Current Scope)	Description	# of Fixtures	Mounting (if different from existing)	Lamp Type	# of Lamps per Fixture	Watts per Fixture	# of Lamps	Operating Hours	Existing kW	Proposed kW	Existing kWh	Proposed kWh	kW Savings per Month	kW Savings per Year	kWh Savings per Year	Heating Penalty (kWh)	Heating Penalty (therms)	Cooling Credit (kWh)	Net kWh Savings per Year	Net Energy Cost Savings per Year
236	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor	Center Area Phone Rm Left 433	Conf. Room, existing sensor	506 \$			2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	2	30	2	1564	0.1	0.0	99	47	0.03	0.4	52	0	0	3	54 \$	6
237	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor	Center Area Phone Rm Right 434	Conf. Room, existing sensor	506 \$			2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	2	30	2	1564	0.1	0.0	99	47	0.03	0.4	52	0	0	3	54 \$	6
238	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor	Center Area Conf. Left 404	Conf. Room, existing sensor	506 \$0			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	1564	0.1	0.1	197	94	0.07	0.8	103	0	0	6	109 \$	13
239	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor	Center Area Conference Center 405	Conf. Room, existing sensor	506 \$0			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	4	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	4	Recessed	LED Lamp and Driver	2	30	8	1564	0.3	0.1	394	188	0.13	1.6	206	0	-1	11	217 \$	25
240	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor	Center Area Conference Right 406	Conf. Room, existing sensor	506 \$0			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	1564	0.1	0.1	197	94	0.07	0.8	103	0	0	6	109 \$	13
241	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor	Center Area Conference Corner 432	Conf. Room, existing sensor	506 \$0			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	1564	0.1	0.1	197	94	0.07	0.8	103	0	0	6	109 \$	13
242	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor South Wing	Work Copy 430	Halls & common areas	510 \$0			2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	4	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	4	Recessed	LED Lamp and Driver	2	30	8	2607	0.3	0.1	657	313	0.13	1.6	344	0	-1	18	362 \$	33
243	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor South Wing	Studio 415	Storage Areas - Active	504 \$			4' Strip	32T802E	4' Strip / 32W Fluorescent, 4'-0" T8 / Electronic, T8	4	N	No Retrofit - Payback/Budget	No Retrofit Proposed	4	0	N/A	0	63	8	1043	0.3	0.3	263	263	0.00	0.0	0	0	0	0	0 \$	-
244	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor South Wing	Private Office 419	Offices	506 \$			Undercabinet	17T801E	Undercabinet / 17W Fluorescent, 2'-0" T8 / Electronic, T8	2	L8	Retrofit Lamp	LED 2FT T8 Bypass lamp Upgrade, (1) lamp, 9W (system), 1100 delivered lumens, SYLVANIA	2	Surface	LED Integral Driver	1	9	2	1564	0.0	0.0	56	28	0.02	0.2	28	0	0	2	30 \$	3
245	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor South Wing	Private Office 419	Offices, existing sensor	508 \$0			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	2086	0.1	0.1	263	125	0.07	0.8	138	0	-1	7	145 \$	15
246	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor South Wing	Private Office 423	Offices	506 \$			Undercabinet	17T801E	Undercabinet / 17W Fluorescent, 2'-0" T8 / Electronic, T8	2	L8	Retrofit Lamp	LED 2FT T8 Bypass lamp Upgrade, (1) lamp, 9W (system), 1100 delivered lumens, SYLVANIA	2	Surface	LED Integral Driver	1	9	2	1564	0.0	0.0	56	28	0.02	0.2	28	0	0	2	30 \$	3
247	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor South Wing	Private Office 423	Offices, existing sensor	508 \$0			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	2086	0.1	0.1	263	125	0.07	0.8	138	0	-1	7	145 \$	15
248	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor South Wing	Private Office 424	Offices	506 \$			Undercabinet	17T801E	Undercabinet / 17W Fluorescent, 2'-0" T8 / Electronic, T8	2	L8	Retrofit Lamp	LED 2FT T8 Bypass lamp Upgrade, (1) lamp, 9W (system), 1100 delivered lumens, SYLVANIA	2	Surface	LED Integral Driver	1	9	2	1564	0.0	0.0	56	28	0.02	0.2	28	0	0	2	30 \$	3
249	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor South Wing	Private Office 424	Offices, existing sensor	508 \$0			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	2086	0.1	0.1	263	125	0.07	0.8	138	0	-1	7	145 \$	15
250	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor South Wing	Electrical	Maintenance Areas - Inactive	501 \$			4' Strip	32T802E	4' Strip / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	0	N/A	0	63	2	261	0.1	0.1	16	16	0.00	0.0	0	0	0	0	0 \$	-
251	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor South Wing	File Rm 429	Storage Areas - Active	503 \$0			2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Recessed	N/A	0	63	4	782	0.1	0.1	99	99	0.00	0.0	0	0	0	0	0 \$	-
252	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor South Wing	Edit Room 414	Offices	506 \$			2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	2	30	2	1564	0.1	0.0	99	47	0.03	0.4	52	0	0	3	54 \$	6
253	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor South Wing	Edit Room 416	Offices	506 \$			2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	1564	0.1	0.1	197	94	0.07	0.8	103	0	0	6	109 \$	13
254	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor South Wing	Vocal booth 412	Offices	502 \$			2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Recessed	N/A	0	63	2	521	0.1	0.1	33	33	0.00	0.0	0	0	0	0	0 \$	-
255	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor South Wing	Control Rm 411	Offices	502 \$			2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Recessed	N/A	0	63	4	521	0.1	0.1	66	66	0.00	0.0	0	0	0	0	0 \$	-
256	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor South Wing	Private Office EV	Offices	506 \$			Undercabinet	17T801E	Undercabinet / 17W Fluorescent, 2'-0" T8 / Electronic, T8	2	L8	Retrofit Lamp	LED 2FT T8 Bypass lamp Upgrade, (1) lamp, 9W (system), 1100 delivered lumens, SYLVANIA	2	Surface	LED Integral Driver	1	9	2	1564	0.0	0.0	56	28	0.02	0.2	28	0	0	2	30 \$	3
257	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor South Wing	Private Office EV	Offices, existing sensor	508 \$0			2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	2086	0.1	0.1	263	125	0.07	0.8	138	0	-1	7	145 \$	15
258	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor South Wing	Private Office Pyle	Offices	506 \$			Undercabinet	17T801E	Undercabinet / 17W Fluorescent, 2'-0" T8 / Electronic, T8	2	L8	Retrofit Lamp	LED 2FT T8 Bypass lamp Upgrade, (1) lamp, 9W (system), 1100 delivered lumens, SYLVANIA	2	Surface	LED Integral Driver	1	9	2	1564	0.0	0.0	56	28	0.02	0.2	28	0	0	2	30 \$	





						Existing							Proposed										Energy											
ID	Building	FIM Name	Floor/General Area	Room Name	ASHRAE Space Types	Time Code	Switching	Fixture Schedule	Fixture Type	Lamp & Ballast Type	Description	# of Fixtures	Fixture Code	Retrofit Type (Current Scope)	Description	# of Fixtures	Mounting (if different from existing)	Lamp Type	# of Lamps per Fixture	Watts per Fixture	# of Lamps	Operating Hours	Existing kW	Proposed kW	Existing kWh	Proposed kWh	kW Savings per Month	kW Savings per Year	kWh Savings per Year	Heating Penalty (kWh)	Heating Penalty (therms)	Cooling Credit (kWh)	Net kWh Savings per Year	Net Energy Cost Savings per Year
283	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor North Wing	Electrical Storage 410	Storage Areas - Active	504	\$		2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Recessed	N/A	0	63	2	1043	0.1	0.1	66	66	0.00	0.0	0	0	0	0	0	\$ -
284	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor South Wing	Storage 410	Maintenance Areas - Inactive	501	\$		4' Strip	32T802E	4' Strip / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	0	N/A	0	63	2	261	0.1	0.1	16	16	0.00	0.0	0	0	0	0	0	\$ -
285	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor North Wing	Mens 404	Restrooms, existing sensor	506	\$0		2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	3	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	3	Recessed	LED Lamp and Driver	2	30	6	1564	0.2	0.1	296	141	0.10	1.2	155	0	-1	8	163	\$ 19
286	City Hall	09.01-RCH: Upgrade Lighting to LED	4th Floor North Wing	Womans 405	Restrooms, existing sensor	506	\$0		2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	3	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	3	Recessed	LED Lamp and Driver	2	30	6	1564	0.2	0.1	296	141	0.10	1.2	155	0	-1	8	163	\$ 19
273	City Hall	09.01-RCH: Upgrade Lighting to LED	1st Floor	Parking Lot	Outside Areas	718	\$T		Area	LED	Area / LED Fixture / LED Driver	9	N	No Retrofit - LED	No Retrofit Proposed	9	Pole	N/A	0	50	9	6570	0.5	0.5	2,957	2,957	0.00	0.0	0	0	0	0	0	\$ -
288	City Hall	09.01-RCH: Upgrade Lighting to LED	Stairs	Center Stair case	Halls & common areas	518	\$T		Wall Bracket	LED	Wall Bracket / LED Fixture / LED Driver	7	N	No Retrofit - LED	No Retrofit Proposed	7	Wall	N/A	0	12	7	4693	0.1	0.1	394	394	0.00	0.0	0	0	0	0	0	\$
289	City Hall	09.01-RCH: Upgrade Lighting to LED	Roof	Roof top Mech	Maintenance Areas - Inactive	501	\$		4' Strip	32T802E	4' Strip / 32W Fluorescent, 4'-0" T8 / Electronic, T8	9	N	No Retrofit - Payback/Budget	No Retrofit Proposed	9	0	N/A	0	63	18	261	0.6	0.6	148	148	0.00	0.0	0	0	0	0	0	\$
290	City Hall	09.01-RCH: Upgrade Lighting to LED	Stairs	Stairs South corner	Halls & common areas	518	\$T		Direct/Indirect	LED	Direct/Indirect / LED Fixture / LED Driver	5	N	No Retrofit - LED	No Retrofit Proposed	5	0	N/A	0	12	5	4693	0.1	0.1	282	282	0.00	0.0	0	0	0	0	0	\$ -
291	City Hall	09.01-RCH: Upgrade Lighting to LED	Stairs	Stairs South corner	Halls & common areas	518	\$T		General	LED	General / LED Fixture / LED Driver	5	N	No Retrofit - LED	No Retrofit Proposed	5	0	N/A	0	12	5	4693	0.1	0.1	282	282	0.00	0.0	0	0	0	0	0	\$ -
292	City Hall	09.01-RCH: Upgrade Lighting to LED	Exterior	Loading Dock 126	Warehouse	512	\$		4' Strip	32T802E	4' Strip / 32W Fluorescent, 4'-0" T8 / Electronic, T8	8	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	8	0	LED Lamp and Driver	2	30	16	3129	0.5	0.2	1,577	751	0.26	3.2	826	0	-3	44	870	\$ 75
294	Main Building	09.01-RTC	1st Floor	Rec. Studio Instrument Storage	Storage Areas - Active	502	\$		Track	50PAR01	Track / Incandescent, PAR lamp / N/A	1	L19	Retrofit Lamp	LED PAR30 Bypass Lamp Upgrade, (1) E26 base lamp with internal driver, 10W each, 800+ delivered lumens, Sylvania: Par30 10W DIM	1	Track	LED Integral Driver	1	10	1	521	0.1	0.0	26	5	0.04	0.5	21	0	0	1	22	\$ 5
295	Main Building	09.01-RTC	1st Floor	Rec. Studio Instrument Storage	Storage Areas - Active	502	\$		Cylinder	26CFL02	Cylinder / Compact Fluorescent, 26W Triple / N/A	1	L15	Retrofit Lamp	LED PL Bypass Lamp Upgrade, (2) Horizontal mount lamp with internal driver and remove existing ballast, 8W each, 900 delivered lumens, GREEN CREATIVE: PL H 8W BYP	1	Surface	LED Integral Driver	2	16	2	521	0.1	0.0	31	8	0.04	0.5	23	0	0	1	24	\$ 6
296	Main Building	09.01-RTC	1st Floor	Rec. Studio Main booth	Storage Areas - Active	502	\$		Track	50PAR01	Track / Incandescent, PAR lamp / N/A	5	L19	Retrofit Lamp	LED PAR30 Bypass Lamp Upgrade, (1) E26 base lamp with internal driver, 10W each, 800+ delivered lumens, Sylvania: Par30 10W DIM	5	Track	LED Integral Driver	1	10	5	521	0.3	0.1	130	26	0.20	2.4	104	0	0	6	110	\$ 25
297	Main Building	09.01-RTC	1st Floor	Rec. Studio Main booth	Storage Areas - Active	502	\$		Cylinder	26CFL02	Cylinder / Compact Fluorescent, 26W Triple / N/A	2	L15	Retrofit Lamp	LED PL Bypass Lamp Upgrade, (2) Horizontal mount lamp with internal driver and remove existing ballast, 8W each, 900 delivered lumens, GREEN CREATIVE: PL H 8W BYP	2	Surface	LED Integral Driver	2	16	4	521	0.1	0.0	63	17	0.09	1.1	46	0	0	2	48	\$ 11
298	Main Building	09.01-RTC	1st Floor	Rec. Studio Vocal booth	Storage Areas - Active	502	\$		Track	50PAR01	Track / Incandescent, PAR lamp / N/A	2	L19	Retrofit Lamp	LED PAR30 Bypass Lamp Upgrade, (1) E26 base lamp with internal driver, 10W each, 800+ delivered lumens, Sylvania: Par30 10W DIM	2	Track	LED Integral Driver	1	10	2	521	0.1	0.0	52	10	0.08	1.0	42	0	0	2	44	\$ 10
299	Main Building	09.01-RTC	1st Floor	Rec. Studio Vocal booth	Storage Areas - Active	502	\$		Cylinder	26CFL02	Cylinder / Compact Fluorescent, 26W Triple / N/A	1	L15	Retrofit Lamp	LED PL Bypass Lamp Upgrade, (2) Horizontal mount lamp with internal driver and remove existing ballast, 8W each, 900 delivered lumens, GREEN CREATIVE: PL H 8W BYP	1	Surface	LED Integral Driver	2	16	2	521	0.1	0.0	31	8	0.04	0.5	23	0	0	1	24	\$ 6
300	Main Building	09.01-RTC	1st Floor	Rec. Studio Storage	Storage Areas - Active	502	\$		Track	50PAR01	Track / Incandescent, PAR lamp / N/A	3	L19	Retrofit Lamp	LED PAR30 Bypass Lamp Upgrade, (1) E26 base lamp with internal driver, 10W each, 800+ delivered lumens, Sylvania: Par30 10W DIM	3	Track	LED Integral Driver	1	10	3	521	0.2	0.0	78	16	0.12	1.4	63	0	0	3	66	\$ 15
301	Main Building	09.01-RTC	1st Floor	Rec. Studio Storage	Storage Areas - Active	502	\$		Cylinder	26CFL02	Cylinder / Compact Fluorescent, 26W Triple / N/A	1	L15	Retrofit Lamp	LED PAR30 Bypass Lamp Upgrade, (1) E26 base lamp with internal driver, 10W each, 800+ delivered lumens, Sylvania: Par30 10W DIM	1	Surface	LED Integral Driver	2	16	2	521	0.1	0.0	31	8	0.04	0.5	23	0	0	1	24	\$ 6
302	Main Building	09.01-RTC	1st Floor	Recording Studio Control Room	Storage Areas - Active	502	\$		Track	50PAR01	Track / Incandescent, PAR lamp / N/A	5	L19	Retrofit Lamp	LED PAR30 Bypass Lamp Upgrade, (1) E26 base lamp with internal driver, 10W each, 800+ delivered lumens, Sylvania: Par30 10W DIM	5	Track	LED Integral Driver	1	10	5	521	0.3	0.1	130	26	0.20	2.4	104	0	0	6	110	\$ 25
303	Main Building	09.01-RTC	1st Floor	Recording Studio Control Room	Storage Areas - Active	502	\$3		Cylinder	26CFL02	Cylinder / Compact Fluorescent, 26W Triple / N/A	3	L15	Retrofit Lamp	LED PL Bypass Lamp Upgrade, (2) Horizontal mount lamp with internal driver and remove existing ballast, 8W each, 900 delivered lumens, GREEN CREATIVE: PL H 8W BYP	3	Surface	LED Integral Driver	2	16	6	521	0.2	0.0	94	25	0.13	1.6	69	0	0	4	72	\$ 17
304	Main Building	09.01-RTC	1st Floor	Multi Purpose Bathroom	Restrooms	704	\$		Downlight	50PAR01	Downlight / Incandescent, PAR lamp / N/A	2	L19	Retrofit Lamp	LED PAR30 Bypass Lamp Upgrade, (1) E26 base lamp with internal driver, 10W each, 800+ delivered lumens, Sylvania: Par30 10W DIM	2	Recessed	LED Integral Driver	1	10	2	1460	0.1	0.0	146	29	0.08	1.0	117	0	0	6	123	\$ 15
305	Main Building	09.01-RTC	1st Floor	Program Rm 117	Offices	506	\$		4' Acrylic Wrap (Wide)	32T804E	4' Acrylic Wrap (Wide) / 32W Fluorescent, 4'-0" T8 / Electronic, T8	3	L4	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (4) lamps with (1) 4-lamp driver, 60W (system),8000+ delivered lumens, SYLVANIA	3	Chain	LED Lamp and Driver	4	60	12	1564	0.3	0.2	535	282	0.16	1.9	253	0	-1	14	267	\$ 31
306	Main Building	09.01-RTC	1st Floor	Kitchen 116	Kitchen	505	\$		4' Acrylic Wrap (Wide)	32T802E	4' Acrylic Wrap (Wide) / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Surface	LED Lamp and Driver	2	30	2	1304	0.1	0.0	82	39	0.03	0.4	43	0	0	2	45	\$ 6
307	Main Building	09.01-RTC	1st Floor	Program Rm 115	Halls & common areas	708	\$3		4' Acrylic Wrap	32T804E	4' Acrylic Wrap / 32W Fluorescent, 4'-0" T8 / Electronic, T8	9	L4	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (4) lamps with (1) 4-lamp driver, 60W (system),8000+ delivered lumens, SYLVANIA	9	Recessed	LED Lamp and Driver	4	60	36	2920	1.0	0.5	2,996	1,577	0.49	5.8	1,419	0	-5	76	1,495	\$ 132
308	Main Building	09.01-RTC	1st Floor	Program Rm 115	Halls & common areas	708	\$3		4' Acrylic Wrap	32T802E	4' Acrylic Wrap / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with																			



						Existing					Proposed												Energy												
ID	Building	FIM Name	Floor/General Area	Room Name	ASHRAE Space Types	Time Code	Switching	Fixture Schedule	Fixture Type	Lamp & Ballast Type	Description	# of Fixtures	Fixture Code	Retrofit Type (Current Scope)	Description	# of Fixtures	Mounting (if different from existing)	Lamp Type	# of Lamps per Fixture	Watts per Fixture	# of Lamps	Operating Hours	Existing kW	Proposed kW	Existing kWh	Proposed kWh	kW Savings per Month	kW Savings per Year	kWh Savings per Year	Heating Penalty (kWh)	Heating Penalty (therms)	Cooling Credit (kWh)	Net kWh Savings per Year	Net Energy Cost Savings per Year	
329	Main Building	09.01-RTC	1st Floor	Tower 105	Storage Areas	501	\$		8' Strip	95T120H0	8' Strip / 95W Fluorescent, 8'-0" T12, HO / Standard Magnetic, T12	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	0	N/A	0	227	2	261	0.2	0.2	59	59	0.00	0.0	0	0	0	0	0	\$ -	
330	Main Building	09.01-RTC	1st Floor	Multipurpose Room	Halls & common areas	700	\$		4' Industrial w/reflectors	32T804E	4' Industrial w/reflectors / 32W Fluorescent, 4'-0" T8 / Electronic, T8	10	L4	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (4) lamps with (1) 4-lamp driver, 60W (system),8000+ delivered lumens, SYLVANIA	10	Surface	LED Lamp and Driver	4	60	40	2920	1.1	0.6	3,329	1,752	0.54	6.5	1,577	0	-6	84	1,661	\$ 147	
331	Main Building	09.01-RTC	1st Floor	Exterior	Outside Areas	711	\$T		Wallpack	175MH01	Wallpack / MH 175W / HID Magnetic	6	N	No Retrofit - Payback/Budget	No Retrofit Proposed	6	Wall	N/A	0	210	6	4015	1.3	1.3	5,059	5,059	0.00	0.0	0	0	0	0	0	\$ -	
332	Main Building	09.01-RTC	1st Floor	Exterior	Outside Areas	711	PC		General	50MH01	General / MH 50W / HID Magnetic	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Surface	N/A	0	62	2	4015	0.1	0.1	498	498	0.00	0.0	0	0	0	0	0	\$ -	
333	Main Building	09.01-RTC	1st Floor	Exterior	Outside Areas	711	PC		Flood	22CFL01	Flood / Compact Fluorescent, 22W / N/A	4	N	No Retrofit - Payback/Budget	No Retrofit Proposed	4	Surface	N/A	0	22	4	4015	0.1	0.1	353	353	0.00	0.0	0	0	0	0	0	\$ -	
334	Main Building	09.01-RTC	1st Floor	Exterior	Outside Areas	711	PC		Area	250MH01	Area / MH 250W / HID Magnetic	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Pole	N/A	0	295	1	4015	0.3	0.3	1,184	1,184	0.00	0.0	0	0	0	0	0	\$ -	
335	Main Building	09.01-RTC	1st Floor	Exterior	Outside Areas	711	PC		Flood	250HPS01	Flood / HPS 250W / HID Magnetic	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Pole	N/A	0	295	2	4015	0.6	0.6	2,369	2,369	0.00	0.0	0	0	0	0	0	\$ -	
337	Building 2	09.01-MOC [Interior]	1st Floor	Center office storage	Storage Areas	506L-S	\$		8' Industrial w/reflectors	60T120H0	8' Industrial w/reflectors / 60W Fluorescent, 4'-0" T12, HO / Standard Magnetic, T12, No PCB's	3	N	No Retrofit - Payback/Budget	No Retrofit Proposed	3	Chain	N/A	0	131	6	1564	0.4	0.4	615	615	0.00	0.0	0	0	0	0	0	\$ -	
338	Building 2	09.01-MOC [Interior]	1st Floor	East	Maintenance Areas	504	\$		4' Acrylic Wrap (Wide)	34T1204E	4' Acrylic Wrap (Wide) / 34W Fluorescent, 4'-0" T12 / Electronic, T12	6	N	No Retrofit - Payback/Budget	No Retrofit Proposed	6	Surface	N/A	0	120	24	1043	0.7	0.7	751	751	0.00	0.0	0	0	0	0	0	\$ -	
339	Building 2	09.01-MOC [Interior]	1st Floor	East	Maintenance Areas	504	\$		8' Industrial w/reflectors	95T120H0	8' Industrial w/reflectors / 95W Fluorescent, 8'-0" T12, HO / Standard Magnetic, T12	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Chain	N/A	0	227	2	1043	0.2	0.2	237	237	0.00	0.0	0	0	0	0	0	\$ -	
340	Building 2	09.01-MOC [Interior]	1st Floor	East	Maintenance Areas	504	\$		4' Industrial w/reflectors	32T802E	4' Industrial w/reflectors / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Chain	N/A	0	63	4	1043	0.1	0.1	131	131	0.00	0.0	0	0	0	0	0	\$ -	
341	Building 2	09.01-MOC [Interior]	1st Floor	East	Maintenance Areas	504	\$		4' Industrial w/reflectors	34T1202M	4' Industrial w/reflectors / 34W Fluorescent, 4'-0" T12 / Standard Magnetic, T12	4	N	No Retrofit - Payback/Budget	No Retrofit Proposed	4	Surface	N/A	0	82	8	1043	0.3	0.3	342	342	0.00	0.0	0	0	0	0	0	\$ -	
342	Building 2	09.01-MOC [Interior]	1st Floor	Shop area	Maintenance Areas	504	\$		4' Industrial w/reflectors	34T1202M	4' Industrial w/reflectors / 34W Fluorescent, 4'-0" T12 / Standard Magnetic, T12	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Surface	N/A	0	82	2	1043	0.1	0.1	86	86	0.00	0.0	0	0	0	0	0	\$ -	
343	Building 2	09.01-MOC [Interior]	1st Floor	Shop area	Maintenance Areas	504	\$		4' Strip	LED	4' Strip / LED Fixture / LED Driver	4	N	No Retrofit - LED	No Retrofit Proposed	4	Surface	N/A	0	12	4	1043	0.0	0.0	50	50	0.00	0.0	0	0	0	0	0	\$ -	
344	Building 2	09.01-MOC [Interior]	1st Floor	Shop area	Maintenance Areas	504	\$		4' Industrial w/reflectors	32T802E	4' Industrial w/reflectors / 32W Fluorescent, 4'-0" T8 / Electronic, T8	6	N	No Retrofit - Payback/Budget	No Retrofit Proposed	6	Chain	N/A	0	63	12	1043	0.4	0.4	394	394	0.00	0.0	0	0	0	0	0	\$ -	
345	Building 2	09.01-MOC [Interior]	1st Floor	Sign shop West	Maintenance Areas	504	\$		Vapor-tight	32T802E	Vapor-tight / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Surface	N/A	0	63	2	1043	0.1	0.1	66	66	0.00	0.0	0	0	0	0	0	\$ -	
346	Building 2	09.01-MOC [Interior]	1st Floor	Sign shop West	Maintenance Areas	504	\$		8' Strip	95T120H0	8' Strip / 95W Fluorescent, 8'-0" T12, HO / Standard Magnetic, T12	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Chain	N/A	0	227	2	1043	0.2	0.2	237	237	0.00	0.0	0	0	0	0	0	\$ -	
347	Building 2	09.01-MOC [Interior]	1st Floor	Sign shop West	Maintenance Areas	504	\$		High bay	1000MH01	High bay / MH 1000W / HID Magnetic	3	N	No Retrofit - Payback/Budget	No Retrofit Proposed	3	Chain	N/A	0	1080	3	1043	3.2	3.2	3,379	3,379	0.00	0.0	0	0	0	0	0	\$ -	
348	Building 3	09.01-MOC [Interior]	1st Floor	Break room	Halls & common areas	512L-B	\$		2x4 Prismatic	34T1202M	2x4 Prismatic / 34W Fluorescent, 4'-0" T12 / Standard Magnetic, T12	3	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	3	Recessed	LED Lamp and Driver	2	30	6	3021	0.2	0.1	743	272	0.16	1.9	471	0	-2	25	496	\$ 43	
349	Building 3	09.01-MOC [Interior]	1st Floor	Corner office	Offices	511L-PO	\$		2x4 Prismatic	34T1202M	2x4 Prismatic / 34W Fluorescent, 4'-0" T12 / Standard Magnetic, T12	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	2868	0.2	0.1	470	172	0.10	1.2	298	0	-1	16	314	\$ 28	
350	Building 3	09.01-MOC [Interior]	1st Floor	LeAnn Office	Offices	511L-PO	\$		2x4 Prismatic	34T1202M	2x4 Prismatic / 34W Fluorescent, 4'-0" T12 / Standard Magnetic, T12	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	2868	0.2	0.1	470	172	0.10	1.2	298	0	-1	16	314	\$ 28	
351	Building 3	09.01-MOC [Interior]	1st Floor	Main office area	Open Office	512L-OO	\$		2x4 Prismatic	32T804E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	12	L4	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (4) lamps with (1) 4-lamp driver, 60W (system),8000+ delivered lumens, SYLVANIA	12	Recessed	LED Lamp and Driver	4	60	48	3125	1.4	0.7	4,275	2,250	0.65	7.8	2,025	0	-8	108	2,133	\$ 184	
352	Building 3	09.01-MOC [Interior]	1st Floor	Mens	Restrooms	714L-R	\$		2x4 Prismatic	34T1202M	2x4 Prismatic / 34W Fluorescent, 4'-0" T12 / Standard Magnetic, T12	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	2	30	2	5110	0.1	0.0	419	153	0.05	0.6	266	0	-1	14	280	\$ 21	
353	Building 3	09.01-MOC [Interior]	1st Floor	Woman	Restrooms	714L-R	\$		2x4 Prismatic	34T1202M	2x4 Prismatic / 34W Fluorescent, 4'-0" T12 / Standard Magnetic, T12	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	2	30	2	5110	0.1	0.0	419	153	0.05	0.6	266	0	-1	14	280	\$ 21	
354	Building 4	09.01-MOC [Interior]	1st Floor	Back open storage	Storage Areas	506L-S	\$		8' Strip	95T120H0	8' Strip / 95W Fluorescent, 8'-0" T12, HO / Standard Magnetic, T12	3	N	No Retrofit - Payback/Budget	No Retrofit Proposed	3	Chain	N/A	0	227	6	1564	0.7	0.7	1,065	1,065	0.00	0.0	0	0	0	0	0	\$ -	
355	Building 4	09.01-MOC [Interior]	1st Floor	East 2 Bays	Storage Areas	506L-S	\$		4' Industrial w/reflectors	32T802E	4' Industrial w/reflectors / 32W Fluorescent, 4'-0" T8 / Electronic																								



						Existing						Proposed												Energy											
ID	Building	FIM Name	Floor/General Area	Room Name	ASHRAE Space Types	Time Code	Switching	Fixture Schedule	Fixture Type	Lamp & Ballast Type	Description	# of Fixtures	Fixture Code	Retrofit Type (Current Scope)	Description	# of Fixtures	Mounting (If different from existing)	Lamp Type	# of Lamps per Fixture	Watts per Fixture	# of Lamps	Operating Hours	Existing kW	Proposed kW	Existing kWh	Proposed kWh	kW Savings per Month	kW Savings per Year	kWh Savings per Year	Heating Penalty (kWh)	Heating Penalty (therms)	Cooling Credit (kWh)	Net kWh Savings per Year	Net Energy Cost Savings per Year	
373	Decant	09.01-MOC [Interior]	1st Floor	Decant	Outside Areas	711	\$T		Canopy	175MH01	Canopy / MH 175W / HID Magnetic	9	N	No Retrofit - Payback/Budget	No Retrofit Proposed	9	Surface	N/A	0	210	9	4015	1.9	1.9	7,588	7,588	0.00	0.0	0	0	0	0	0	\$ -	
374	Decant	09.01-MOC [Interior]	1st Floor	Decant	Outside Areas	711	\$T		Canopy	250MH01	Canopy / MH 250W / HID Magnetic	9	N	No Retrofit - Payback/Budget	No Retrofit Proposed	9	Surface	N/A	0	295	9	4015	2.7	2.7	10,660	10,660	0.00	0.0	0	0	0	0	0	\$ -	
375	Decant	09.01-MOC [Interior]	1st Floor	Decant	Outside Areas	711	\$T		Canopy	250MH01	Canopy / MH 250W / HID Magnetic	9	N	No Retrofit - Payback/Budget	No Retrofit Proposed	9	Surface	N/A	0	295	9	4015	2.7	2.7	10,660	10,660	0.00	0.0	0	0	0	0	0	\$ -	
376	Decant	09.01-MOC [Interior]	1st Floor	Laundry	Maintenance Areas - Inactive	502	\$		4' Industrial w/reflectors	32T802E	4' Industrial w/reflectors / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Chain	N/A	0	63	2	521	0.1	0.1	33	33	0.00	0.0	0	0	0	0	0	\$ -	
377	Decant	09.01-MOC [Interior]	1st Floor	Office	Offices	511L-PO	\$		4' Industrial w/reflectors	32T802E	4' Industrial w/reflectors / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	0	LED Lamp and Driver	2	30	4	2868	0.1	0.1	361	172	0.07	0.8	189	0	-1	10	199	\$ 18	
378	Decant	09.01-MOC [Interior]	1st Floor	Storage	Storage Areas	506L-S	\$		4' Industrial w/reflectors	32T802E	4' Industrial w/reflectors / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Chain	N/A	0	63	4	1564	0.1	0.1	197	197	0.00	0.0	0	0	0	0	0	\$	
379	Main Admin Bldg	09.01-MOC [Interior]	1st Floor	104	Storage Areas	506L-S	\$		Porcelain Socket	13CFL01S1	Porcelain Socket / Compact Fluorescent, 13W Screw In / N/A	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Surface	N/A	0	14	1	1564	0.0	0.0	22	22	0.00	0.0	0	0	0	0	0	\$ -	
380	Main Admin Bldg	09.01-MOC [Interior]	1st Floor	Admin 102	Offices	511L-PO	\$		2x4 Prismatic	32T804E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	4	L4	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (4) lamps with (1) 4-lamp driver, 60W (system), 8000+ delivered lumens, SYLVANIA	4	Recessed	LED Lamp and Driver	4	60	16	2868	0.5	0.2	1,308	688	0.22	2.6	619	0	-2	33	653	\$ 58	
381	Main Admin Bldg	09.01-MOC [Interior]	1st Floor	Admin 103	Offices, existing sensor	508	\$O		2x4 Prismatic	32T804E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L4	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (4) lamps with (1) 4-lamp driver, 60W (system), 8000+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	4	60	8	2086	0.2	0.1	476	250	0.11	1.3	225	0	-1	12	237	\$ 24	
382	Main Admin Bldg	09.01-MOC [Interior]	1st Floor	Admin 105	Offices	511L-PO	\$		2x4 Prismatic	32T804E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L4	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (4) lamps with (1) 4-lamp driver, 60W (system), 8000+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	4	60	8	2868	0.2	0.1	654	344	0.11	1.3	310	0	-1	17	326	\$ 29	
383	Main Admin Bldg	09.01-MOC [Interior]	1st Floor	Admin 121	Offices, existing sensor	508	\$O		2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	6	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	6	Surface	LED Lamp and Driver	2	30	12	2086	0.4	0.2	788	375	0.20	2.4	413	0	-2	22	435	\$ 44	
384	Main Admin Bldg	09.01-MOC [Interior]	1st Floor	Corridor 107	Halls & common areas	711L-H	\$3		2x4 Prismatic	32T804E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	3	L4	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (4) lamps with (1) 4-lamp driver, 60W (system), 8000+ delivered lumens, SYLVANIA	3	Recessed	LED Lamp and Driver	4	60	12	3925	0.3	0.2	1,342	707	0.16	1.9	636	0	-2	34	670	\$ 54	
385	Main Admin Bldg	09.01-MOC [Interior]	1st Floor	Corridor 116	Halls & common areas	711L-H	\$		4' Industrial w/reflectors	32T802E	4' Industrial w/reflectors / 32W Fluorescent, 4'-0" T8 / Electronic, T8	3	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	3	Surface	LED Lamp and Driver	2	30	6	3925	0.2	0.1	742	353	0.10	1.2	389	0	-1	21	409	\$ 33	
386	Main Admin Bldg	09.01-MOC [Interior]	1st Floor	Corridor 116	Halls & common areas	711L-H	\$3		4' Acrylic Wrap	32T802E	4' Acrylic Wrap / 32W Fluorescent, 4'-0" T8 / Electronic, T8	11	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	11	0	LED Lamp and Driver	2	30	22	3925	0.7	0.3	2,720	1,295	0.36	4.4	1,425	0	-5	76	1,501	\$ 121	
387	Main Admin Bldg	09.01-MOC [Interior]	1st Floor	Corridor 117	Halls & common areas	711L-H	\$		4' Acrylic Wrap	32T802E	4' Acrylic Wrap / 32W Fluorescent, 4'-0" T8 / Electronic, T8	3	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	3	0	LED Lamp and Driver	2	30	6	3925	0.2	0.1	742	353	0.10	1.2	389	0	-1	21	409	\$ 33	
388	Main Admin Bldg	09.01-MOC [Interior]	1st Floor	Eq. 140	Storage Areas	506L-S	\$		Vapor-tight	32T802E	Vapor-tight / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	0	N/A	0	63	2	1564	0.1	0.1	99	99	0.00	0.0	0	0	0	0	0	\$ -	
389	Main Admin Bldg	09.01-MOC [Interior]	1st Floor	Janitor 123	Janitor Closet	502	\$		Porcelain Socket	13CFL01S1	Porcelain Socket / Compact Fluorescent, 13W Screw In / N/A	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Surface	N/A	0	14	1	521	0.0	0.0	7	7	0.00	0.0	0	0	0	0	0	\$ -	
390	Main Admin Bldg	09.01-MOC [Interior]	1st Floor	Lobby 100	Halls & common areas	512	\$		Strip	32T801E	Strip / 32W Fluorescent, 4'-0" T8 / Electronic, T8	4	L1	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (1) lamp with (1) 1-lamp driver, 15W (system), 2100+ delivered lumens, SYLVANIA	4	Surface	LED Lamp and Driver	1	15	4	3129	0.1	0.1	375	188	0.06	0.7	188	0	-1	10	198	\$ 17	
391	Main Admin Bldg	09.01-MOC [Interior]	1st Floor	Lobby 100	Halls & common areas	512	\$		Downlight	LED	Downlight / LED Fixture / LED Driver	4	N	No Retrofit - LED	No Retrofit Proposed	4	Recessed	N/A	0	12	4	3129	0.0	0.0	150	150	0.00	0.0	0	0	0	0	0	\$ -	
392	Main Admin Bldg	09.01-MOC [Interior]	1st Floor	Lobby 100	Halls & common areas	512	\$		4' Acrylic Wrap	32T802E	4' Acrylic Wrap / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Pendant	LED Lamp and Driver	2	30	4	3129	0.1	0.1	394	188	0.07	0.8	206	0	-1	11	217	\$ 19	
393	Main Admin Bldg	09.01-MOC [Interior]	1st Floor	Lunch 136	Halls & common areas	512L-B	\$		2x4 Prismatic	32T804E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	10	L4	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (4) lamps with (1) 4-lamp driver, 60W (system), 8000+ delivered lumens, SYLVANIA	10	Recessed	LED Lamp and Driver	4	60	40	3021	1.1	0.6	3,444	1,813	0.54	6.5	1,631	0	-6	87	1,718	\$ 150	
394	Main Admin Bldg	09.01-MOC [Interior]	1st Floor	Maintenance Office 129	Open Office	512L-OO	\$		2x4 Prismatic	32T804E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	4	L4	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (4) lamps with (1) 4-lamp driver, 60W (system), 8000+ delivered lumens, SYLVANIA	4	Recessed	LED Lamp and Driver	4	60	16	3125	0.5	0.2	1,425	750	0.22	2.6	675	0	-3	36	711	\$ 61	
395	Main Admin Bldg	09.01-MOC [Interior]	1st Floor	Maintenance shop 130	Maintenance Areas	510	\$		4' Industrial w/reflectors	32T802E	4' Industrial w/reflectors / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Wall	LED Lamp and Driver	2	30	4	2607	0.1	0.1	329	156	0.07	0.8	172	0	-1	9	181	\$ 17	
396	Main Admin Bldg	09.01-MOC [Interior]	1st Floor	Maintenance shop 130	Maintenance Areas	510	\$		4' Industrial w/reflectors	32T802E	4' Industrial w/reflectors / 32W Fluorescent, 4'-0" T8 / Electronic, T8	42	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	42	Surface	LED Lamp and Driver	2	30	84														



						Existing						Proposed										Energy													
ID	Building	FIM Name	Floor/General Area	Room Name	ASHRAE Space Types	Time Code	Switching	Fixture Schedule	Fixture Type	Lamp & Ballast Type	Description	# of Fixtures	Fixture Code	Retrofit Type (Current Scope)	Description	# of Fixtures	Mounting (if different from existing)	Lamp Type	# of Lamps per Fixture	Watts per Fixture	# of Lamps	Operating Hours	Existing kW	Proposed kW	Existing kWh	Proposed kWh	kW Savings per Month	kW Savings per Year	kWh Savings per Year	Heating Penalty (kWh)	Heating Penalty (therms)	Cooling Credit (kWh)	Net kWh Savings per Year	Net Energy Cost Savings per Year	
416	Main Admin Bldg	09.01-MOC [Interior]	1st Floor	Waste water 114/115	Open Office	512L-OO	\$		4' Industrial w/reflectors	32T802E	4' Industrial w/reflectors / 32W Fluorescent, 4'-0" T8 / Electronic, T8	3	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	3	Surface	LED Lamp and Driver	2	30	6	3125	0.2	0.1	591	281	0.10	1.2	309	0	-1	17	326 \$	28	
417	Main Admin Bldg	09.01-MOC [Interior]	1st Floor	Waste water 114/115	Open Office	512L-OO	\$3		4' Industrial w/reflectors	32T802E	4' Industrial w/reflectors / 32W Fluorescent, 4'-0" T8 / Electronic, T8	10	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	10	Surface	LED Lamp and Driver	2	30	20	3125	0.6	0.3	1,969	938	0.33	4.0	1,031	0	-4	55	1,086 \$	94	
418	Main Admin Bldg	09.01-MOC [Interior]	1st Floor	Waste water 114/115	Open Office	512L-OO	\$3		4' Acrylic Wrap	32T802E	4' Acrylic Wrap / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Surface	LED Lamp and Driver	2	30	2	3125	0.1	0.0	197	94	0.03	0.4	103	0	0	6	109 \$	9	
419	Main Admin Bldg	09.01-MOC [Interior]	1st Floor	Water lab 111	Open Office	512L-OO	\$		4' Industrial w/reflectors	32T802E	4' Industrial w/reflectors / 32W Fluorescent, 4'-0" T8 / Electronic, T8	5	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	5	Surface	LED Lamp and Driver	2	30	10	3125	0.3	0.2	984	469	0.17	2.0	516	0	-2	28	543 \$	47	
420	Main Admin Bldg	09.01-MOC [Interior]	1st Floor	Water Ops 112/113	Open Office	512L-OO	\$3		4' Industrial w/reflectors	32T802E	4' Industrial w/reflectors / 32W Fluorescent, 4'-0" T8 / Electronic, T8	16	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	16	Surface	LED Lamp and Driver	2	30	32	3125	1.0	0.5	3,150	1,500	0.53	6.3	1,650	0	-6	88	1,738 \$	150	
421	Main Admin Bldg	09.01-MOC [Interior]	1st Floor	Water super 112A	Offices	511L-PO	\$3		4' Industrial w/reflectors	32T802E	4' Industrial w/reflectors / 32W Fluorescent, 4'-0" T8 / Electronic, T8	4	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	4	Surface	LED Lamp and Driver	2	30	8	2868	0.3	0.1	723	344	0.13	1.6	379	0	-1	20	399 \$	35	
422	Oil Storage	09.01-MOC [Interior]	1st Floor	Oil Storage	Storage Areas	506L-S	\$		8' Strip	60T120H0	8' Strip / 60W Fluorescent, 4'-0" T12, HO / Standard Magnetic, T12, No PCB's	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Surface	N/A	0	131	2	1564	0.1	0.1	205	205	0.00	0.0	0	0	0	0	0 \$	-	
423	Park Ops	09.01-MOC [Interior]	1st Floor	Dry room	Storage Areas	506L-S	\$		Vapor-tight	32T802E	Vapor-tight / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Surface	N/A	0	63	4	1564	0.1	0.1	197	197	0.00	0.0	0	0	0	0	0 \$	-	
424	Park Ops	09.01-MOC [Interior]	1st Floor	Elevator Eq	Maintenance Areas - Inactive	502	\$		4' Acrylic Wrap	32T802E	4' Acrylic Wrap / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	0	N/A	0	63	2	521	0.1	0.1	33	33	0.00	0.0	0	0	0	0	0 \$	-	
425	Park Ops	09.01-MOC [Interior]	1st Floor	Hall Amp closet	Storage Areas	506L-S	\$		Porcelain Socket	75A01	Porcelain Socket / Incandescent, A lamp / N/A	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Surface	N/A	0	75	1	1564	0.1	0.1	117	117	0.00	0.0	0	0	0	0	0 \$	-	
426	Park Ops	09.01-MOC [Interior]	1st Floor	Hall electrical closet	Maintenance Areas - Inactive	502	\$		4' Acrylic Wrap	32T802E	4' Acrylic Wrap / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	0	N/A	0	63	2	521	0.1	0.1	33	33	0.00	0.0	0	0	0	0	0 \$	-	
427	Park Ops	09.01-MOC [Interior]	1st Floor	Halls	Halls & common areas	711L-H	\$		Sconce	13CFL02	Sconce / Compact Fluorescent, 13W PL / N/A	1	L12	Retrofit Lamp	LED PL Bypass Lamp Upgrade, (2) Horizontal mount lamp with internal driver and remove existing ballast, 5.5W each, 550 delivered lumens, GREEN CREATIVE: PL H 5.5W HYBM	1	Wall	LED Integral Driver	2	11	2	3925	0.0	0.0	110	43	0.02	0.2	67	0	0	4	70 \$	6	
428	Park Ops	09.01-MOC [Interior]	1st Floor	Halls	Halls & common areas	711L-H	\$		2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	6	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	6	Recessed	LED Lamp and Driver	2	30	12	3925	0.4	0.2	1,484	707	0.20	2.4	777	0	-3	41	819 \$	66	
429	Park Ops	09.01-MOC [Interior]	1st Floor	Halls	Halls & common areas	711L-H	\$		Vapor-tight	32T802E	Vapor-tight / 32W Fluorescent, 4'-0" T8 / Electronic, T8	3	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	3	Surface	LED Lamp and Driver	2	30	6	3925	0.2	0.1	742	353	0.10	1.2	389	0	-1	21	409 \$	33	
430	Park Ops	09.01-MOC [Interior]	1st Floor	Halls	Halls & common areas	711L-H	\$		2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Surface	LED Lamp and Driver	2	30	2	3925	0.1	0.0	247	118	0.03	0.4	130	0	0	7	136 \$	11	
431	Park Ops	09.01-MOC [Interior]	1st Floor	Janitors	Janitor Closet	502	\$		Porcelain Socket	13CFL01S1	Porcelain Socket / Compact Fluorescent, 13W Screw In / N/A	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Wall	N/A	0	14	1	521	0.0	0.0	7	7	0.00	0.0	0	0	0	0	0 \$	-	
432	Park Ops	09.01-MOC [Interior]	1st Floor	Janitors 2	Janitor Closet	502	\$		Porcelain Socket	60A01	Porcelain Socket / Incandescent, A lamp / N/A	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Surface	N/A	0	60	1	521	0.1	0.1	31	31	0.00	0.0	0	0	0	0	0 \$	-	
433	Park Ops	09.01-MOC [Interior]	1st Floor	Lead Work Room	Open Office	512L-OO	\$3		2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	5	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	5	Recessed	LED Lamp and Driver	2	30	10	3125	0.3	0.2	984	469	0.17	2.0	516	0	-2	28	543 \$	47	
434	Park Ops	09.01-MOC [Interior]	1st Floor	Mens restroom	Restrooms	714L-R	\$		Vanity	32T802E	Vanity / 32W Fluorescent, 4'-0" T8 / Electronic, T8	3	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	3	Surface	LED Lamp and Driver	2	30	6	5110	0.2	0.1	966	460	0.10	1.2	506	0	-2	27	533 \$	40	
435	Park Ops	09.01-MOC [Interior]	1st Floor	Mens restroom	Restrooms	714L-R	\$		Vapor-tight	32T801E	Vapor-tight / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L1	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (1) lamp with (1) 1-lamp driver, 15W (system), 2100+ delivered lumens, SYLVANIA:	2	Surface	LED Lamp and Driver	1	15	2	5110	0.1	0.0	307	153	0.03	0.4	153	0	-1	8	161 \$	12	
436	Park Ops	09.01-MOC [Interior]	1st Floor	Mens restroom	Restrooms	714L-R	\$		2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	6	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	6	Surface	LED Lamp and Driver	2	30	12	5110	0.4	0.2	1,932	920	0.20	2.4	1,012	0	-4	54	1,066 \$	80	
437	Park Ops	09.01-MOC [Interior]	1st Floor	Multi 1.1	Kitchen	507	\$		Undercabinet	32T801E	Undercabinet / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L1	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (1) lamp with (1) 1-lamp driver, 15W (system), 2100+ delivered lumens, SYLVANIA:	2	Surface	LED Lamp and Driver	1	15	2	1825	0.1	0.0	110	55	0.03	0.4	55	0	0	3	58 \$	6	
438	Park Ops	09.01-MOC [Interior]	1st Floor	Multi 1.1	Kitchen	507	\$3		2x4 Parabolic	32T802E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	12	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	12	Recessed	LED Lamp and Driver	2	30	24	1825	0.8	0.4	1,380	657	0.40	4.8	723	0	-3	39	761 \$	82	
439	Park Ops	09.01-MOC [Interior]	1st Floor	Office support	Offices	511L-PO	\$		2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver</																					





						Existing							Proposed												Energy											
ID	Building	FIM Name	Floor/General Area	Room Name	ASHRAE Space Types	Time Code	Switching	Fixture Schedule	Fixture Type	Lamp & Ballast Type	Description	# of Fixtures	Fixture Code	Retrofit Type (Current Scope)	Description	# of Fixtures	Mounting (If different from existing)	Lamp Type	# of Lamps per Fixture	Watts per Fixture	# of Lamps	Operating Hours	Existing kW	Proposed kW	Existing kWh	Proposed kWh	kW Savings per Month	kW Savings per Year	kWh Savings per Year	Heating Penalty (kWh)	Heating Penalty (therms)	Cooling Credit (kWh)	Net kWh Savings per Year	Net Energy Cost Savings per Year		
459	Trinity Bldg	09.01-MOC [Interior]	2nd Floor	Halls	Halls & common areas	711L-H	\$		2x4 Parabolic	32T803E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	5	L3	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (3) lamps with (1) 3-lamp driver, 45W (system), 6000+ delivered lumens, SYLVANIA	5	Recessed	LED Lamp and Driver	3	45	15	3925	0.4	0.2	1,688	883	0.21	2.5	805	0	-3	43	848	\$ 68		
460	Trinity Bldg	09.01-MOC [Interior]	2nd Floor	Back stairs	Halls & common areas	512	\$		2x4 Prismatic	34T1202M	2x4 Prismatic / 34W Fluorescent, 4'-0" T12 / Standard Magnetic, T12	2	L2B	Lamp and Driver (Battery)	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, Back-up battery, SYLVANIA	2	Recessed	LED Lamp and Driver	2	30	4	3129	0.2	0.1	513	188	0.10	1.2	325	0	-1	17	343	\$ 30		
461	Trinity Bldg	09.01-MOC [Interior]	2nd Floor	Copy rm	Halls & common areas	512	\$		2x4 Parabolic	32T803E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L3	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (3) lamps with (1) 3-lamp driver, 45W (system), 6000+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	3	45	6	3129	0.2	0.1	538	282	0.08	1.0	257	0	-1	14	270	\$ 23		
462	Trinity Bldg	09.01-MOC [Interior]	2nd Floor	Inc Commander	Offices	511L-PO	\$		2x4 Parabolic	32T803E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L3	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (3) lamps with (1) 3-lamp driver, 45W (system), 6000+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	3	45	3	2868	0.1	0.0	247	129	0.04	0.5	118	0	0	6	124	\$ 11		
463	Trinity Bldg	09.01-MOC [Interior]	2nd Floor	Logistics	Offices	511L-PO	\$		2x4 Parabolic	32T803E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	4	L3	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (3) lamps with (1) 3-lamp driver, 45W (system), 6000+ delivered lumens, SYLVANIA	4	Recessed	LED Lamp and Driver	3	45	12	2868	0.3	0.2	987	516	0.16	2.0	470	0	-2	25	495	\$ 44		
464	Trinity Bldg	09.01-MOC [Interior]	2nd Floor	Men	Restrooms	714L-R	\$		2x4 Prismatic	32T803E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L3	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (3) lamps with (1) 3-lamp driver, 45W (system), 6000+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	3	45	3	5110	0.1	0.0	439	230	0.04	0.5	210	0	-1	11	221	\$ 17		
465	Trinity Bldg	09.01-MOC [Interior]	2nd Floor	Open office	Open Office	512L-OO	\$3		2x4 Parabolic	32T803E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	16	L3	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (3) lamps with (1) 3-lamp driver, 45W (system), 6000+ delivered lumens, SYLVANIA	16	Recessed	LED Lamp and Driver	3	45	48	3125	1.4	0.7	4,300	2,250	0.66	7.9	2,050	0	-8	109	2,159	\$ 186		
466	Trinity Bldg	09.01-MOC [Interior]	2nd Floor	Planning	Open Office	512L-OO	\$		2x4 Parabolic	32T803E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	3	L3	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (3) lamps with (1) 3-lamp driver, 45W (system), 6000+ delivered lumens, SYLVANIA	3	Recessed	LED Lamp and Driver	3	45	9	3125	0.3	0.1	806	422	0.12	1.5	384	0	-1	21	405	\$ 35		
467	Trinity Bldg	09.01-MOC [Interior]	2nd Floor	Public info officer	Restrooms, private	502	\$		2x4 Parabolic	32T803E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Recessed	N/A	0	86	6	521	0.2	0.2	90	90	0.00	0.0	0	0	0	0	0	\$ -		
468	Trinity Bldg	09.01-MOC [Interior]	2nd Floor	Roof access	Halls & common areas	510	\$		2x4 Parabolic	32T803E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L3	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (3) lamps with (1) 3-lamp driver, 45W (system), 6000+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	3	45	3	2607	0.1	0.0	224	117	0.04	0.5	107	0	0	6	113	\$ 10		
469	Trinity Bldg	09.01-MOC [Interior]	2nd Floor	Safety	Storage Areas	506L-S	\$		2x4 Parabolic	32T803E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Recessed	N/A	0	86	6	1564	0.2	0.2	269	269	0.00	0.0	0	0	0	0	0	\$ -		
470	Trinity Bldg	09.01-MOC [Interior]	2nd Floor	Womans	Restrooms	714L-R	\$		2x4 Prismatic	32T803E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L3	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (3) lamps with (1) 3-lamp driver, 45W (system), 6000+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	3	45	3	5110	0.1	0.0	439	230	0.04	0.5	210	0	-1	11	221	\$ 17		
471	Trinity Bldg	09.01-MOC [Interior]	1st Floor	Classroom	Classrooms	504	\$		4' Acrylic Wrap	32T802E	4' Acrylic Wrap / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	0	N/A	0	63	4	1043	0.1	0.1	131	131	0.00	0.0	0	0	0	0	0	\$ -		
472	Trinity Bldg	09.01-MOC [Interior]	1st Floor	Classroom	Classrooms	504	\$3		2x4 Parabolic	32T803E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	18	N	No Retrofit - Payback/Budget	No Retrofit Proposed	18	Recessed	N/A	0	86	54	1043	1.5	1.5	1,614	1,614	0.00	0.0	0	0	0	0	0	\$ -		
473	Trinity Bldg	09.01-MOC [Interior]	1st Floor	Corridor	Halls & common areas	711L-H	\$3		2x4 Parabolic	32T803E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L3	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (3) lamps with (1) 3-lamp driver, 45W (system), 6000+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	3	45	6	3925	0.2	0.1	675	353	0.08	1.0	322	0	-1	17	339	\$ 27		
474	Trinity Bldg	09.01-MOC [Interior]	1st Floor	Unisex bath	Restrooms	714L-R	\$0		2x4 Prismatic	32T803E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L3	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (3) lamps with (1) 3-lamp driver, 45W (system), 6000+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	3	45	3	5110	0.1	0.0	439	230	0.04	0.5	210	0	-1	11	221	\$ 17		
475	Trinity Bldg	09.01-MOC [Interior]	1st Floor	Dry Room	Storage Areas - Active	506L-S	\$3		2x4 Parabolic	32T803E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	3	N	No Retrofit - Payback/Budget	No Retrofit Proposed	3	Recessed	N/A	0	86	9	1564	0.3	0.3	404	404	0.00	0.0	0	0	0	0	0	\$ -		
476	Trinity Bldg	09.01-MOC [Interior]	1st Floor	Closet	Storage Areas	506L-S	\$		4' Industrial w/reflectors	32T801E	4' Industrial w/reflectors / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	0	N/A	0	30	1	1564	0.0	0.0	47	47	0.00	0.0	0	0	0	0	0	\$ -		
477	Trinity Bldg	09.01-MOC [Interior]	1st Floor	IT	Storage Areas	506L-S	\$		4' Industrial w/reflectors	32T802E	4' Industrial w/reflectors / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Chain	N/A	0	63	2	1564	0.1	0.1	99	99	0.00	0.0	0	0	0	0	0	\$ -		
478	Trinity Bldg	09.01-MOC [Interior]	1st Floor	Lobby	Halls & common areas	512	\$		4' Acrylic Wrap	32T802E	4' Acrylic Wrap / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	0	LED Lamp and Driver	2	30	2	3129	0.1	0.0	197	94	0.03	0.4	103	0	0	6	109	\$ 9		
479	Trinity Bldg	09.01-MOC [Interior]	1st Floor	Locker rm	Gym lockers	512	\$3		2x4 Parabolic	32T803E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	6	L3	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (3) lamps with (1) 3-lamp driver, 45W (system), 6000+ delivered lumens, SYLVANIA	6	Recessed	LED Lamp and Driver	3	45	18	3129	0.5	0.3	1,614	845	0.25	3.0	770	0	-3	41	811	\$ 70		
480	Trinity Bldg	09.01-MOC [Interior]	1st Floor	Main garage	Warehouse	510	\$		4' Acrylic Wrap	32T804E	4' Acrylic Wrap / 32W Fluorescent, 4'-0" T8 / Electronic, T8	5	L4	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (4) lamps with (1) 4-lamp driver, 60W (system),8000+ delivered lumens, SYLVANIA	5	Surface	LED Lamp and Driver	4	60	20	2607	0.6	0.3	1,486	782	0.27	3.2	704	0	-3	38	741	\$ 68		
481	Trinity Bldg	09.01-MOC [Interior]	1st Floor	Main garage	Warehouse	510	\$		High bay	1000MH01	High bay / MH 1000W / HID Magnetic	41	L40	New Fixture	LED HIBAY Fixture, Standard configuration, pendant mount, 300W, 30,000 lumen, refractor																					



						Existing					Proposed															Energy														
ID	Building	FIM Name	Floor/General Area	Room Name	ASHRAE Space Types	Time Code	Switching	Fixture Schedule	Fixture Type	Lamp & Ballast Type	Description	# of Fixtures	Fixture Code	Retrofit Type (Current Scope)	Description	# of Fixtures	Mounting (if different from existing)	Lamp Type	# of Lamps per Fixture	Watts per Fixture	# of Lamps	Operating Hours	Existing kW	Proposed kW	Existing kWh	Proposed kWh	kW Savings per Month	kW Savings per Year	kWh Savings per Year	Heating Penalty (kWh)	Heating Penalty (therms)	Cooling Credit (kWh)	Net kWh Savings per Year	Net Energy Cost Savings per Year						
502	Parking & Area Exterior	09.02-MOC [Exterior]	1st Floor	Trinity Bldg	Outside Areas	712			Wallpack	150HPS01	Wallpack / HPS 150W / HID Magnetic	5	N	No Retrofit - Payback/Budget	No Retrofit Proposed	5	Wall	N/A	0	170	5	4380	0.9	0.9	3,723	3,723	0.00	0.0	0	0	0	0	0	\$ -						
503	Parking & Area Exterior	09.02-MOC [Exterior]	1st Floor	Trinity Bldg	Outside Areas	712			Flood	250MH01	Flood / MH 250W / HID Magnetic	6	N	No Retrofit - Payback/Budget	No Retrofit Proposed	6	Pipe Mount	N/A	0	295	6	4380	1.8	1.8	7,753	7,753	0.00	0.0	0	0	0	0	0	\$ -						
504	Parking & Area Exterior	09.02-MOC [Exterior]	1st Floor	Decant	Outside Areas	711	ST		Wallpack	175MH01	Wallpack / MH 175W / HID Magnetic	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Wall	N/A	0	210	2	4015	0.4	0.4	1,686	1,686	0.00	0.0	0	0	0	0	0	\$ -						
505	Parking & Area Exterior	09.02-MOC [Exterior]	1st Floor	Fuel Depot	Outside Areas	712			Wallpack	LED	Wallpack / LED Fixture / LED Driver	4	N	No Retrofit - LED	No Retrofit Proposed	4	Wall	N/A	0	12	4	4380	0.0	0.0	210	210	0.00	0.0	0	0	0	0	0	\$ -						
506	Parking & Area Exterior	09.02-MOC [Exterior]	1st Floor	Covered storage Bldg	Outside Areas	712			Wallpack	100MH01	Wallpack / MH 100W / HID Magnetic	3	N	No Retrofit - Payback/Budget	No Retrofit Proposed	3	Wall	N/A	0	129	3	4380	0.4	0.4	1,695	1,695	0.00	0.0	0	0	0	0	0	\$ -						
507	Parking & Area Exterior	09.02-MOC [Exterior]	1st Floor	Bldg 9	Outside Areas	712			Canopy	LED	Canopy / LED Fixture / LED Driver	1	N	No Retrofit - LED	No Retrofit Proposed	1	Surface	N/A	0	12	1	4380	0.0	0.0	53	53	0.00	0.0	0	0	0	0	0	\$						
508	Parking & Area Exterior	09.02-MOC [Exterior]	1st Floor	Parks Operations	Outside Areas	712			General	50HPS01	General / HPS 50W / HID Magnetic	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	0	N/A	0	68	1	4380	0.1	0.1	298	298	0.00	0.0	0	0	0	0	0	\$ -						
509	Parking & Area Exterior	09.02-MOC [Exterior]	1st Floor	Parks Operations	Outside Areas	712			Wallpack	70HPS01	Wallpack / HPS 70W / HID Magnetic	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Wall	N/A	0	86	1	4380	0.1	0.1	377	377	0.00	0.0	0	0	0	0	0	\$ -						
510	Parking & Area Exterior	09.02-MOC [Exterior]	1st Floor	Parks Operations	Outside Areas	712			Canopy	100MH01	Canopy / MH 100W / HID Magnetic	6	N	No Retrofit - Payback/Budget	No Retrofit Proposed	6	Surface	N/A	0	129	6	4380	0.8	0.8	3,390	3,390	0.00	0.0	0	0	0	0	0	\$						
511	Parking & Area Exterior	09.02-MOC [Exterior]	1st Floor	Parks Operations	Outside Areas	712			Wallpack	100MH01	Wallpack / MH 100W / HID Magnetic	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Wall	N/A	0	129	1	4380	0.1	0.1	565	565	0.00	0.0	0	0	0	0	0	\$						
512	Parking & Area Exterior	09.02-MOC [Exterior]	1st Floor	Parks Operations	Outside Areas	712			Downlight	26CFL02	Downlight / Compact Fluorescent, 26W Triple / N/A	3	N	No Retrofit - Payback/Budget	No Retrofit Proposed	3	0	N/A	0	60	6	4380	0.2	0.2	788	788	0.00	0.0	0	0	0	0	0	\$						
514	Main Building	09.01-FS14	1st Floor	Main Garage	Warehouse	702	\$		Vapor-tight 4'	34T1202M	Vapor-tight 4' / 34W Fluorescent, 4'-0" T12 / Standard Magnetic, T12	4	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	4	Surface	LED Lamp and Driver	2	30	8	730	0.3	0.1	239	88	0.21	2.5	152	0	-1	8	160	\$ 29						
515	Main Building	09.01-FS14	1st Floor	Main Garage	24 Hour Areas	713	\$		8' Industrial w/reflectors	95T1202HO	8' Industrial w/reflectors / 95W Fluorescent, 8'-0" T12, HO / Standard Magnetic, T12	18	L43	New Fixture	Low Bay Replacements 19'-20" AFF	18	Channel	LED Fixture	1	175	18	4745	4.1	3.2	19,388	14,947	0.94	11.2	4,441	0	-16	237	4,678	\$ 357						
516	Main Building	09.01-FS14	1st Floor	Chief office	Offices	705	\$		2x4 Prismatic	34T1202M	2x4 Prismatic / 34W Fluorescent, 4'-0" T12 / Standard Magnetic, T12	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	2	30	2	1825	0.1	0.0	150	55	0.05	0.6	95	0	0	5	100	\$ 11						
517	Main Building	09.01-FS14	1st Floor	Chief office	Offices	705	\$		2x4 Prismatic	40T1204M	2x4 Prismatic / 40W Fluorescent, 4'-0" T12 / Standard Magnetic, T12	1	L4	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (4) lamps with (1) 4-lamp driver, 60W (system),8000+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	4	60	4	1825	0.2	0.1	350	110	0.13	1.6	241	0	-1	13	254	\$ 27						
518	Main Building	09.01-FS14	1st Floor	Open office	Open Office	705	\$		2x4 Prismatic	40T1204M	2x4 Prismatic / 40W Fluorescent, 4'-0" T12 / Standard Magnetic, T12	1	L4	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (4) lamps with (1) 4-lamp driver, 60W (system),8000+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	4	60	4	1825	0.2	0.1	350	110	0.13	1.6	241	0	-1	13	254	\$ 27						
519	Main Building	09.01-FS14	1st Floor	Open office	Open Office	705	\$		2x4 Prismatic	40T1204M	2x4 Prismatic / 40W Fluorescent, 4'-0" T12 / Standard Magnetic, T12	5	L4 Bi-Level	Lamp and Driver	LED 4FT T8 Lamp and Bi-Level Driver/Ballast Upgrade, (4) lamps with (1) 4-lamp driver, 60W (system),8000+ delivered lumens, SYLVANIA	5	Recessed	LED Lamp and Driver	4	60	20	1825	1.0	0.3	1,752	548	0.66	7.9	1,205	0	-4	64	1,269	\$ 136						
520	Main Building	09.01-FS14	1st Floor	Electrical Room	Maintenance Areas - Inactive	501	\$		2x4 Prismatic	34T1202M	2x4 Prismatic / 34W Fluorescent, 4'-0" T12 / Standard Magnetic, T12	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Recessed	N/A	0	82	2	261	0.1	0.1	21	21	0.00	0.0	0	0	0	0	0	\$ -						
521	Main Building	09.01-FS14	1st Floor	Janitor Closet	Janitor Closet	501	\$		4' Acrylic Wrap	34T1202M	4' Acrylic Wrap / 34W Fluorescent, 4'-0" T12 / Standard Magnetic, T12	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Surface	N/A	0	82	2	261	0.1	0.1	21	21	0.00	0.0	0	0	0	0	0	\$ -						
522	Main Building	09.01-FS14	1st Floor	Laundry	Storage Areas	702	\$3		4' Acrylic Wrap	34T1202M	4' Acrylic Wrap / 34W Fluorescent, 4'-0" T12 / Standard Magnetic, T12	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Surface	LED Lamp and Driver	2	30	4	730	0.2	0.1	120	44	0.10	1.2	76	0	0	4	80	\$ 15						
523	Main Building	09.01-FS14	1st Floor	Sleeping Room 6	Bedroom, Housing Authority	701	\$D		Wall Bracket	65PAR01	Wall Bracket / Incandescent, PAR lamp / N/A	1	L19	Retrofit Lamp	LED PAR30 Bypass Lamp Upgrade, (1) E26 base lamp with internal driver, 10W each, 800+ delivered lumens, Sylvania: Par30 10W DIM	1	Wall	LED Integral Driver	1	10	1	365	0.1	0.0	24	4	0.06	0.7	20	0	0	1	21	\$ 6						
524	Main Building	09.01-FS14	1st Floor	Sleeping Room 6	Bedroom, Housing Authority	702	\$		2x4 Prismatic	34T1204M	2x4 Prismatic / 34W Fluorescent, 4'-0" T12 / Standard Magnetic, T12	1	L4	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (4) lamps with (1) 4-lamp driver, 60W (system),8000+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	4	60	4	730	0.2	0.1	120	44	0.10	1.2	76	0	0	4	80	\$ 15						
525	Main Building	09.01-FS14	1st Floor	Sleeping Room 5	Bedroom, Housing Authority	701	\$D		Wall Bracket	65PAR01	Wall Bracket / Incandescent, PAR lamp / N/A	1	L19	Retrofit Lamp	LED PAR30 Bypass Lamp Upgrade, (1) E26 base lamp with internal driver, 10W each, 800+ delivered lumens, Sylvania: Par30 10W DIM	1	Wall	LED Integral Driver	1	10	1	365	0.1	0.0	24	4	0.06	0.7	20	0	0	1	21	\$ 6						
526	Main Building	09.01-FS14	1st Floor	Sleeping Room 5	Bedroom, Housing Authority	702	\$		2x4 Prismatic	34T1204M	2x4 Prismatic / 34W Fluorescent, 4'-0" T12 / Standard Magnetic, T12	1	L4	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (4) lamps with (1) 4-lamp driver, 60W (system),8000+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	4	60	4	730	0.2	0.1	120	44	0.10	1.2	76	0	0	4	80	\$ 15						
527	Main Building	09.01-FS14	1st Floor	Sleeping Room 4	Bedroom, Housing Authority	702	\$		Wall Bracket	65PAR01	Wall Bracket / Incandescent, PAR lamp / N/A	1	L19	Retrofit Lamp	LED PAR30																									



						Existing						Proposed												Energy											
ID	Building	FIM Name	Floor/General Area	Room Name	ASHRAE Space Types	Time Code	Switching	Fixture Schedule	Fixture Type	Lamp & Ballast Type	Description	# of Fixtures	Fixture Code	Retrofit Type (Current Scope)	Description	# of Fixtures	Mounting (if different from existing)	Lamp Type	# of Lamps per Fixture	Watts per Fixture	# of Lamps	Operating Hours	Existing kW	Proposed kW	Existing kWh	Proposed kWh	kW Savings per Month	kW Savings per Year	kWh Savings per Year	Heating Penalty (kWh)	Heating Penalty (therms)	Cooling Credit (kWh)	Net kWh Savings per Year	Net Energy Cost Savings per Year	
546	Main Building	09.01-FS14	1st Floor	Kitchen Lounge	Cafeteria	708	\$		Undercabinet	8T501PH	Undercabinet / 8W Fluorescent, T5 Preheat / Preheat	1	N	Retrofit Lamp	No Retrofit Proposed	1	Surface	N/A	0	12	1	2920	0.0	0.0	35	35	0.00	0.0	0	0	0	0	0	\$ -	
547	Main Building	09.01-FS14	1st Floor	Kitchen Lounge	Cafeteria	708	\$		Undercabinet	8T501PH	Undercabinet / 8W Fluorescent, T5 Preheat / Preheat	3	N	Retrofit Lamp	No Retrofit Proposed	3	Surface	N/A	0	12	3	2920	0.0	0.0	105	105	0.00	0.0	0	0	0	0	0	\$ -	
548	Main Building	09.01-FS14	1st Floor	Kitchen Lounge	24 Hour Areas	708	\$		Acrylic Wrap	34T1204M	Acrylic Wrap / 34W Fluorescent, 4'-0" T12 / Standard Magnetic, T12	1	L4	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (4) lamps with (1) 4-lamp driver, 60W (system),8000+ delivered lumens, SYLVANIA	1	Surface	LED Lamp and Driver	4	60	4	2920	0.2	0.1	479	175	0.10	1.2	304	0	-1	16	320	\$ 28	
549	Main Building	09.01-FS14	1st Floor	Kitchen Lounge	Cafeteria	708	\$		Acrylic Wrap	34T1204M	Acrylic Wrap / 34W Fluorescent, 4'-0" T12 / Standard Magnetic, T12	3	L4	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (4) lamps with (1) 4-lamp driver, 60W (system),8000+ delivered lumens, SYLVANIA	3	Surface	LED Lamp and Driver	4	60	12	2920	0.5	0.2	1,437	526	0.31	3.7	911	0	-3	49	960	\$ 85	
550	Main Building	09.01-FS14	1st Floor	Rear Hallway	Halls & common areas	706	\$		2x4 Prismatic	34T1202M	2x4 Prismatic / 34W Fluorescent, 4'-0" T12 / Standard Magnetic, T12	6	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	6	Recessed	LED Lamp and Driver	2	30	12	2190	0.5	0.2	1,077	394	0.31	3.7	683	0	-3	36	720	\$ 71	
551	Main Building	09.01-FS14	1st Floor	Rear Hallway	24 Hour Areas	708	\$		2x4 Prismatic	34T1202M	2x4 Prismatic / 34W Fluorescent, 4'-0" T12 / Standard Magnetic, T12	5	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	5	Recessed	LED Lamp and Driver	2	30	10	2920	0.4	0.2	1,197	438	0.26	3.1	759	0	-3	40	800	\$ 71	
552	Main Building	09.01-FS14	1st Floor	Public restroom 2	Restrooms, private	501	\$		1x4 Paracube	34T1202M	1x4 Paracube / 34W Fluorescent, 4'-0" T12 / Standard Magnetic, T12	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Surface	N/A	0	82	4	261	0.2	0.2	43	43	0.00	0.0	0	0	0	0	0	\$ -	
553	Main Building	09.01-FS14	1st Floor	Public restroom	Restrooms, private	501	\$		1x4 Paracube	34T1202M	1x4 Paracube / 34W Fluorescent, 4'-0" T12 / Standard Magnetic, T12	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Surface	N/A	0	82	4	261	0.2	0.2	43	43	0.00	0.0	0	0	0	0	0	\$ -	
554	Main Building	09.01-FS14	1st Floor	Large conference	Conf. Room	701	\$D		Downlight	75PAR01	Downlight / Incandescent, PAR lamp / N/A	2	L19HO	Retrofit Lamp	LED PAR30 Bypass Lamp Upgrade, (1) E26 base lamp with internal driver, 13W each, 1050+ delivered lumens, Sylvania: Par30 13W DIM	2	Recessed	LED Integral Driver	1	13	2	365	0.2	0.0	55	9	0.12	1.5	45	0	0	2	48	\$ 15	
555	Main Building	09.01-FS14	1st Floor	Large conference	Conf. Room	701	\$D		Downlight	75PAR01	Downlight / Incandescent, PAR lamp / N/A	6	L19HO	Retrofit Lamp	LED PAR30 Bypass Lamp Upgrade, (1) E26 base lamp with internal driver, 13W each, 1050+ delivered lumens, Sylvania: Par30 13W DIM	6	Recessed	LED Integral Driver	1	13	6	365	0.5	0.1	164	28	0.37	4.5	136	0	-1	7	143	\$ 44	
556	Main Building	09.01-FS14	1st Floor	Large conference	Conf. Room	701	\$3		Decorative Pendant	34T1202M	Decorative Pendant / 34W Fluorescent, 4'-0" T12 / Standard Magnetic, T12	10	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	10	Pendant	LED Lamp and Driver	2	30	20	365	0.8	0.3	299	110	0.52	6.2	190	0	-1	10	200	\$ 61	
557	Main Building	09.01-FS14	1st Floor	Lobby	Halls & common areas	710	\$		Recessed Downlight	13CFL02	Recessed Downlight / Compact Fluorescent, 13W PL / N/A	7	L12	Retrofit Lamp	LED PL Bypass Lamp Upgrade, (2) Horizontal mount lamp with internal driver and remove existing ballast, 5.5W each, 550 delivered lumens, GREEN CREATIVE: PL H 5.5W HYBM	7	Recessed	LED Integral Driver	2	11	14	3650	0.2	0.1	715	281	0.12	1.4	434	0	-2	23	458	\$ 38	
558	Main Building	09.01-FS14	2nd Floor	Mech rm in Shop	Maintenance Areas - Inactive	701	\$		4' Acrylic Wrap	34T1202M	4' Acrylic Wrap / 34W Fluorescent, 4'-0" T12 / Standard Magnetic, T12	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Surface	N/A	0	82	4	365	0.2	0.2	60	60	0.00	0.0	0	0	0	0	0	\$ -	
559	Main Building	09.01-FS14	2nd Floor	Shop	Maintenance Areas	701	\$		8' Industrial w/reflectors	95T1202HO	8' Industrial w/reflectors / 95W Fluorescent, 8'-0" T12, HO / Standard Magnetic, T12	3	L42	New Fixture	LED (2) 4FT Strip Fixture, surface/chain mounting, 94W, 12000+ delivered lumen	3	Chain	LED Fixture	2	94	6	365	0.7	0.3	249	103	0.40	4.8	146	0	-1	8	153	\$ 47	
560	Main Building	09.01-FS14	1st Floor	Exterior	Outside Areas	711			Uplight	LED	Uplight / LED Fixture / LED Driver	1	N	No Retrofit - LED	No Retrofit Proposed	1	Ground	N/A	0	12	1	4015	0.0	0.0	48	48	0.00	0.0	0	0	0	0	0	\$ -	
561	Main Building	09.01-FS14	1st Floor	Exterior	Outside Areas	711	PC		Recessed Downlight	150HPS01	Recessed Downlight / HPS 150W / HID Magnetic	6	N	No Retrofit - Payback/Budget	No Retrofit Proposed	6	Recessed	N/A	0	170	6	4015	1.0	1.0	4,095	4,095	0.00	0.0	0	0	0	0	0	\$ -	
562	Main Building	09.01-FS14	1st Floor	Exterior	Outside Areas	711	PC		Wallpack	LED	Wallpack / LED Fixture / LED Driver	2	N	No Retrofit - LED	No Retrofit Proposed	2	Wall	N/A	0	12	2	4015	0.0	0.0	96	96	0.00	0.0	0	0	0	0	0	\$ -	
563	Main Building	09.01-FS14	1st Floor	Exterior	Outside Areas	711	PC		Downlight	13CFL01	Downlight / Compact Fluorescent, 13W PL / N/A	8	N	No Retrofit - Payback/Budget	No Retrofit Proposed	8	Recessed	N/A	0	14	8	4015	0.1	0.1	450	450	0.00	0.0	0	0	0	0	0	\$ -	
564	Main Building	09.01-FS14	1st Floor	Exterior	Outside Areas	711	PC		Area	175MH01	Area / MH 175W / HID Magnetic	8	N	No Retrofit - Payback/Budget	No Retrofit Proposed	8	Pole	N/A	0	210	8	4015	1.7	1.7	6,745	6,745	0.00	0.0	0	0	0	0	0	\$ -	
566	Mechanic Bldg	09.01-FS16 Mechanic Bldg	1st Floor	Main Bay 101 104 105	Maintenance Areas	706	\$		4' Strip	32T802E	4' Strip / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Wall	N/A	0	63	4	2190	0.1	0.1	276	276	0.00	0.0	0	0	0	0	0	\$ -	
567	Mechanic Bldg	09.01-FS16 Mechanic Bldg	1st Floor	Main Bay 101 104 105	Warehouse	712	\$		8' Industrial w/reflectors	110T1202HO	8' Industrial w/reflectors / 110W Fluorescent, 8'-0" T12, HO / Standard Magnetic, T12	20	N	No Retrofit - Payback/Budget	No Retrofit Proposed	20	Chain	N/A	0	252	40	4380	5.0	5.0	22,075	22,075	0.00	0.0	0	0	0	0	0	\$ -	
568	Mechanic Bldg	09.01-FS16 Mechanic Bldg	1st Floor	Main Bay 101 104 105	Warehouse	712	\$		4' Industrial w/reflectors	60T1202HO	4' Industrial w/reflectors / 60W Fluorescent, 4'-0" T12, HO / Standard Magnetic, T12, No PCB's	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Chain	N/A	0	131	4	4380	0.3	0.3	1,148	1,148	0.00	0.0	0	0	0	0	0	\$ -	
569	Mechanic Bldg	09.01-FS16 Mechanic Bldg	1st Floor	Kitchen / Lunch 109	Kitchen	712	\$		2x4 Prismatic	32T803E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Recessed	N/A	0	86	6	4380	0.2	0.2	753	753	0.00	0.0	0	0	0	0	0	\$ -	
570	Mechanic Bldg	09.01-FS16 Mechanic Bldg	1st Floor	Office 110	Offices	712	\$		2x4 Prismatic	32T803E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Recessed	N/A	0	86	6	4380	0.2	0.2	753	753	0.00	0.0	0	0	0	0	0	\$ -	
571	Mechanic Bldg	09.01-FS16 Mechanic Bldg	1st Floor	Exterior MECH	Outside Areas																														





						Existing					Proposed												Energy											
ID	Building	FIM Name	Floor/General Area	Room Name	ASHRAE Space Types	Time Code	Switching	Fixture Schedule	Fixture Type	Lamp & Ballast Type	Description	# of Fixtures	Fixture Code	Retrofit Type (Current Scope)	Description	# of Fixtures	Mounting (if different from existing)	Lamp Type	# of Lamps per Fixture	Watts per Fixture	# of Lamps	Operating Hours	Existing kW	Proposed kW	Existing kWh	Proposed kWh	kW Savings per Month	kW Savings per Year	kWh Savings per Year	Heating Penalty (kWh)	Heating Penalty (therms)	Cooling Credit (kWh)	Net kWh Savings per Year	Net Energy Cost Savings per Year
590	Fire Station Bldg	09.02-FS16	1st Floor	Mens Bath/Locker 108		712	\$3		1x4 Paracube	32T802E	1x4 Paracube / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	0	LED Lamp and Driver	2	30	4	4380	0.1	0.1	552	263	0.07	0.8	289	0	-1	15	304	\$ 24
591	Fire Station Bldg	09.02-FS16	1st Floor	Mens Bath/Locker 108		712	\$3			32T802E	Direct/Indirect / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	0	LED Lamp and Driver	2	30	2	4380	0.1	0.0	276	131	0.03	0.4	145	0	-1	8	152	\$ 12
592	Fire Station Bldg	09.02-FS16	1st Floor	Training Rm 134	Conf. Room, add new sensor	702	\$D		Recessed Downlight	LED	Recessed Downlight / LED Fixture / LED Driver	4	N	No Retrofit - LED	No Retrofit Proposed	4	Recessed	N/A	0	12	4	730	0.0	0.0	35	35	0.00	0.0	0	0	0	0	0	\$ -
593	Fire Station Bldg	09.02-FS16	1st Floor	Training Rm 134	Conf. Room, add new sensor	702	\$\$		2x4 Prismatic	32T803E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	4	L3	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (3) lamps with (1) 3-lamp driver, 45W (system), 6000+ delivered lumens, SYLVANIA	4	Recessed	LED Lamp and Driver	3	45	12	730	0.3	0.2	251	131	0.16	2.0	120	0	0	6	126	\$ 23
594	Fire Station Bldg	09.02-FS16	Multiple	Hose Tower 132	Storage Areas	702	\$		Wallpack	70MHD1	Wallpack / MH 70W / HID Magnetic	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Wall	N/A	0	90	2	730	0.2	0.2	131	131	0.00	0.0	0	0	0	0	0	\$ -
595	Fire Station Bldg	09.02-FS16	Multiple	Hose Tower 132	Storage Areas	702	\$		4' Strip	32T802E	4' Strip / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	0	N/A	0	63	2	730	0.1	0.1	46	46	0.00	0.0	0	0	0	0	0	\$ -
596	Fire Station Bldg	09.02-FS16	Multiple	Hose Storage 130	Storage Areas	702	\$		4' Strip	32T802E	4' Strip / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	0	N/A	0	63	2	730	0.1	0.1	46	46	0.00	0.0	0	0	0	0	0	\$ -
597	Fire Station Bldg	09.02-FS16	1st Floor	Work Shop 129	Storage Areas - Active	703	\$		4' Strip	32T802E	4' Strip / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Surface	LED Lamp and Driver	2	30	2	1095	0.1	0.0	69	33	0.03	0.4	36	0	0	2	38	\$ 5
598	Fire Station Bldg	09.02-FS16	1st Floor	Office 125 & 126	Open Office	708	\$		2x4 Parabolic	32T803E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	5	L3	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (3) lamps with (1) 3-lamp driver, 45W (system), 6000+ delivered lumens, SYLVANIA	5	Recessed	LED Lamp and Driver	3	45	15	2920	0.4	0.2	1,256	657	0.21	2.5	599	0	-2	32	631	\$ 56
599	Fire Station Bldg	09.02-FS16	1st Floor	Office 124	Offices	708	\$		2x4 Prismatic	32T803E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L3	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (3) lamps with (1) 3-lamp driver, 45W (system), 6000+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	3	45	3	2920	0.1	0.0	251	131	0.04	0.5	120	0	0	6	126	\$ 11
600	Fire Station Bldg	09.02-FS16	1st Floor	Electrical 123	Storage Areas	501	\$		4' Acrylic Wrap	32T802E	4' Acrylic Wrap / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	0	N/A	0	63	2	261	0.1	0.1	16	16	0.00	0.0	0	0	0	0	0	\$ -
601	Fire Station Bldg	09.02-FS16	1st Floor	Laundry 122	Halls & common areas	704	\$3		4' Acrylic Wrap	32T802E	4' Acrylic Wrap / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	0	LED Lamp and Driver	2	30	4	1460	0.1	0.1	184	88	0.07	0.8	96	0	0	5	101	\$ 12
602	Fire Station Bldg	09.02-FS16	1st Floor	Dorm 119	Bedroom, Housing Authority	701	\$		Wall Bracket	60A01	Wall Bracket / Incandescent, A lamp / N/A	1	L17	Retrofit Lamp	LED A19 Bypass Lamp Upgrade, (1) E26 base lamp with internal driver, 9W each, 800+ delivered lumens, Sylvania: A19 9W DIM	1	Wall	LED Integral Driver	1	9	1	365	0.1	0.0	22	3	0.05	0.6	19	0	0	1	20	\$ 6
603	Fire Station Bldg	09.02-FS16	1st Floor	Dorm 119	Bedroom, Housing Authority	706	\$		2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	2	30	2	2190	0.1	0.0	138	66	0.03	0.4	72	0	0	4	76	\$ 8
604	Fire Station Bldg	09.02-FS16	1st Floor	Dorm 111	Bedroom, Housing Authority	701	\$		Wall Bracket	50MR16	Wall Bracket / Halogen, MR16 / Dimming, Magnetic	1	L22	Retrofit Lamp	LED MR16 Bypass Lamp Upgrade, (1) GU5.3 base lamp with internal driver operates on 12V power, 9W each, 700+ delivered lumens, Sylvania: MR16 9W DIM	1	Wall	LED Integral Driver	1	9	1	365	0.1	0.0	18	3	0.04	0.5	15	0	0	1	16	\$ 5
605	Fire Station Bldg	09.02-FS16	1st Floor	Dorm 111	Bedroom, Housing Authority	706	\$		2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	2	30	2	2190	0.1	0.0	138	66	0.03	0.4	72	0	0	4	76	\$ 8
606	Fire Station Bldg	09.02-FS16	1st Floor	Womans Locker 110	Gym lockers	712	\$		Recessed Downlight	75A01	Recessed Downlight / Incandescent, A lamp / N/A	2	L18	Retrofit Lamp	LED A19 Bypass Lamp Upgrade, (1) E26 base lamp with internal driver, 12W each, 1100+ delivered lumens, Sylvania: A19 12W DIM	2	Recessed	LED Integral Driver	1	12	2	4380	0.2	0.0	657	105	0.13	1.5	552	0	-2	29	581	\$ 45
607	Fire Station Bldg	09.02-FS16	1st Floor	Womans Locker 110	Gym lockers	712	\$		4' Acrylic Wrap	32T802E	4' Acrylic Wrap / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	0	LED Lamp and Driver	2	30	2	4380	0.1	0.0	276	131	0.03	0.4	145	0	-1	8	152	\$ 12
608	Fire Station Bldg	09.02-FS16	1st Floor	Womans Locker 110	Restrooms	712	\$		1x4 Paracube	32T802E	1x4 Paracube / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Wall	LED Lamp and Driver	2	30	2	4380	0.1	0.0	276	131	0.03	0.4	145	0	-1	8	152	\$ 12
609	Fire Station Bldg	09.02-FS16	1st Floor	Womans Locker 110	Restrooms	712	\$		Direct/Indirect	17T802E	Direct/Indirect / 17W Fluorescent, 2'-0" T8 / Electronic, T8	1	L8-2	Lamp and Driver	LED 2FT T8 Bypass lamp Upgrade, (2) lamp, 18W (system), 2200 delivered lumens, SYLVANIA	1	Wall	LED Integral Driver	2	18	2	4380	0.0	0.0	158	79	0.02	0.2	79	0	0	4	83	\$ 6
610	Fire Station Bldg	09.02-FS16	1st Floor	Exercise 109	Gyms	706	\$3		2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	4	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	4	Recessed	LED Lamp and Driver	2	30	8	2190	0.3	0.1	552	263	0.13	1.6	289	0	-1	15	304	\$ 30
611	Fire Station Bldg	09.02-FS16	1st Floor	Janitor 108	Janitor Closet	701	\$		Recessed Downlight	26CFL02	Recessed Downlight / Compact Fluorescent, 26W Triple / N/A	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Recessed	N/A	0	60	2	365	0.1	0.1	22	22	0.00	0.0	0	0	0	0	0	\$ -
612	Fire Station Bldg	09.02-FS16	1st Floor	Kitchen / Dining 105 & 106	Kitchen	710	\$		Undercabinet	25T802E	Undercabinet / 25W Fluorescent, 3'-0" T8 / Electronic, T8	1	L9-2	Retrofit Lamp	LED 3FT T8 Bypass Lamp Upgrade, (2) lamp, 24W (system), 1600+ delivered lumens, SYLVANIA	1	Surface	LED Integral Driver	1	12	1	3650	0.0	0.0	164	44	0.03	0.4	120	0	0	6	127	\$ 10
613	Fire Station Bldg	09.02-FS16	1st Floor	Kitchen / Dining 105 & 106	Kitchen	710	\$		Undercabinet	32T802E	Undercabinet / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4																			



					Existing										Proposed										Energy											
ID	Building	FIM Name	Floor/General Area	Room Name	ASHRAE Space Types	Time Code	Switching	Fixture Schedule	Fixture Type	Lamp & Ballast Type	Description	# of Fixtures	Fixture Code	Retrofit Type (Current Scope)	Description	# of Fixtures	Mounting (If different from existing)	Lamp Type	# of Lamps per Fixture	Watts per Fixture	# of Lamps	Operating Hours	Existing kW	Proposed kW	Existing kWh	Proposed kWh	kW Savings per Month	kW Savings per Year	kWh Savings per Year	Heating Penalty (kWh)	Heating Penalty (therms)	Cooling Credit (kWh)	Net kWh Savings per Year	Net Energy Cost Savings per Year		
633	Fire Station Bldg	09.02-FS16	1st Floor	Dorm Rm 114	Bedroom, Housing Authority	702	\$		2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	2	30	2	730	0.1	0.0	46	22	0.03	0.4	24	0	0	1	25 \$	5		
634	Fire Station Bldg	09.02-FS16	1st Floor	Hall 113	Halls & common areas	712	\$3		2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	4	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	4	Recessed	LED Lamp and Driver	2	30	8	4380	0.3	0.1	1,104	526	0.13	1.6	578	0	-2	31	609 \$	47		
635	Fire Station Bldg	09.02-FS16	1st Floor	Hall 120	Halls & common areas	712	\$3		2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	2	30	2	4380	0.1	0.0	276	131	0.03	0.4	145	0	-1	8	152 \$	12		
636	Fire Station Bldg	09.02-FS16	1st Floor	Hall 120	Halls & common areas	712	\$		2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	6	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	6	Recessed	LED Lamp and Driver	2	30	12	4380	0.4	0.2	1,656	788	0.20	2.4	867	0	-3	46	913 \$	71		
637	Fire Station Bldg	09.02-FS16	1st Floor	Hall 133, 135, 121	Halls & common areas	713	\$		Undercabinet	32T802E	Undercabinet / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Surface	LED Lamp and Driver	2	30	2	4745	0.1	0.0	299	142	0.03	0.4	157	0	-1	8	165 \$	13		
638	Fire Station Bldg	09.02-FS16	1st Floor	Hall 133, 135, 121	Halls & common areas	713	\$3		2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	6	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	6	Recessed	LED Lamp and Driver	2	30	12	4745	0.4	0.2	1,794	854	0.20	2.4	940	0	-3	50	990 \$	76		
639	Fire Station Bldg	09.02-FS16	1st Floor	Exterior	Outside Areas	711	PC		Wallpack	70MH01	Wallpack / MH 70W / HID Magnetic	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Wall	N/A	0	90	2	4015	0.2	0.2	723	723	0.00	0.0	0	0	0	0	0 \$	-		
640	Fire Station Bldg	09.02-FS16	1st Floor	Exterior	Outside Areas	711	PC		Recessed Downlight	LED	Recessed Downlight / LED Fixture / LED Driver	2	N	No Retrofit - LED	No Retrofit Proposed	2	Recessed	N/A	0	12	2	4015	0.0	0.0	96	96	0.00	0.0	0	0	0	0	0 \$	-		
641	Fire Station Bldg	09.02-FS16	1st Floor	Exterior	Outside Areas	711	PC		Wallpack	26CFL01	Wallpack / Compact Fluorescent, 26W Triple / N/A	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Wall	N/A	0	30	2	4015	0.1	0.1	241	241	0.00	0.0	0	0	0	0	0 \$	-		
642	Fire Station Bldg	09.02-FS16	1st Floor	Exterior	Outside Areas	711	PC		Recessed Downlight	70HPS01	Recessed Downlight / HPS 70W / HID Magnetic	6	N	No Retrofit - Payback/Budget	No Retrofit Proposed	6	Recessed	N/A	0	86	6	4015	0.5	0.5	2,072	2,072	0.00	0.0	0	0	0	0	0 \$	-		
643	Fire Station Bldg	09.02-FS16	1st Floor	Exterior	Outside Areas	711	PC		Wallpack	LED	Wallpack / LED Fixture / LED Driver	1	N	No Retrofit - LED	No Retrofit Proposed	1	Wall	N/A	0	12	1	4015	0.0	0.0	48	48	0.00	0.0	0	0	0	0	0 \$	-		
644	Fire Station Bldg	09.02-FS16	1st Floor	Exterior	Outside Areas	711	PC		Cylinder	70MH01	Cylinder / MH 70W / HID Magnetic	3	N	No Retrofit - Payback/Budget	No Retrofit Proposed	3	Surface	N/A	0	90	3	4015	0.3	0.3	1,084	1,084	0.00	0.0	0	0	0	0	0 \$	-		
645	Fire Station Bldg	09.02-FS16	1st Floor	Exterior	Outside Areas	711	PC		Area	250MH01	Area / MH 250W / HID Magnetic	8	N	No Retrofit - Payback/Budget	No Retrofit Proposed	8	Pole	N/A	0	295	8	4015	2.4	2.4	9,475	9,475	0.00	0.0	0	0	0	0	0 \$	-		
647	Main Building	09.01-FS17	2nd Floor	Womans 204	Restrooms, private	706	\$0		Vanity	14T502	Vanity / 14W, Fluorescent, 22" T5 / Program Rapid Start T5HO	1	N	Retroftt Lamp	No Retrofit Proposed	1	Wall	N/A	0	28	2	2190	0.0	0.0	61	61	0.00	0.0	0	0	0	0	0 \$	-		
648	Main Building	09.01-FS17	2nd Floor	Womans 204	Restrooms, private	704	\$0		Recessed Downlight	32CFL01	Recessed Downlight / Compact Fluorescent, 32W Triple / N/A	1	L16	Retroftt Lamp	LED PL Bypass Lamp Upgrade, (1) Vertical mount lamps with internal driver and remove existing ballast, 8.5W each, 1000 delivered lumens, GREEN CREATIVE: PL V 8.5W BYP	1	Recessed	LED Integral Driver	1	9	1	1460	0.0	0.0	48	12	0.02	0.3	36	0	0	2	38 \$	5		
649	Main Building	09.01-FS17	2nd Floor	Mens 203	Restrooms, private	706	\$0		Vanity	14T502	Vanity / 14W, Fluorescent, 22" T5 / Program Rapid Start T5HO	1	N	Retroftt Lamp	No Retrofit Proposed	1	Wall	N/A	0	28	2	2190	0.0	0.0	61	61	0.00	0.0	0	0	0	0	0 \$	-		
650	Main Building	09.01-FS17	2nd Floor	Mens 203	Restrooms, private	704	\$0		Recessed Downlight	32CFL01	Recessed Downlight / Compact Fluorescent, 32W Triple / N/A	1	L16	Retroftt Lamp	LED PL Bypass Lamp Upgrade, (1) Vertical mount lamps with internal driver and remove existing ballast, 8.5W each, 1000 delivered lumens, GREEN CREATIVE: PL V 8.5W BYP	1	Recessed	LED Integral Driver	1	9	1	1460	0.0	0.0	48	12	0.02	0.3	36	0	0	2	38 \$	5		
651	Main Building	09.01-FS17	1st Floor	Hall 113	Halls & common areas	715	\$3		4' Acrylic Wrap	32T802E	4' Acrylic Wrap / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Surface	LED Lamp and Driver	2	30	4	5475	0.1	0.1	690	329	0.07	0.8	361	0	-1	19	381 \$	28		
652	Main Building	09.01-FS17	1st Floor	Hall 113		715			Recessed Downlight	32CFL01	Recessed Downlight / Compact Fluorescent, 32W Triple / N/A	2	L14	Retroftt Lamp	LED PL Bypass Lamp Upgrade, (1) Horizontal mount lamp with internal driver and remove existing ballast, 8W each, 900 delivered lumens, GREEN CREATIVE: PL H 8W BYP	2	Recessed	LED Integral Driver	1	8	2	5475	0.1	0.0	361	88	0.05	0.6	274	0	-1	15	288 \$	21		
653	Main Building	09.01-FS17	1st Floor	Hall 113	Halls & common areas	715	\$3		Indirect	32T802E	Indirect / 32W Fluorescent, 4'-0" T8 / Electronic, T8	3	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	3	Recessed	LED Lamp and Driver	2	30	6	5475	0.2	0.1	1,035	493	0.10	1.2	542	0	-2	29	571 \$	42		
654	Main Building	09.01-FS17	1st Floor	Hall 105, 106	Halls & common areas	712	\$3	F26	Sconce	42CFL02	Sconce / Compact Fluorescent, 42W Triple, Vertical / N/A	3	L14H02	Retroftt Lamp	LED PL Bypass Lamp Upgrade, (2) Horizontal mount lamp with internal driver and remove existing ballast, 15.5W each, 1750 delivered lumens, GREEN CREATIVE: PL H 15.5W BYP	3	Wall	LED Integral Driver	2	30	6	4380	0.3	0.1	1,156	394	0.17	2.1	762	0	-3	41	803 \$	63		
655	Main Building	09.01-FS17	1st Floor	Hall 105, 106	Halls & common areas	710	\$	15	Display	10H01	Display / Halogen, 10W Bi-Pin / N/A	4	N	Retroftt Lamp	No Retrofit Proposed	4	Surface	N/A	0	11	4	3650	0.0	0.0	161	161	0.00	0.0	0	0	0	0	0 \$	-		
656	Main Building	09.01-FS17	1st Floor	Hall 105, 106	Halls & common areas	715	\$		2x4 Troffer	32T802E	2x4 Troffer / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2 Bi-level	Lamp and Driver	LED 4FT T8 Lamp and Bi-Level Driver/Ballast Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	2	32	2	5475	0.1	0.0	345	175	0.03	0.4	170	0	-1	9	179 \$	13		
657	Main Building	09.01-FS17	1st Floor	Hall 105, 106	Halls & common areas	715		F6X, FSX	Recessed Downlight	32CFL01	Recessed Downlight / Compact Fluorescent, 32W Triple / N/A	3	L14A	Retroftt Lamp	LED PL Lamp Upgrade, (1) Horizontal mount lamp using existing ballast, 8.5W each, 900 delivered lumens, GREEN CREATIVE: PL H 8W DIR	3	Recessed	LED Fixture	1	9	3	5475	0.1	0.0	542	140	0.07	0.9	402	0	-1	21	424 \$	31		
658</																																				



					Existing										Proposed										Energy													
ID	Building	FIM Name	Floor/General Area	Room Name	ASHRAE Space Types	Time Code	Switching	Fixture Schedule	Fixture Type	Lamp & Ballast Type	Description	# of Fixtures	Fixture Code	Retrofit Type (Current Scope)	Description	# of Fixtures	Mounting (If different from existing)	Lamp Type	# of Lamps per Fixture	Watts per Fixture	# of Lamps	Operating Hours	Existing kW	Proposed kW	Existing kWh	Proposed kWh	kW Savings per Month	kW Savings per Year	kWh Savings per Year	Heating Penalty (kWh)	Heating Penalty (therms)	Cooling Credit (kWh)	Net kWh Savings per Year	Net Energy Cost Savings per Year				
677	Main Building	09.01-FS17	1st Floor	Sleeping 116	Bedroom, Housing Authority	706	\$D			LED	LED Fixture / LED Driver	1	N	No Retrofit - LED	No Retrofit Proposed	1	Wall	N/A	0	12	1	2190	0.0	0.0	26	26	0.00	0.0	0	0	0	0	0	\$ -	-			
678	Main Building	09.01-FS17	1st Floor	Crew 104	Offices	708	\$			LED	LED Fixture / LED Driver	7	N	No Retrofit - LED	No Retrofit Proposed	7	Wall	N/A	0	12	7	2920	0.1	0.1	245	245	0.00	0.0	0	0	0	0	0	\$ -	-			
679	Main Building	09.01-FS17	1st Floor	Crew 104	Open Offices, existing sensor	708	\$O		2x4 Troffer	32T803E	2x4 Troffer / 32W Fluorescent, 4'-0" T8 / Electronic, T8	3	L2 Bi-level	Lamp and Driver	LED 4FT T8 Lamp and Bi-Level Driver/Ballast Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	3	Recessed	LED Lamp and Driver	2	32	6	2920	0.3	0.1	753	280	0.16	1.9	473	0	-2	25	498	\$ 44				
680	Main Building	09.01-FS17	1st Floor	Crew 104 Closet	Storage Areas	702	\$		Recessed Downlight	32CFL01	Recessed Downlight / Compact Fluorescent, 32W Triple / N/A	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Recessed	N/A	0	33	1	730	0.0	0.0	24	24	0.00	0.0	0	0	0	0	0	\$ -	-			
681	Main Building	09.01-FS17	Stairs	Stairs @ Garage Tower 133	Halls & common areas	715	\$		Liquid-tight	32T802E	Liquid-tight / 32W Fluorescent, 4'-0" T8 / Electronic, T8	3	L2B	Lamp and Driver (Battery)	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, Back-up battery, SYLVANIA	3	Surface	LED Lamp and Driver	2	30	6	5475	0.2	0.1	1,035	493	0.10	1.2	542	0	-2	29	571	\$ 42				
682	Main Building	09.01-FS17	Stairs	Stairs @ Garage Tower 133	Halls & common areas	715	\$		Liquid-tight	32T802E	Liquid-tight / 32W Fluorescent, 4'-0" T8 / Electronic, T8	9	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	9	Surface	LED Lamp and Driver	2	30	18	5475	0.6	0.3	3,104	1,478	0.30	3.6	1,626	0	-6	87	1,713	\$ 126				
683	Main Building	09.01-FS17	Stairs	Stairs Central	Halls & common areas	712	\$3		Decorative Pendant	42CFL02	Decorative Pendant / Compact Fluorescent, 42W Triple, Vertical / N/A	2	L16A2	Retrofit Lamp	LED PL Lamp Upgrade, (2) Vertical mount lamp using existing ballast, 17W each, 1000 delivered lumens, GREEN CREATIVE: PL V 17W BYP	2	Pendant	LED Fixture	2	34	4	4380	0.2	0.1	771	298	0.11	1.3	473	0	-2	25	498	\$ 39				
684	Main Building	09.01-FS17	Stairs	Stairs Central	Halls & common areas	715	\$3		Decorative Pendant	42CFL02	Decorative Pendant / Compact Fluorescent, 42W Triple, Vertical / N/A	1	L16A2	Retrofit Lamp	LED PL Lamp Upgrade, (2) Vertical mount lamp using existing ballast, 17W each, 1000 delivered lumens, GREEN CREATIVE: PL V 17W BYP	1	Pendant	LED Fixture	2	34	2	5475	0.1	0.0	482	186	0.05	0.6	296	0	-1	16	311	\$ 23				
685	Main Building	09.01-FS17	1st Floor	Riser Room 126	Storage Areas - Active	702	\$O		4' Acrylic Wrap	32T802E	4' Acrylic Wrap / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Surface	N/A	0	63	4	730	0.1	0.1	92	92	0.00	0.0	0	0	0	0	0	\$ -	-			
686	Main Building	09.01-FS17	1st Floor	Fitness 109	Gyms	712	\$O		2x4 Troffer	32T803E	2x4 Troffer / 32W Fluorescent, 4'-0" T8 / Electronic, T8	9	L2 Bi-level	Lamp and Driver	LED 4FT T8 Lamp and Bi-Level Driver/Ballast Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	9	Recessed	LED Lamp and Driver	2	32	18	4380	0.8	0.3	3,390	1,261	0.49	5.8	2,129	0	-8	114	2,242	\$ 175				
687	Main Building	09.01-FS17	1st Floor	Kitchen/Day Rm 107 & 108	Cafeteria	712L-D	\$O		2x4 Troffer	32T803E	2x4 Troffer / 32W Fluorescent, 4'-0" T8 / Electronic, T8	10	L2 Bi-level	Lamp and Driver	LED 4FT T8 Lamp and Bi-Level Driver/Ballast Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	10	Recessed	LED Lamp and Driver	2	32	20	4380	0.9	0.3	3,767	1,402	0.54	6.5	2,365	0	-9	126	2,491	\$ 194				
688	Main Building	09.01-FS17	1st Floor	Kitchen/Day Rm 107 & 108	Cafeteria	712L-D	\$D		Recessed Downlight	32CFL01	Recessed Downlight / Compact Fluorescent, 32W Triple / N/A	6	L16 DIM	Retrofit Lamp	LED PL Compatible Lamp Upgrade, (1) Vertical mount lamps with Dimmable internal driver, 8.5W each, 1000 delivered lumens,	6	Recessed	LED Integral Driver	1	9	6	4380	0.2	0.1	867	223	0.15	1.8	644	0	-2	34	678	\$ 53				
689	Main Building	09.01-FS17	1st Floor	Kitchen/Day Rm 107 & 108	Cafeteria	712L-D	\$		Undercabinet	17T801E	Undercabinet / 17W Fluorescent, 2'-0" T8 / Electronic, T8	5	L8	Retrofit Lamp	LED 2FT T8 Bypass Lamp Upgrade, (1) lamp, 9W (system), 1100 delivered lumens, SYLVANIA	5	Surface	LED Integral Driver	1	9	5	4380	0.1	0.0	394	197	0.05	0.5	197	0	-1	11	208	\$ 16				
690	Main Building	09.01-FS17	1st Floor	Kitchen/Day Rm 107 & 108	Cafeteria	712L-D	\$		Undercabinet	32T801E	Undercabinet / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L10	Retrofit Lamp	LED 4FT T8 Bypass Lamp Upgrade, (1) lamp, 14W (system), 1800+ delivered lumens, SYLVANIA	1	Surface	LED Integral Driver	1	14	1	4380	0.0	0.0	131	61	0.02	0.2	70	0	0	4	74	\$ 6				
691	Main Building	09.01-FS17	1st Floor	Hall 110	Halls & common areas	715	\$		Recessed Downlight	32CFL01	Recessed Downlight / Compact Fluorescent, 32W Triple / N/A	1	L16	Retrofit Lamp	LED PL Bypass Lamp Upgrade, (1) Vertical mount lamps with internal driver and remove existing ballast, 8.5W each, 1000 delivered lumens, GREEN CREATIVE: PL V 8.5W BYP	1	Recessed	LED Integral Driver	1	9	1	5475	0.0	0.0	181	47	0.02	0.3	134	0	0	7	141	\$ 10				
692	Main Building	09.01-FS17	1st Floor	Hall 110	Halls & common areas	715	\$		2x4 Troffer	32T802E	2x4 Troffer / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2B	Lamp and Driver (Battery)	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, Back-up battery, SYLVANIA	1	Recessed	LED Lamp and Driver	2	30	2	5475	0.1	0.0	345	164	0.03	0.4	181	0	-1	10	190	\$ 14				
693	Main Building	09.01-FS17	1st Floor	Hall 110	Halls & common areas	715	\$		2x4 Troffer	32T802E	2x4 Troffer / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2 Bi-level	Lamp and Driver	LED 4FT T8 Lamp and Bi-Level Driver/Ballast Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	32	4	5475	0.1	0.1	690	350	0.06	0.7	339	0	-1	18	358	\$ 26				
694	Main Building	09.01-FS17	1st Floor	Storage 113B	Storage Areas	702	\$		Sconce	54T502E	Sconce / 54W, Fluorescent, 4'-0" TSHO / Program Rapid Start TSHO	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Wall	N/A	0	100	2	730	0.1	0.1	73	73	0.00	0.0	0	0	0	0	0	\$ -	-			
695	Main Building	09.01-FS17	1st Floor	Storage 113B	Storage Areas	702	\$		4' Acrylic Wrap	32T802E	4' Acrylic Wrap / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Surface	N/A	0	63	2	730	0.1	0.1	46	46	0.00	0.0	0	0	0	0	0	\$ -	-			
696	Main Building	09.01-FS17	1st Floor	Shop Cascade 134	Storage Areas	702	\$		Undercabinet	32T801E	Undercabinet / 32W Fluorescent, 4'-0" T8 / Electronic, T8	4	N	No Retrofit - Payback/Budget	No Retrofit Proposed	4	Surface	N/A	0	30	4	730	0.1	0.1	88	88	0.00	0.0	0	0	0	0	0	\$ -	-			
697	Main Building	09.01-FS17	1st Floor	Shop Cascade 134	Storage Areas - Active	702	\$O		4' Acrylic Wrap	32T802E	4' Acrylic Wrap / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Surface	N/A	0	63	4	730	0.1	0.1	92	92	0.00	0.0	0	0	0	0	0	\$ -	-			
698	Main Building	09.01-FS17	1st Floor	Storage 129	Storage Areas - Active	702	\$O		2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	3	N	No Retrofit - Payback/Budget	No Retrofit Proposed	3	Recessed	N/A	0	63	6	730	0.2	0.2	138	138	0.00	0.0	0	0	0	0	0	\$ -	-			
699	Main Building	09.01-FS17	1st Floor	Electrical 123	Storage Areas	701	\$O		4' Industrial w/reflectors	32T802E	4' Industrial w/reflectors / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Surface	N/A	0	63	2	365	0.1	0.1	23	23	0.00	0.0	0	0	0	0	0	\$ -	-			
700	Main Building	09.01-FS17	1st Floor	Hall 124	Halls & common areas	715	\$3		Sconce	LED	Sconce / LED Fixture / LED Driver	3	N	No Retrofit - LED	No Retrofit Proposed	3	Wall	N/A	0	12	3	5475	0.0	0.0	197	197	0.00	0.0	0	0	0	0	0	\$ -	-			
701	Main Building	09.01-FS17	1st Floor	Hall 124	Halls																																	



						Existing						Proposed										Energy														
ID	Building	FIM Name	Floor/General Area	Room Name	ASHRAE Space Types	Time Code	Switching	Fixture Schedule	Fixture Type	Lamp & Ballast Type	Description	# of Fixtures	Fixture Code	Retrofit Type (Current Scope)	Description	# of Fixtures	Mounting (If different from existing)	Lamp Type	# of Lamps per Fixture	Watts per Fixture	# of Lamps	Operating Hours	Existing kW	Proposed kW	Existing kWh	Proposed kWh	kW Savings per Month	kW Savings per Year	kWh Savings per Year	Heating Penalty (kWh)	Heating Penalty (therms)	Cooling Credit (kWh)	Net kWh Savings per Year	Net Energy Cost Savings per Year		
720	Main Building	09.01-FS17	1st Floor	MBO Sleep 119	Bedroom, Housing Authority	706	\$D			LED	LED Fixture / LED Driver	1	N	No Retrofit - LED	No Retrofit Proposed	1	Wall	N/A	0	12	1	2190	0.0	0.0	26	26	0.00	0.0	0	0	0	0	0	\$ -		
721	Main Building	09.01-FS17	1st Floor	MBO Office 118	Open Offices, existing sensor	708	\$O		2x4 Troffer	32T803E	2x4 Troffer / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2 Bi-level	Lamp and Driver	LED 4FT T8 Lamp and Bi-Level Driver/Ballast Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	32	4	2920	0.2	0.1	502	187	0.11	1.3	315	0	-1	17	332	\$ 29		
722	Main Building	09.01-FS17	1st Floor	Office 103	Offices	708	\$O		2x4 Troffer	32T803E	2x4 Troffer / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2 Bi-level	Lamp and Driver	LED 4FT T8 Lamp and Bi-Level Driver/Ballast Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	32	4	2920	0.2	0.1	502	187	0.11	1.3	315	0	-1	17	332	\$ 29		
723	Main Building	09.01-FS17	1st Floor	Toilet 101	Restrooms, private, existing sensor	702	\$O		Recessed Downlight	32CFL01	Recessed Downlight / Compact Fluorescent, 32W Triple / N/A	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Recessed	N/A	0	33	1	730	0.0	0.0	24	24	0.00	0.0	0	0	0	0	0	\$ -		
724	Main Building	09.01-FS17	1st Floor	Toilet 101	Restrooms, private, existing sensor	702	\$O		Vanity	14T502	Vanity / 14W, Fluorescent, 22" T5 / Program Rapid Start T5HO	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Wall	N/A	0	28	2	730	0.0	0.0	20	20	0.00	0.0	0	0	0	0	0	\$ -		
725	Main Building	09.01-FS17	1st Floor	Office 102	Offices	708	\$O		2x4 Troffer	32T803E	2x4 Troffer / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2 Bi-level	Lamp and Driver	LED 4FT T8 Lamp and Bi-Level Driver/Ballast Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Recessed	LED Lamp and Driver	2	32	4	2920	0.2	0.1	502	187	0.11	1.3	315	0	-1	17	332	\$ 29		
726	Main Building	09.01-FS17	1st Floor	Lobby 100	Halls & common areas	715	\$		Recessed Downlight	32CFL01	Recessed Downlight / Compact Fluorescent, 32W Triple / N/A	3	L16	Retrofit Lamp	LED PL Bypass Lamp Upgrade, (1) Vertical mount lamps with internal driver and remove existing ballast, 8.5W each, 1000 delivered lumens, GREEN CREATIVE: PL V 8.5W BYP	3	Recessed	LED Integral Driver	1	9	3	5475	0.1	0.0	542	140	0.07	0.9	402	0	-1	21	424	\$ 31		
727	Main Building	09.01-FS17	2nd Floor	Lobby 100	Halls & common areas	715	\$		Recessed Downlight	32CFL01	Recessed Downlight / Compact Fluorescent, 32W Triple / N/A	1	L14A	Retrofit Lamp	LED PL Lamp Upgrade, (1) Horizontal mount lamp using existing ballast, 8.5W each, 900 delivered lumens, GREEN CREATIVE: PL H 8W BYP	1	Recessed	LED Fixture	1	9	1	5475	0.0	0.0	181	47	0.02	0.3	134	0	0	7	141	\$ 10		
728	Main Building	09.01-FS17	2nd Floor	Lobby 100	Halls & common areas	715	\$		Recessed Downlight	32CFL01	Recessed Downlight / Compact Fluorescent, 32W Triple / N/A	3	L14	Retrofit Lamp	LED PL Bypass Lamp Upgrade, (1) Horizontal mount lamp with internal driver and remove existing ballast, 8W each, 900 delivered lumens, GREEN CREATIVE: PL H 8W BYP	3	Recessed	LED Integral Driver	1	8	3	5475	0.1	0.0	542	131	0.08	0.9	411	0	-2	22	433	\$ 32		
729	Main Building	09.01-FS17	2nd Floor	Mech 210	Storage Areas	701	\$O		4' Industrial w/reflectors	32T802E	4' Industrial w/reflectors / 32W Fluorescent, 4'-0" T8 / Electronic, T8	6	N	No Retrofit - Payback/Budget	No Retrofit Proposed	6	Surface	N/A	0	63	12	365	0.4	0.4	138	138	0.00	0.0	0	0	0	0	0	\$ -		
730	Main Building	09.01-FS17	2nd Floor	Storage 209	Storage Areas	701	\$O		2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Recessed	N/A	0	63	4	365	0.1	0.1	46	46	0.00	0.0	0	0	0	0	0	\$ -		
731	Main Building	09.01-FS17	2nd Floor	Tel-Com 208	Storage Areas	701	\$O		2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Recessed	N/A	0	63	4	365	0.1	0.1	46	46	0.00	0.0	0	0	0	0	0	\$ -		
732	Main Building	09.01-FS17	2nd Floor	Classroom 206	Classrooms	710L-C	\$O		Direct/Indirect	54T508E	Direct/Indirect / 54W, Fluorescent, 4'-0" T5HO / Program Rapid Start T5HO	4	N	No Retrofit - Payback/Budget	No Retrofit Proposed	4	Pendant	N/A	0	800	32	3740	3.2	3.2	11,968	11,968	0.00	0.0	0	0	0	0	0	\$ -		
733	Main Building	09.01-FS17	2nd Floor	Classroom 206	Classrooms	710L-C	\$O		Wall Washer	54T502E	Wall Washer / 54W, Fluorescent, 4'-0" T5HO / Program Rapid Start T5HO	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Surface	N/A	0	100	4	3740	0.2	0.2	748	748	0.00	0.0	0	0	0	0	0	\$ -		
734	Main Building	09.01-FS17	2nd Floor	Classroom 206	Classrooms	710L-C	\$O		Undercabinet	17T801E	Undercabinet / 17W Fluorescent, 2'-0" T8 / Electronic, T8	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Surface	N/A	0	18	1	3740	0.0	0.0	67	67	0.00	0.0	0	0	0	0	0	\$ -		
735	Main Building	09.01-FS17	2nd Floor	Classroom 206	Classrooms	710L-C	\$O		Undercabinet	32T801E	Undercabinet / 32W Fluorescent, 4'-0" T8 / Electronic, T8	3	N	No Retrofit - Payback/Budget	No Retrofit Proposed	3	Surface	N/A	0	30	3	3740	0.1	0.1	337	337	0.00	0.0	0	0	0	0	0	\$ -		
736	Main Building	09.01-FS17	2nd Floor	Hall 202	Halls & common areas	715	\$3		Recessed Downlight	32CFL01	Recessed Downlight / Compact Fluorescent, 32W Triple / N/A	2	L16	Retrofit Lamp	LED PL Bypass Lamp Upgrade, (1) Vertical mount lamps with internal driver and remove existing ballast, 8.5W each, 1000 delivered lumens, GREEN CREATIVE: PL V 8.5W BYP	2	Recessed	LED Integral Driver	1	9	2	5475	0.1	0.0	361	93	0.05	0.6	268	0	-1	14	283	\$ 21		
737	Main Building	09.01-FS17	2nd Floor	Hall 202	Halls & common areas	715	\$3		Indirect	32T802E	Indirect / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2B	Lamp and Driver (Battery)	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, Back-up battery, SYLVANIA	1	Recessed	LED Lamp and Driver	2	30	2	5475	0.1	0.0	345	164	0.03	0.4	181	0	-1	10	190	\$ 14		
738	Main Building	09.01-FS17	2nd Floor	Hall 202	Halls & common areas	715	\$3		Indirect	32T802E	Indirect / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	2	30	2	5475	0.1	0.0	345	164	0.03	0.4	181	0	-1	10	190	\$ 14		
739	Main Building	09.01-FS17	2nd Floor	Storage 205	Storage Areas	701	\$O		2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Recessed	N/A	0	63	4	365	0.1	0.1	46	46	0.00	0.0	0	0	0	0	0	\$ -		
740	Main Building	09.01-FS17	2nd Floor	Storage 212	Storage Areas	702	\$		4' Industrial w/reflectors	32T802E	4' Industrial w/reflectors / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Surface	N/A	0	63	4	730	0.1	0.1	92	92	0.00	0.0	0	0	0	0	0	\$ -		
741	Main Building	09.01-FS17	2nd Floor	Radio 207	Storage Areas	701	\$O		2x4 Prismatic	32T802E	2x4 Prismatic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Recessed	N/A	0	63	4	365	0.1	0.1	46	46	0.00	0.0	0	0	0	0	0	\$ -		
742	Main Building	09.01-FS17	1st Floor	Exterior	Outside Areas	712	PC		Wallpack	70MH01	Wallpack / MH 70W / HID Magnetic	1	N	No Retrofit - Payback/Budget	No Retrofit Proposed	1	Wall	N/A	0	90	1	4380	0.1	0.1	394	394	0.00	0.0	0	0	0	0	0	\$ -		
743	Main Building	09.01-FS17	1st Floor	Exterior	Outside Areas	712	PC		Wallpack	70MH01	Wallpack / MH 70W / HID Magnetic	6	N	No Retrofit - Payback/Budget	No Retrofit Proposed	6	Wall	N/A	0	90	6	4380	0.5	0.5	2,365	2,365	0.00	0.0	0	0	0	0	0	\$ -		
744	Main Building	09.01-FS17	1st Floor	Exterior	Outside Areas	712	PC		Wallpack	42CFL01	Wallpack / Compact Fluorescent, 42W Triple, Vertical / N/A	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Wall	N/A	0	44	2	4380	0.1	0.1	385	385	0.00	0.0	0	0	0	0	0	\$ -		
745	Main Building	09.01-FS17	1st Floor	Exterior	Outside Areas	712	PC																													





						Existing							Proposed										Energy													
ID	Building	FJM Name	Floor/General Area	Room Name	ASHRAE Space Types	Time Code	Switching	Fixture Schedule	Fixture Type	Lamp & Ballast Type	Description	# of Fixtures	Fixture Code	Retrofit Type (Current Scope)	Description	# of Fixtures	Mounting (If different from existing)	Lamp Type	# of Lamps per Fixture	Watts per Fixture	# of Lamps	Operating Hours	Existing kW	Proposed kW	Existing kWh	Proposed kWh	kW Savings per Month	kW Savings per Year	kWh Savings per Year	Heating Penalty (kWh)	Heating Penalty (therms)	Cooling Credit (kWh)	Net kWh Savings per Year	Net Energy Cost Savings per Year		
764	Main Bldg.	09.01-FS18	1st Floor	Dining / Kit/ Day Rm	Cafeteria	712L-D	\$		2x2 Troffer	32T8U02E	2x2 Troffer / U-Bend 6" 32W Fluorescent, T8 / Electronic, T8	5	L6K	Lamp and Driver	LED 2FT T8 Lamp and Driver Upgrade with Centering Kit, (3) lamps with (1) 3-lamp driver, 30W (system), 2000+ delivered lumens, SYLVANIA	5	Recessed	LED Lamp and Driver	3	30	15	4380	0.3	0.2	1,380	657	0.17	2.0	723	0	-3	39	761	\$ 59		
765	Main Bldg.	09.01-FS18	1st Floor	Men 111	Restrooms	715	\$		1x4 Paracube	32T802E	1x4 Paracube / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	2	Surface	LED Lamp and Driver	2	30	4	5475	0.1	0.1	690	329	0.07	0.8	361	0	-1	19	381	\$ 28		
766	Main Bldg.	09.01-FS18	1st Floor	Men 111	Restrooms	715	\$		Downlight	13CFL02	Downlight / Compact Fluorescent, 13W PL / N/A	5	L12	Retrofit Lamp	LED PL Bypass Lamp Upgrade, (2) Horizontal mount lamp with internal driver and remove existing ballast, 5.5W each, 550 delivered lumens, GREEN CREATIVE: PL H 5.5W HYBM	5	Recessed	LED Integral Driver	2	11	10	5475	0.1	0.1	767	301	0.09	1.0	465	0	-2	25	490	\$ 36		
767	Main Bldg.	09.01-FS18	1st Floor	Woman 112	Restrooms, private	710	\$		1x4 Paracube	32T802E	1x4 Paracube / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	1	Surface	LED Lamp and Driver	2	30	2	3650	0.1	0.0	230	110	0.03	0.4	120	0	0	6	127	\$ 10		
768	Main Bldg.	09.01-FS18	1st Floor	Woman 112	Restrooms, private	710	\$		Downlight	13CFL02	Downlight / Compact Fluorescent, 13W PL / N/A	2	L12	Retrofit Lamp	LED PL Bypass Lamp Upgrade, (2) Horizontal mount lamp with internal driver and remove existing ballast, 5.5W each, 550 delivered lumens, GREEN CREATIVE: PL H 5.5W HYBM	2	Recessed	LED Integral Driver	2	11	4	3650	0.1	0.0	204	80	0.03	0.4	124	0	0	7	131	\$ 11		
769	Main Bldg.	09.01-FS18	1st Floor	Hall 113	Halls & common areas	712	\$		Undercabinet	25T801E	Undercabinet / 25W Fluorescent, 3'-0" T8 / Electronic, T8	2	L9	Retrofit Lamp	LED 3FT T8 Bypass Lamp Upgrade, (1) lamp, 12W (system), 1600+ delivered lumens, SYLVANIA	2	Surface	LED Integral Driver	1	12	2	4380	0.1	0.0	228	105	0.03	0.3	123	0	0	7	129	\$ 10		
770	Main Bldg.	09.01-FS18	1st Floor	Hall 113	Halls & common areas	712	\$		Downlight	13CFL02	Downlight / Compact Fluorescent, 13W PL / N/A	1	L12	Retrofit Lamp	LED PL Bypass Lamp Upgrade, (2) Horizontal mount lamp with internal driver and remove existing ballast, 5.5W each, 550 delivered lumens, GREEN CREATIVE: PL H 5.5W HYBM	1	Recessed	LED Integral Driver	2	11	2	4380	0.0	0.0	123	48	0.02	0.2	74	0	0	4	78	\$ 6		
771	Main Bldg.	09.01-FS18	1st Floor	Hall 113	Halls & common areas	715	\$3		2x4 Parabolic	32T803E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	8	L3	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (3) lamps with (1) 3-lamp driver, 45W (system), 6000+ delivered lumens, SYLVANIA	8	Recessed	LED Lamp and Driver	3	45	24	5475	0.7	0.4	3,767	1,971	0.33	3.9	1,796	0	-7	96	1,892	\$ 140		
772	Main Bldg.	09.01-FS18	1st Floor	Storage 118	Storage Areas	702	\$		4' Acrylic Wrap	32T802E	4' Acrylic Wrap / 32W Fluorescent, 4'-0" T8 / Electronic, T8	2	N	No Retrofit - Payback/Budget	No Retrofit Proposed	2	Surface	N/A	0	63	4	730	0.1	0.1	92	92	0.00	0.0	0	0	0	0	0	\$ -		
773	Main Bldg.	09.01-FS18	1st Floor	Dorm 116	Bedroom, Housing Authority	706	\$		Wall Bracket	LED	Wall Bracket / LED Fixture / LED Driver	1	N	No Retrofit - LED	No Retrofit Proposed	1	Wall	N/A	0	12	1	2190	0.0	0.0	26	26	0.00	0.0	0	0	0	0	0	0	\$ -	
774	Main Bldg.	09.01-FS18	1st Floor	Dorm 116	Bedroom, Housing Authority	706	\$		2x4 Parabolic	32T803E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L3	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (3) lamps with (1) 3-lamp driver, 45W (system), 6000+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	3	45	3	2190	0.1	0.0	188	99	0.04	0.5	90	0	0	5	95	\$ 9		
775	Main Bldg.	09.01-FS18	1st Floor	Dorm 115	Bedroom, Housing Authority	706	\$		Wall Bracket	LED	Wall Bracket / LED Fixture / LED Driver	1	N	No Retrofit - LED	No Retrofit Proposed	1	Wall	N/A	0	12	1	2190	0.0	0.0	26	26	0.00	0.0	0	0	0	0	0	0	\$ -	
776	Main Bldg.	09.01-FS18	1st Floor	Dorm 115	Bedroom, Housing Authority	706	\$		2x4 Parabolic	32T803E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L3	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (3) lamps with (1) 3-lamp driver, 45W (system), 6000+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	3	45	3	2190	0.1	0.0	188	99	0.04	0.5	90	0	0	5	95	\$ 9		
777	Main Bldg.	09.01-FS18	1st Floor	Dorm 114	Bedroom, Housing Authority	706	\$		Wall Bracket	LED	Wall Bracket / LED Fixture / LED Driver	1	N	No Retrofit - LED	No Retrofit Proposed	1	Wall	N/A	0	12	1	2190	0.0	0.0	26	26	0.00	0.0	0	0	0	0	0	0	\$ -	
778	Main Bldg.	09.01-FS18	1st Floor	Dorm 114	Bedroom, Housing Authority	706	\$		2x4 Parabolic	32T803E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	1	L3	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (3) lamps with (1) 3-lamp driver, 45W (system), 6000+ delivered lumens, SYLVANIA	1	Recessed	LED Lamp and Driver	3	45	3	2190	0.1	0.0	188	99	0.04	0.5	90	0	0	5	95	\$ 9		
779	Main Bldg.	09.01-FS18	1st Floor	Exercise 117	Gyms	712	\$		Uplight	32T802E	Uplight / 32W Fluorescent, 4'-0" T8 / Electronic, T8	4	L2	Lamp and Driver	LED 4FT T8 Lamp and Driver Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	4	Wall	LED Lamp and Driver	2	30	8	4380	0.3	0.1	1,104	526	0.13	1.6	578	0	-2	31	609	\$ 47		
780	Main Bldg.	09.01-FS18	1st Floor	Exercise 117	Gyms	712	\$5		2x4 Parabolic	32T803E	2x4 Parabolic / 32W Fluorescent, 4'-0" T8 / Electronic, T8	5	L2 Bi-level	Lamp and Driver	LED 4FT T8 Lamp and Bi-Level Driver/Ballast Upgrade, (2) lamps with (1) 2-lamp driver, 30W (system), 4300+ delivered lumens, SYLVANIA	5	Recessed	LED Lamp and Driver	2	32	10	4380	0.4	0.2	1,883	701	0.27	3.2	1,183	0	-4	63	1,246	\$ 97		
781	Main Bldg.	09.01-FS18	1st Floor	Exterior	Outside Areas	712	\$T		Wallpack	100MH01	Wallpack / MH 100W / HID Magnetic	5	N	No Retrofit - Payback/Budget	No Retrofit Proposed	5	Wall	N/A	0	129	5	4380	0.6	0.6	2,825	2,825	0.00	0.0	0	0	0	0	0	\$ -		
782	Main Bldg.	09.01-FS18	1st Floor	Exterior	Outside Areas, Housing Authority	712	\$		Downlight	50HPS01	Downlight / HPS 50W / HID Magnetic	11	N	No Retrofit - Payback/Budget	No Retrofit Proposed	11	Recessed	N/A	0	68	11	4380	0.7	0.7	3,276	3,276	0.00	0.0	0	0	0	0	0	\$ -		
783	Main Bldg.	09.01-FS18	2nd Floor	Exterior	Outside Areas	712	\$T		Area	250MH01	Area / MH 250W / HID Magnetic	7	N	No Retrofit - Payback/Budget	No Retrofit Proposed	7	Pole	N/A	0	295	7	4380	2.1	2.1	9,045	9,045	0.00	0.0	0	0	0	0	0	\$ -		
Total		777										3,214				3,214						5,853	281	171	891,616	544,272	110		347,344			365,869	\$ 31,480			

# Investment Grade Audit

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## 5.4 FACILITY IMPROVEMENT MEASURES - ADDITIONAL SCOPE DOCUMENTS

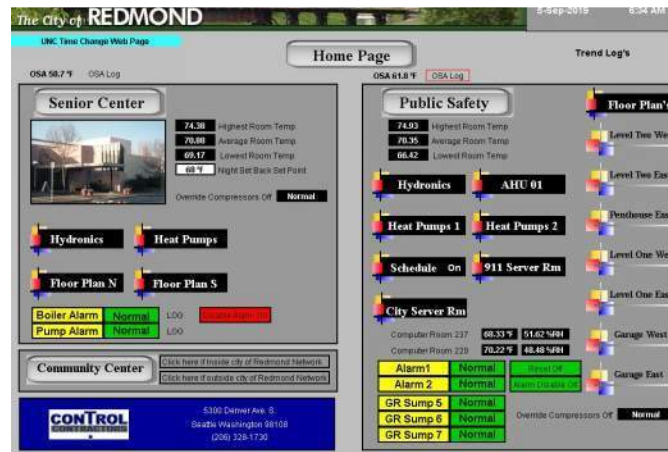
REDMOND PUBLIC SAFETY BUILDING (PSB) BUILDING AUTOMATION SYSTEM (BAS) DATA  
LIGHT LOGGER ANALYSIS

# Investment Grade Audit

## Redmond Public Safety Building (PSB) Building Automation System (BAS) Data

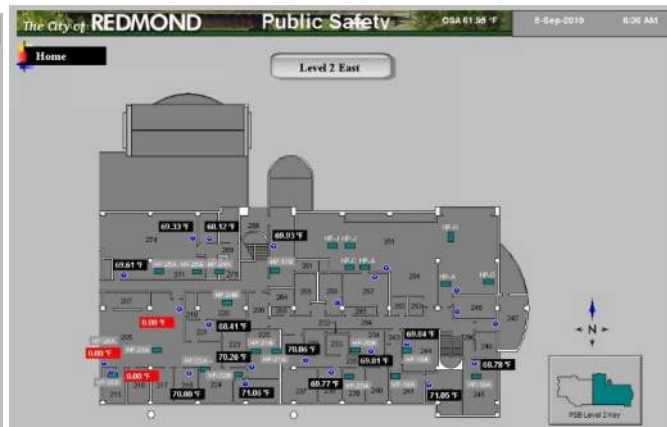
### GENERAL

See below for the main BAS home page.



### FLOOR PLANS

Temperature status of heat pumps.

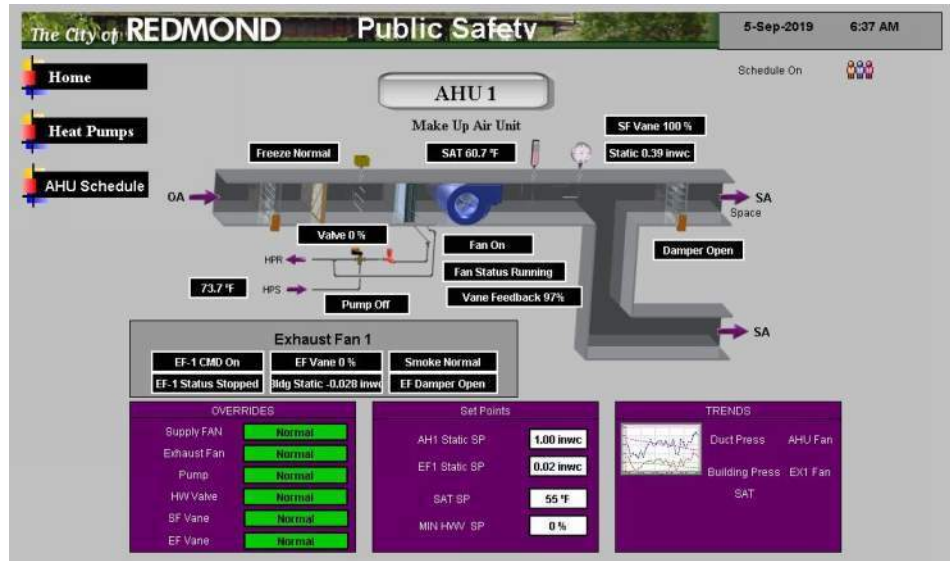




# Investment Grade Audit

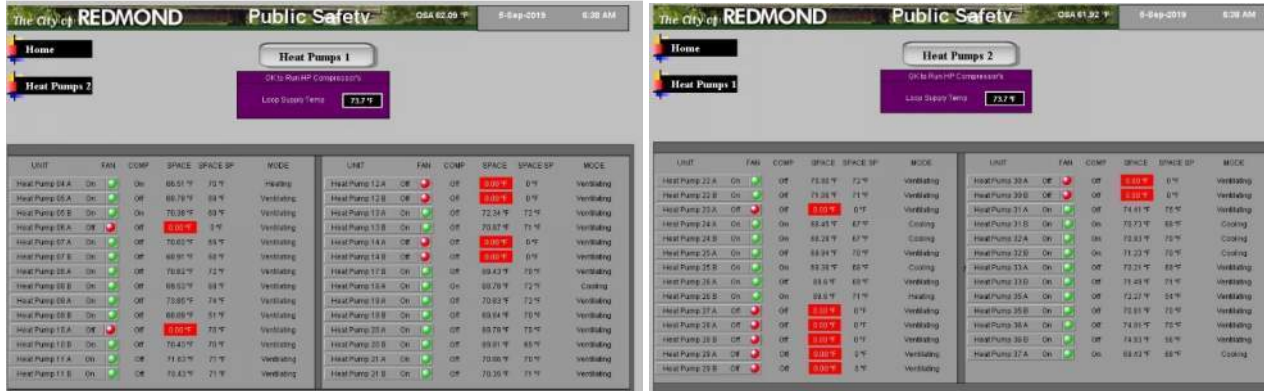
## AIR HANDLING UNITS

See below for AHU-1 serving OA to the heat pumps.



## HEAT PUMPS

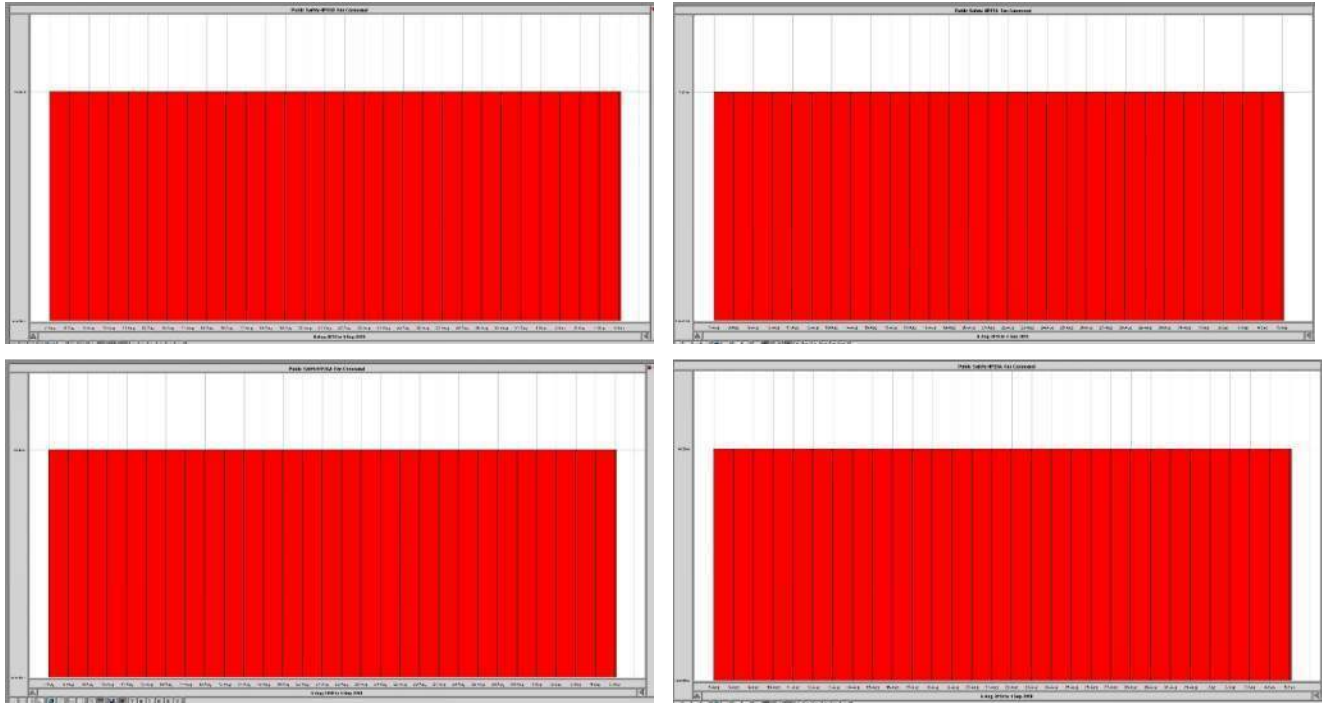
Heat pump set points are generally at set points between 65°F and 74°F, with most around 69°F.



# Investment Grade Audit

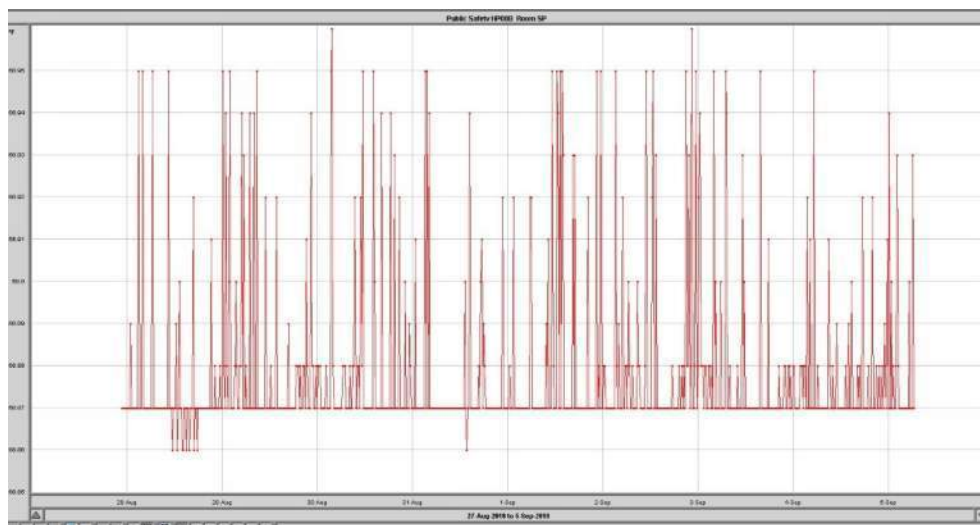
## FAN STATUS

Trend data shows the heat pumps serving PSB are operating 24x7.



## SETPOINTS

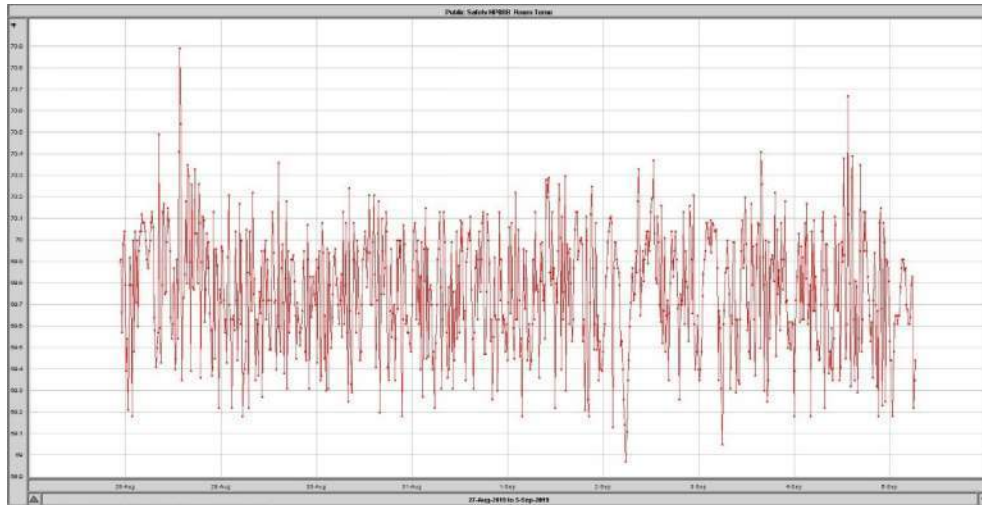
See below for trend data on HP-08B's set points. Setpoints range between 68 and 69°F.



# Investment Grade Audit

## SPACE TEMPS

See below for trend data on HP-08B's space temperature. Setpoints range between 69 and 71°F.



# Investment Grade Audit

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## Light Logger Analysis

Lighting Hours Calculation Summary  
City of Redmond Ph2

Logger #1

Date	Data Description Building General Location Logger ID # Space Type Day	Lighting Hours	Lighting Hours	Lighting Hours	Lighting Hours	Lighting Hours	Lighting Hours	Lighting Hours	Lighting Hours	Lighting Hours	Lighting Hours	Lighting Hours	Lighting Hours	Lighting Hours
		MOC - Parks	MOC - Support Pole	MOC - Main	MOC - Bldg 3	FS-17	MOC	MOC	FS-17	MOC	FS-17	MOC	FS-17	FS-17
		Dry Room	Trinity Garage	Break Room	Break Room	Class 206	Mens Restroom	Main Hall	Kitchen Dining	Private Office	Upper Hall @ elevator	0	Stari 133 Main Fl.	Hall 115
		ES00378 Storage	ES00565 Garage	ES00612 Break Room	ES00619 Break Room	SBC-1303 Classroom	SBC-623 Restroom	SBC-628 Hallway	SBC-639 Dining	SBC-642 Private Office	SBC-914 Hallway	SBC-924 Open Office	SBC-929 Stairwell	SBC-1302 Hallway
7/24/2019	Wed	0.0	0.0	0.0	0.0	12.1	0.0	0.0	12.9	0.2	4.7	0.0	17.0	10.7
7/25/2019	Thu	4.2	1.4	3.7	2.7	10.5	5.1	2.6	14.7	2.8	6.3	4.0	15.5	0.0
7/26/2019	Fri	15.8	1.6	9.5	8.6	10.4	17.9	10.9	15.9	13.2	3.0	13.2	24.0	0.0
7/27/2019	Sat	0.0	0.0	1.9	1.1	10.8	24.0	10.9	12.5	10.1	7.3	4.1	24.0	0.0
7/28/2019	Sun	0.1	0.0	5.9	0.5	10.5	17.9	10.9	10.3	13.2	2.2	5.1	24.0	0.9
7/29/2019	Mon	8.7	1.8	10.8	10.4	10.4	15.1	11.6	12.4	10.6	3.1	11.8	22.5	0.0
7/30/2019	Tue	9.7	2.0	13.2	9.9	10.8	16.7	11.3	7.8	11.9	5.3	13.4	1.6	4.0
7/31/2019	Wed	12.3	1.5	10.7	10.4	10.5	14.3	11.6	9.9	10.5	3.0	13.5	2.9	0.0
8/1/2019	Thu	16.7	4.4	10.3	15.0	10.2	17.8	11.7	12.5	10.0	4.3	13.3	5.7	11.4
8/2/2019	Fri	15.1	0.7	9.2	9.9	9.6	24.0	11.8	9.8	11.8	7.2	10.9	0.4	2.4
8/3/2019	Sat	17.6	0.0	4.7	0.0	10.6	24.0	10.9	13.7	12.5	3.9	5.3	3.2	0.0
8/4/2019	Sun	15.1	0.0	6.0	0.1	9.8	19.1	10.9	10.0	12.7	2.8	5.2	9.2	2.4
8/5/2019	Mon	16.6	2.2	14.5	10.2	12.4	14.5	11.2	10.1	13.1	5.5	14.5	2.4	0.0
8/6/2019	Tue	15.5	2.6	11.0	10.2	13.1	13.7	11.1	3.5	13.1	4.3	13.7	3.1	0.0
8/7/2019	Wed	11.7	2.9	11.1	10.1	9.4	14.7	10.9	10.8	12.2	3.6	13.6	3.1	13.2
8/8/2019	Thu	8.9	0.0	11.7	14.5	6.6	15.0	11.4	12.3	8.0	3.9	9.7	3.4	3.9
8/9/2019	Fri	9.0	0.0	9.1	8.7	11.8	22.9	11.6	14.3	11.0	8.6	9.1	14.0	14.4
8/10/2019	Sat	17.0	16.8	6.1	0.3	7.2	24.0	10.9	9.0	9.8	5.6	1.9	24.0	6.1
8/11/2019	Sun	15.1	24.0	1.4	0.2	6.1	19.7	10.9	10.0	7.9	4.4	4.0	24.0	0.0
8/12/2019	Mon	12.0	7.3	10.9	9.7	10.5	14.5	11.4	11.5	12.3	5.0	13.4	13.2	0.0
8/13/2019	Tue	9.7	2.2	11.7	15.0	12.0	17.7	11.4	13.0	12.3	6.3	0.0	0.0	10.5
8/14/2019	Wed	10.9	1.5	17.2	9.9	12.1	22.9	11.6	11.7	12.2	5.2	0.0	0.0	14.1
Weekday	Average	11.8	2.1	11.0	10.3	10.7	16.4	10.8	11.3	11.0	5.0	10.3	7.4	4.9
Weekend	Average	10.8	6.8	4.3	0.3	9.2	21.4	10.9	10.9	11.0	4.4	4.3	18.1	1.6
Wks/yr		52	52	52	52	52	52	52	52	52	52	52	52	52
Yearly	Average	4198	1265	3311	2731	3740	6521	3952	4095	4018	1755	3125	3825	1447

Lighting Hours are hours when the logger showed the lights to be on  
Occ savings with 15 minute delay

= Weekend  
= Holiday

Summary and Average Savings Hours Calculation

Space Type	Bldg	Logger ID	Light Hours -		Light Hours - Annual	Occ Savings -		Occ Savings - Annual
			Light Hours - Weekday	Weekend		Weekday	Weekend	
Break Room	MOC - Main	ES00612	11.0	4.3	3311	1.0	2.6	531
Break Room	MOC - Bldg 3	ES00619	10.3	0.3	2731	4.8	0.0	1260
Classroom	FS-17	SBC-1303	10.7	9.2	3740	9.7	8.7	3436
Dining	FS-17	SBC-639	11.3	10.9	4095	1.5	1.2	507
Garage	MOC - Support Pole	ES00565	2.1	6.8	1265	0.6	6.0	774
Hallway	MOC	SBC-628	10.8	10.9	3952	1.3	9.6	1342
Hallway	FS-17	SBC-914	5.0	4.4	1755	3.6	3.6	1324
Hallway	FS-17	SBC-1302	4.9	1.6	1447	1.9	0.6	552
Open Office	MOC	SBC-924	10.3	4.3	3125	3.9	3.2	1340
Private Office	MOC	SBC-642	11.0	11.0	4018	4.1	10.5	2166
Restroom	MOC	SBC-623	16.4	21.4	6521	6.8	20.8	3949
Stairwell	FS-17	SBC-929	7.4	18.1	3825	6.7	17.0	3521
Storage	MOC - Parks	ES00378	11.8	10.8	4198	9.1	10.6	3470

Lighting Hours Calculation Summary  
City of Redmond Ph2

1														
Date	Data Description	Occ Savings	Occ Savings	Occ Savings	Occ Savings	Occ Savings	Occ Savings	Occ Savings	Occ Savings	Occ Savings	Occ Savings	Occ Savings	Occ Savings	Occ Savings
	Building	MOC - Parks	MOC - Support Pole	MOC - Main	MOC - Bldg 3	FS-17	MOC	MOC	FS-17	MOC	FS-17	MOC	FS-17	FS-17
	General Location	Dry Room	Trinity Garage	Break Room	Break Room	Class 206	Mens Restroom	Main Hall	Kitchen Dining	Private Office	Upper Hall @ elevator	SBC-924	Stari 133 Main Fl.	Hall 115
	Logger ID # Space Type	ES00378 Storage 15 min delay	ES00565 Garage 15 min delay	ES00612 Break Room 15 min delay	ES00619 Break Room 15 min delay	SBC-1303 Classroom 15 min delay	SBC-623 Restroom 15 min delay	SBC-628 Hallway 15 min delay	SBC-639 Dining 15 min delay	SBC-642 Private Office 15 min delay	SBC-914 Hallway 15 min delay	SBC-924 Open Office 15 min delay	SBC-929 Stairwell 15 min delay	SBC-1302 Hallway 15 min delay
7/24/2019	Wed	0.0	0.0	0.0	0.0	11.6	0.0	0.0	1.7	0.0	3.2	0.0	16.2	4.2
7/25/2019	Thu	3.4	0.0	0.0	0.3	8.7	3.7	1.1	3.3	1.4	3.2	2.8	10.0	0.0
7/26/2019	Fri	12.3	0.1	0.5	3.4	8.8	10.2	2.6	2.8	5.4	1.7	4.4	21.3	0.0
7/27/2019	Sat	0.0	0.0	0.8	0.1	10.3	23.1	9.7	1.6	9.6	6.2	2.7	23.1	0.0
7/28/2019	Sun	0.0	0.0	3.9	0.0	10.0	16.6	9.5	0.3	12.4	1.9	3.7	21.8	0.4
7/29/2019	Mon	7.3	0.2	0.5	5.6	9.9	4.7	0.9	2.2	1.4	2.0	5.0	21.3	0.0
7/30/2019	Tue	7.2	0.4	2.2	4.5	10.5	6.7	0.8	0.7	5.2	4.5	5.6	1.1	1.9
7/31/2019	Wed	9.2	0.0	0.2	5.3	10.0	4.0	0.5	1.5	4.1	2.4	5.8	2.7	0.0
8/1/2019	Thu	14.0	1.3	0.1	8.7	8.8	7.1	1.0	1.5	2.5	2.4	4.8	4.8	5.1
8/2/2019	Fri	11.1	0.1	0.0	5.7	8.8	15.8	1.7	1.3	4.4	6.3	3.4	0.0	0.1
8/3/2019	Sat	17.0	0.0	4.2	0.0	10.3	24.0	10.3	1.5	12.2	3.4	5.1	2.6	0.0
8/4/2019	Sun	15.1	0.0	4.6	0.0	9.5	18.2	10.1	2.4	12.0	2.1	4.2	7.9	0.4
8/5/2019	Mon	13.6	0.0	3.6	4.0	11.6	4.7	1.9	1.3	6.2	4.4	5.2	2.1	0.0
8/6/2019	Tue	12.9	0.1	0.3	3.9	12.8	3.8	1.4	0.1	7.2	3.7	4.0	2.8	0.0
8/7/2019	Wed	8.1	0.1	0.5	4.7	9.1	4.2	0.8	2.5	5.0	2.7	4.1	1.9	6.6
8/8/2019	Thu	6.3	0.0	0.5	7.0	6.0	3.7	1.1	1.8	2.1	2.6	0.8	3.0	1.0
8/9/2019	Fri	6.4	0.0	0.1	5.7	10.4	13.4	2.0	1.0	5.6	7.6	1.2	13.3	3.6
8/10/2019	Sat	16.7	11.9	2.4	0.0	6.7	23.7	7.0	1.1	9.3	4.3	0.6	23.4	2.8
8/11/2019	Sun	14.7	24.0	0.0	0.0	5.6	19.3	10.6	0.3	7.5	3.8	2.8	23.5	0.0
8/12/2019	Mon	9.5	6.4	0.2	3.6	10.0	4.2	1.6	1.2	3.3	4.2	3.8	12.1	0.0
8/13/2019	Tue	7.0	0.1	0.4	7.9	8.6	5.8	1.1	0.7	3.7	3.0	2.8	1.6	4.1
8/14/2019	Wed	8.0	0.0	5.8	2.1	11.3	10.3	1.5	0.4	4.1	3.8	4.3	2.1	5.7
Weekday	Average	9.1	0.6	1.0	4.8	9.7	6.8	1.3	1.5	4.1	3.6	3.9	6.7	1.9
Weekend	Average	10.6	6.0	2.6	0.0	8.7	20.8	9.6	1.2	10.5	3.6	3.2	17.0	0.6
Wks/yr		52	52	52	52	52	52	52	52	52	52	52	52	52
Yearly	Average	3470	774	531	1260	3436	3949	1342	507	2166	1324	1340	3521	552

# Investment Grade Audit

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## 5.5 UTILITY DATA



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# City of Redmond Lighting and PSB Ph 2 HPs Environmental Impact Calculator



Non-Baseload NWPP		Load Factor to Use Select eGRID Subregion	1.53381	lbs CO <sub>2</sub> e/kWh (eGRID Subregion Electricity Emissions Factor)
Amount Each Utility Type Will Be Reduced Per Year				
Electricity				
391,941 kWh	=	601,163 lbs CO <sub>2</sub>		272.7 Metric Tonnes CO <sub>2</sub>
Natural Gas				
-2,981 Therms	=	-34,899 lbs CO <sub>2</sub>		-15.8 Metric Tonnes CO <sub>2</sub>
Steam				
0 Mlbs	=	0 lbs CO <sub>2</sub>		0.0 Metric Tonnes CO <sub>2</sub>
Fuel Oil				
0 Gallons	=	0 lbs CO <sub>2</sub>		0.0 Metric Tonnes CO <sub>2</sub>
Propane				
0 Gallons	=	0 lbs CO <sub>2</sub>		0.0 Metric Tonnes CO <sub>2</sub>
Total Reduction =				566,264 lbs CO <sub>2</sub>
				256.9 Metric Tonnes CO <sub>2</sub>

## This Annual Emissions Reduction Is Equivalent To The Following:

49	Number of Vehicles Removed From Roads (Avg Size); or
959,770	Number of Miles Not Driven Per Year (Avg Size); or
7,078	Number of 75 Watt Light bulbs Not Energized; or
25	Number of Avg Sized Houses Removed From Power Grid; or
70	Acres of Trees Planted; or
264,609	Pounds of Coal Not Burned Per Year

## Other Emissions Factors

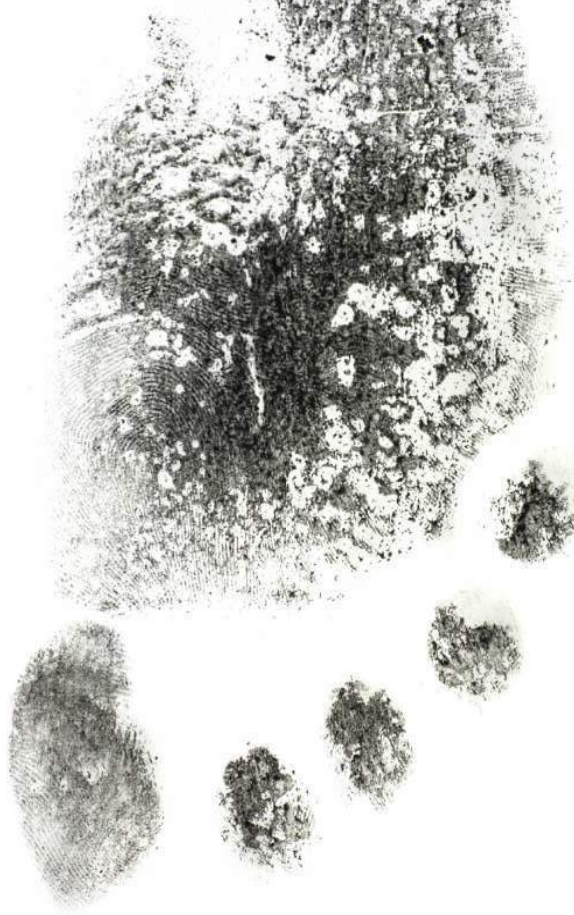
Natural Gas: 11.707 lbs CO<sub>2</sub> / Therm  
 Steam: 195.3636 lbs CO<sub>2</sub> / Mlbs (Seattle Steam)  
 Fuel Oil: 22.384 lbs CO<sub>2</sub> / gal  
 Propane: 12.5 lbs CO<sub>2</sub> / gal  
 Conversion: 2,204.623 lbs CO<sub>2</sub> / Metric Tonnes CO<sub>2</sub>

## Equivalents Conversions

Car Emissions: 11,470 lbs CO<sub>2</sub> / car / yr  
 Tree Carbon Sequestration: 8,066 lbs CO<sub>2</sub> / acre / yr  
 Vehicle Mileage Emissions: 0.59 lbs CO<sub>2</sub> / mile  
 75 W Light Bulb Emissions: 80 lbs CO<sub>2</sub> / Light Bulb / yr  
 Tree Carbon Sequestration: 8,066 lbs CO<sub>2</sub> / acre / yr  
 Coal Emissions: 2.14 lbs CO<sub>2</sub> / pound Coal  
 Houses Removed: 22,880 lbs CO<sub>2</sub> / house

## Sources:

- \* Energy Information Agency (EIA)
- \* Environmental Protection Agency (EPA)
- \* ENERGY STAR
- \* eGRID 2014



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# Utility Data Analysis



## City of Redmond (COR), Public Safety Building Analysis

### ANALYSIS SUMMARY

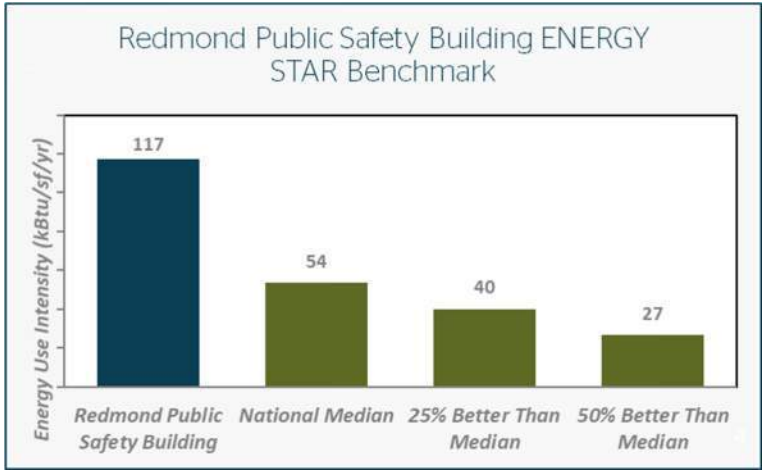
Energy			Cost		
Electricity Use	1,475,523	kWh	Electricity Cost	\$126,162	\$/kWh/yr
Natural Gas Use	12,255	therms	Natural Gas Cost	\$9,263	\$/therm/yr
CO2e Emissions	632	metric tons/yr	Total Cost	\$135,425	\$/yr
Total Energy Use	6,260,009	kBtu	Square Footage	53,328	sf
Energy Use Metrics					
Electricity Use Intensity	94	kBtu/sf/yr	Electricity Cost Intensity	\$2.37	\$/sf/yr
Natural Gas Use Intensity	23	kBtu/sf/yr	Natural Gas Cost Intensity	\$0.17	\$/sf/yr
Energy Use Intensity	117.39	kBtu/sf/yr	Energy Cost Intensity	\$2.54	\$/sf/yr

Baseline Performance  
Period

Start Date  
5/1/2016

End Date  
5/1/2019

McKinstry has gathered energy use benchmark data in order to compare City of Redmond Public Safety Building’s energy use with similar facilities. Energy Use Intensity refers to the total annual energy use for a facility divided by the facility’s square footage. By normalizing energy use by square footage, we are able to compare City of Redmond Public Safety Building’s energy with similar facilities.

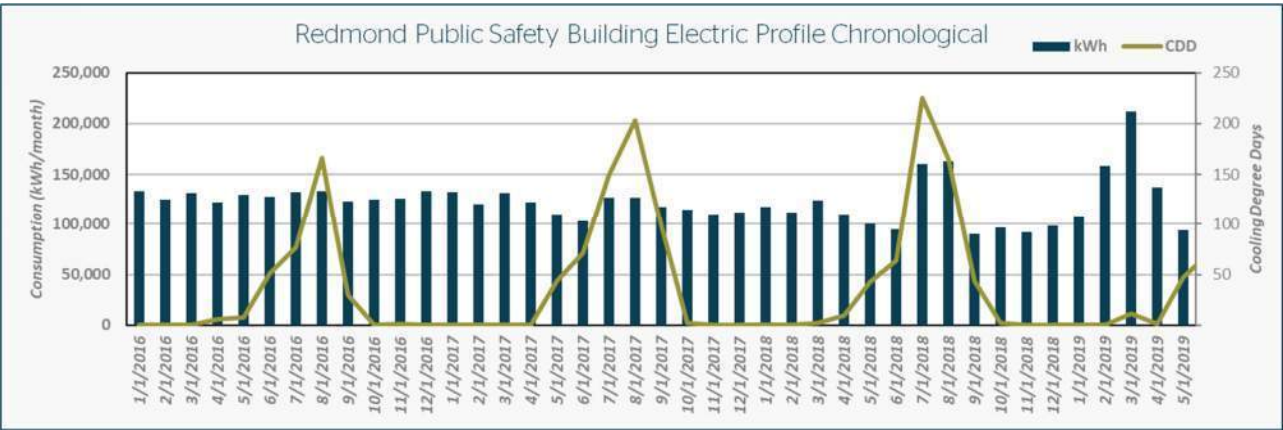
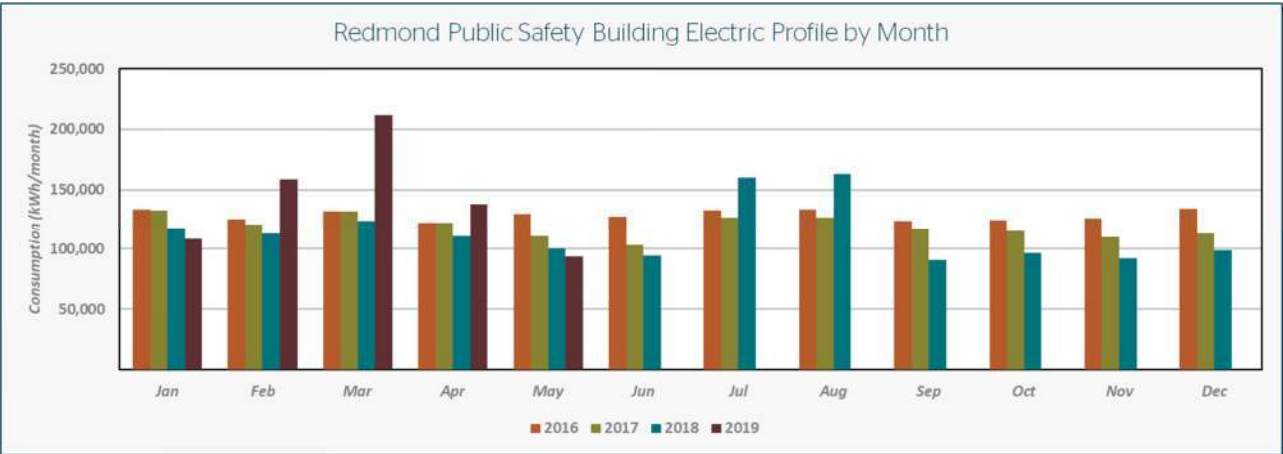


Redmond Public Safety Building ENERGY STAR Database Benchmark		
Redmond Public Safety Building	117	kBtu/sf/yr
National Median	54	kBtu/sf/yr
25% Better Than Median	40	kBtu/sf/yr
50% Better Than Median	27	kBtu/sf/yr

#### Insights

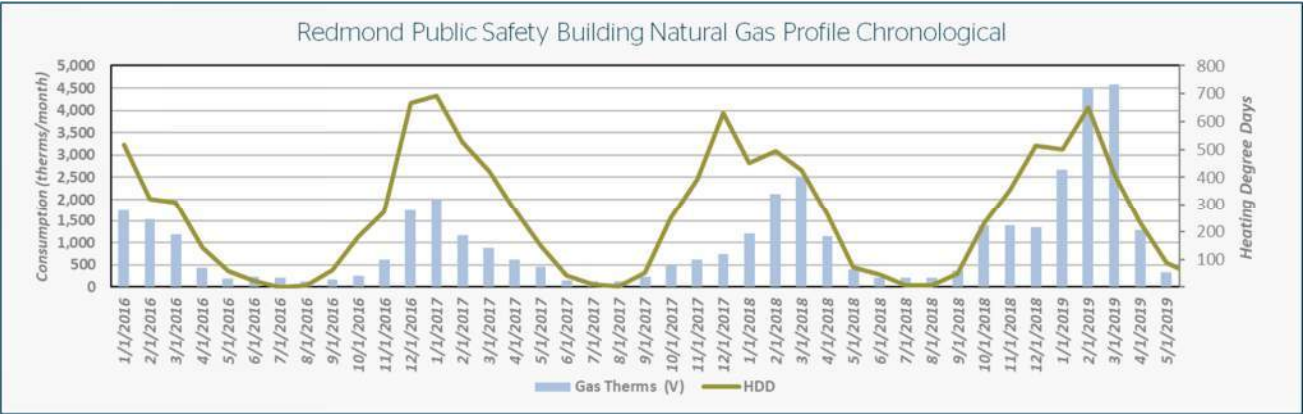
The property type of the Redmond Public Safety Building is not eligible for an ENERGY STAR score. In this analysis we have compared Redmond Public Safety Building's energy usage to building's of similar property type and size using ENERGY STAR's database. In this case Redmond Public Safety Building is a poor performer, performing worse than the national median.

### MONTHLY UTILITY DATA PROFILES



The figure above shows the building’s chronological electric profile from January 2016 through May 2019. The electric use at the Public Safety Building is slightly dependent on the outside air temperature. This can be seen by comparing the increase in consumption with the increase in cooling degree days (base 65°F). An increase in electrical and gas consumption occurred in March of 2019.

The figure below shows the natural gas profile from January 2016 through May 2019. The natural gas use is also dependent on the outside air temperature. This can be seen by comparing the increase in consumption with the increase in heating degree days (base 60°F).





# Utility Data Analysis



## City of Redmond (COR), City Hall Analysis

### ANALYSIS SUMMARY

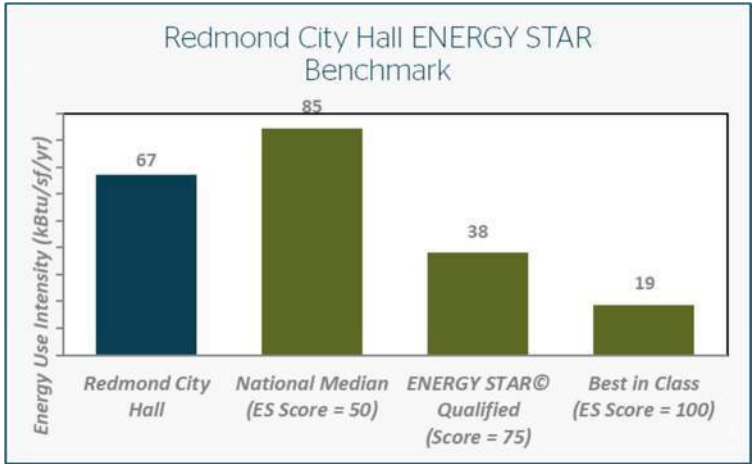
Energy			Cost		
Electricity Use	1,370,058	kWh	Electricity Cost	\$126,487	\$/kWh/yr
Natural Gas Use	25,228	therms	Natural Gas	\$19,259	\$/therm/yr
CO2e Emissions	660	metric tons/yr	Total Cost	\$145,746	\$/yr
Total Energy Use	7,197,478	kBtu	Square Footage	107,212	sf
Energy Use Metrics					
Electricity Use Intensity	44	kBtu/sf/yr	Electricity Cost Intensity	\$1.36	\$/sf/yr
Natural Gas Use Intensity	24	kBtu/sf/yr	Natural Gas Cost Intensity	\$0.18	\$/sf/yr
Energy Use Intensity	67	kBtu/sf/yr	Energy Cost Intensity	\$1.54	\$/sf/yr

Baseline Performance  
Period

Start Date  
5/1/2016

End Date  
5/1/2019

McKinstry has gathered energy use benchmark data in order to compare City of Redmond City Hall's energy use with similar facilities. Energy Use Intensity refers to the total annual energy use for a facility divided by the facility's square footage. By normalizing energy use by square footage, we are able to compare City of Redmond City Hall's energy with similar facilities.

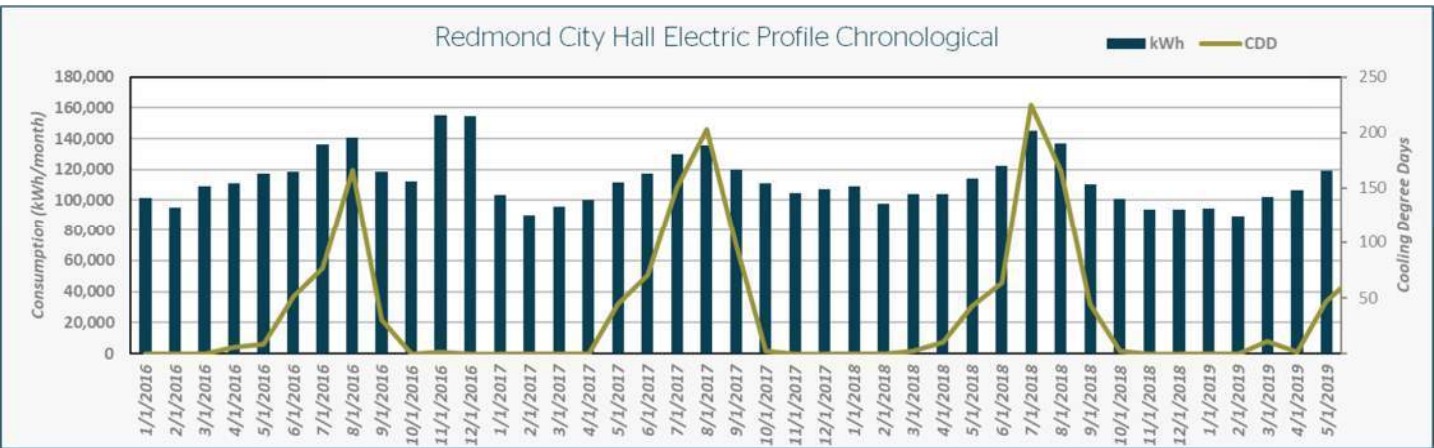
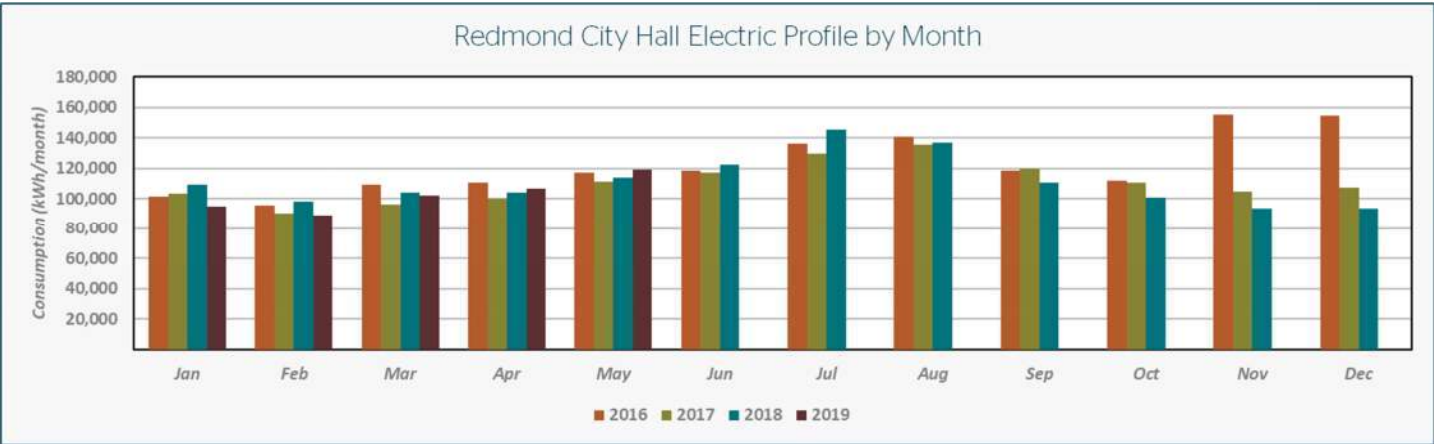


Redmond City Hall ENERGY STAR Benchmark		
Redmond City Hall	67	kBtu/sf/yr
National Median (ES Score = 50)	85	kBtu/sf/yr
ENERGY STAR® Qualified (Score = 75)	38	kBtu/sf/yr
Best in Class (ES Score = 100)	19	kBtu/sf/yr

#### Insights

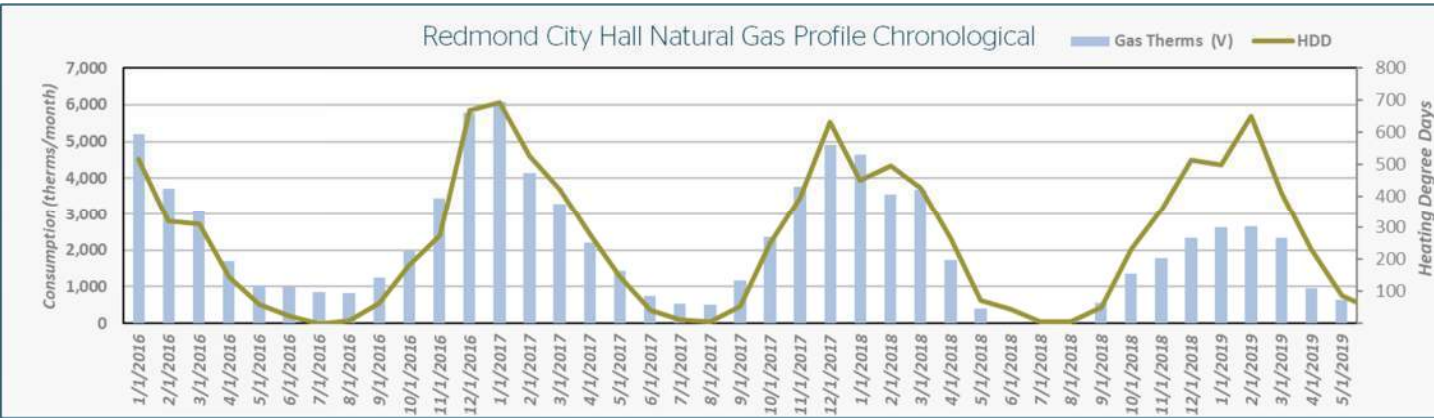
An ENERGY STAR score of 75 indicates that a facility performs better than 75% of similar facilities. In this case City Hall is a better than average performer, achieving an ENERGY STAR score between 50 and 75.

### MONTHLY UTILITY DATA PROFILES



The figure above shows the building's chronological electric profile from January 2016 through May 2019. The electric use at the City Hall is slightly dependent on the outside air temperature. This can be seen by comparing the increase in consumption with the increase in cooling degree days (base 65°F).

The figure below shows the natural gas profile from January 2016 through May 2019. The natural gas use is also dependent on the outside air temperature. This can be seen by comparing the increase in consumption with the increase in heating degree days (base 60°F). There was a decrease in natural gas use over the last year despite a similar amount of heating degree days.



# Utility Data Analysis



## City of Redmond (COR), Fire Station 14 Analysis

### ANALYSIS SUMMARY

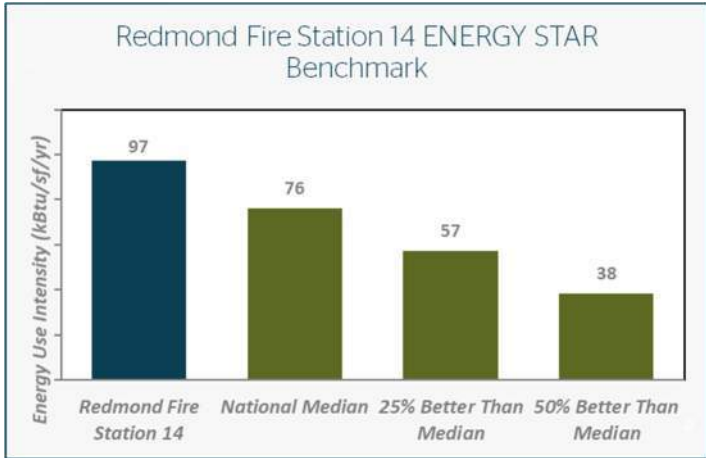
Energy			Cost		
Electricity Use	86,729	kWh	Electricity Cost	\$8,829	\$/kWh/yr
Natural Gas Use	6,218	therms	Natural Gas	\$5,396	\$/therm/yr
CO2e Emissions	66	metric tons/yr	Total Cost	\$14,225	\$/yr
Total Energy Use	917,735	kBtu	Square Footage	9,441	sf
Energy Use Metrics					
Electricity Use Intensity	31	kBtu/sf/yr	Electricity Cost Intensity	\$2.44	\$/sf/yr
Natural Gas Use Intensity	66	kBtu/sf/yr	Natural Gas Cost Intensity	\$0.57	\$/sf/yr
Energy Use Intensity	97	kBtu/sf/yr	Energy Cost Intensity	\$3.01	\$/sf/yr

Baseline Performance  
Period

Start Date  
11/1/2016

End Date  
2/1/2018

McKinstry has gathered energy use benchmark data in order to compare City of Redmond Fire Station 14's energy use with similar facilities. Energy Use Intensity refers to the total annual energy use for a facility divided by the facility's square footage. By normalizing energy use by square footage, we are able to compare City of Redmond Fire Station 14's energy with similar facilities.

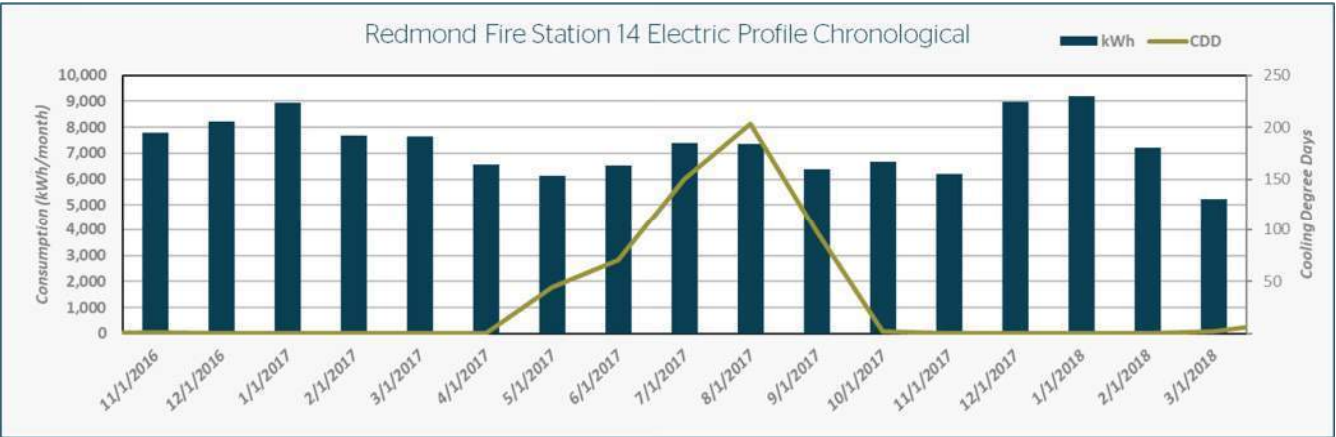


Redmond Fire Station 14 ENERGY STAR Database Benchmark		
Redmond Fire Station 14	97	kBtu/sf/yr
National Median	76	kBtu/sf/yr
25% Better Than Median	57	kBtu/sf/yr
50% Better Than Median	38	kBtu/sf/yr

#### Insights

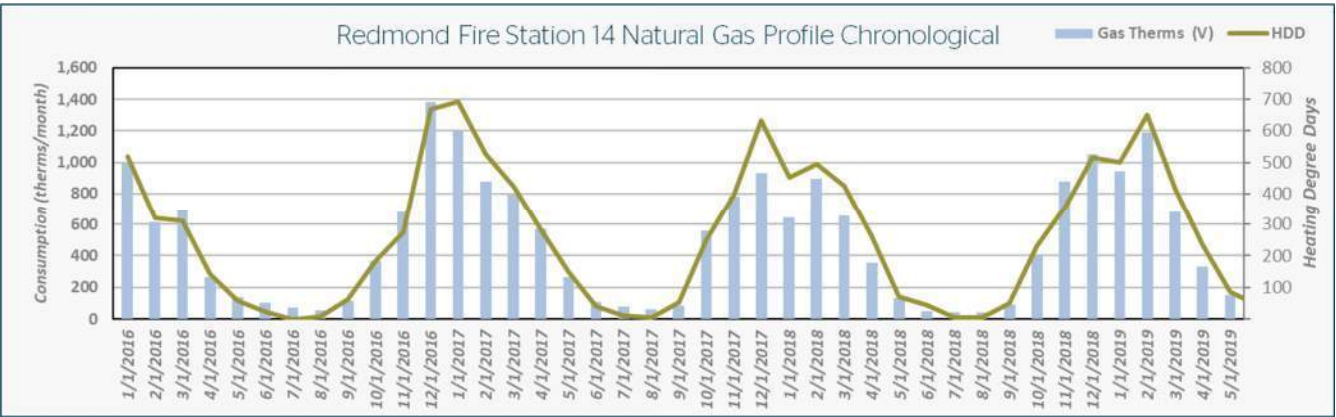
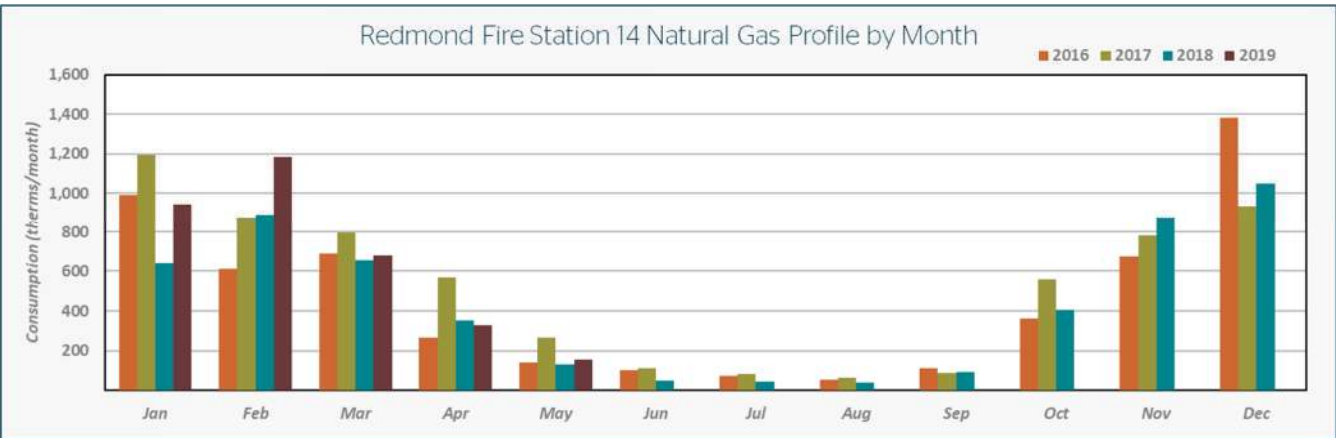
The property type of Fire Station 14 is not eligible for an ENERGY STAR score. In this analysis we have compared Fire Station 16's energy usage to building's of similar property type and size using ENERGY STAR's database. In this case Fire Station 16 is poor performer, performing worse than the national median.

### MONTHLY UTILITY DATA PROFILES



The figure above shows the building's chronological electric profile from November 2016 through March 2018. The electric use at the Fire Station 14 is dependent on the outside air temperature. This can be seen by comparing the increase in consumption with the increase in cooling degree days (base 65°F). Electric use in winter increases as well, likely due to increased lighting use

The figure below shows the natural gas profile from January 2016 through May 2019. The natural gas use is also dependent on the outside air temperature. This can be seen by comparing the increase in consumption with the increase in heating degree days (base 60°F).





# Utility Data Analysis



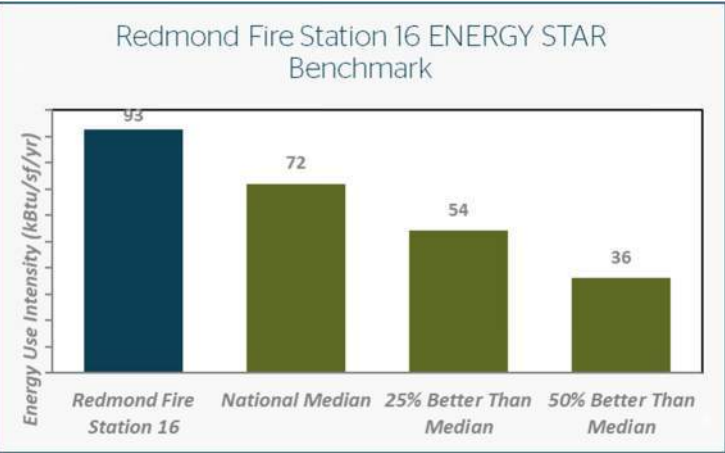
## City of Redmond (COR), Fire Station 16 Analysis

### ANALYSIS SUMMARY

Energy			Cost		
Electricity Use	94,549	kWh	Electricity Cost	\$9,422	\$/kWh/yr
Natural Gas Use	5,896	therms	Natural Gas	\$4,748	\$/therm/yr
CO2e Emissions	68	metric tons/yr	Total Cost	\$14,169	\$/yr
Total Energy Use	912,212	kBtu	Square Footage	9,852	sf
Energy Use Metrics					
Electricity Use Intensity	33	kBtu/sf/yr	Electricity Cost Intensity	\$2.39	\$/sf/yr
Natural Gas Use Intensity	60	kBtu/sf/yr	Natural Gas Cost Intensity	\$0.48	\$/sf/yr
Energy Use Intensity	93	kBtu/sf/yr	Energy Cost Intensity	\$2.88	\$/sf/yr

Baseline Performance Period  
Start Date End Date  
5/1/2016 5/1/2019

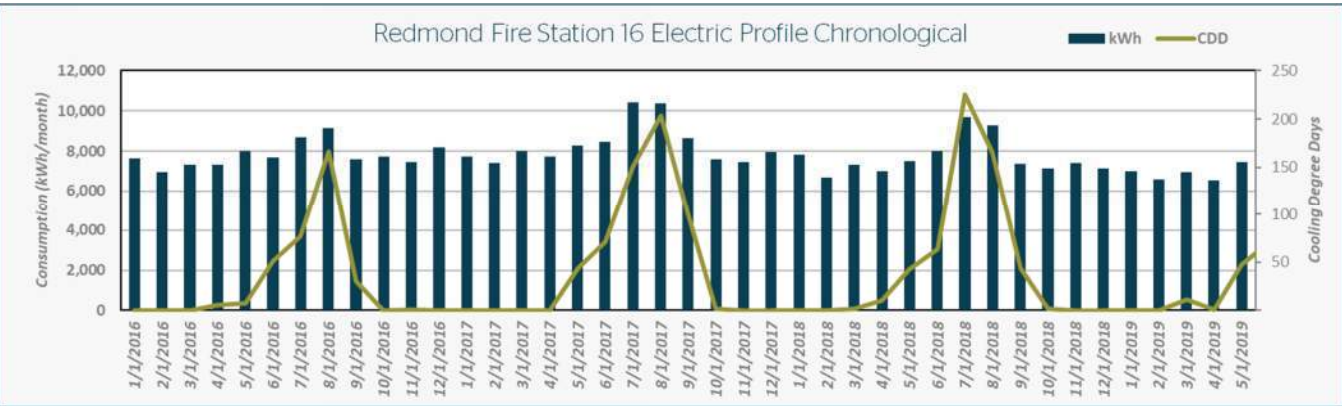
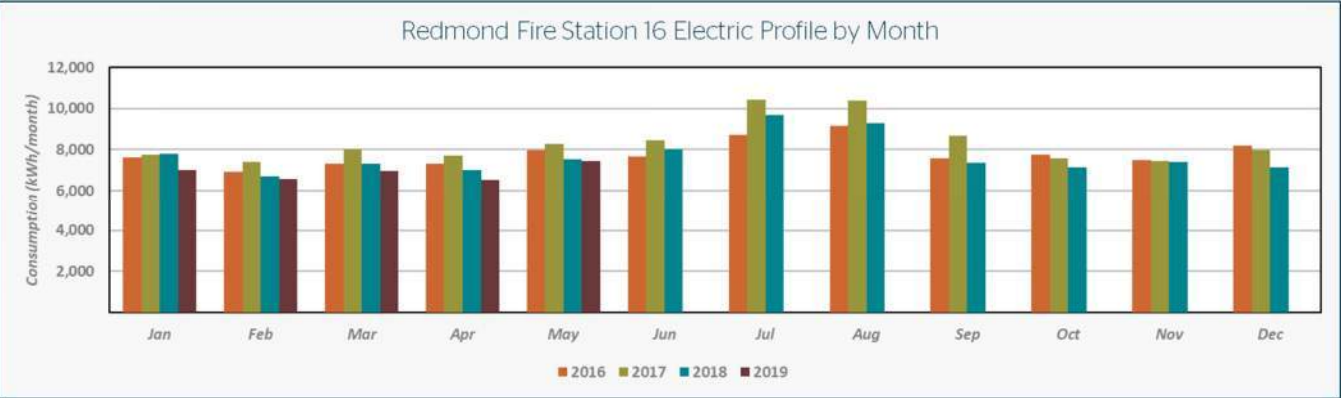
McKinstry has gathered energy use benchmark data in order to compare City of Redmond Fire Station 16's energy use with similar facilities. Energy Use Intensity refers to the total annual energy use for a facility divided by the facility's square footage. By normalizing energy use by square footage, we are able to compare City of Redmond Fire Station 16's energy with similar facilities.



Redmond Fire Station 16 ENERGY STAR Database Benchmark		
Redmond Fire Station 16	93	kBtu/sf/yr
National Median	72	kBtu/sf/yr
25% Better Than Median	54	kBtu/sf/yr
50% Better Than Median	36	kBtu/sf/yr

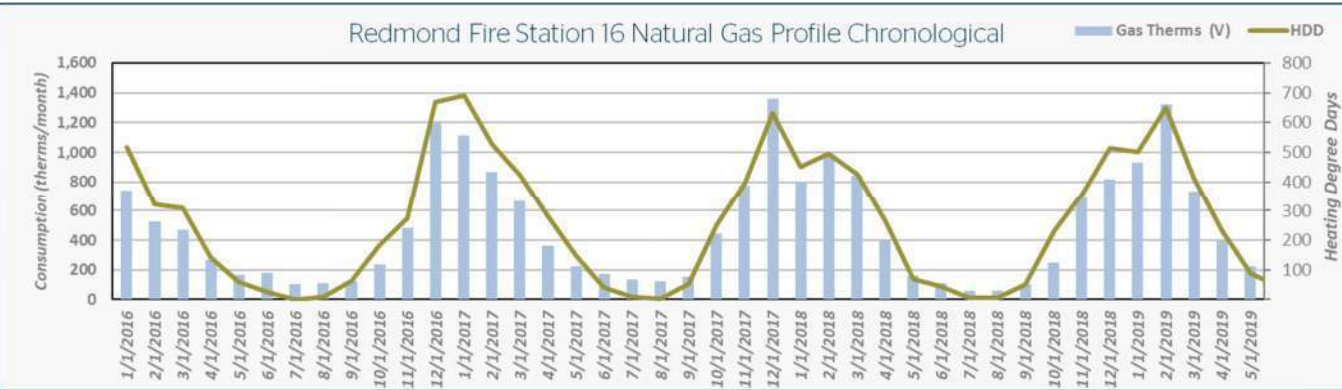
**Insights**  
The property type of Fire Station 16 is not eligible for an ENERGY STAR score. In this analysis we have compared Fire Station 16's energy usage to building's of similar property type and size using ENERGY STAR's database. In this case Fire Station 16 is poor performer, performing worse than the national median.

### MONTHLY UTILITY DATA PROFILES



The figure above shows the building's chronological electric profile from January 2016 through May 2019. The electric use at the Fire Station 16 is dependent on the outside air temperature. This can be seen by comparing the increase in consumption with the increase in cooling degree days (base 65°F).

The figure below shows the natural gas profile from January 2016 through May 2019. The natural gas use is also dependent on the outside air temperature. This can be seen by comparing the increase in consumption with the increase in heating degree days (base 60°F).



# Utility Data Analysis



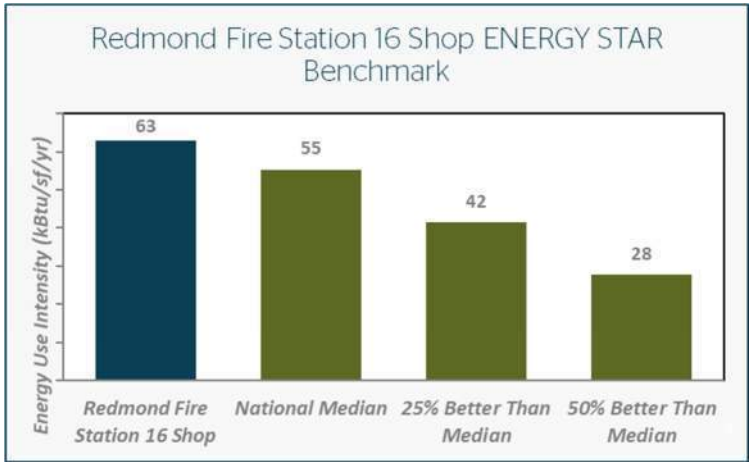
## City of Redmond (COR), Fire Station 16 Shop Analysis

### ANALYSIS SUMMARY

Energy			Cost		
Electricity Use	41,500	kWh	Electricity Cost	\$4,310	\$/kWh/yr
Natural Gas Use	2,117	therms	Natural Gas	\$1,975	\$/therm/yr
CO2e Emissions	27	metric tons/yr	Total Cost	\$6,284	\$/yr
Total Energy Use	353,281	kBtu	Square Footage	5,625	sf
Energy Use Metrics					
Electricity Use Intensity	25	kBtu/sf/yr	Electricity Cost Intensity	\$1.88	\$/sf/yr
Natural Gas Use Intensity	38	kBtu/sf/yr	Natural Gas Cost Intensity	\$0.35	\$/sf/yr
Energy Use Intensity	63	kBtu/sf/yr	Energy Cost Intensity	\$2.23	\$/sf/yr

Baseline Performance Period  
Start Date End Date  
5/1/2016 5/1/2019

McKinstry has gathered energy use benchmark data in order to compare City of Redmond Fire Station 16 Shop's energy use with similar facilities. Energy Use Intensity refers to the total annual energy use for a facility divided by the facility's square footage. By normalizing energy use by square footage, we are able to compare City of Redmond Fire Station 16 Shop's energy with similar facilities.

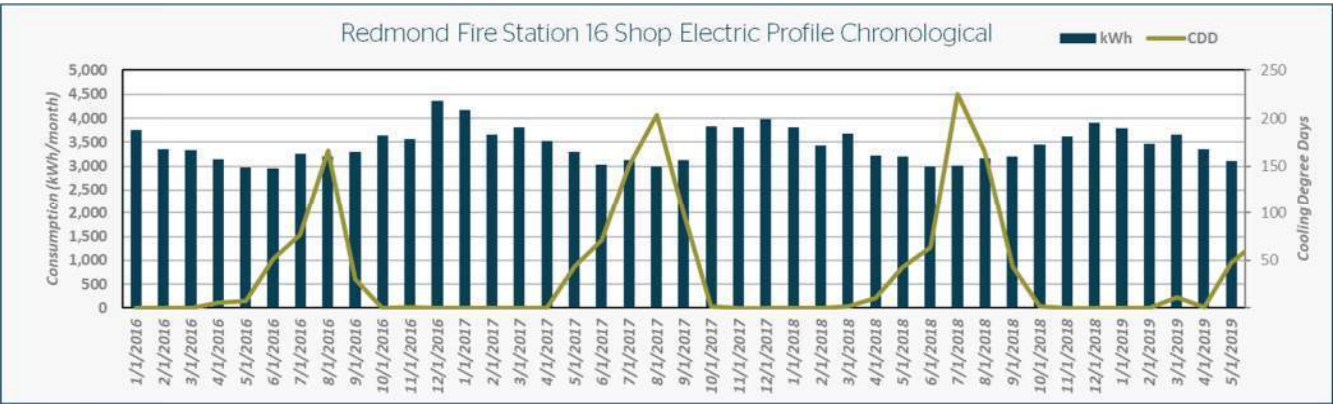
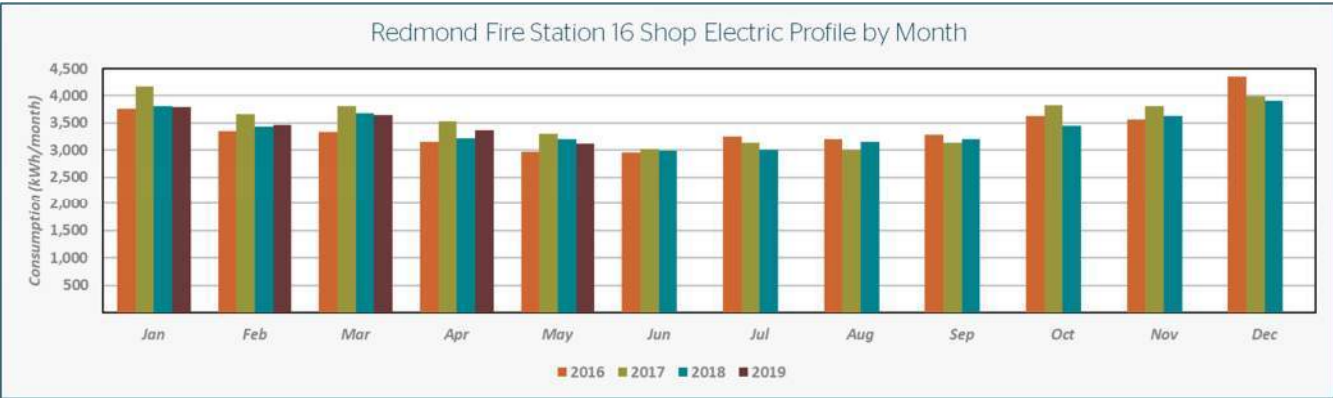


Redmond Fire Station 16 Shop ENERGY STAR Database Benchmark		
Redmond Fire Station 16 Shop	63	kBtu/sf/yr
National Median	55	kBtu/sf/yr
25% Better Than Median	42	kBtu/sf/yr
50% Better Than Median	28	kBtu/sf/yr

#### Insights

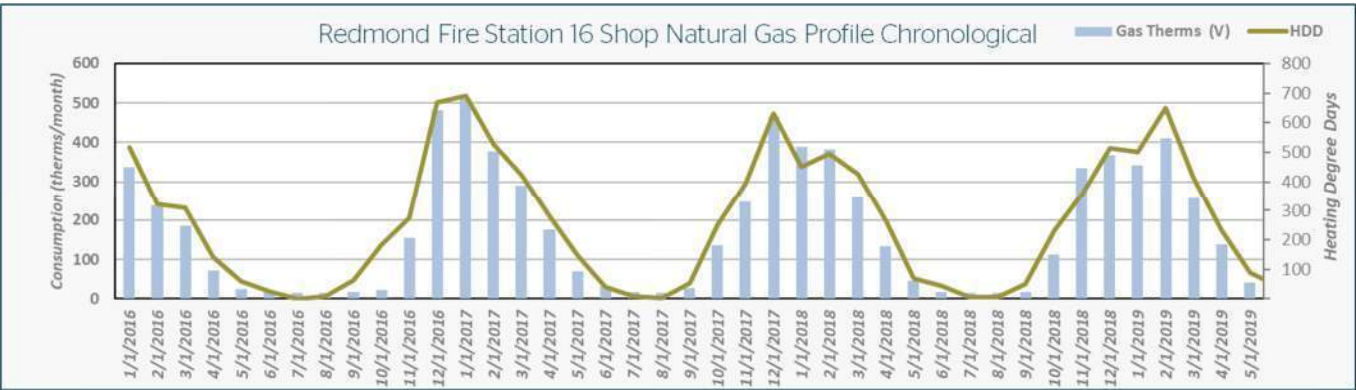
The property type of Fire Station 16 Shop is not eligible for an ENERGY STAR score. In this analysis we have compared Fire Station 16 Shop's energy usage to building's of similar property type and size using ENERGY STAR's database. In this case Fire Station 16 Shop is poor performer, performing worse than the national median.

### MONTHLY UTILITY DATA PROFILES



The figure above shows the building's chronological electric profile from January 2016 through May 2019. The electric use at the Fire Station 16 Shop is not dependent on the outside air temperature. This can be seen by comparing the electric consumption with the increase in cooling degree days (base 65°F). Electrical use increases in the winter likely due to exterior lighting.

The figure below shows the natural gas profile from January 2016 through May 2019. The natural gas use is also dependent on the outside air temperature. This can be seen by comparing the increase in consumption with the increase in heating degree days (base 60°F).





# Utility Data Analysis



## City of Redmond (COR), Fire Station 17 Analysis

### ANALYSIS SUMMARY

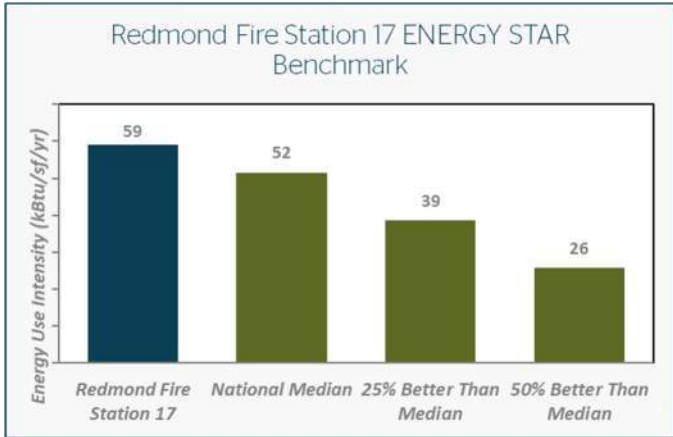
Energy			Cost		
Electricity Use	218,418	kWh	Electricity Cost	\$21,080	\$/kWh/yr
Natural Gas Use	2,519	therms	Natural Gas	\$2,319	\$/therm/yr
CO2e Emissions	97	metric tons/yr	Total Cost	\$23,399	\$/yr
Total Energy Use	997,133	kBtu	Square Footage	16,899	sf
Energy Use Metrics					
Electricity Use Intensity	44	kBtu/sf/yr	Electricity Cost Intensity	\$1.38	\$/sf/yr
Natural Gas Use Intensity	15	kBtu/sf/yr	Natural Gas Cost Intensity	\$0.14	\$/sf/yr
Energy Use Intensity	59	kBtu/sf/yr	Energy Cost Intensity	\$1.52	\$/sf/yr

Baseline Performance  
Period

Start Date  
5/1/2016

End Date  
5/1/2019

McKinstry has gathered energy use benchmark data in order to compare City of Redmond Fire Station 17's energy use with similar facilities. Energy Use Intensity refers to the total annual energy use for a facility divided by the facility's square footage. By normalizing energy use by square footage, we are able to compare City of Redmond Fire Station 17's energy with similar facilities.

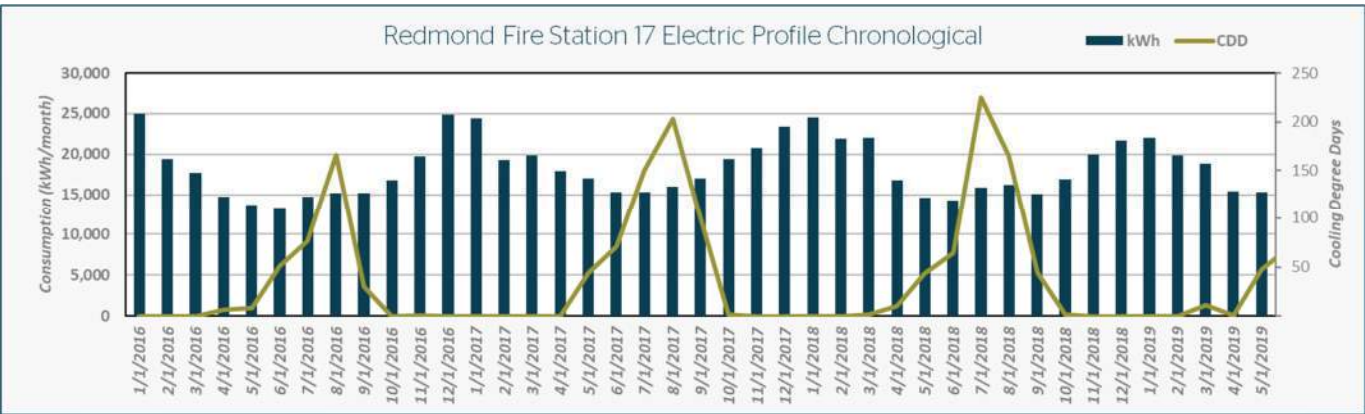
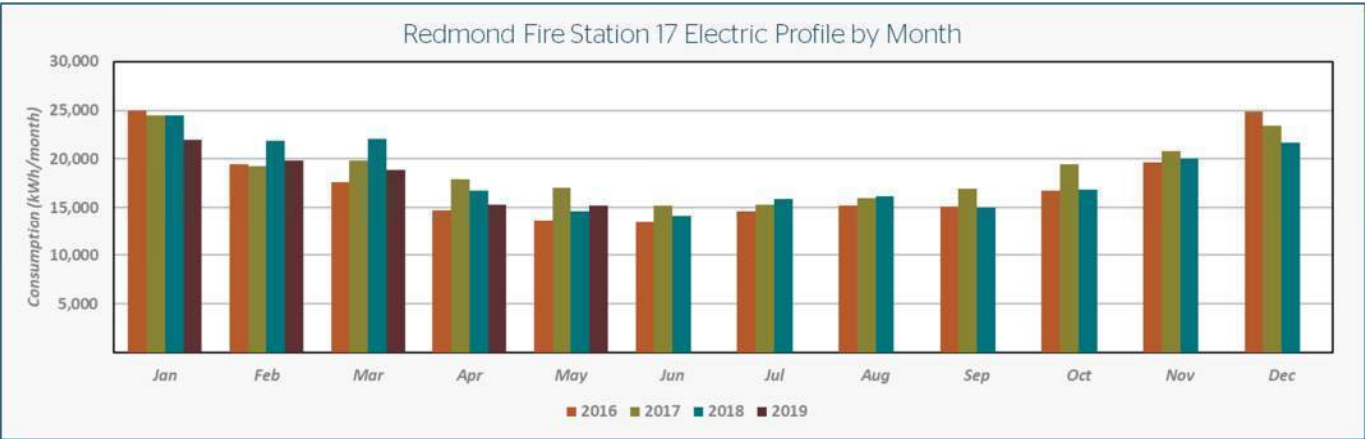


Redmond Fire Station 17 ENERGY STAR Database Benchmark		
Redmond Fire Station 17	59	kBtu/sf/yr
National Median	52	kBtu/sf/yr
25% Better Than Median	39	kBtu/sf/yr
50% Better Than Median	26	kBtu/sf/yr

#### Insights

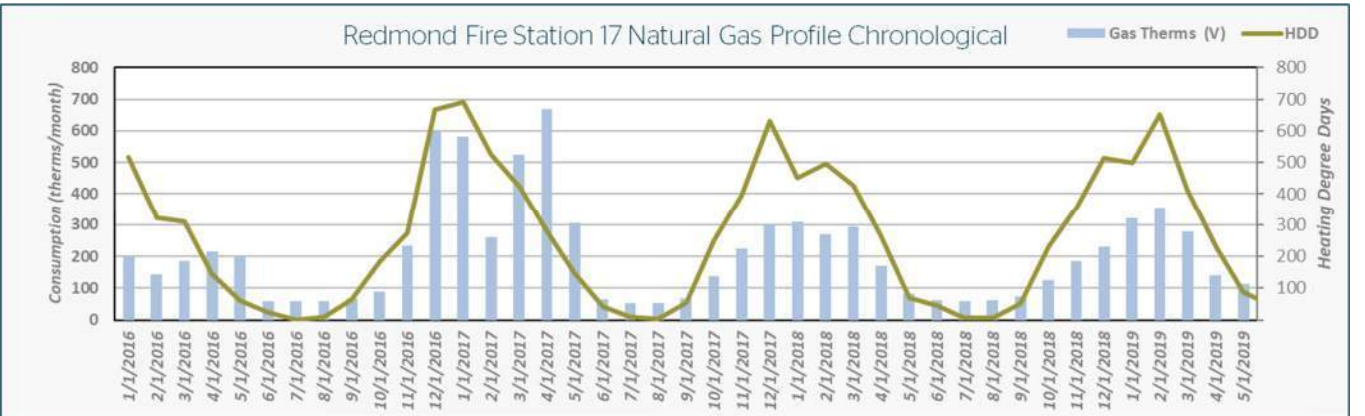
The property type of Fire Station 17 is not eligible for an ENERGY STAR score. In this analysis we have compared Fire Station 17's energy usage to building's of similar property type and size using ENERGY STAR's database. In this case Fire Station 17 is an average performer, performing near the national median.

### MONTHLY UTILITY DATA PROFILES



The figure above shows the building's chronological electric profile from January 2016 through May 2019. The electric use at the Fire Station 17 is not dependent on the outside air temperature during the summer months. This can be seen by comparing the increase in consumption with the increase in cooling degree days (base 65°F).

The figure below shows the natural gas profile from January 2016 through May 2019. The natural gas use is also dependent on the outside air temperature. This can be seen by comparing the increase in consumption with the increase in heating degree days (base 60°F).



# Utility Data Analysis



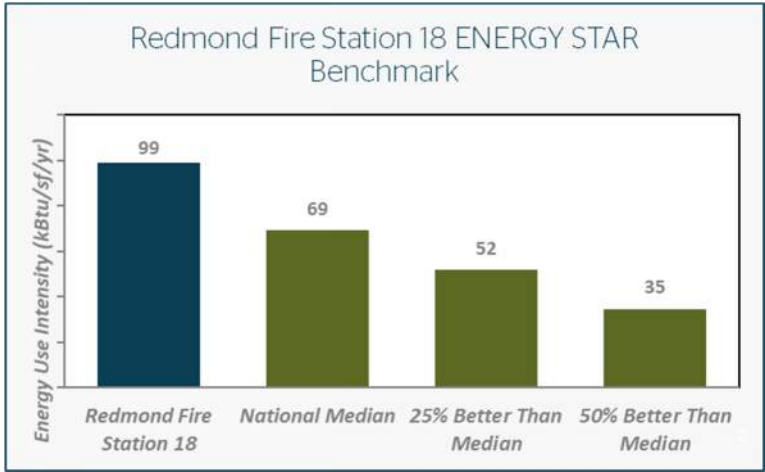
## City of Redmond (COR), Fire Station 18 Analysis

### ANALYSIS SUMMARY

Energy			Cost		
Electricity Use	91,281	kWh	Electricity Cost	\$9,115	\$/kWh/yr
Natural Gas Use	4,527	therms	Natural Gas	\$3,790	\$/therm/yr
CO2e Emissions	59	metric tons/yr	Total Cost	\$12,905	\$/yr
Total Energy Use	764,171	kBtu	Square Footage	7,714	sf
Energy Use Metrics					
Electricity Use Intensity	40	kBtu/sf/yr	Electricity Cost Intensity	\$2.85	\$/sf/yr
Natural Gas Use Intensity	59	kBtu/sf/yr	Natural Gas Cost Intensity	\$0.49	\$/sf/yr
Energy Use Intensity	99	kBtu/sf/yr	Energy Cost Intensity	\$3.35	\$/sf/yr

Baseline Performance Period  
Start Date End Date  
5/1/2016 5/1/2019

McKinstry has gathered energy use benchmark data in order to compare City of Redmond Fire Station 18's energy use with similar facilities. Energy Use Intensity refers to the total annual energy use for a facility divided by the facility's square footage. By normalizing energy use by square footage, we are able to compare City of Redmond Fire Station 18's energy with similar facilities.

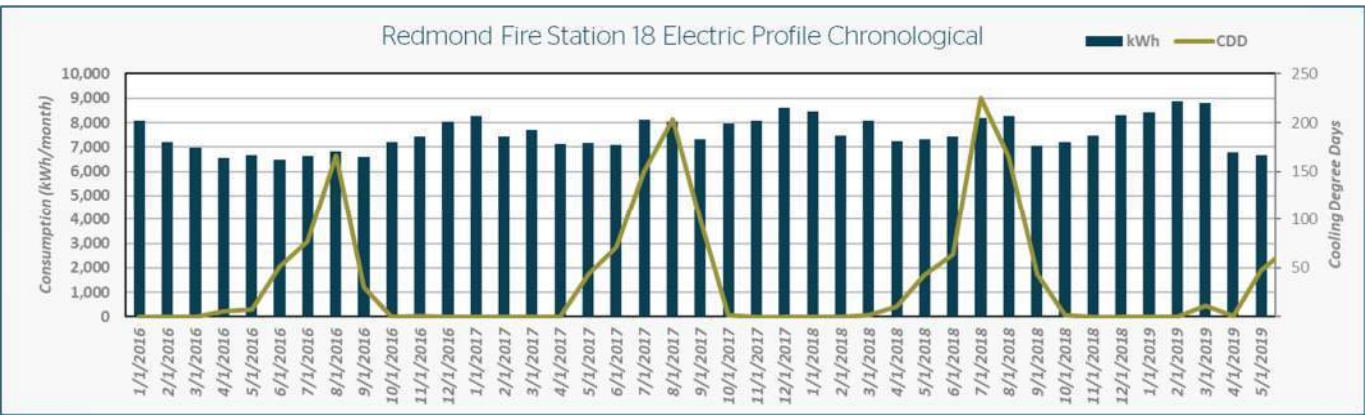
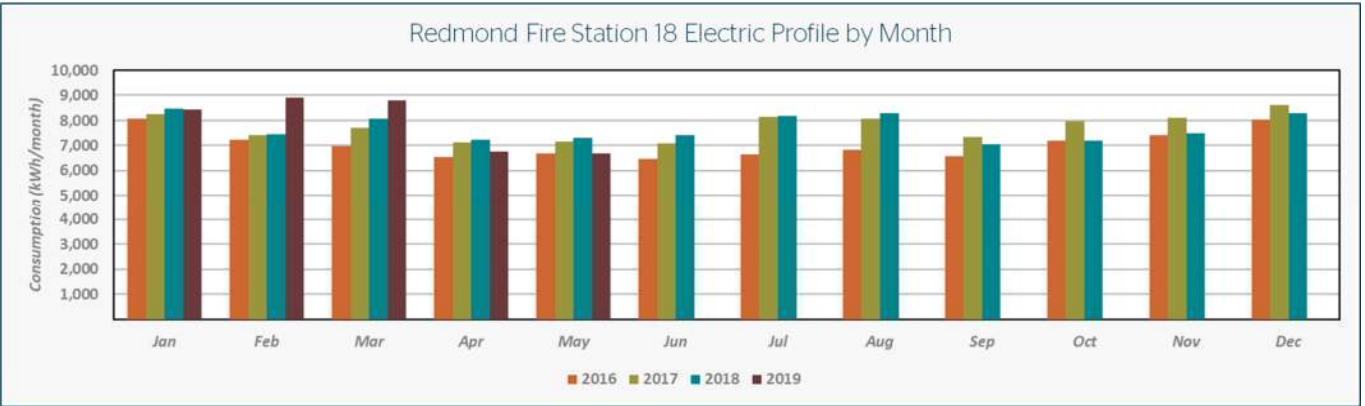


Redmond Fire Station 18 ENERGY STAR Database Benchmark		
Redmond Fire Station 18	99	kBtu/sf/yr
National Median	69	kBtu/sf/yr
25% Better Than Median	52	kBtu/sf/yr
50% Better Than Median	35	kBtu/sf/yr

#### Insights

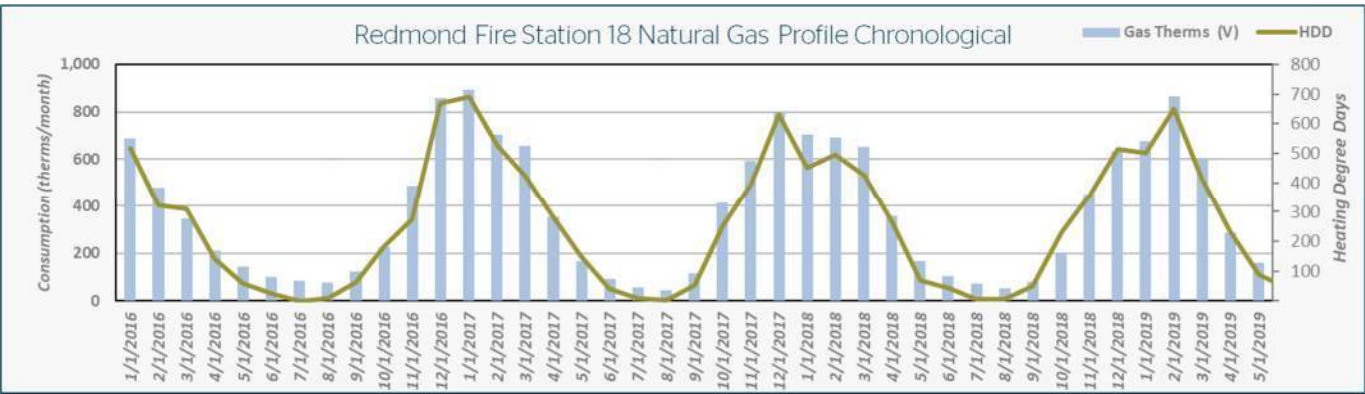
The property type of Fire Station 18 is not eligible for an ENERGY STAR score. In this analysis we have compared Fire Station 18's energy usage to building's of similar property type and size using ENERGY STAR's database. In this case Fire Station 18 is an average performer, performing near the national median.

### MONTHLY UTILITY DATA PROFILES



The figure above shows the building's chronological electric profile from January 2016 through May 2019. The electric use at the Fire Station 18 is slightly dependent on the outside air temperature. This can be seen by comparing the increase in consumption with the increase in cooling degree days (base 65°F).

The figure below shows the natural gas profile from January 2016 through May 2019. The natural gas use is also dependent on the outside air temperature. This can be seen by comparing the increase in consumption with the increase in heating degree days (base 60°F).





# Utility Data Analysis



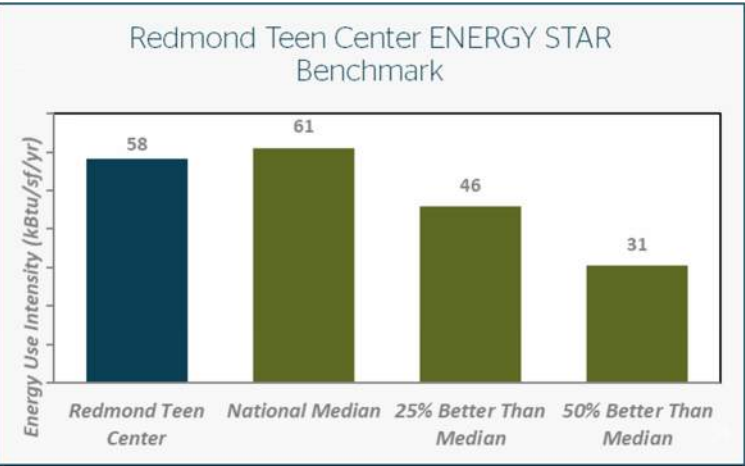
## City of Redmond (COR), Teen Center Analysis

### ANALYSIS SUMMARY

Energy			Cost		
Electricity Use	62,234	kWh	Electricity Cost	\$6,135	\$/kWh/yr
Natural Gas Use	2,919	therms	Natural Gas	\$3,382	\$/therm/yr
CO2e Emissions	39	metric tons/yr	Total Cost	\$9,517	\$/yr
Total Energy Use	504,259	kBtu	Square Footage	8,650	sf
Energy Use Metrics					
Electricity Use Intensity	25	kBtu/sf/yr	Electricity Cost Intensity	\$1.81	\$/sf/yr
Natural Gas Use Intensity	34	kBtu/sf/yr	Natural Gas Cost Intensity	\$0.39	\$/sf/yr
Energy Use Intensity	58	kBtu/sf/yr	Energy Cost Intensity	\$2.20	\$/sf/yr

Baseline Performance Period  
Start Date End Date  
5/1/2016 5/1/2019

McKinstry has gathered energy use benchmark data in order to compare City of Redmond Teen Center’s energy use with similar facilities. Energy Use Intensity refers to the total annual energy use for a facility divided by the facility’s square footage. By normalizing energy use by square footage, we are able to compare City of Redmond Teen Center’s energy with similar facilities.

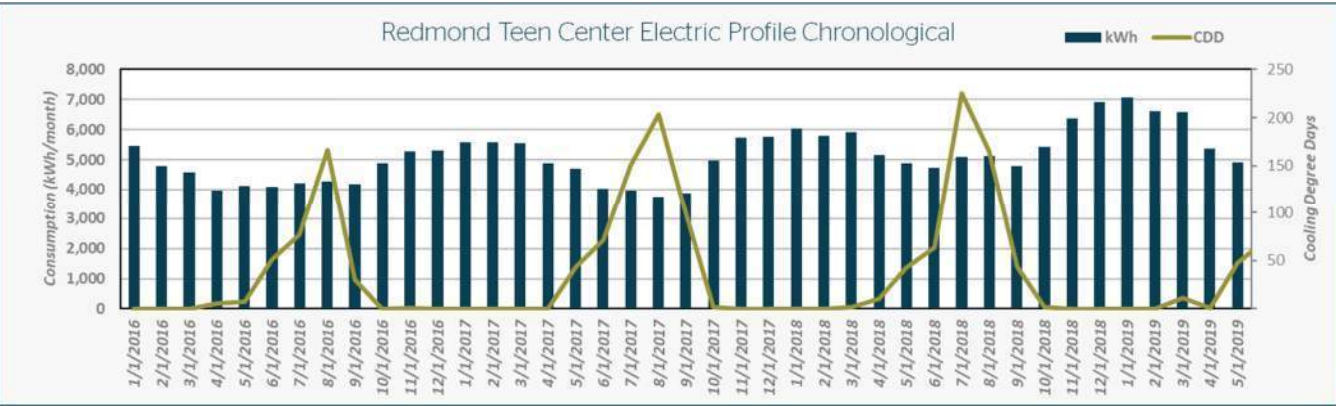
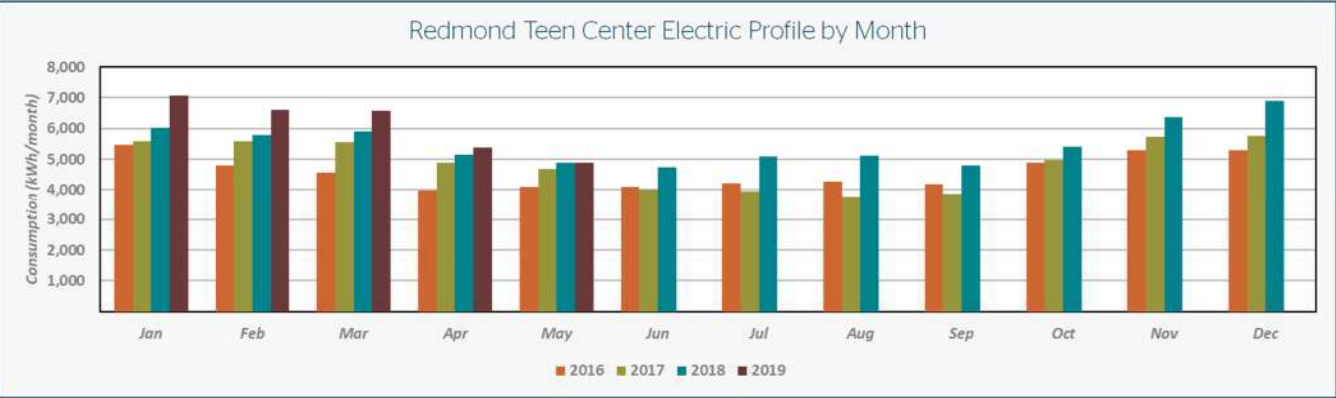


Redmond Teen Center ENERGY STAR Database Benchmark		
Redmond Teen Center	58	kBtu/sf/yr
National Median	61	kBtu/sf/yr
25% Better Than Median	46	kBtu/sf/yr
50% Better Than Median	31	kBtu/sf/yr

#### Insights

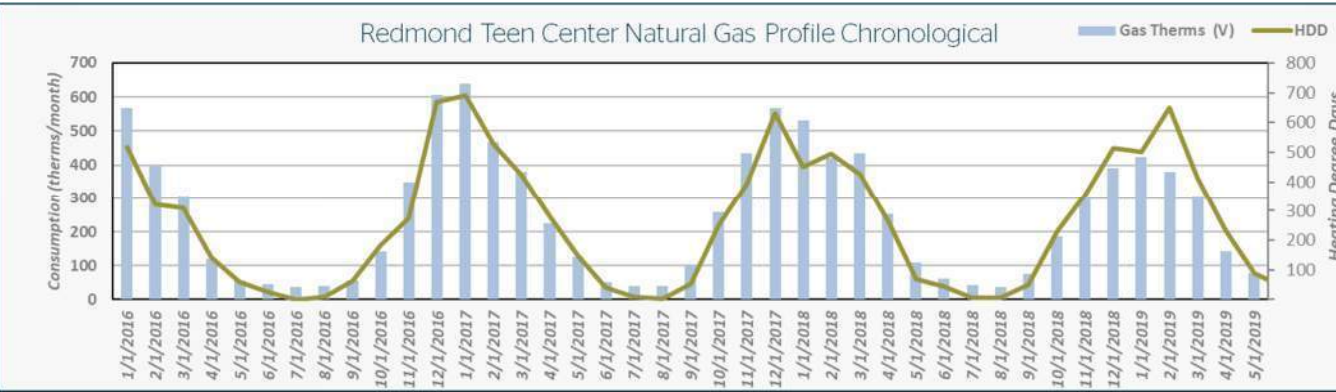
The property type of Teen Center is not eligible for an ENERGY STAR score. In this analysis we have compared Teen Center's energy usage to building's of similar property type and size using ENERGY STAR's database. In this case Teen Center is an average performer, performing near the national median.

### MONTHLY UTILITY DATA PROFILES



The figure above shows the building’s chronological electric profile from January 2016 through May 2019. The electric use at the Teen Center is not dependent on the outside air temperature. This can be seen by comparing the increase in consumption with the increase in cooling degree days (base 65°F). Electric consumption at the Teen Center has increased slightly year by year.

The figure below shows the natural gas profile from January 2016 through May 2019. The natural gas use is also dependent on the outside air temperature. This can be seen by comparing the increase in consumption with the increase in heating degree days (base 60°F). Natural gas usage decreased slightly in 2019.



# Utility Data Analysis



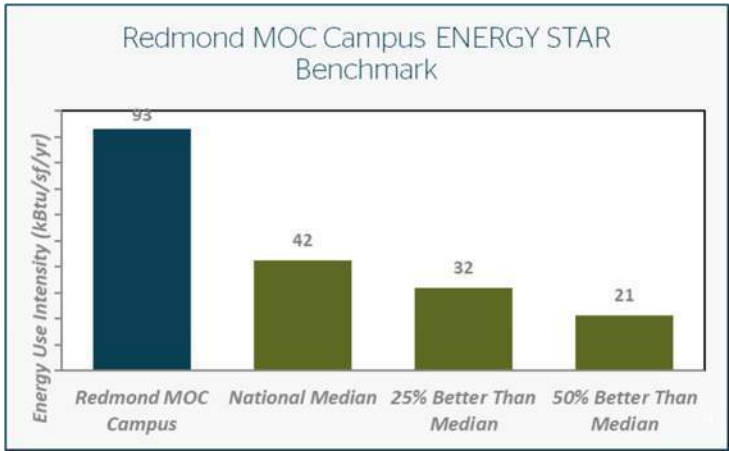
## City of Redmond (COR), MOC Campus Analysis

### ANALYSIS SUMMARY

Energy			Cost		
Electricity Use	683,984	kWh	Electricity Cost	\$68,175	\$/kWh/yr
Natural Gas Use	15,720	therms	Natural Gas	\$13,232	\$/therm/yr
CO2e Emissions	346	metric tons/yr	Total Cost	\$81,408	\$/yr
Total Energy Use	3,905,774	kBtu	Square Footage	42,000	sf
Energy Use Metrics					
Electricity Use Intensity	56	kBtu/sf/yr	Electricity Cost Intensity	\$3.56	\$/sf/yr
Natural Gas Use Intensity	37	kBtu/sf/yr	Natural Gas Cost Intensity	\$0.32	\$/sf/yr
Energy Use Intensity	93	kBtu/sf/yr	Energy Cost Intensity	\$3.88	\$/sf/yr

Baseline Performance Period  
Start Date End Date  
5/1/2016 5/1/2019

McKinstry has gathered energy use benchmark data in order to compare City of Redmond MOC Campus's energy use with similar facilities. Energy Use Intensity refers to the total annual energy use for a facility divided by the facility's square footage. By normalizing energy use by square footage, we are able to compare City of Redmond MOC Campus's energy with similar facilities.

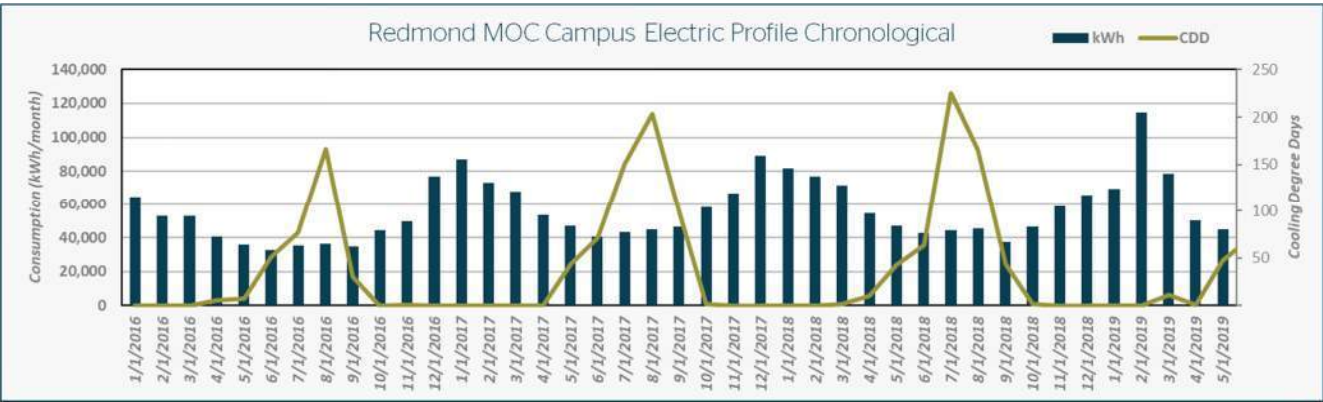
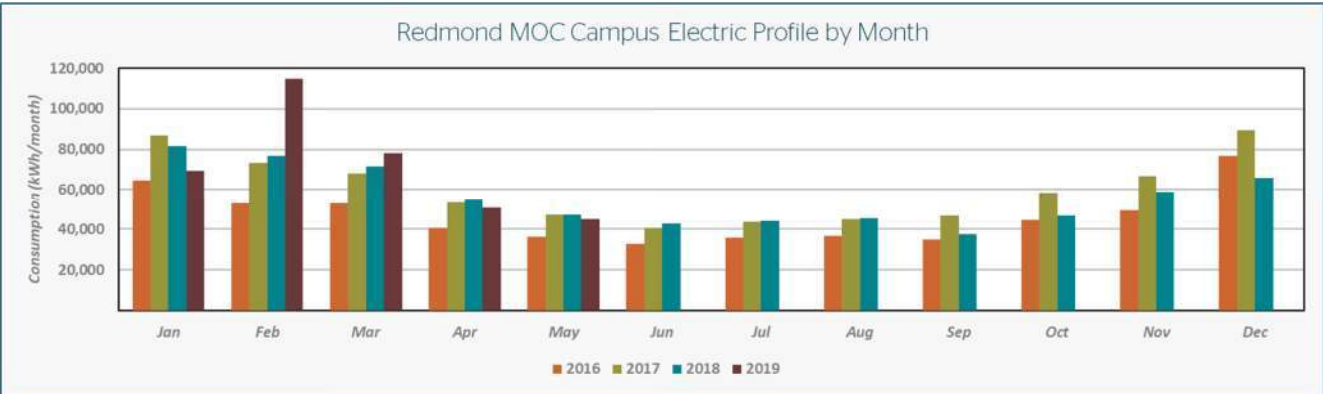


Redmond MOC Campus ENERGY STAR Database Benchmark		
Redmond MOC Campus	93	kBtu/sf/yr
National Median	42	kBtu/sf/yr
25% Better Than Median	32	kBtu/sf/yr
50% Better Than Median	21	kBtu/sf/yr

#### Insights

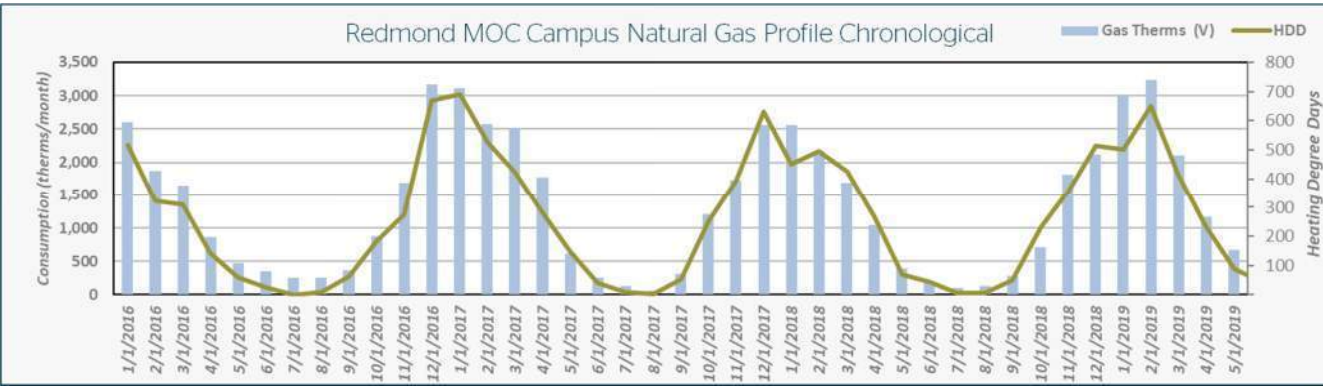
The property type of MOC Campus is not eligible for an ENERGY STAR score. In this analysis we have compared MOC Campus's energy usage to building's of similar property type and size using ENERGY STAR's database. In this case MOC Campus is an average performer, performing near the national median.

### MONTHLY UTILITY DATA PROFILES



The figure above shows the building's chronological electric profile from January 2016 through May 2019. The electric use at the MOC Campus is not dependent on the outside air temperature. This can be seen by comparing the increase in consumption with the increase in cooling degree days (base 65°F). Electric consumption increases during the winter, likely as a result of exterior lighting and electric heat.

The figure below shows the natural gas profile from January 2016 through May 2019. The natural gas use is also dependent on the outside air temperature. This can be seen by comparing the increase in consumption with the increase in heating degree days (base 60°F).







# Before and After Energy Utilization Index (EUI) Analysis

Project

Scenario

Date

City of Redmond Lighting and PSB Ph 2 HPs

Lighting and PSB Heat Pump Ph 2 Upgrades - Final

September 20, 2019

Building	Sq Ft
Redmond Public Safety Building	53,328
City of Redmond	228,698
Total	531,803

Existing Total			Proposed Total		Proposed Savings	
Electric [kWh]	Gas [Therms]	Total Energy Cost	Electric [kWh]	Gas [Therms]	Electric [kWh]	Gas [Therm]
1,475,523	12,255	\$135,425	1,405,902	13,675	69,621	-1,420
2,648,753	65,144	\$307,653	2,282,884	66,434	365,869	-1,290
4,124,276	77,399	\$443,078	3,688,786	80,109	435,490	-2,710

Existing kBtu		Proposed kBtu	
Electric [kBtu]	Gas [kBtu]	Electric [kBtu]	Gas [kBtu]
5,034,485	1,225,525	4,796,938	1,367,525
9,037,545	6,514,400	7,789,200	6,643,400
14,072,030	7,739,925	12,586,138	8,010,925

Existing EUI			Proposed EUI			% Savings
Electric EUI	Gas EUI	Total EUI	Electric EUI	Gas EUI	Total EUI	
94.4	23.0	117.4	90.0	25.6	115.6	1.5%
39.5	28.5	68.0	34.1	29.0	63.1	7.2%
26.5	14.6	41.0	23.7	15.1	38.7	5.6%