VILLAGE OF DOBBS FERRY BOARD OF TRUSTEES AGENDA

MEETING DATE: OCTOBER 12, 2021
AGENDA ITEM SECTION: PRESENTATIONS
AGENDA ITEM NO. : 1
AGENDA ITEM: HONEYWELL PRESENTATION ON ENERGY PERFORMANCE CONTRACT
ITEM BACKUP DOCUMENTATION: 1. FEASIBILITY STUDY – PREPARED BY HONEYWELL BUILDING SOLUTIONS 2. COPY OF POWERPOINT PRESENTATION



Feasibility Study

Village of Dobbs Ferry, NY

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July 16, 2021

Honeywell

HONEYWELL PROPRIETARY

Non-Disclosure Statement

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Budgetary Proposal

This budgetary proposal is provided for information and planning purposes only, to be used for feasibility decisions, planning, and budget development only, and is non-binding and does not constitute an offer for sale. Honeywell will be pleased to provide a firm price proposal upon request which will include all technical and commercial considerations.

Truth in Negotiations Certificate

Honeywell will negotiate a mutually acceptable pricing breakout in lieu of cost and price certifications. Honeywell's records are kept based on Generally Accepted Accounting Principles and all pricing information will be compliant therewith.

General Disclaimer about Pre-Contract Information

Honeywell makes no representation or warranty regarding any financial projections, data or information provided, except as may be expressly set forth in a definitive agreement. Honeywell reserves the right to negotiate mutually agreeable contract terms and conditions.

Municipal Advisor Disclaimer

Honeywell is not acting as a municipal advisor or fiduciary on your behalf. Any municipal securities or financial products information provided is for general informational and educational purposes only and you should obtain the advice of a licensed and qualified financial advisor regarding such information.

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EXECUTIVE SUMMARY

Honeywell is pleased to submit our Feasibility Study as the first step towards an Investment Grade Audit. From here we will look to finalize your requirements including scope for the next phase. We want to thank your staff for their courteous accommodations of our site visits and all the data we reviewed. The proposed project includes building system energy and infrastructure investments that will address existing and future facility concerns. Based on Honeywell's extensive experience in working with municipalities and schools in New York, we are confident that we will be able to deliver a financially viable, comprehensive solution for your Village.

Our final solution will be developed with your staff, facility personnel, and any committees to offer the Village of Dobbs Ferry multiple energy projects with various financial structures. Our proposal will encompass measures that achieve both energy and operational efficiencies to create a more comfortable environment for your staff and community as a whole. Our project will align with your mission and community to fully meet the goals and needs of the Village of Dobbs Ferry.

Honeywell has identified energy and infrastructure renewal projects for the Village of Dobbs Ferry that will support your budget strategy to fund capital improvements through your operating budget and look to connect all of your buildings on a common platform. A proforma cash flow will be included to depict a possible project that supports all of the buildings across the Village. All the Energy Conservation Measures (ECMs) we have identified for this submission are as follows:

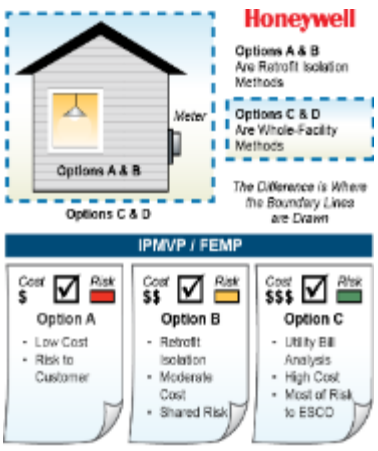
Energy Conservation Measure (ECM) MATRIX

#	ECM	Public Library	Village Hall	Memorial Park Building	DPW Office	Ambulance Corps. Building	Ogden Engine Company	Pool House & Offices at Gould Park	Embassy Club	Street Lighting
1	LED Lighting & Controls Upgrade	X	X	X	X	X	X	X	X	
2	Street Lighting Upgrades									X
3	Boiler Replacements		X			X		X		
4	Boiler Burner Controls	X								
5	Furnace Upgrades			X						
6	Air Handling Unit Replacement		X							
7	Rooftop Unit Replacement		X							
8	Condensing Unit Replacement		X							
9	Pump & Motor Replacement		X							
10	De-Stratification Fans								X	
11	Kitchen Hood Controls						X		X	
12	Walk-In Cooler Controls						X			

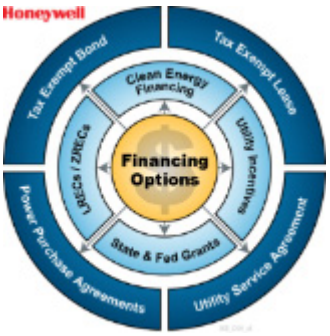
#	ECM	Public Library	Village Hall	Memorial Park Building	DPW Office	Ambulance Corps. Building	Ogden Engine Company	Pool House & Offices at Gould Park	Embassy Club	Street Lighting
13	Building Management System Upgrades	X	X	X	X	X	X	X	X	
14	Building Envelope Improvements	X	X	X		X	X		X	
15	Pipe Insulation	X	X			X			X	
16	Desktop Computer Power Management	X	X	X	X	X	X			
17	Roof Replacement		X							
18	Water Conservation	X	X	X	X	X	X	X	X	

Honeywell Technical Expertise

- ✓ **In-House Engineering, Design and Energy Analysis Expertise** – Honeywell has extensive energy engineering expertise and has audited, analyzed, modeled, and developed creative energy-savings strategies for hundreds of buildings of various types along with associated central plants. Honeywell has a wealth of in-house talent backed by years of experience, outstanding education credentials and industry certifications. Our experience enables us to furnish an expert analysis to optimize the best energy design for the Village's specific application. We will review and communicate with the Village team to better understand the short- and long-term goals of the project.
- ✓ **Design-Build Knowledge & Skills** – Complementing our team of engineering and technical professionals are other team members forming the foundation behind Honeywell's design-build expertise. Honeywell excels at integrating the art of engineering with the practical implementation of large and complex projects. Honeywell employs a highly collaborative process between engineering, cost estimating, construction, and financing partners throughout your project.
- ✓ **Cost Estimating/Value Engineering/Open Book Pricing** – Honeywell has on-staff estimators that are skilled in all areas of construction estimating with particular expertise in large scale energy infrastructure and central plant facilities. Honeywell's cost estimators have education credentials which include engineering, architecture and extensive contracting backgrounds.
- ✓ **Measurement & Verification (M&V)** – As one of the largest energy service companies providing energy saving performance contracts (ESPCs), Honeywell has an in-house team of Measurement and Verification (M&V) Engineers and Technicians. Honeywell's M&V staff has extensive experience in the development of M&V plans for all types of energy projects ranging from lighting retrofits to central plants using Federal Energy Management Program (FEMP) and the International Performance Measurement and Verification Protocol (IPMVP). This is a balance of risk and cost to the project, but Honeywell believes in a robust M&V plan to shift the guarantee risk to Honeywell and away from the Village. We will develop and review all of the M&V options during the Investment Grade Audit.



- ✓ **Owners Agent** – Honeywell has put in a financial place holder in our tax-exempt lease structure for a subject matter expert/owner's agent to be on site to compliment the Village's staff to provide oversight during the construction and commissioning phases.
- ✓ **Project Financing and Structuring** - Honeywell Global Finance (HGF) is responsible for assisting Honeywell customers find project specific financing. HGF's objective is to support the customer's development and implementation of Honeywell solutions by finding creative financing options that best meet the needs of the customer. HGF can access numerous financial institutions, both on a national and regional basis, to provide the Village of Dobbs Ferry the lowest cost financing available for the project. If desired, HGF will solicit formal financing bids from these investors to help ensure the lowest finance rate and most desirable structure is obtained. It is important to note that Honeywell intends HGF to be a "value added" service to our customers and does not profit from any financing.



Our project cash flow is the basis of the program and will change as we garner hard bids on the Energy Conservation Measures (ECMs) as well as on the financing. We have included a financial pro forma at the end of the ECM description section below. Honeywell's program not only maximizes energy efficiency technologies, but also optimizes a financial solution by helping the Village of Dobbs Ferry fund the most cost-efficient project possible by:

- Soliciting financing rate quotes from third-party financiers to obtain most competitive rates
- Utilizing any federal stimulus/subsidy monies available
- Work with potential federal/state grants
- Obtaining any applicable utility rebates

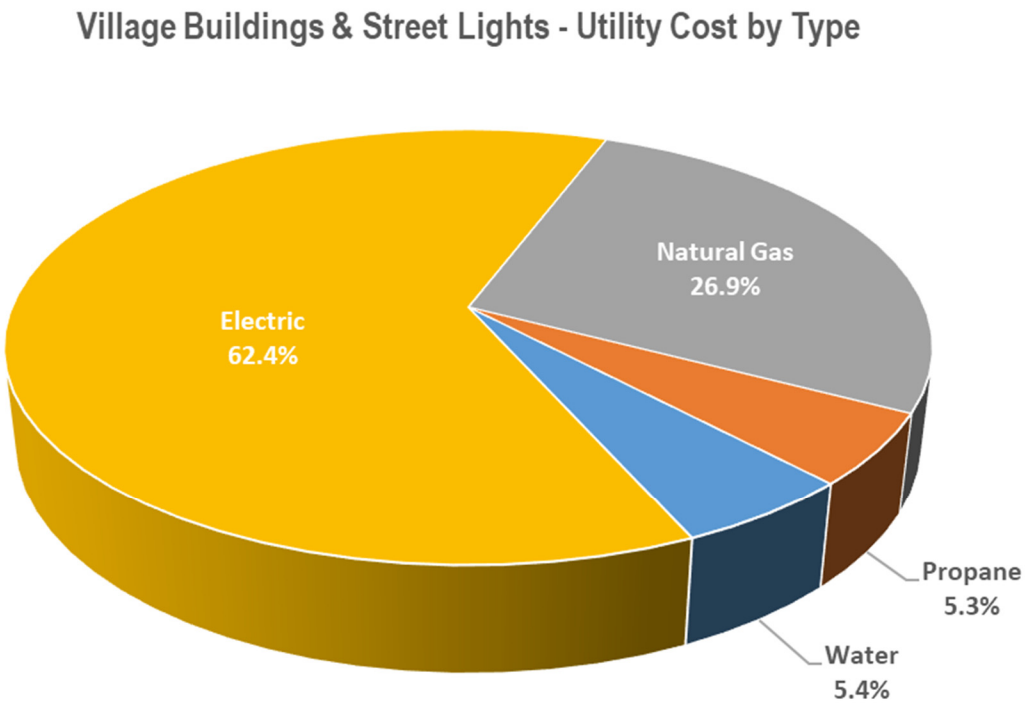
Energy Benchmarking/Green House Gas Reduction

The calculation of energy cost savings starts with a detailed analysis of the utility data. This provides insight into the cost of the utilities, as well as some indicators as to where the opportunities for improvement may be found. See below a sampling of the utility benchmarking.

The utility baseline was developed using data compiled for a one-year period: January 2019 to December 2019.

Buildings and Street Lighting – Total utility spend of $265,958

Utility	Annual Baseline Cost
Electric	$166,062
Natural Gas	$71,500
Propane	$14,120
Water	$14,277
Total	**$265,958**



Support Services/Local Team

Honeywell will review and present any and all options for support services as we develop the Investment Grade Audit. It is ultimately the discretion and direction of the Village of Dobbs Ferry to choose services with or without Honeywell. Our local technicians and pipe fitters have shown great value to our municipal and school customers in keeping their buildings comfortable and operating efficiently to serve their communities. Honeywell will provide all necessary documentation and manuals to assist in the maintenance of your facilities, as well as initial and ongoing training during the term of the agreement. We would welcome to be a part of your ongoing facility staff and build on a successful implementation of the energy performance contract.

The Process

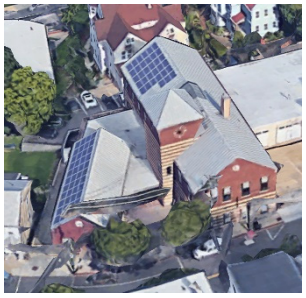
During the Investment Grade Audit phase, this document will be utilized to create a firm foundation on which the partnership between the Village of Dobbs Ferry and Honeywell can integrate innovative technical solutions to control operating costs, while improving overall system operations and reliability. We look forward to creating a project that will help the Village to continue its mission for many years to come. We want to help the Village reduce its energy consumption, improve its carbon footprint, enhance and improve the working and learning environment for constituents, provide infrastructure renewal in a short period of time, and build a project team that stands behind its work, guaranteed.

SECTION 1: BUILDING DESCRIPTIONS

PUBLIC LIBRARY

Public Library	
Address	55 Main Street, Dobbs Ferry, NY 10522
Facility Size	16,000 sq. ft.
Facility Type	Library
Floors Above / Below Grade	2 / 1
Operating Hours	Monday and Wednesday 10:00am to 8:00pm Tuesday and Thursday 10:00am to 6:00pm Friday and Saturday 10:00am to 5:00pm Sunday (October through April) 1:00pm to 5:00pm
Occupancy	6 employees
Survey Dates	April 15, 2021





Function

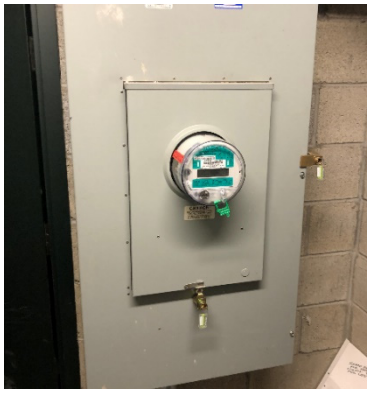
This facility serves as the Public Library for the Village and contains both a children's library and adult library section.

Utility Services

Electricity is supplied by NYPA to the building by a single 800-amp, 120/208-volt, 3 phase electrical service. The electrical service classification for this facility is GOV_WES_69. The roof mounted solar photovoltaic system is metered separately to track its production.

Natural gas is supplied by Con Edison to the building by a single natural gas service under the delivery rate GS2 Rate II Non-Residential.

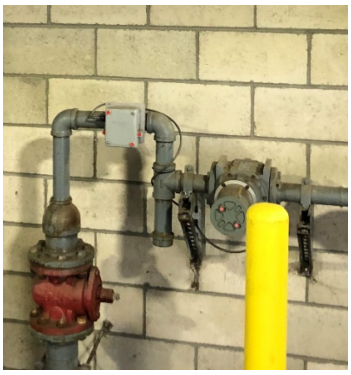
Water is provided by Suez Water to the building by a single water service under the delivery rate WNRM



Utility Electric Meter



Solar PV Electric Meter



Natural Gas Meter

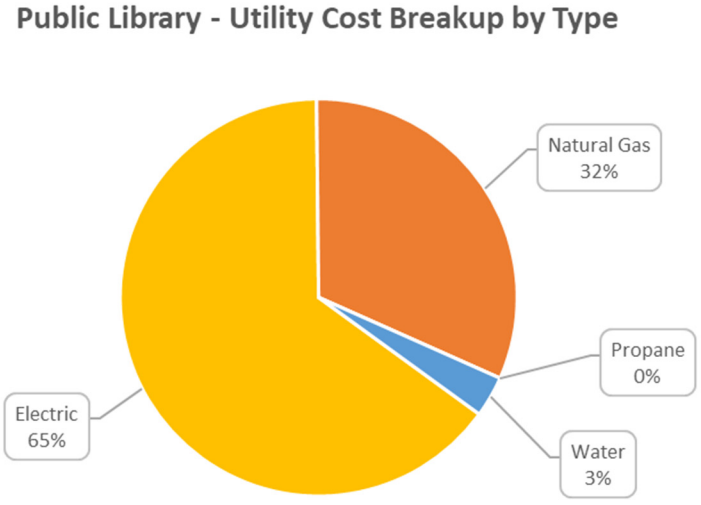


Water Meter

Utility	Meter No.	Meter Location
Electric	9983281	Electrical Room
Electric (Solar PV)	51836114	Electrical Room
Natural Gas	3491993	Garage
Water	61080325	Boiler Room

Village of Dobbs Ferry – Public Library							
Utility	Consumption & Costs			Thermal Equivalents & Costs		Energy & Cost % Breakup	
	Units	Consumption	$/Yr.	MMBTU/Yr.	$/MMBTU	% Energy	% Cost
Electricity	kWh	242,160	$12,961	826	$15.68	37%	25%
	kW	1,095	$21,020	-	$ -	0%	40%
Natural Gas	Therms	14,186	$16,684	1.419	$11.76	63%	32%
Propane	Gallons	-	$ -	-	$ -	0%	0%
Water	kGallons	91	$1,747	-	$ -	0%	3%

As a check of building performance, the Energy Utilization Index (EUI) was calculated for the building. The EUI is calculated in units of 1,000 BTU/Sq. Ft. and can be used to compare the performance of a building against other, similar buildings in its peer group. Based on the January 2019 through December 2019 utility analysis, the Public Library as an existing EUI of 140.32 kBTU/Sq. Ft.



Building & System Descriptions

Building Envelope

This is a newer vintage, two story brick and block building. The roof is predominately pitched metal roof with one flat section. Windows are aluminum double pane.




Building Envelope Example Photos

Boiler Heating System

The heating system for the Public Library consists of one (1) natural gas fired HB Smith, model 28A-7 cast iron sectional hot water boiler with PowerFlame, model J50A-15HBS-7 burner and an input rating of 2,163,000 BTU/hr. Hot water is provided to the air handling units, variable air volume box reheat coils, finned tube radiation, cabinet unit heaters and unit heaters by two (2) primary/standby hot water pumps.



Hot Water Boiler



Hot Water Pumps

Cooling System

The cooling systems for the Public Library consists of two (2) air-cooled condensing units that serve the DX coils of the air handling units described below. Air handling unit 1 is served by one (1) Trane, model TTA180B300DA air-cooled condensing unit rated at 15.0 Tons. Air handling unit 2 is served by one (1) Trane, model RAUCC40EBU13AB0000010 air-cooled condensing unit rates at 40.0 Tons. Both of these condensing units are located under a covered parking area. It was mentioned by facility staff that these units have experienced compressor failure due to poor air movement. Ductwork has been added in an attempt to improve heat rejection, but they have still experienced failure issues.



Children's Library Area Condensing Unit



Main Library Condensing Unit with Added Ductwork

Air Handling Units

The air handling equipment serving the Public Library consists of two (2) central air handling units. These systems provide the primary source of heating, cooling, and ventilation air to the majority of the building.

Air handling unit 1 (AHU-1) is a variable volume system located in the attic. It contains a hot water heating coil with a 3-way control valve and DX cooling. Both the supply and return fan of this unit are equipped with Variable Frequency Drives (VFDs) to modulate air flow based on space demand. A demand control ventilation strategy is in place for the Children's Library that uses a CO_2 sensor to measure occupancy levels and adjust the amount of outside air delivered accordingly. This unit serves multiple Variable Air Volume (VAV) boxes located in the Children's Library section of the building, Periodicals, and Lobby area of the first floor.



Air Handling Unit 1



Air Handling Unit 1 Fan VFD

Air handling unit 2 (AHU-2) is a variable volume system located in the boiler room. It contains a hot water heating coil with a 3-way control valve and DX cooling. Both the supply and return fan of this unit are equipped with Variable Frequency Drives (VFDs) to modulate air flow based on space demand. A demand control ventilation strategy is in place for the Community Room, Lobby Gallery, Conference Room, Director's Office, and 2nd Floor Stacks that use CO_2 sensors to measure occupancy levels and adjust the amount of outside air delivered accordingly. This unit serves multiple Variable Air Volume (VAV) boxes located on the first and second floor of the main Library section of the building.



Air Handling Unit 2



Air Handling Unit 2 Fan VFD

Terminal Units

Terminal heating units within spaces consist of Variable Air Volume (VAV) boxes with hot water reheat coils (fed from AHU-1 and AHU-2), cabinet unit heaters, finned tube radiation and unit heaters.



Variable Air Volume Box



Cabinet Unit Heater



Finned Tube Radiation



Unit Heater

Exhaust System

General exhaust for restrooms is provided by two (2) exhaust fans.

Domestic Hot Water System

Domestic hot water is generated by one (1) AO Smith, model DEL-6-102 electric water heater. This unit has an input rating of 2,500 watts and 6-gallon storage capacity.



Domestic Hot Water Heater

Solar Photovoltaic System

A roof mounted solar photovoltaic system is installed at this facility and is used to offset the required purchases from the local utility. A dedicated utility meter is installed for this system to capture its production.



Roof Mounted Solar System



Solar Inverters



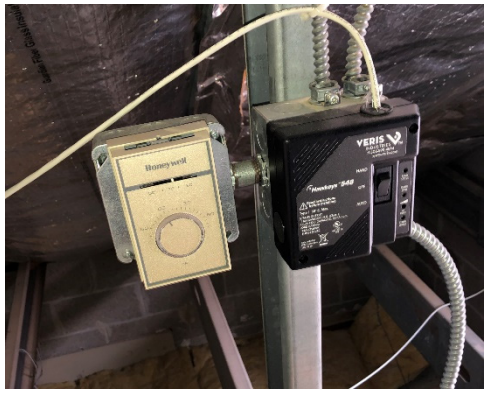
Solar System Meter & Disconnect

Control System

The Public Library has a fully functional Reliable Controls Building Management System (BMS). There is room level Direct Digital Controls (DDC) throughout the building. Heating, cooling and ventilation are primarily accomplished by a combination of Air Handling Units (AHUs) serving Variable Air Volume (VAV) boxes with reheat coils, cabinet unit heaters, finned tube radiation, and unit heaters. Exhaust fans are also incorporated into this system.



Air Handling Unit 2 Control Panel



Attic Unit Heater Thermostat and Run Status Monitor

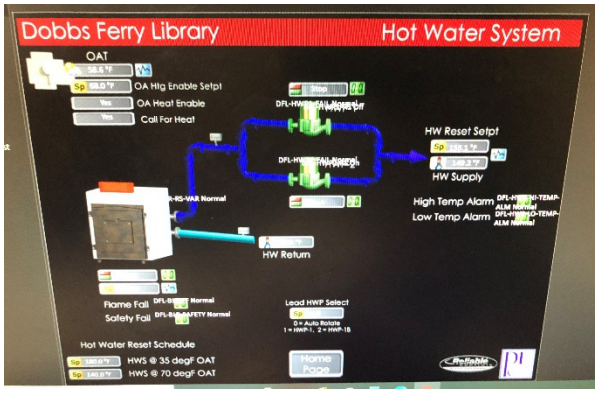


DDC Space Sensor



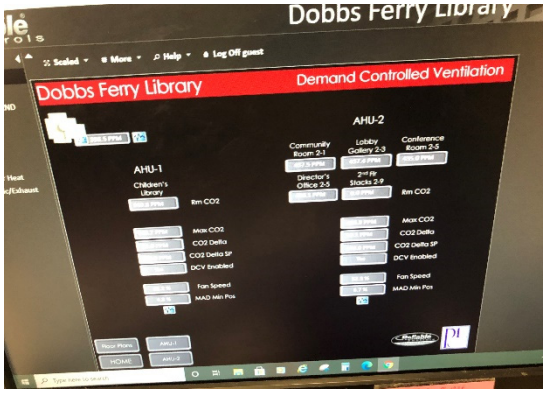
DDC 3-Way Valve Actuator

The boiler plant us currently following a hot water temperature reset schedule based on outside air temperature. The hot water temperature setpoint will automatically adjust linearly between 140°F when the outside air temperature is 70°F and 180°F when the outside air temperature is 35°F. The boiler plant is enabled when the outside air temperature is below 68°F.



Boiler Plant Graphic Screen with Hot Water Reset

A demand control ventilation strategy is in place in the Children's Library, Community Room, Lobby Gallery, Conference Room, Director's Office, and 2nd Floor Stacks. This approach uses CO_2 readings to determine the relative occupancy levels within these spaces; the outside air volume is modulated to meet the actual space conditions rather than ventilating at 100% design capacity at all times.



Demand Control Ventilation Graphic Screen

It was also mentioned by facility staff that the only way they can access the front end graphic system is via an Internet Explorer web browser. Microsoft is beginning to phase out support for this browser so an upgrade should be considered for the graphical interface in the near future.

Lighting and Lighting Control Systems

- The ground floor storage and mechanical rooms have existing 4' 2 lamp strips.
- The first and second floor public areas have multiple fixture types. The recessed can fixtures have PL lamps. The surface and pendant drum fixtures have previously been re-lamped with 8.5-watt LED 4 pin PL lamps.
- The 2x2 parabolic troffer fixtures have been replaced with LED fixtures.





Public Library Example Interior Lighting

Water Systems

The following fixtures were identified as being traditional type with higher consumption rates than are available with current technology. Any existing low flow equipment will not be included in the project scope.

- Four (4) traditional gallon per flush toilets
- One (1) traditional gallon per minute flow faucet

VILLAGE HALL

Village Hall	
Address	112 Main Street, Dobbs Ferry, NY 10522
Facility Size	9,000 sq. ft.
Facility Type	Office / Public Safety
Floors Above / Below Grade	2 / 1
Operating Hours	Office Areas Monday through Friday 8:30am to 4:00pm Police Station Saturday through Sunday 12:00am to 12:00am
Occupancy	20 employees on average 3-5 police officers after hours
Survey Dates	April 14 & 15, 2021





Function

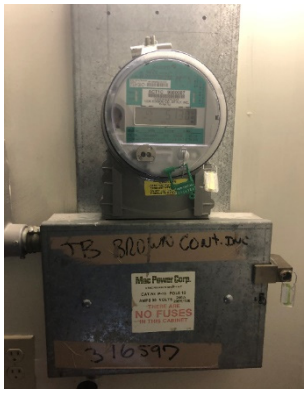
This facility serves as the municipal office space, fire department, and police department for the Village.

Utility Services

Electricity is supplied by NYPA to the building by a single 120/208-volt electrical service. The electrical service classification for this facility is GOV_WES_69.

Natural gas is supplied by Con Edison to the building by a single natural gas service under the delivery rate Trans Rate II Non-Residential.

Water is provided by Suez Water to the building by a single water service under the delivery rate WNRM



Electric Meter



Natural Gas Meter



Water Meter

Emergency Power is provided by a 55 kW Generac generator, model 55-H339.

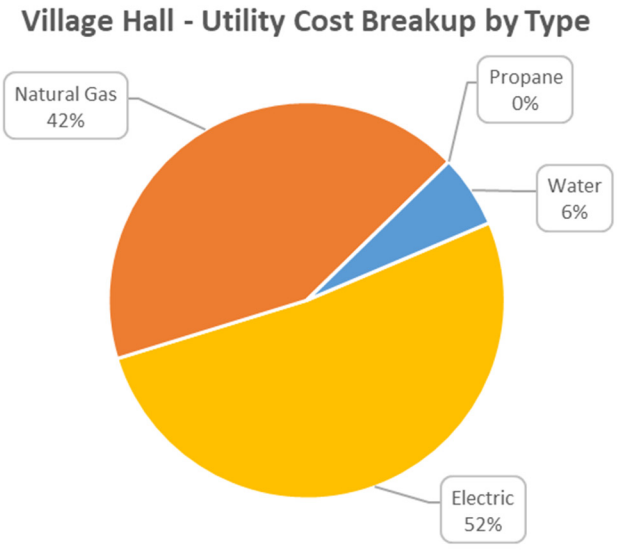


Emergency Generator

Utility	Meter No.	Meter Location
Electric	9980097	Electric Closet
Natural Gas	3435865	Natural Gas Meter Room
Water	61074162	Basement

Village of Dobbs Ferry – Village Hall							
Utility	Consumption & Costs			Thermal Equivalents & Costs		Energy & Cost % Breakup	
	Units	Consumption	$/Yr.	MMBTU/Yr.	$/MMBTU	% Energy	% Cost
Electricity	kWh	209,720	$10,806	716	$15.10	41%	21%
	kW	640	$15,285	-	$ -	0%	30%
Natural Gas	Therms	10,492	$21,446	1,049	$20.44	59%	42%
Propane	Gallons	-	$ -	-	$ -	0%	0%
Water	kGallons	247	$2,989	-	$ -	0%	6%

As a check of building performance, the Energy Utilization Index (EUI) was calculated for the building. The EUI is calculated in units of 1,000 BTU/Sq. Ft. and can be used to compare the performance of a building against other, similar buildings in its peer group. Based on the January 2019 through December 2019 utility analysis, the Village Hall has an existing EUI of 196.11 kBTU/Sq. Ft.



Building & System Descriptions

Building Envelope

This facility is a two-story brick and block building. The roof is flat black EPDM that appears visually to be relatively new, however the building personnel has noted that they have ongoing water leak issues with the existing roof. Windows are double hung style. Given the presence of the fire department at this location there are also multiple large rollup garage doors.





Building Envelope Example Photos

Boiler Heating System

The heating system for the Village Hall consists of one (1) natural gas fired, four (4) module Hydro Therm, model MR-1200B modular hot water boiler system with integral burners and an input rating of 1,200,000 BTU/hr (300,000 BTU/hr per module). Hot water is provided to the air handling units, finned tube radiation, unit heaters, and cabinet unit heaters by two (2) primary/standby hot water pumps. One (1) of the hot water pumps is missing its motor, and thus there is currently no redundancy to this pumping system.



Modular Hot Water Boiler System



Hot Water Pumps

Cooling System

The cooling systems for the Village Hall consists of four (4) air-cooled condensing units serving the various air handling unit DX coils described below. These units are rated between 5.0 and 10.0 Ton. The second floor is cooled by rooftop units with integrated DX cooling as described below.




Air Cooled Condensing Units (Building Exterior & Roof)




Air Cooled Condensing Units (Roof)

Supplemental/dedicated cooling is provided to select areas by three (3) ductless split systems and window air conditioning units. The split systems are rated between 1.5 and 2.0 Tons.



Split System Condensing Unit



Split System Evaporator Unit



Window Air Conditioning Unit

Air Handling Units

The air handling equipment serving the Village Hall consists of four (4) air handling units and six (6) rooftop units. These systems provide the primary source of heating, cooling and ventilation air to the majority of the building.

The basement is served by a constant speed American Standard, model TWE090A300AA air handling unit (ACU-3) located in a basement mechanical room. It contains a hot water coil with 3-way control valve and DX cooling coil. There are two (2) additional air handling units located in the basement (ACU-1 & ACU-2). These units were inaccessible during the survey and believed to be similar to ACU-3.



Basement Air Handling Unit (ACU-3)



Hot Water 3-Way Valve

The first floor is served by a constant speed air handling unit (ACU-4) located above the ceiling. This unit was not accessible during the survey but is believed to contain a hot water coil and DX cooling coil.

The second floor is served by six (6) constant volume rooftop units. The nameplates on most of this equipment were either damaged or completely missing, thus limiting the information available. These units contain DX cooling and have dedicated hot water reheat coils located above the interior drop ceiling. The following is some general information on each unit:

- RTU-1 – Trane, model TCP060F300AA rated at 5.0 Tons
- RTU-2 – Trane, model TSC060A3E0A00006 rated at 5.0 Tons
- RTU-3 – Amana (nameplate faded out)
- RTU-4 – Trane (nameplate faded out)
- RTU-5 – Trane (nameplate faded out)
- RTU-6 – Trane (nameplate faded out)



Rooftop Unit 1 (RTU-1)



Rooftop Unit 2 (RTU-2)



Rooftop Unit 3 (RTU-3)



Rooftop Unit 4 (RTU-4)



Rooftop Unit 5 (RTU-5)



Rooftop Unit 6 (RTU-6)

Terminal Units

Terminal heating units within spaces consist of finned tube radiation, unit heaters, and cabinet unit heaters.



Finned Tube Radiation



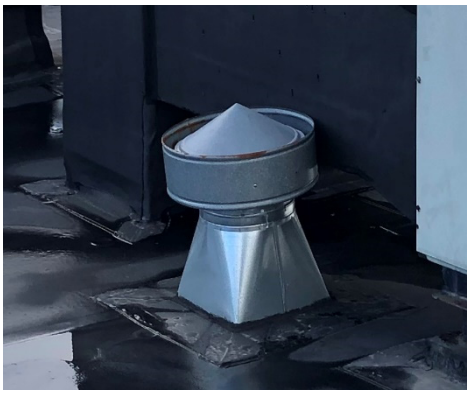
Garage Bay Unit Heater

Exhaust System

The garage bays are served by dedicated exhaust system to prevent the buildup of fumes from idling vehicles. General building exhaust is provided by roof mounted fans and gravity ventilators.



Garage Bay Exhaust System



Roof Mounted Exhaust

Domestic Hot Water System

Domestic hot water is generated by one (1) AO Smith, model PCG 100 300 natural gas fired water heater. This unit has an input rating of 75,100 BTU/hr and 94-gallon storage capacity. A dedicated circulator pump provides domestic hot water throughout the building.



Domestic Hot Water Heater



Domestic Hot Water Circulator Pump

Kitchen

This facility has a commercial style kitchen that includes natural gas fired cooking equipment, kitchen exhaust hood, and standalone refrigeration unit.



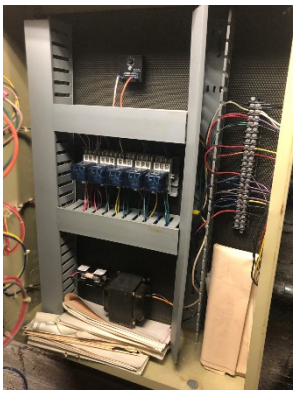
Kitchen Hood and Cooking Equipment

Control System

The Village Hall does not have a centralized Building Management System (BMS). The boiler plant operation is controlled by a Heat Timer panel.



Boiler Plant Heat Timer Panel

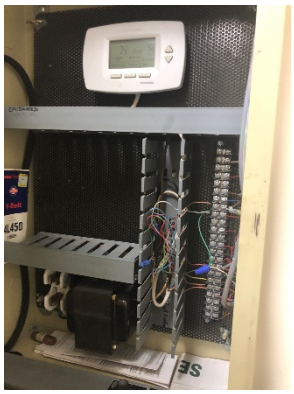


Boiler Plant Control Panel

The air handling units are controlled by programmable thermostats that utilize space sensors to enable/disable the unit when dictated by temperature.



Basement Air Handling Unit Thermostat Panel



First Floor Air Handling Unit Thermostat Panel

Finned tube radiation within the spaces are controlled by old Barber Colman thermostats. It is unknown at this time if this control system is functional or not.

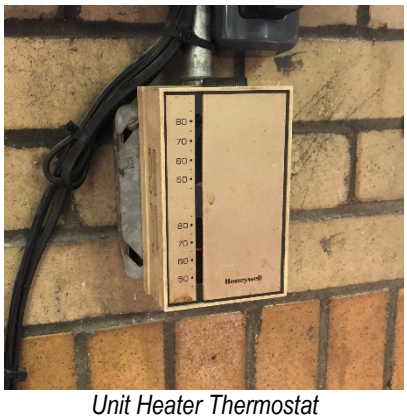






Barber Colman Space Thermostats

The unit heaters in the garage bay are controlled by dedicated non-programmable line voltage thermostats and aquastats to cycle the fan on and off.



Unit Heater Thermostat



Unit Heater Aquastat

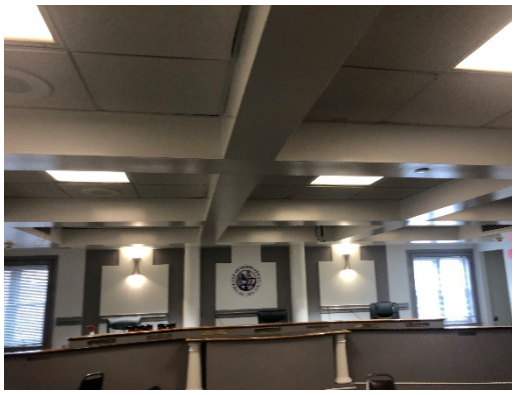
The rooftop units on the second floor are controlled by dedicated programmable thermostats on a one for one basis.




Second Floor Rooftop Unit Programmable Thermostats

Lighting and Lighting Control Systems

- Village Hall has multiple fixture types with the predominant fixture being 2x2 and 2x4 troffers. The 2x4 fixture have previously been retrofitted with LED door kits. The 2x2 fixtures have 17-watt T8 lamps.
- Some storage areas and closets have 55-watt circline drum fixtures.
- The 4' wraps and strip fixtures contain 32-watt T8 lamps.

Village Hall Example Interior Lighting

Water Systems

The following fixtures were identified as being traditional type with higher consumption rates than are available with current technology. Any existing low flow equipment will not be included in the project scope.

- Eight (8) traditional gallon per flush toilets
- One (1) traditional gallon per flush urinal
- Eight (8) traditional gallon per minute flow faucets
- Two (2) traditional gallon per minute flow showerheads

MEMORIAL PARK BUILDING

Memorial Park Building	
Address	105 Palisade Street, Dobbs Ferry, NY 10522
Facility Size	1,600 sq. ft.
Facility Type	Office
Floors Above / Below Grade	1 / 1
Operating Hours	Monday through Friday 9:00am to 4:30pm
Occupancy	3 employees
Survey Dates	April 14, 2021





Function

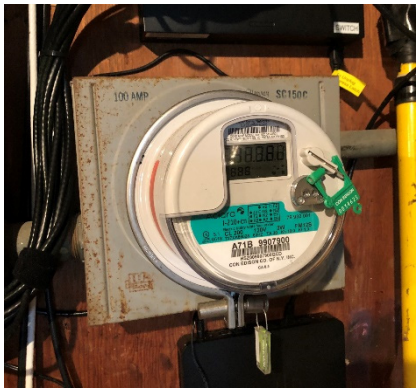
This facility serves as office and storage space for Memorial Park.

Utility Services

Electricity is supplied by NYPA to the building by a single 120/208-volt electrical service. The electrical service classification for this facility is GOV_WES_62.

Natural gas is supplied by Con Edison to the building by a single natural gas service under the delivery rate GS2 Rate II Non-Residential.

Water is provided by Suez Water to the building by a single water service under the delivery rate WNRM



Electric Meter

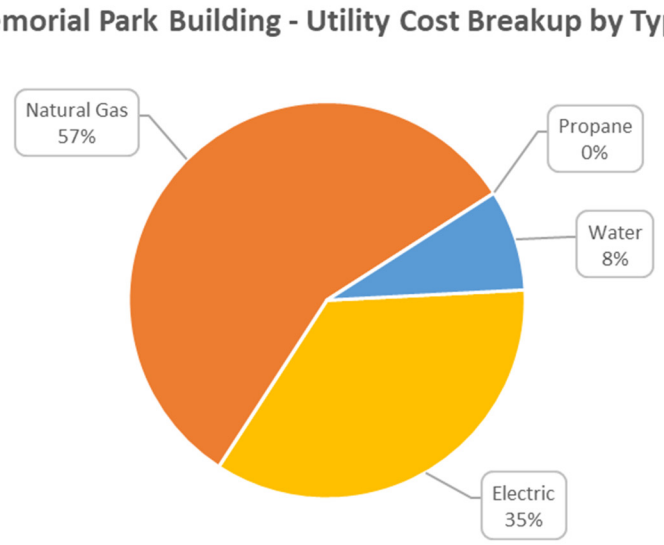


Natural Gas Meter

Utility	Meter No.	Meter Location
Electric	9907900	Basement
Natural Gas	3643584	Basement
Water	54520459	Basement

Village of Dobbs Ferry – Memorial Park Building							
Utility	Consumption & Costs			Thermal Equivalents & Costs		Energy & Cost % Breakup	
	Units	Consumption	$/Yr.	MMBTU/Yr.	$/MMBTU	% Energy	% Cost
Electricity	kWh	10,260	$2,614	35	$74.64	15%	35%
	kW	3	$ -	-	$ -	0%	0%
Natural Gas	Therms	2,054	$4,238	205	$20.63	85%	57%
Propane	Gallons	-	$ -	-	$ -	0%	0%
Water	kGallons	8	$615	-	$ -	0%	8%

As a check of building performance, the Energy Utilization Index (EUI) was calculated for the building. The EUI is calculated in units of 1,000 BTU/Sq. Ft. and can be used to compare the performance of a building against other, similar buildings in its peer group. Based on the January 2019 through December 2019 utility analysis, the Memorial Park Building has an existing EUI of 150.26 kBTU/Sq. Ft.



Building & System Descriptions

Building Envelope

This facility is a one story, brick façade building. The roof is pitched asphalt shingles. The windows are double pane vinyl.





Building Envelope Example Photos

Boiler Heating System

This building does not contain a boiler system. Heating is provided by the natural gas fired furnace described below.

Cooling System

The cooling system for the office area of the Memorial Park Building consists of one (1) Mitsubishi split DX system that includes one (1) interior evaporator unit and one (1) exterior condensing unit. This system is rated at 2.0 Tons. The rest of the building is not cooled.



Split System Evaporator Unit



Split System Condensing Unit

Air Handling Units

The first floor of the Memorial Park Building is heated and ventilated by a residential style American Standard, model Freedom 80 natural gas fired furnace.



Natural Gas Fired Furnace

Terminal Units

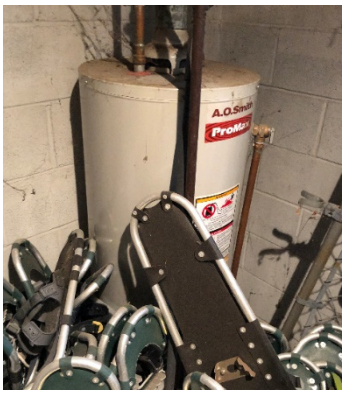
Electric baseboard serves to provide supplemental heating to the basement restrooms.

Exhaust System

The roof was not accessible during the surveys and it appears there is no general exhaust.

Domestic Hot Water System

Domestic hot water is generated by one (1) AO Smith, model XCV 40 100 natural gas fired water heater. This unit has an input rating of 40,000 BTU/hr and 38-gallon storage capacity.



Domestic Hot Water Heater

Control System

The Memorial Park Building does not have a centralized Building Management System (BMS). The natural gas fired furnace is controlled by an antiquated Honeywell thermostat located on the first floor. The split cooling system is controlled by its dedicated remote control.



Natural Gas Fired Furnace Thermostat

Lighting and Lighting Control Systems

- The first floor and stairway have incandescent I2X60 drum fixtures.
- The storage areas have keyless incandescent fixtures.
- On the second floor all open areas have 4' 2 lamp wrap fixtures, with 32-watt T8 tubes.
- The exterior has non-LED wall packs.



Memorial Park Building Example Interior/Exterior Lighting

Water Systems

The following fixtures were identified as being traditional type with higher consumption rates than are available with current technology. Any existing low flow equipment will not be included in the project scope.

- Three (3) traditional gallon per flush toilets
- One (1) traditional gallon per flush urinal
- Three (3) traditional gallon per minute flow faucets

DPW OFFICE

DPW Office	
Address	1 Stanley Avenue, Dobbs Ferry, NY 10522
Facility Size	1,141 sq. ft.
Facility Type	Office / Garage
Floors Above / Below Grade	1 / 0
Operating Hours	Monday through Friday 7:30am to 4:00pm
Occupancy	21 employees
Survey Dates	April 15, 2021





Function

This facility serves as the office and garage space for the Department of Public Works.

Utility Services

Electricity is supplied by NYPA to the building by a single 120/208-volt electrical service. The electrical service classification for this facility is GOV_WES_69. The roof mounted solar photovoltaic system is metered separately to track its production.

Propane is stored in three (3) 1,000-gallon exterior tanks located on grade.

Water is provided by Suez Water to the building by a single water service under the delivery rate WNRM



Utility and Solar PV Electric Meters



Propane Tanks

Emergency Power is provided by a 130 kW Generac generator, model 7573130200.

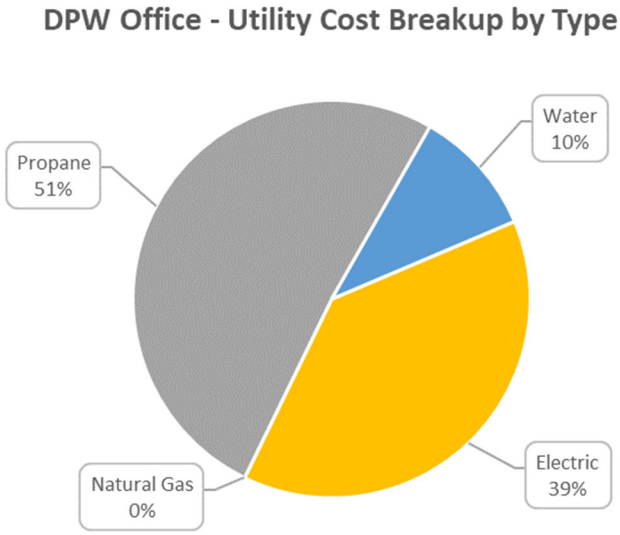


Emergency Generator

Utility	Meter No.	Meter Location
Electric	9987808	Exterior
Electric (Solar PV)	51836115	Exterior
Propane	N/A	N/A
Water	61031886	N/A

Village of Dobbs Ferry – DPW Office							
Utility	Consumption & Costs			Thermal Equivalents & Costs		Energy & Cost % Breakup	
	Units	Consumption	$/Yr.	MMBTU/Yr.	$/MMBTU	% Energy	% Cost
Electricity	kWh	64,826	$3,561	221	$16.10	23%	13%
	kW	277	$7,120	-	$ -	0%	26%
Natural Gas	Therms	-	$ -	-	$ -	0%	0%
Propane	Gallons	8,110	$14,120	742	$19.03	77%	51%
Water	kGallons	79	$2,864	-	$ -	0%	10%

As a check of building performance, the Energy Utilization Index (EUI) was calculated for the building. The EUI is calculated in units of 1,000 BTU/Sq. Ft. and can be used to compare the performance of a building against other, similar buildings in its peer group. Based on the January 2019 through December 2019 utility analysis, the DPW Office has an existing EUI of 1,179.39 kBTU/Sq. Ft.



Building & System Descriptions

Building Envelope

This facility is a single-story metal clad building with slightly pitched metal roof. Since most of the building is truck bays there are many rollup garage doors and limited windows.




Building Envelope Example Photos

Boiler Heating System

This building does not contain a boiler system. Heating is provided by the propane fired air handling units, heat pump systems, and standalone electric heaters described below.

Cooling System

The cooling systems for the DPW Garage serve the front office area and the breakroom. One (1) Trane, model 2TTB3036A1000BA air-cooled condensing unit rated at 3.0 Tons serves the front office air handling unit described below. The breakroom is cooled by a dedicated Carrier, model 50XT-024-301 heat pump unit rated at 2.0 Tons. The rest of this facility is not cooled.



Office Area Condensing Unit



Breakroom Heat Pump Unit

Air Handling Units

The various sections of the DPW Garage are served by different types of air handling equipment to meet the needs of their dedicated spaces. The garage bays are heated and ventilated by seven (7) ceiling mounted Reznor Preeva air handling units. These units are direct propane fired and utilize both outside and return air. The labeling in the field refers to these units as Garage Unit Heaters (GUHs).



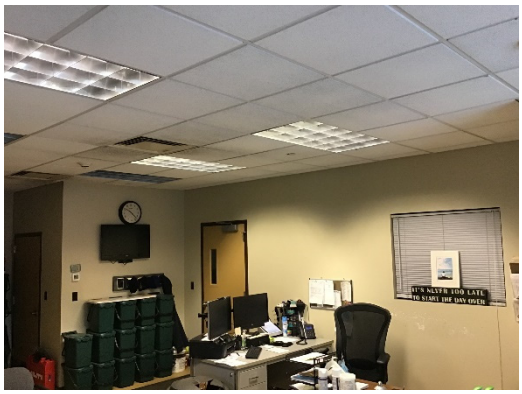

Garage Bay Air Handling Units

The breakroom space is heated and cooled by one (1) Carrier, model 50XT-024-301 heat pump packaged air handling unit.



Breakroom Heat Pump Unit

The front office space is served by one (1) air handling unit and associated air-cooled condensing unit. In discussions with facility staff it was mentioned that this unit is above the ceiling and was inaccessible during the time of the audit. It is assumed that this unit is a heat pump or electric resistance style and provides heating, cooling and ventilation to the spaces served.



Front Office Space Ceiling Diffusers

Terminal Units

Supplemental heat is provided to the restroom and locker space by standalone electric heaters.



Standalone Electric Heater

Exhaust System

The garage bays are served by dedicated wall exhaust fans to prevent the buildup of fumes from idling vehicles. It is believed that general building exhaust is provided by a roof mounted fan, however the roof was not accessible during the time of the survey.



Garage Bay Exhaust Fan



Garage Bay Exhaust Fan Disconnects

Domestic Hot Water System

Domestic hot water is generated by two (2) AO Smith, model EJC-6 200 electric water heaters. These units have an input rating of 1,650 watts and 6-gallon storage capacity each.





Domestic Hot Water Heater

Solar Photovoltaic System

A roof mounted solar photovoltaic system is installed at this facility and is used to offset the required purchases from the local utility. A dedicated utility meter is installed for this system to capture its production.



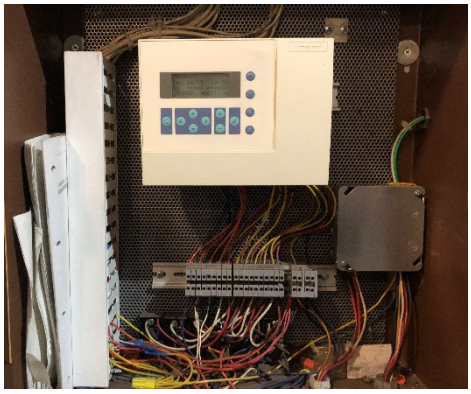
Roof Mounted Solar Photovoltaic System



Solar Photovoltaic System Meter & Disconnect

Control System

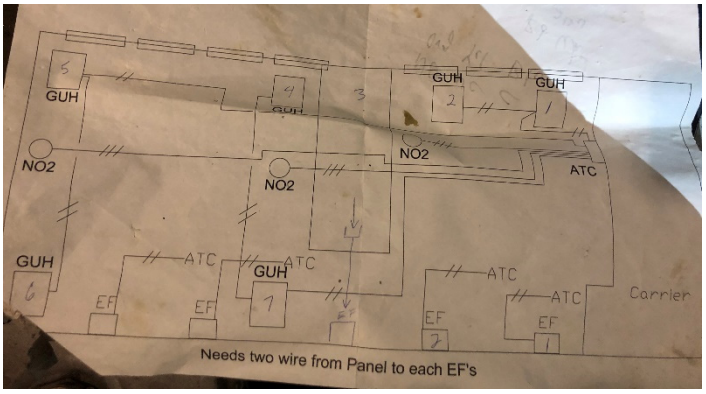
The DPW Office currently has a mix of control systems of various capability. The garage area appears to be controlled by a Honeywell XL5000 DDC system. This system is outdated and would benefit from an upgrade to newer technology. There are no front end graphics for this system and the details of its current operation parameters were not available during the survey. This system controls the garage bay air handling units and exhaust fans. Each air handling unit also has its own dedicated thermostat which most likely have replaced the existing antiquated DDC controls.



Honeywell XL5000 Panel



Garage Bay Air Handling Unit Thermostat



Garage Bay Control System Diagram

The front office air handling unit and breakroom heat pump are controlled locally by dedicated programmable thermostats.



Front Office Air Handling Unit Thermostat

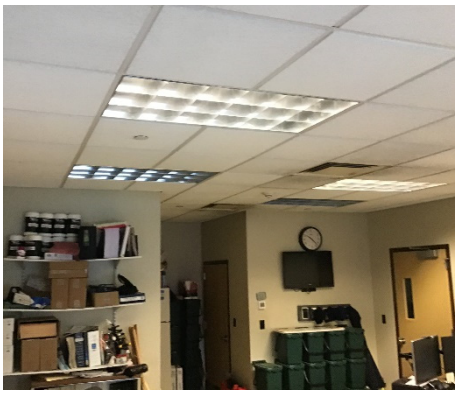


Breakroom Heat Pump Thermostat

The supplemental electric heaters are standalone and are controlled by local switches.

Lighting and Lighting Control Systems

- All office areas, restrooms, mechanical rooms, and storage areas have a mixture of troffers, wraps, and strip fixtures with 32-watt T8 lamps.
- The garage areas have compact fluorescent high bay fixtures with (8) 42-watt quad pin lamps.





DPW Office Example Interior Lighting

Water Systems

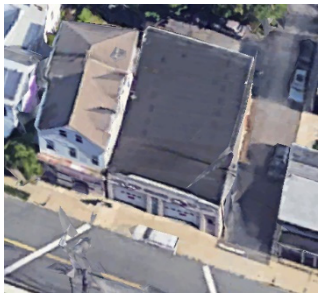
The following fixtures were identified as being traditional type with higher consumption rates than are available with current technology. Any existing low flow equipment will not be included in the project scope.

- Three (3) traditional gallon per flush toilets
- Two (2) traditional gallon per flush urinals
- Three (3) traditional gallon per minute flow faucets

AMBULANCE CORPS. BUILDING

Ambulance Corps. Building	
Address	81 Ashford Avenue, Dobbs Ferry, NY 10522
Facility Size	2,000 sq. ft.
Facility Type	Public Safety
Floors Above / Below Grade	1 / 1
Operating Hours	Saturday through Sunday 12:00am to 12:00am
Occupancy	2 employees
Survey Dates	April 15, 2021





Function

This facility serves as the ambulance services headquarters for the Village.

Utility Services

Electricity is supplied by NYPA to the building by a single 120/208-volt electrical service. The electrical service classification for this facility is GOV_WES_62.

Natural gas is supplied by Con Edison to the building by a single natural gas service under the delivery rate GS2 Rate II Non-Residential.

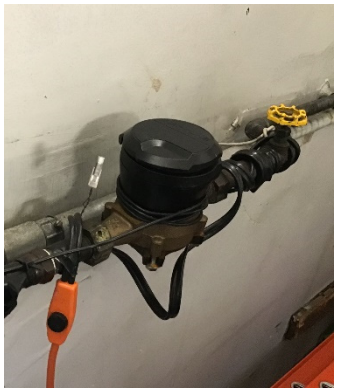
Water is provided by Suez Water to the building by a single water service under the delivery rate WNRM



Electric Meter



Natural Gas Meter



Water Meter

Emergency Power was previously provided by a small Generac generator. This unit was reported to be abandoned and no longer in use by facility staff.

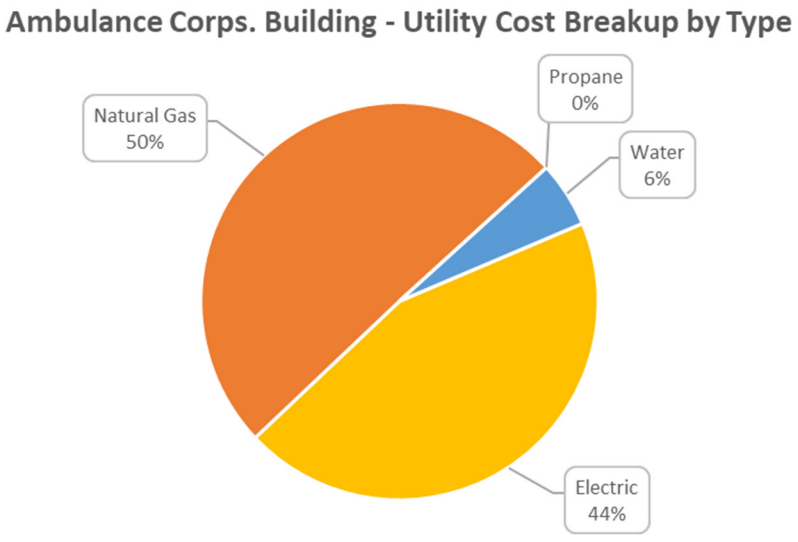


Abandoned Emergency Generator

Utility	Meter No.	Meter Location
Electric	9860496	Garage
Natural Gas	3128713	Exterior
Water	36244625	Garage

Village of Dobbs Ferry – Ambulance Corps. Building							
Utility	Consumption & Costs			Thermal Equivalents & Costs		Energy & Cost % Breakup	
	Units	Consumption	$/Yr.	MMBTU/Yr.	$/MMBTU	% Energy	% Cost
Electricity	kWh	20,741	$5,294	71	$74.78	21%	44%
	kW	-	$ -	-	$ -	0%	0%
Natural Gas	Therms	2,585	$6,010	259	$23.25	79%	50%
Propane	Gallons	-	$ -	-	$ -	0%	0%
Water	kGallons	53	$638	-	$ -	0%	5%

As a check of building performance, the Energy Utilization Index (EUI) was calculated for the building. The EUI is calculated in units of 1,000 BTU/Sq. Ft. and can be used to compare the performance of a building against other, similar buildings in its peer group. Based on the January 2019 through December 2019 utility analysis, the Ambulance Corps. Building has an existing EUI of 164.64 kBTU/Sq. Ft.



Building & System Descriptions

Building Envelope

This facility is a single-story stucco and block building with flat black EPDM roof. Windows are limited and are swing out awning style. Because this building is the ambulance headquarters it also contains two large rollup garage doors.





Building Envelope Example Photos

Boiler Heating System

The heating system for the Ambulance Corps. Building consists of one (1) natural gas fired Weil McLain hot water boiler with integral burner. Hot water is provided to fin tube radiation zones by two (2) dedicated zone hot water pumps.



Hot Water Boiler



Hot Water Zone Pumps

Cooling System

The cooling system for the Ambulance Corps. Building serves the office/break room area. One (1) York, model TCJD48S41S3A air-cooled condensing unit rated at 4.0 Tons serves the office/break room area air handling unit described below. The rest of this facility is not cooled.



Split System Condensing Unit

Air Handling Units

The office/break room area of the Ambulance Corps. Building is cooled by a DX air handling unit located above the ceiling. This unit was inaccessible at the time of the survey, but its ceiling diffusers were visible.



Air Handling Unit Ceiling Diffuser

Terminal Units

Terminal heating units consist of hot water fin tube radiation zones in the garage and office/break room area. The bathrooms also have small standalone elective baseboard sections as well.





Hot Water Fin Tube Radiation Zones



Bathroom Standalone Electric Baseboard

Exhaust System

The garage bay is served by dedicated exhaust system to prevent the buildup of fumes from idling vehicles. It is believed that general building exhaust is provided by a roof mounted fan, however the roof was not accessible during the time of the survey.



Garage Exhaust System

Domestic Hot Water System

Domestic hot water is generated by one (1) Rheem, model 22V40-36F1 natural gas fired water heater. This unit has an input rating of 36,000 BTU/hr and 40-gallon storage capacity.



Domestic Hot Water Heater

Kitchen

This facility has a small residential style kitchen that includes an electric stove, refrigerator, coffee maker and microwave.



Kitchen Equipment

Control System

The Ambulance Corps. Building does not have a centralized Building Management System (BMS). The two (2) fin tube radiation zones are controlled by non-programmable thermostats and the office/breakroom is controlled by a programmable thermostat. The standalone bathroom baseboard is also controlled by non-programmable thermostats.





Fin Tube Radiation (Non-Programmable) and Air Handling Unit (Programmable) Thermostats

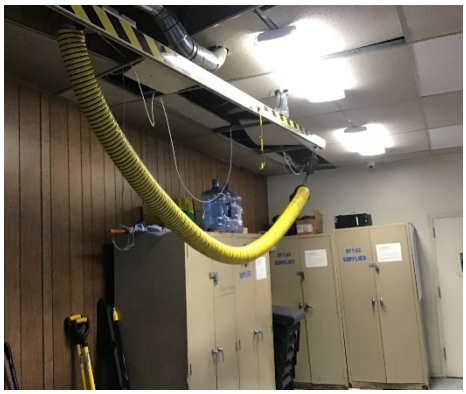




Bathroom Baseboard (Non-Programmable) Thermostats

Lighting and Lighting Control Systems

- Most of these fixtures have already been converted to LED.
- The office areas have existing 2x4 troffers with (4) 32-watt T8 tubes (some are in poor condition).

Ambulance Corps. Building Example Interior Lighting

Water Systems

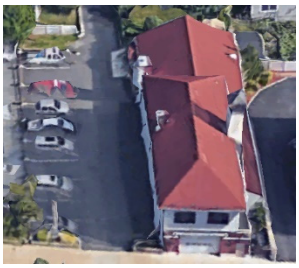
The following fixtures were identified as being traditional type with higher consumption rates than are available with current technology. Any existing low flow equipment will not be included in the project scope.

- Two (2) traditional gallon per flush toilets
- Three (3) traditional gallon per minute flow faucets
- One (1) traditional gallon per minute flow showerheads

Ogden Engine Company

Ogden Engine Company	
Address	198 Ashford Avenue, Dobbs Ferry, NY 10522
Facility Size	4,000 sq. ft.
Facility Type	Public Safety
Floors Above / Below Grade	2 / 1
Operating Hours	Varies
Occupancy	Varies
Survey Dates	April 15, 2021





Function

This facility serves as a fire station with garage and living space.

Utility Services

Electricity is supplied by NYPA to the building by a single 200-amp, 240-volt, 3 phase electrical service. The electrical service classification for this facility is GOV_WES_69.

Natural gas is supplied by Con Edison to the building by a single natural gas service under the delivery rate Trans Rate II Non-Residential.

Water is provided by Suez Water to the building by a single water service under the delivery rate WNRM



Electric Meter



Natural Gas Meter



Water Meter

Emergency Power is provided by a 30 kW Delco AC generator, model 2E520SM7.

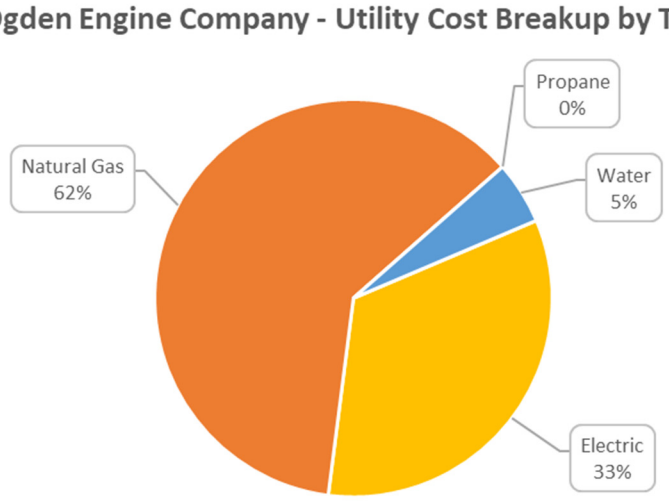


Emergency Generator

Utility	Meter No.	Meter Location
Electric	7405275A	Exterior
Natural Gas	3900842	Basement
Water	52625543	Basement

Village of Dobbs Ferry – Ogden Engine Company							
Utility	Consumption & Costs			Thermal Equivalents & Costs		Energy & Cost % Breakup	
	Units	Consumption	$/Yr.	MMBTU/Yr.	$/MMBTU	% Energy	% Cost
Electricity	kWh	29,304	$1,549	100	$15.49	18%	10%
	kW	129	$3,522	-	$ -	0%	23%
Natural Gas	Therms	4,407	$9,328	441	$21.17	82%	61%
Propane	Gallons	-	$ -	-	$ -	0%	0%
Water	kGallons	58	$774	-	$ -	0%	5%

As a check of building performance, the Energy Utilization Index (EUI) was calculated for the building. The EUI is calculated in units of 1,000 BTU/Sq. Ft. and can be used to compare the performance of a building against other, similar buildings in its peer group. Based on the January 2019 through December 2019 utility analysis, the Ogden Engine Company has an existing EUI of 135.18 kBTU/Sq. Ft.



Building & System Descriptions

Building Envelope

This facility is a two-story brick and stucco building with pitched asphalt shingle roof. Windows are double hung style. Because this is a fire department it also contains a large rollup garage door.





Building Envelope Example Photos

Boiler Heating System

The heating system for the Ogden Engine Company consists of one (1) natural gas fired Buderus, model G234X-55 atmospheric hot water boiler with integral burner and an input rating of 228,000 BTU/hr. Hot water is provided to fin tube radiation, cast iron radiators, convectors, and unit heaters by dedicated zone hot water pumps.



Hot Water Boiler



Hot Water Zone Pumps

Cooling System

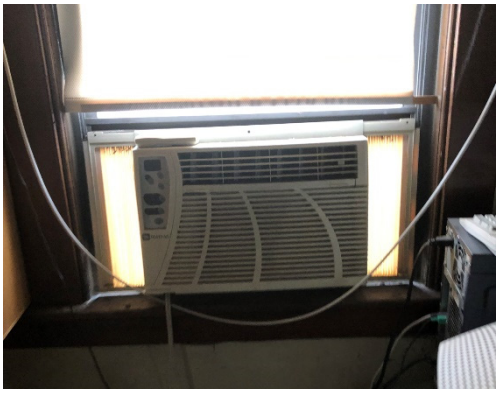
The cooling system for the Ogden Engine Company consist of one (1) Sanyo cooling only split DX system that includes one (1) interior ceiling cassette evaporator and one (1) exterior air-cooled condensing unit. This system is rated at 3.0 Tons. The second-floor office area is served by a dedicated window air conditioning unit. The rest of this facility is not cooled.



Lounge Area Condensing Unit



Lounge Area Evaporator Unit



Second-Floor Window Air Conditioning Unit

Air Handling Units

This facility does not contain any air handling units. Heating is provided by fin tube radiation, cast iron radiators, convectors, and unit heaters as described below.

Terminal Units

Terminal heating units within spaces consist of fin tube radiation, cast iron radiators, convectors, and unit heaters. This equipment serves as the means of heating in the occupied spaces.



Fin Tube Radiation



Cast Iron Radiator



Convectors



Unit Heater

Exhaust System

The garage bay is served by dedicated exhaust system to prevent the buildup of fumes from idling vehicles. It is believed that general building exhaust is provided by a roof mounted fan, however the roof was not accessible during the time of the survey.





Garage Bay Exhaust System

Domestic Hot Water System

Domestic hot water is generated by one (1) Buderus, model Logalux ST indirect water heater. This unit is provided with hot water generated from the boiler plant.



Indirect Domestic Hot Water Heater

Kitchen

This facility has a commercial style kitchen that includes natural gas fired cooking equipment, a kitchen exhaust hood and a walk-in cooler.



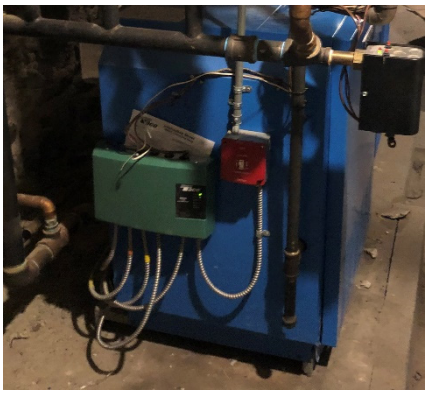
Kitchen Hood



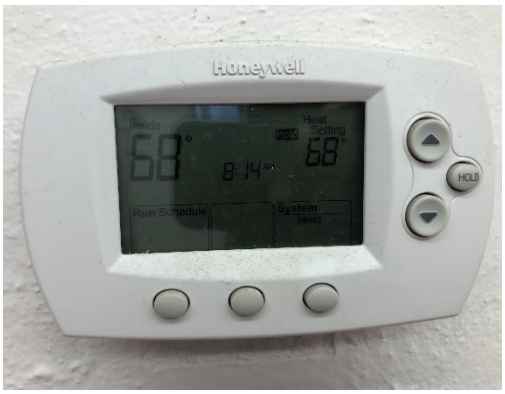
Walk-In Cooler

Control System

The Ogden Engine Company does not have a centralized Building Management System (BMS). The hot water zome pumps are controlled by a Taco zone controller and associated programmable thermostats located throughout the building. The split system cooling in the lounge is controlled by its dedicated remote control.



Taco Zone Controller



Zone Programmable Thermostat

Lighting and Lighting Control Systems

- Garage bays and kitchens have 4’ and 8’ LED wraps.
- The basement has 4’ 2 lamp wraps and keyless incandescent lamps in low hour storage areas.
- The second-floor museum area has existing incandescent chandeliers and track lighting.





Ogden Engine Company Example Interior Lighting

Water Systems

The following fixtures were identified as being traditional type with higher consumption rates than are available with current technology. Any existing low flow equipment will not be included in the project scope.

- Four (4) traditional gallon per flush toilets
- One (1) traditional gallon per flush urinal
- Six (6) traditional gallon per minute flow faucets
- Two (2) traditional gallon per minute flow showerheads

POOL HOUSE & OFFICES AT GOULD PARK

Pool House & Offices at Gould Park	
Address	Ashford Avenue and Beacon Hill Drive, Dobbs Ferry, NY 10522
Facility Size	3,500 sq. ft.
Facility Type	Pool / Office
Floors Above / Below Grade	1 / 0
Operating Hours	Seasonal
Occupancy	Seasonal
Survey Dates	April 15, 2021





Function

This facility serves as the pool house and office space for Gould Park. It is also home to pool treatment equipment and has a small standalone concession stand building.

Utility Services

Electricity is supplied by NYPA to the building by a single 400-amp, 120/208-volt electrical service. The electrical service classification for this facility is GOV_WES_69. Electricity is distributed throughout the building at 120/208 volts. Natural gas is supplied by Con Edison via a single meter located in an interior office.

Electricity is supplied by NYPA to the building by a single 200-amp, 240-volt electrical service. The electrical service classification for this facility is GOV_WES_69.

Natural gas is supplied by Con Edison to the building by a single natural gas service under the delivery rate GS2 Rate II Non-Residential.

Water is provided by Suez Water to the building by a single water service under the delivery rate WNRM



Electric Meter

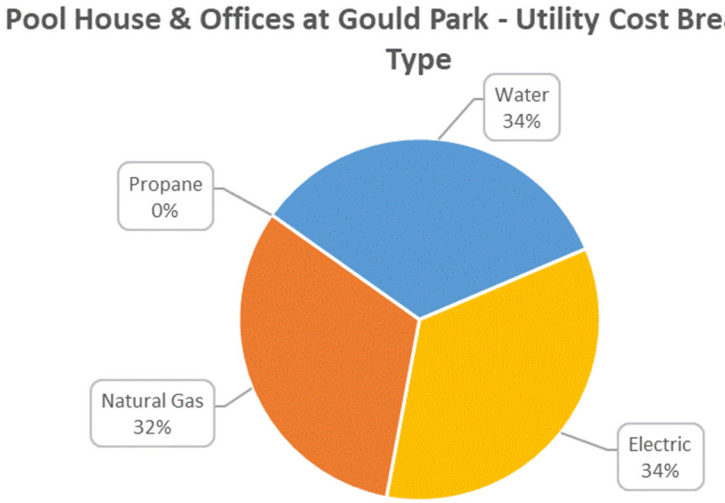


Natural Gas Meter

Utility	Meter No.	Meter Location
Electric	9953752	Exterior
Natural Gas	4085378	Exterior
Water	61097927	Storage

Village of Dobbs Ferry – Pool House & Offices at Gould Park							
Utility	Consumption & Costs			Thermal Equivalents & Costs		Energy & Cost % Breakup	
	Units	Consumption	$/Yr.	MMBTU/Yr.	$/MMBTU	% Energy	% Cost
Electricity	kWh	32,994	$1,741	113	$15.46	43%	16%
	kW	108	$2,059	-	$ -	0%	19%
Natural Gas	Therms	1,481	$3,530	148	$23.83	57%	32%
Propane	Gallons	-	$ -	-	$ -	0%	0%
Water	kGallons	154	$3,745	-	$ -	0%	34%

As a check of building performance, the Energy Utilization Index (EUI) was calculated for the building. The EUI is calculated in units of 1,000 BTU/Sq. Ft. and can be used to compare the performance of a building against other, similar buildings in its peer group. Based on the January 2019 through December 2019 utility analysis, the Pool House & Offices at Gould Park has an existing EUI of 130.35 kBTU/Sq. Ft.



Building & System Descriptions

Building Envelope

This facility is a single-story stucco building with pitched asphalt shingle roof. An addition was added recently to house the pool treatment equipment. This section is also stucco and has a pitched metal roof. Windows are limited and are double hung style.



Building Envelope Example Photos

Boiler Heating System

The heating system for the Pool House & Offices Building consists of one (1) natural gas fired Weil McLain, model Gold-GV hot water boiler with integral burner. Hot water is provided to unit heaters and convectors by two (2) dedicated zone hot water pumps.



Hot Water Boiler



Hot Water Zone Pumps

Cooling System

The cooling system for the Pool House & Offices Building consists of one (1) window air conditioning unit. The area served by this unit was not accessible. The rest of the facility is not cooled. The Concession Stand also contains one (1) window air conditioning unit.



Pool House & Offices Building Window Air Conditioning Unit



Concession Stand Window Air Conditioning Unit

Air Handling Units

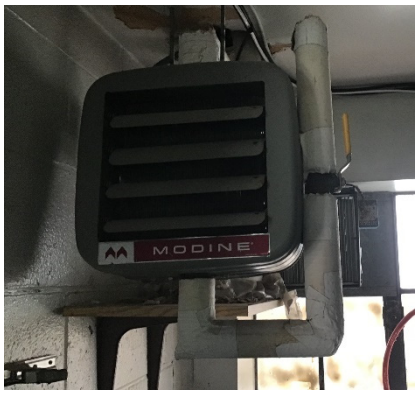
This facility does not contain any air handling units. Heating is provided by cabinet unit heaters and unit heaters as described below.

Terminal Units

Terminal heating units within spaces consist of cabinet unit heaters and unit heaters. This equipment serves as the means of heating in the occupied spaces. It was discussed with facility staff that one side of the building is for storage and is unheated, this area was inaccessible at the time of the survey.



Ceiling Mounted Cabinet Unit Heater



Unit Heater



Wall Mounted Cabinet Unit Heater

Exhaust System

The roof was inaccessible during the survey, but it is believed that general building exhaust is provided by roof/above ceiling mounted fans.

Domestic Hot Water System

Domestic hot water is generated by one (1) Rheem, model RDF120-67 natural gas fired water heater with a dedicated circulator pump. This unit has an input rating of 114,000 BTU/hr and 67-gallon storage capacity.



Domestic Hot Water Heater

Pool & Pool Treatment Equipment

Gould Park has an unheated exterior pool that is opened from Memorial Day through Labor Day. The pool equipment is housed in a new addition of the Pool House & Office Building and is all relatively new. Variable Frequency Drives (VFDs) are used to control pump speed as required.



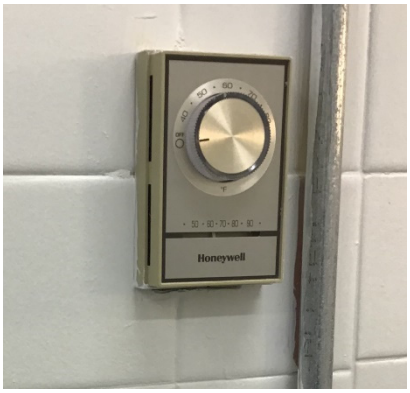
Exterior Pool



Pool Treatment Equipment

Control System

The Pool House & Offices at Gould Park does not have a centralized Building Management System (BMS). The hot water zones are controlled by line voltage, non-programmable thermostats. The unit heater in the boiler room is controlled by its own dedicated line voltage, non-programmable thermostat.



Zone Line Voltage Non-Programmable Thermostat



Unit Heater Line Voltage Non-Programmable Thermostat

Lighting and Lighting Control Systems

- This building had a mixture of existing LED fixtures, wraps, and vapor tight fixtures.
- The non-LED fixtures had 4' 32-watt T8 lamps existing.





Pool House & Offices at Gould Park Example Interior Lighting

Water Systems

The following fixtures were identified as being traditional type with higher consumption rates than are available with current technology. Any existing low flow equipment will not be included in the project scope.

- Five (5) traditional gallon per flush toilets
- Two (2) traditional gallon per flush urinals
- Four (4) traditional gallon per minute flow faucets
- Five (5) traditional gallon per minute flow showerheads

EMBASSY CLUB

Embassy Club	
Address	60 Palisades Street, Dobbs Ferry, NY 10522
Facility Size	11,500 sq. ft.
Facility Type	Auditorium / Meeting Space
Floors Above / Below Grade	2 / 1
Operating Hours	Unoccupied for renovations
Occupancy	Unoccupied for renovations
Survey Dates	April 14, 2021





Function

This facility is a newly renovated building that serves as a community center and senior center for the Village.

Utility Services

Electricity is supplied by NYPA to the building by two 120/208-volt electrical services. One service is for the Embassy area and one service is for the Club area. The electrical service classification for the Embassy area is GOV_WES_69. No data was provided for the Club area, so it is believed the Village does not pay for this utility. The roof mounted solar photovoltaic system is metered separately to track its production.

Natural gas is supplied by Con Edison to the building by three natural gas services. Two of these services are under the delivery rate GS2 Rate II Non-Residential and one is under the delivery rate GS2 Rate I Non-Residential. It is believed that these natural gas services supply the boiler plant, rooftop equipment, and kitchen.

Water is provided by Suez Water to the building by a single water service under the delivery rate WNRM



Club & Embassy Section Electric Meters



Natural Gas Meters

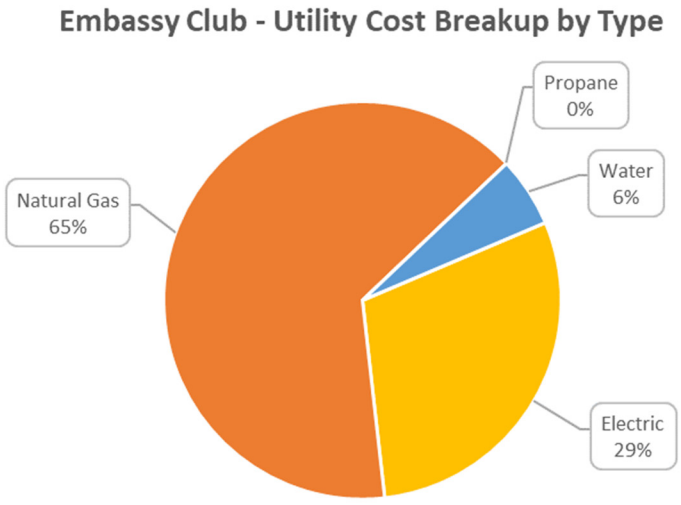


Water Meter

Utility	Meter No.	Meter Location
Electric (Club)	9418268	Electric Room
Electric (Embassy)	9360142	Electric Room
Electric (Solar PV)	56 424 150	Electric Room
Natural Gas	4080205	Exterior
Natural Gas	3971710	Exterior
Natural Gas	6901358	Exterior
Water	61128060	Basement

Village of Dobbs Ferry – Embassy Club							
Utility	Consumption & Costs			Thermal Equivalents & Costs		Energy & Cost % Breakup	
	Units	Consumption	$/Yr.	MMBTU/Yr.	$/MMBTU	% Energy	% Cost
Electricity	kWh	41,400	$1,650	141	$11.67	20%	10%
	kW	116	$3,046	-	$ -	0%	19%
Natural Gas	Therms	5,713	$10,264	571	$17.97	80%	65%
Propane	Gallons	-	$ -	-	$ -	0%	0%
Water	kGallons	57	$904	-	$ -	0%	6%

As a check of building performance, the Energy Utilization Index (EUI) was calculated for the building. The EUI is calculated in units of 1,000 BTU/Sq. Ft. and can be used to compare the performance of a building against other, similar buildings in its peer group. Based on the January 2019 through December 2019 utility analysis, the Embassy Club has an existing EUI of 178.14 kBTU/Sq. Ft.



Building & System Descriptions

Building Envelope

This facility is a recently renovated two-story brick façade and stucco building. The roof predominately flat white EPDM sections with a curved roof section in one area. Windows are double pane, swing out style.




Building Envelope Example Photos

Boiler Heating System

The heating system for the Embassy Club consists of two (2) natural gas fired Lochinvar, model WHB285N condensing hot water boilers with integral burners and an input rating of 285,000 BTU/hr each. Hot water is provided to the air handling units, finned tube radiation, cabinet unit heaters, unit heaters. It is also assumed that the variable air volume boxes have reheat coils that are served by the boiler plant, but these units were inaccessible during the audit. A separate dedicated hot water pump serves the radiant floor system.



Condensing Hot Water Boilers



Building and Radiant Floor Hot Water Pumps

Cooling System

The cooling systems for the Embassy Club consists of one (1) Carrier, model 38MGRQ36D--3 split heat pump system rated at 3.0 Tons and one (1) American Standard, model 2A7A3060A1000AA air-cooled condensing unit rated at 5.0 Tons. It is believed that the air-cooled condensing unit serves the auditorium air handling unit (AC-1) described below. The meeting room area is served by a rooftop (RTU-1) unit with DX cooling capability as described below. The mechanical room where the second air handling unit (AC-2) is located was not accessible during the audit, so it is unknown if this unit has cooling capability.



Split Heat Pump System Condensing Unit



AC-1 Air-Cooled Condensing Unit

Air Handling Units

The air handling equipment serving the Embassy Club consists of two (2) air handling units, one (1) rooftop unit, and one (1) make-up air unit. These systems provide the primary source of heating, cooling and ventilation air to the majority of the building.

The auditorium is served by a variable speed Carrier, model 39MN10W025YSQ55XBE air handling unit (AC-1) located in a mechanical room. It contains a hot water coil and DX cooling coil. A Variable Frequency Drive (VFD) associated with this unit modulates air flow based on space demand.



Auditorium Air Handling Unit (AC-1)



AC-1 Fan Variable Frequency Drive

As mentioned above, the mechanical room that houses the second air handling unit (AC-2) was not accessible during the survey. It is believed this unit is a similar variable speed Carrier unit that served the variable air volume boxes located throughout the occupied spaces.

The meeting room is served by a natural gas fired rooftop unit (RTU-1) with DX cooling.



Meeting Room Rooftop Unit (RTU-1)

The kitchen is served by a natural gas fired makeup air unit (MAU-1). This system provides tempered makeup air to replace air removed by kitchen exhaust when the kitchen is active.



Kitchen Makeup Air Unit (MAU-1)

Terminal Units

Terminal heating units within spaces consist of Variable Air Volume (VAV) boxes, cabinet unit heaters, finned tube radiation, hot water unit heaters, electric unit heaters, and a radiant floor system.



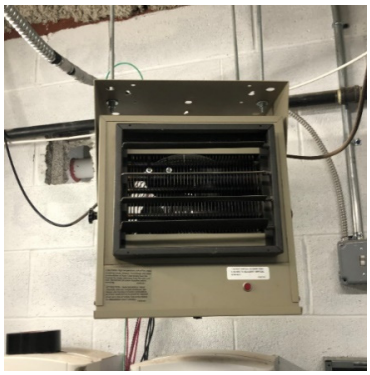
Cabinet Unit Heater



Finned Tube Radiation



Hot Water Unit Heater



Electric Unit Heater



Radiant Floor System 3-Way Valve

Exhaust System

General exhaust for the restrooms and kitchen is provided by roof mounted exhaust fans.



General Exhaust Fan



Kitchen Hood Exhaust Fan

Domestic Hot Water System

It was noted by facility staff that the domestic hot water heater is located in the second mechanical room that was not accessible during the survey.

Kitchen

This facility has a commercial style kitchen that includes natural gas fired cooking equipment, kitchen exhaust hood, and standalone refrigeration units.



Kitchen Hood and Cooking Equipment

Solar Photovoltaic System

A roof mounted solar photovoltaic system is installed at this facility and is used to offset the required purchases from the local utility. A dedicated utility meter is installed for this system to capture its production.



Roof Mounted Solar System



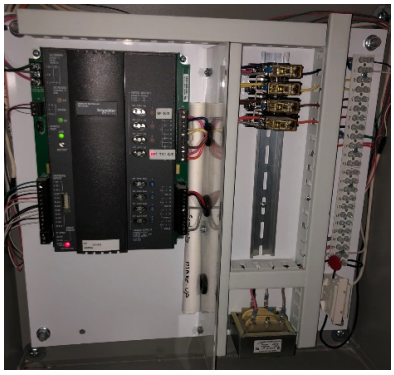
Solar Inverters



Solar System Meter

Control System

The Embassy Club has a fully functional Schneider Electric Andover Continuum Building Management System (BMS). There is room level Direct Digital Controls (DDC) throughout the building. Heating, cooling and ventilation are primarily accomplished by a combination of Air Handling Units (AHUs), Rooftop Units (RTUs), Variable Air Volume (VAV) boxes, cabinet unit heaters, finned tube radiation, and unit heaters. Exhaust fans are also typically incorporated into this system.



Makeup Air Unit (MAU-1) Control Panel

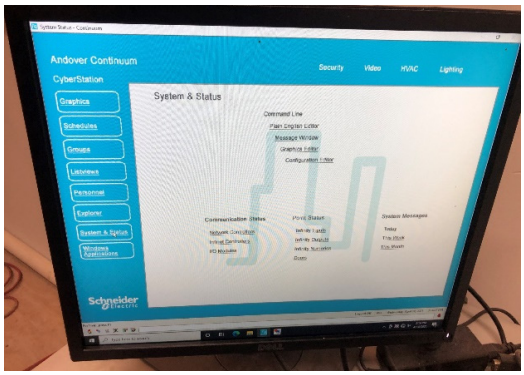


DDC Thermostat



DDC Valve Actuator

The password to the front end graphical interface was not available during the survey, so specifics of included equipment and control strategied being utilized are unknown at this time. It is assumed a hot water boiler reset schedule and potentially demand control ventilation capabilities are included.

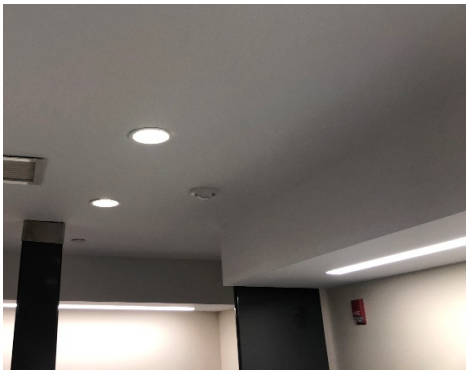


Front End Graphic System

Lighting and Lighting Control Systems

- Corridors and offices have 6” recessed cans with 15-watt compact fluorescent lamps.
- The restrooms and kitchen have 2’x4’ 32-watt troffers and vanity fixtures.





Embassy Club Example Interior Lighting

Water Systems

The following fixtures were identified as being traditional type with higher consumption rates than are available with current technology. Any existing low flow equipment will not be included in the project scope.

- Nine (9) traditional gallon per minute flow faucets
- One (1) traditional gallon per minute pre-rinse sprayer

STREET LIGHTING

Street Lighting	
Address	Village Wide
Facility Size	Not applicable
Facility Type	Exterior Street Lighting
Floors Above / Below Grade	Not applicable
Operating Hours	Burn hours vary monthly as defined by the Utility
Occupancy	Not applicable
Survey Dates	April 15, 2021



Function

These fixtures provide street lighting throughout the Village.

Utility Services

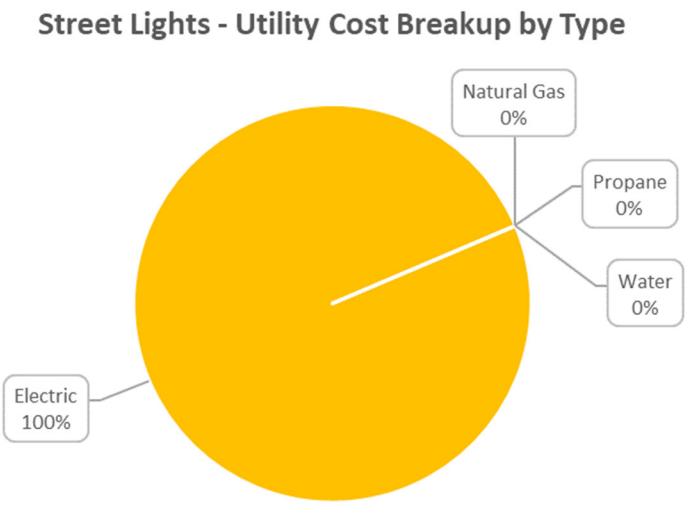
The street lighting throughout the Village is unmetered. The monthly burn hours are dictated by the utility and vary throughout the year.

Street Lighting Descriptions

There are two (2) unmetered streetlight NYPA electric accounts that serve the Village. The electrical service classification for these accounts is GOV_WES_66.

Utility	Account No.	Meter Location
Electric	65 0554 0000 0000 0	Unmetered
	65 0565 0000 0000 0	Unmetered

Village of Dobbs Ferry – Street Lighting							
Utility	Consumption & Costs			Thermal Equivalents & Costs		Energy & Cost % Breakup	
	Units	Consumption	$/Yr.	MMBTU/Yr.	$/MMBTU	% Energy	% Cost
Electricity	kWh	299,414	$73,835	1,022	$72.25	100%	100%
	kW	-	$ -	-	$ -	0%	0%
Natural Gas	Therms	-	$ -	-	$ -	0%	0%
Propane	Gallons	-	$ -	-	$ -	0%	0%
Water	kGallons	-	$ -	-	$ -	0%	0%



The existing street lighting is a mixture of LED converted cobra heads and mostly High-Pressure Sodium (HPS) with some Metal Halide (MH). HPS lighting casts a characteristic yellow colored light. This is an old, inefficient technology that has a poor Color Rending Index (CRI), which makes it difficult to differentiate between colors at night.



Example HPS Street Lights



Example of Poor Color Rendering of HPS Light

The following is a list of the existing streetlights:

Lighting Type	Fixture Wattage	Fixture Count
High Pressure Sodium	150 Watts	2
Metal Halide	175 Watts	2
	275 Watts	8
	288 Watts	7
Incandescent	189 Watts	4
Mercury Vapor	200 Watts	5
	290 Watts	1
Sodium Vapor	70 Watts	5
	100 Watts	70
	105 Watts	79
	130 Watts	2
	133 Watts	1
	141 Watts	27
	143 Watts	1
	146 Watts	60
	150 Watts	38
	155 Watts	2
	199 Watts	44
	250 Watts	37
	313 Watts	11
	400 Watts	1
	486 Watts	2
LED	10 Watts	90
	14 Watts	5
	15 Watts	28
	50 Watts	278
	55 Watts	2
	74 Watts	1
	105 Watts	5
	146 Watts	1
TOTAL		**819**

SECTION 2: UTILITY BASELINE

VILLAGE BUILDINGS & STREET LIGHTING UTILITY BASELINE

The utility baseline was developed using data from January 2019 through December 2019. The Village buildings and Street Lighting included in the utility baseline are listed below.

Village Buildings & Street Lights
Public Library
Village Hall
Memorial Park Building
DPW Office
Ambulance Corps. Building
Ogden Engine Company
Pool House & Offices at Gould Park
Embassy Club
Street Lighting

Charges for electricity are based on provided utility bills and supplier invoices. Natural gas and propane consumption represent the fuel used at the above facilities for space heating and domestic hot water. Charges for fuel are based on provided utility bills and supplier invoices. Charges for water are based on provided utility bills.

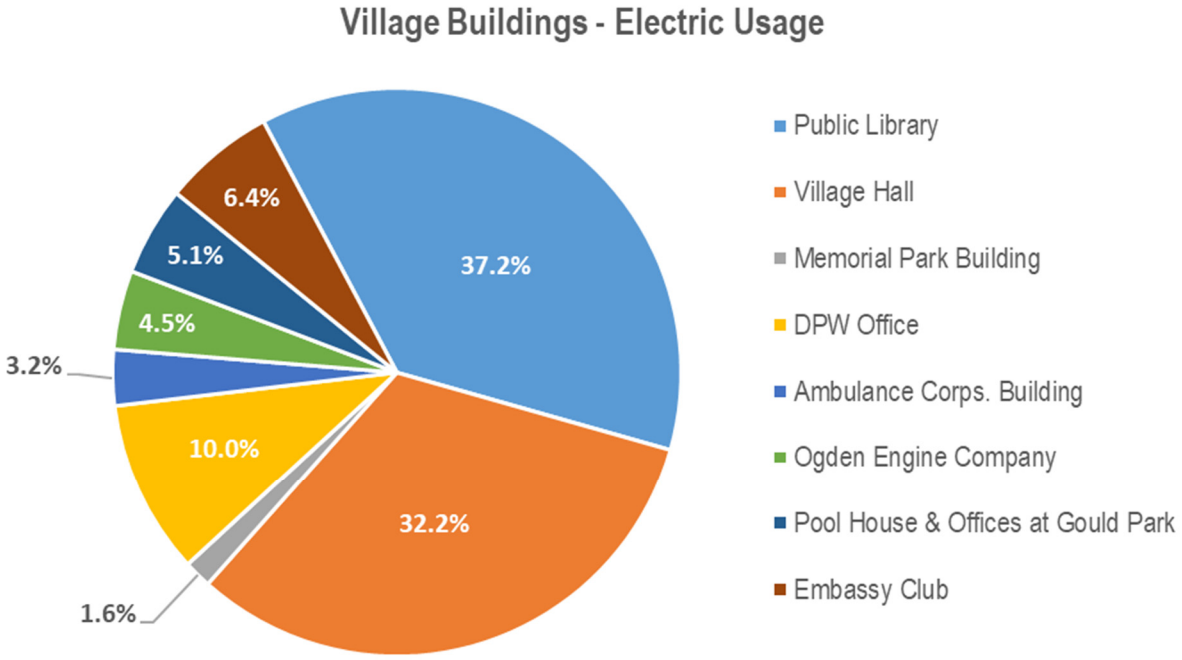
Village Buildings:

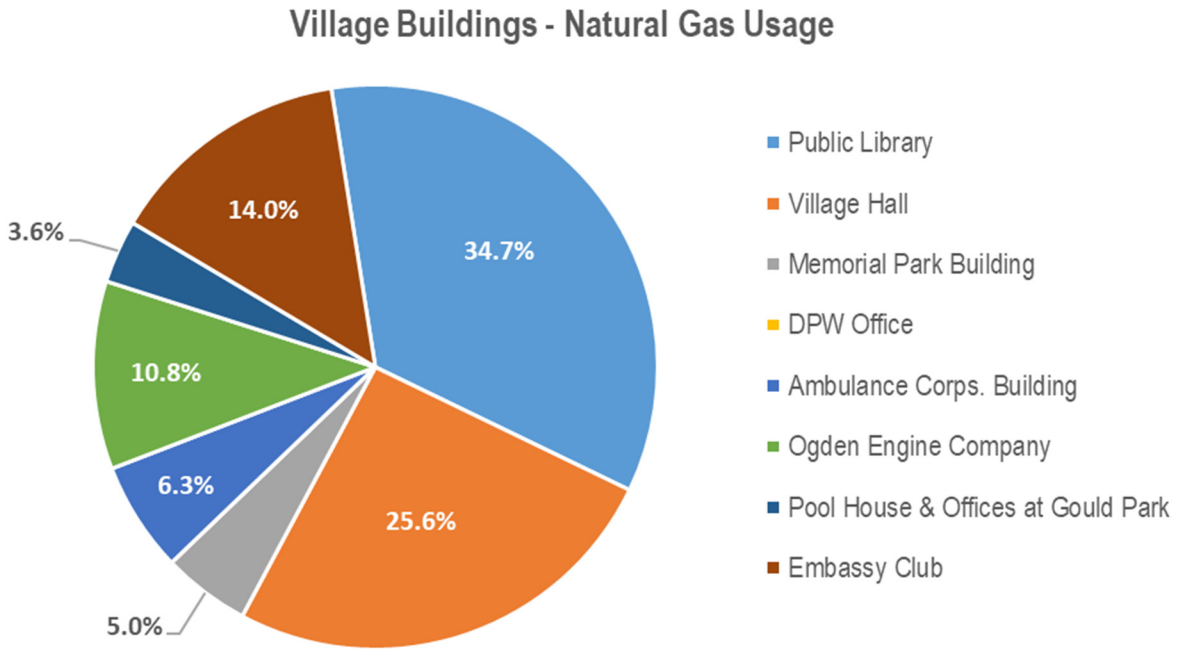
		Consumption and Costs			Thermal Equivalents & Costs		% of Total	
Utility Type	Units	Consumption (Units)	Cost ($/Yr)	Unit Cost ($/Unit)	MMBTU/Yr	$/MMBTU	% Energy	% Cost
Electric	kWh	651,405	$92,227	$0.142	2,223	$41.48	31.5%	48.0%
Natural Gas	Therms	40,918	$71,500	$1.747	4,092	$17.47	58.0%	37.2%
Propane	Gallons	8,110	$14,120	$1.741	742	$19.03	10.5%	7.3%
Water	kGallons	747	$14,277	$19.105	-	$ -	0.0%	7.4%
Total			$192,123		7,057		100.0%	100.0%

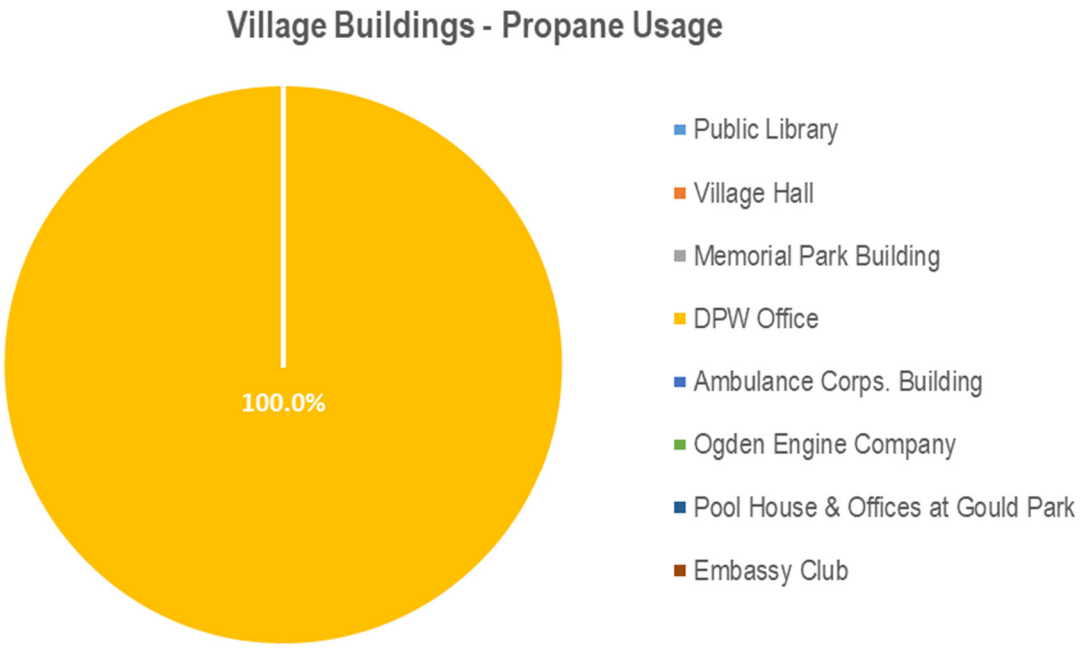
Street Lights:

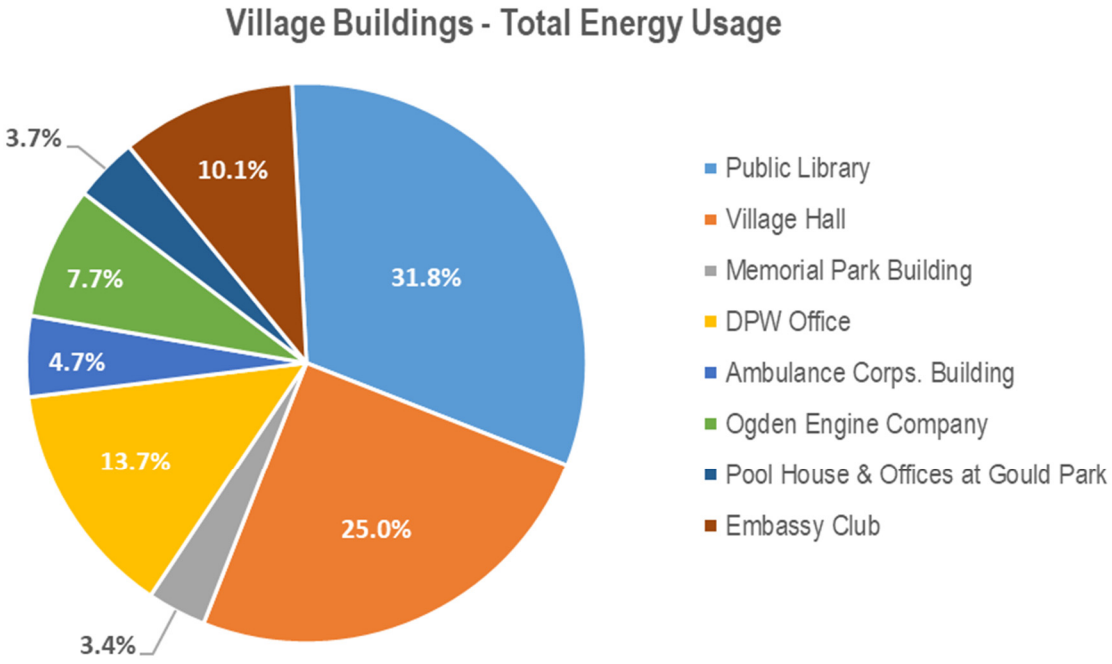
		Consumption and Costs			Thermal Equivalents & Costs		% of Total	
Utility Type	Units	Consumption (Units)	Cost ($/Yr)	Unit Cost ($/Unit)	MMBTU/Yr	$/MMBTU	% Energy	% Cost
Electric	kWh	299,414	$73,835	$0.247	1,022	$72.25	100.0%	100.0%
Natural Gas	Therms	-	$ -	$ -	-	$ -	0.0%	0.0%
Propane	Gallons	-	$ -	$ -	-	$ -	0.0%	0.0%
Water	kGallons	-	$ -	$ -	-	$ -	0.0%	0.0%
Total			$73,835		1,022		100.0%	100.0%

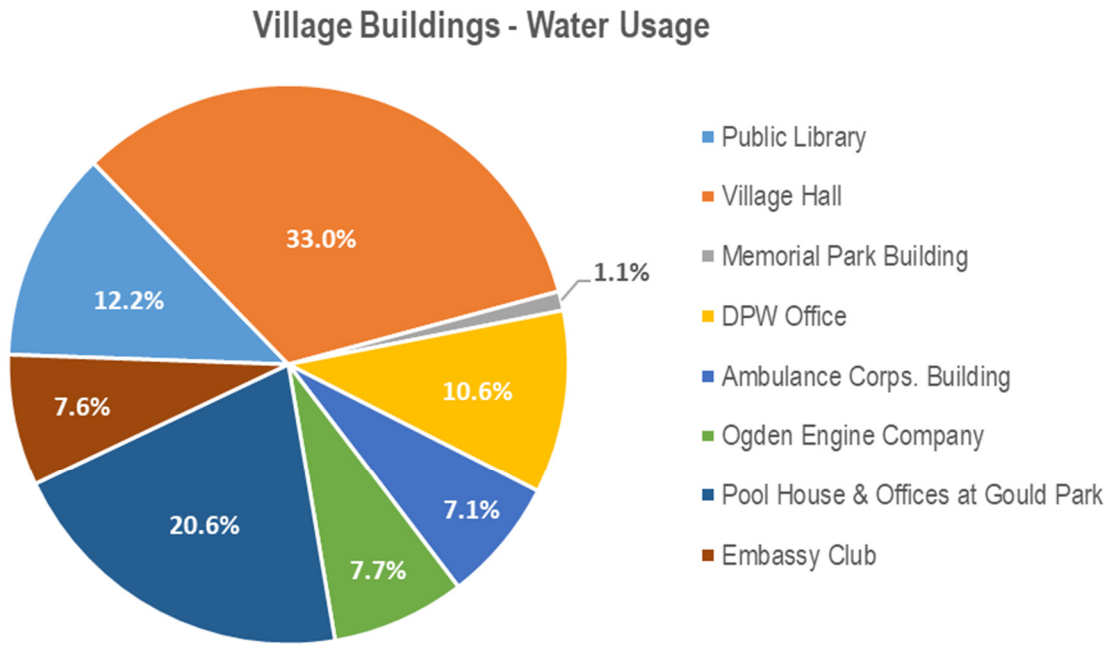
The following figures summarize the energy use as a total and by utility type for each facility.

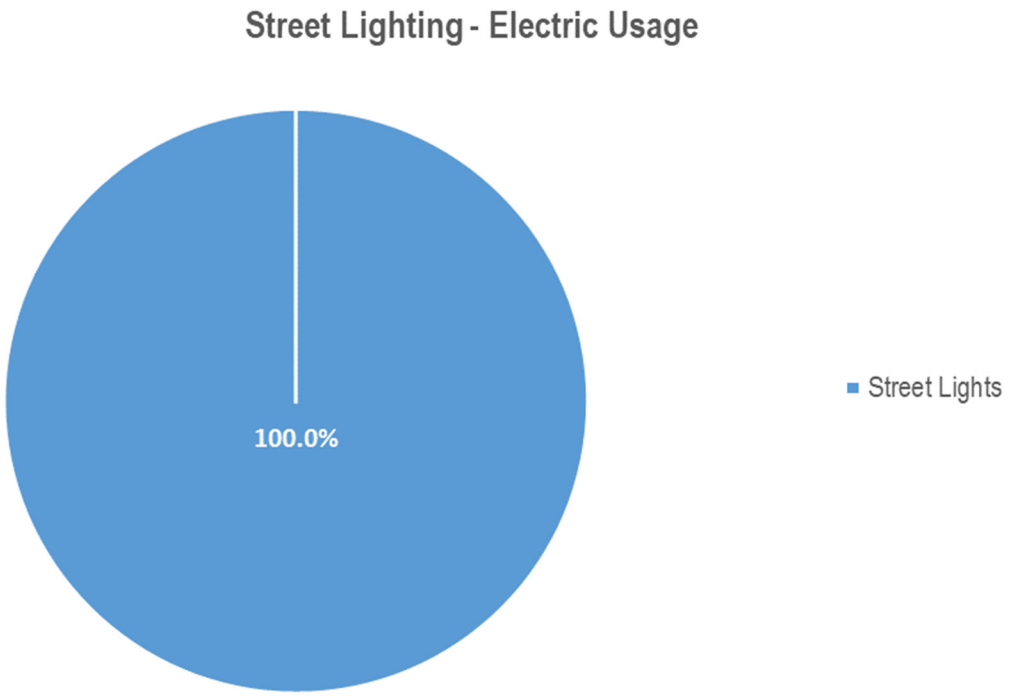

Village Buildings - Electric Usage
37.2%
32.2%
1.6%
10.0%
3.2%
4.5%
5.1%
6.4%
Public Library
Village Hall
Memorial Park Building
DPW Office
Ambulance Corps. Building
Ogden Engine Company
Pool House & Offices at Gould Park
Embassy Club


Village Buildings - Natural Gas Usage
34.7%
25.6%
5.0%
6.3%
10.8%
3.6%
14.0%
Public Library
Village Hall
Memorial Park Building
DPW Office
Ambulance Corps. Building
Ogden Engine Company
Pool House & Offices at Gould Park
Embassy Club


Village Buildings - Propane Usage
100.0%
Public Library
Village Hall
Memorial Park Building
DPW Office
Ambulance Corps. Building
Ogden Engine Company
Pool House & Offices at Gould Park
Embassy Club


Village Buildings - Total Energy Usage
3.7%
10.1%
31.8%
7.7%
4.7%
13.7%
25.0%
3.4%
Public Library
Village Hall
Memorial Park Building
DPW Office
Ambulance Corps. Building
Ogden Engine Company
Pool House & Offices at Gould Park
Embassy Club


Village Buildings - Water Usage
33.0%
1.1%
12.2%
10.6%
7.6%
7.1%
20.6%
7.7%
Public Library
Village Hall
Memorial Park Building
DPW Office
Ambulance Corps. Building
Ogden Engine Company
Pool House & Offices at Gould Park
Embassy Club


Street Lighting - Electric Usage
100.0%
Street Lights

SECTION 3: DATA LOGGING

The feasibility study audits were performed in the summer months when heating systems were not active, therefore data logging has not been completed at this point in the process. During the Investment Grade Audit (IGA), data loggers will be deployed across the Village buildings in diverse areas to collect data on temperature and motor operation during the upcoming heating system. The loggers will be deployed for a minimum of two weeks to collect significant information on building operation. Complete details will be provided in the IGA report.

SECTION 4: ENERGY CONSERVATION MEASURES

The following general scope of work will be reviewed and items that fit the project overall ROI criteria will be included:

ECM 1: LED Lighting & Controls Upgrades

Buildings Included:
▪ Public Library
▪ Village Hall
▪ Memorial Park Building
▪ DPW Office
▪ Ambulance Corps. Building
▪ Ogden Engine Company
▪ Pool House & Offices at Gould Park
▪ Embassy Club

The Honeywell team surveyed all of the Village buildings to identify opportunities to improve the efficiency of the interior and exterior lighting systems, while maintaining standard light levels per the National Electric Code. In addition, areas were identified in which occupancy-based lighting controls can be installed to reduce run time.

Overview

A lighting audit was performed for the buildings within the Village of Dobbs Ferry. The purpose of the audit was to assess the lighting environment by capturing existing conditions, determining baseline energy consumption, and establishing areas that would greatly benefit from an LED upgrade.

The main goals of this energy study are as follows:

- Determine baseline energy consumption through identifying major lamp and ballasts combinations
- Standardization of the lighting technology used throughout each of the facilities where applicable
- Generate energy savings by installing energy saving LED lamps and fixtures
- Increase the overall quality of light, creating a visually pleasing, and safe environment

Existing Conditions

The following is a description of the existing lighting systems observed at each facility during the walkthroughs:

Public Library

- The ground floor storage and mechanical rooms have existing 4x2 lamp strips
- The first and second floor public areas have multiple fixture types
- The surface and pendant drum fixtures have been re-lamped with 8.5-watt LED 4 pin PL lamps
- The 2x2 parabolic troffer fixtures have been replaced with LED fixtures



Public Library LED fixture

Village Hall

- Majority of fixtures are 2x2 and 2x4 troffers
- The 2x4 fixtures have previously been retrofitted with LED door kits
- The 2x2 troffers are equipped with 17-watt T8 lamps
- The 4-foot wrap and strip fixtures are equipped with 32-watt T8 lamps
- Storage closets have 55-watt circline drum fixtures

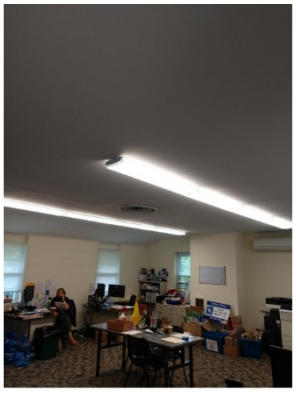




Example Interior Lighting

Memorial Park Building

- The first floor and stairway have incandescent I2X60 drum fixtures
- The storage areas have keyless incandescent fixtures
- On the second floor, all open areas have 4' 2 Lamp wrap fixtures, with 32-watt T8 tubes
- The exterior on the Memorial Building has wall packs



Example Interior Lighting



Stairway Lighting



Exterior Lighting Wall Pack

DPW Office

- Interior fixtures are generally in good condition
- All office areas, restrooms, mechanical rooms, and storage areas have a mixture of troffers, wraps, and strip fixtures with 32-watt T8 lamps
- The garage areas have compact fluorescent high bay fixtures with (8) 42-watt quad pin lamps

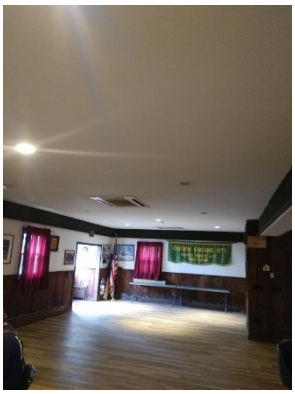
Ambulance Corps. Building

- Interior fixtures are generally in good condition
- Most fixtures have been converted to LED fixtures
- Offices areas have 2x4 troffers with 4 32-watt T8 tubes which are in poor condition

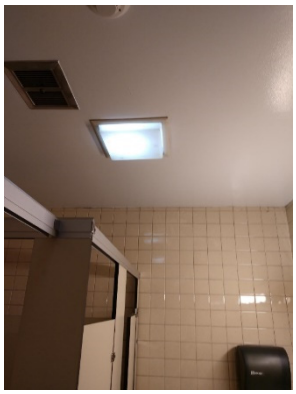
Ogden Engine Company

- Garage bays and kitchens have 4' and 8' LED wraps
- The basement has 4' 2 lamp wraps and keyless incandescent lamps in low hour storage areas
- The second-floor museum area has existing incandescent chandeliers and track lighting





Example Interior Lighting

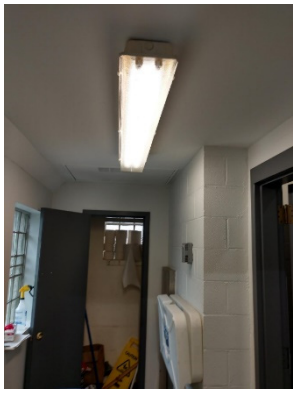



Example Interior Lighting

Pool House & Offices at Gould Park

- Interior fixtures are generally in good condition
- Mixture of existing LED fixtures, wraps, and vapor tight fixtures
- Fixtures had 4' 32-watt T8 lamps

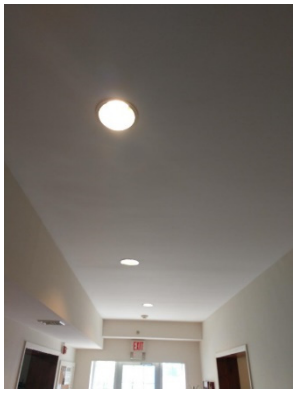
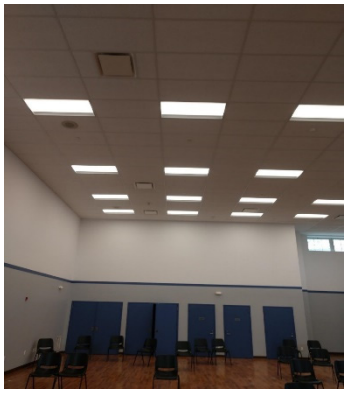




Example Interior Lighting

Embassy Club

- Interior fixtures are generally in good condition
- Corridors and offices have 6” recessed cans with 15W compact fluorescent lamps
- The restrooms and kitchen have 2x4 32-watt troffers and vanity fixtures

Example Interior Lighting

Proposed Solution

Energy Efficient Design Strategies

The following designs are included in the proposed upgrades throughout all facilities. Following these overall design concepts are descriptions explaining the methodology for each specific lighting related upgrade.

- Retrofit or replace linear fluorescent technology with new LED technology where applicable
- Retrofit or replace incandescent/compact fluorescent lighting with new LED technology where applicable
- No existing LED fixtures will be altered or replaced
- Install occupancy sensors where applicable

Lighting Upgrades

A survey was performed in every space (wherever possible) across the Village facilities to determine the existing technology types and quantities of ballasts and lamps. In order to maintain uniformity and standardize products throughout the Village, the proposed lighting equipment will come from the same manufacturer wherever possible. Fixture mounting types and conditions were also noted for the evaluation of new fixture replacements. Light level measurements were taken in sample locations and spaces to estimate if areas are under-lit (below recommended light levels) or could be redesigned to save extra kW. All redesigns will be designed to meet current IESNA and/or NY electrical standards. Hours of operation for the lighting fixtures throughout the facility were approximated by designating a usage group for each area type. Lighting data loggers will be installed throughout the Village during the Investment Grade Audit (IGA).

Lighting Controls Upgrades

During the audit, the quantity and technology of existing lighting controls were determined. Particular attention was paid to space/room configurations to evaluate the suitability of new automated lighting controls systems to turn lights on and off.

For details on the lighting and lighting controls line by line scopes of work please see Attachment 1.

Lighting Summary: Fixture Quantity by Retrofit Type

Building	Linear Fluorescent to New LED Fixture	Linear Fluorescent to Linear LED Retrofit	Interior HID/Inc./CFL to New LED Fixture	Exterior HID to New LED Fixture
Public Library	-	24	-	-
Village Hall	23	83	19	-
Memorial Park Building	1	-	5	10
DPW Office	5	41	44	16
Ambulance Corps. Building	2	-	-	-
Ogden Engine Company	-	9	-	-
Pool House & Offices at Gould Park	-	16	1	15
Embassy Club	-	8	-	-
TOTAL	**31**	**181**	**69**	**41**

Building	Exterior HID to LED Retrofit	Interior HID/Inc./CFL to LED Retrofit	Inc. to LED Exit Sign	No Retrofit	Total
Public Library	-	31	-	103	158
Village Hall	2	6	2	278	413
Memorial Park Building	-	5	-	10	31
DPW Office	-	2	-	4	112
Ambulance Corps. Building	-	4	-	27	33
Ogden Engine Company	1	38	2	78	128
Pool House & Offices at Gould Park	-	17	1	18	68
Embassy Club	-	18	-	4	30
TOTAL	3	121	5	522	973

Lighting Summary: Controls Quantity by Sensor Style

Building	Fixture Mounted Occupancy Sensor	Ceiling Mounted Occupancy Sensor	Wall Sensor	Total
Public Library	-	-	-	-
Village Hall	-	13	46	59
Memorial Park Building	-	-	3	3
DPW Office	34	2	15	51
Ambulance Corps. Building	-	-	2	2
Ogden Engine Company	-	-	6	6
Pool House & Offices at Gould Park	1	-	2	3
Embassy Club	-	-	9	9
TOTAL	35	15	83	133

The Benefits of Energy-Efficient LED Lighting

Efficiency and Lamps Life

- LED lighting technology have vastly superior operational life expectations than previous lighting types.
  - On average LED bulbs 10 times as long as compact fluorescent bulbs, 130 times longer than typical incandescent bulbs, and 2.5 times longer than linear fluorescent lamps.
- LED lighting benefit from low power consumption while delivering equivalent lighting output to similar lighting sources.

Directional Lighting

- LED offers directional lighting meaning that illumination is exactly where needed, and no light is lost in the fixture and other unnecessary places. Fluorescent bulbs waste 30% to 40% of the emitted light. This wasted light can lead to over lighting in certain areas especially offices.

Maintenance Costs

- The long lifespan of LED lighting reduces the need to replace failed lamps, which can lead to savings with regard to materials and labor costs.

Switching Capability

- LED lights brighten up immediately when powered on. Traditional lighting, such as HIDs, may take several seconds to reach full brightness.
- LED lighting can be switched on and off frequently without affecting its lifetime and light emission.

Safety, Durability, and Environment

- LEDs are built with sturdy components that can withstand rough conditions. This makes LED lighting an excellent option for outdoor lighting, in which fixtures are exposed to negative weather conditions, shock, vibrations, and external impacts.
- Fluorescent lights emit a small amount of ultraviolet light which can negatively impact individuals with light sensitivity.
- LED lights generate virtually no heat; therefore, they can be left on for hours at a time.
- LED T8 tubes are made using plastic and aluminum meaning that they are shatterproof.
- Unlike fluorescents, LEDs contain no mercury making them safe for the environment.
- LEDs also contain 100% recyclable material which will help reduce your carbon footprint.

Potential Operational & Maintenance Savings

Lighting O&M Savings are based on the following logic:

Overview

The annual maintenance savings is calculated based on the difference between the average annual existing maintenance costs and the average annual proposed maintenance costs. These are based on an average over the project term. A factor has not been included to account for inflation over the project term. In addition, maintenance costs are separated by materials and labor components. Unless requested by the customer, typical practice is to include only material costs in both existing and proposed maintenance costs.

Existing Maintenance Costs

All existing lamp and ballast components that are to be replaced are quantified. The service life for each component is divided by the average annual hours to obtain its average "calendar life." For example, a ballast with a 50,000-hour service life with 5,000 hours of use per year will last 10 years. We then divide the quantity of the ballasts by the number of years to determine the number of ballasts per year that will need to be replaced on average. For example, 2,000 ballasts to be replaced over a period of ten years will average 200 ballasts per year. This number is multiplied by the facilities' material costs to replace this component in order to obtain the average annual existing maintenance cost for this component.

This is a conservative estimate because this analysis treats the existing components as if they were all new, when in fact, many of the components will be near end of life. Unless a retrofit project or a group re-lamp has been completed recently, the existing components would generally be expected to be at or beyond mid-life.

Proposed Maintenance Costs

The proposed maintenance costs are calculated similarly to the existing costs with the following exceptions. Costs are divided into years 1 through 5 and years 6 and following. This is to account for the product warranty periods. LED drivers and panels generally carry a five, seven or 10-year warranty. LED screw in lamps typically carry a three or five-year warranty. The materials cost for these components in the respective time periods will be zero. Note that the new fixtures will have no ballasts to be serviced, so all the costs associated with ballast replacement is net savings to the project.

Annual Maintenance Savings

The average annual maintenance savings is the difference between the total existing maintenance costs and the total proposed maintenance costs for the term of the contract.

Changes in Infrastructure

New high efficiency lighting and controls will be installed as part of this ECM.

Customer Support and Coordination

Coordination efforts will be needed to reduce or limit impact to building occupants.

Environmental Issues

Resource Use	Energy savings will result from the operation of higher efficiency lighting and installation of select lighting control systems.
Waste Production	All waste will be disposed on in accordance with local laws and regulations; disposal documentation will be provided.
Environmental Regulations	No environmental impact is expected.

ECM 2: Street Lighting Upgrades

Buildings Included:
▪ Village Wide

Existing Conditions

The existing streetlights throughout Village are a mixture of Light Emitting Diode (LED), High Pressure Sodium, Metal Halide, Incandescent, Mercury Vapor and Sodium Vapor with wattages ranging from 70 to 486 W per lamp. The remaining non-LED lighting is old, inefficient technology that wastes electricity. In addition, the color rendering of this outdated technology is also poor, impairing night vision of drivers and pedestrians by making it difficult to distinguish between colors. The Village would benefit greatly in energy savings, aesthetics, and increased safety by converting the rest of their street lighting to LED.





Example HPS Street Lights





Example of Poor Color Rendering of HPS Light

Proposed Solution

Honeywell is proposing a full turnkey lighting upgrade for the remaining non-LED street lighting.

Streetlighting Summary, Fixture Quantity

Lighting Type	Rated Wattage	Fixture Count
High Pressure Sodium	150 Watts	2
Metal Halide	175 Watts	2
	275 Watts	8
	288 Watts	7
Incandescent	189 Watts	4
Mercury Vapor	200 Watts	5
	290 Watts	1
Sodium Vapor	70 Watts	5
	100 Watts	70
	105 Watts	79
	130 Watts	2
	133 Watts	1
	141 Watts	27
	143 Watts	1
	146 Watts	60
	150 Watts	38
	155 Watts	2
	199 Watts	44
	250 Watts	37
	313 Watts	11
	400 Watts	1
	486 Watts	2
TOTAL		409

The scope and savings identified during the Feasibility Study is based on the current Con Edison street lighting registry data. A complete survey will be completed during the IGA to ensure accuracy of counts and savings projection.

For details on the street lighting line by line scope of work please see Attachment 2.

Potential Operational & Maintenance Savings

Streetlighting O&M Savings are based on the same logic as described for the building lighting improvements. The average annual maintenance savings is the difference between the total existing maintenance costs and the total proposed maintenance costs for the term of the contract.

Changes in Infrastructure

New high efficiency LED lighting will be installed as part of this measure.

Customer Support and Coordination

Coordination efforts will be needed to reduce or limit impact of roadway traffic.

Environmental Issues

Resource Use	Energy savings will result from the operation of higher efficiency lighting.
Waste Production	All waste will be disposed on in accordance with local laws and regulations; disposal documentation will be provided.
Environmental Regulations	No environmental impact is expected.

ECM 3: Boiler Replacements

Buildings Included:
▪ Village Hall
▪ Ambulance Corps. Building
▪ Pool House & Offices at Gould Park

Existing Conditions

The information used in developing this Energy Conservation Measure (ECM) was obtained through conditions observed during the visits to the buildings, manufacturer's technical literature for existing and new equipment, discussions with personnel and data obtained through various technical publications.

The effort at this time was visual inspection only and not any in-depth inspection or combustion analysis of the boilers. Reasonable assumptions have been made for existing boiler/burner efficiencies for the savings calculations as these will be verified during detailed Investment Grade Audit (IGA) through in-depth analysis and testing as required. The boilers listed below are the existing boilers identified for possible replacement.

The hot water boilers at Village Hall, the Ambulance Corps. Building, and the Pool House & Offices at Gould Park are approaching the end of their useful life and thus operate at reduced efficiency levels. An opportunity exists to install high efficiency, natural gas fired condensing technology.



Village Hall Modular Boiler



Ambulance Corps. Building Boiler



Pool House & Offices at Gould Park Boiler

Building	EXISTING HOT WATER BOILERS						
	Boiler Make	Boiler Model	Qty	Burner Make	Burner Model	Fuel	Natural Gas Input (Each)
Village Hall	Hydrotherm (4 Modules)	MR-1200B	1	Integral		Natural Gas	300 MBH per Module
Ambulance Corps. Building	Weil McLain	N/A	1	Integral		Natural Gas	Estimated at 100 MBH
Pool House & Offices at Gould Park	Weil McLain	Gold-GV	1	Integral		Natural Gas	Estimated at 105 MBH

Proposed Solution

Honeywell proposes to replace the existing boilers listed in the table above with new, high efficiency versions of similar capacity. This will greatly improve combustion efficiency to drive energy savings and reduce the excess maintenance requirements experienced by older equipment. The specific boiler manufacturer(s) and products will be discussed with the Village during the Investment Grade Audit. In general Honeywell recommends replacing existing hot water boilers with high efficiency condensing hot water boilers.

Scope of Work

- Disconnect piping, fuel lines, power, and control wiring from existing hot water boilers
- Demolish and legally dispose of the existing hot water boilers
- Furnish and install high efficiency condensing hot water boilers and burners
- Rigging and setting in place the new equipment
- Reuse existing concrete housekeeping pad
- Furnish and install new venting and intake per manufacturer's requirements for condensing hot water boilers
- Furnish and install power wiring and re-connection of existing control wiring
- Reconnect the existing building hot water header
- Furnish and install pipe insulation on new piping
- Connect natural gas piping to the new boiler burners
- Provide startup, testing and commissioning

Below is an example of a high efficiency condensing hot water boiler option that the Village could consider for installation.

Aerco hydronic condensing boilers have been engineered to provide the highest thermal efficiencies. They provide a great range of sizes to fit any need and offer multiple installation configurations.



Features and Benefits

- Durable 439 stainless steel fire tube heat exchanger
- Compact footprint
- Low operating, maintenance and installation costs
- Easy serviceability
- 20:1 turndown ratio (5%)
- Up to 99% efficiency
- Low NOx emissions, 20 ppm or less at all firing rates
- Capable of variable primary flow installations
- Venting versatility with AL29-4C or Polypropylene
- Ducted combustion air capable
- Controls options: Constant setpoint, Indoor/outdoor reset, Remote setpoint, 4-20mA signal or Modbus

Potential Operational & Maintenance Savings

A conservative estimate of operational & maintenance savings has been carried for this measure. This is a result of a reduction in the Village's current repair spend associated with the existing boilers. Only material savings are included as it is assumed any potential labor force will be reallocated to other tasks. During the IGA, Honeywell will work with the Village to gather additional detail on existing repair spend in order to validate any assumptions.

Energy Savings Methodology

Boiler replacement savings have been calculated using an adjusted thermal baseline. The following example is used to show how the adjusted baseline is determined and why it is recommended to use that baseline compared to the actual baseline compiled from the utility bills.

The impact of other heating system improvement measures on the building performance and the interaction of all measures is important to determine the post retrofit loads the boiler plant will support. An ECM interaction calculation is included in our analysis.

The adjusted thermal baseline is determined by first deducting any domestic hot water, kitchen or any non-heating related loads from the baseline consumption as well as subtracting the savings estimated for heating related measures - (Building Envelope, Pipe Insulation, Steam Trap Replacement, and Building Management System etc.)

Example:
Baseline: 100 Therms
Non-Heating Loads: 10% of baseline = 10 Therms
Building Envelope Savings: 8 Therms
Pipe Insulation Savings: 7 Therms
Steam Trap Replacement Savings: 8 Therms
BMS Savings: 10 Therms
Adjusted Baseline = 100 – 10 – 8 – 7 – 8 – 10 = 57 Therms

The adjusted baseline must be used when determining the boiler plant replacement savings as this will be the baseline post-retrofit and will be most accurate when calculating the savings. If the existing baseline is used, the resulting savings will be overestimated and not accurate. This is critical when your M&V methodology is ***Option C***.

Changes in Infrastructure

New high efficiency condensing boilers will be installed.

Customer Support and Coordination

Minor support will be required for the interruption of utilities for brief tie-in periods.

Environmental Issues

Resource Use	Energy savings will result from reduced fuel consumption due to an increase in boiler plant efficiency
Waste Production	All waste shall be properly disposed of in accordance with all federal, state and local codes
Environmental Regulations	No environmental impact is expected

ECM 4: Boiler Burner Controls

Buildings Included:
▪ Public Library

Existing Conditions

The information used in developing this Energy Conservation Measure (ECM) was obtained through conditions observed during the visits to the buildings, manufacturer's technical literature for existing and new equipment, discussions with personnel and data obtained through various technical publications.

Honeywell has evaluated each building's heating equipment and distribution systems to identify areas for boiler plant optimization. The boiler burner at the Public Library utilizes a traditional linkage and cam system to adjust the fuel/air ratio for boiler firing. This setup yields inherent mechanical system loses due to the sluggish operation of multiple moving parts and inevitable slippage over time. An improvement that should be applied to drive energy savings includes the installation of boiler burner controls. The existing burner is detailed below.

Building	EXISTING BOILER BURNERS				
	Qty	Burner Make	Burner Model	Fuel Type	Natural Gas Input (Each)
Public Library	1	Power Flame	J50A-15HBS-7	Natural Gas	650 MBH Min. 2,163 MBH Max.



Public Library Boiler Burner

Proposed Solution

Honeywell proposes to install Siemens LMV linkage-less burner management systems on the boiler burners listed above to improve operating efficiency and drive energy savings. The Siemens LMV package is a linkage-less system that monitors the air/fuel ratio electronically and eliminates all the losses in efficiency experienced over time in the traditional mechanical linkage driven systems.

Scope of Work

- Furnish and install Siemens LMV linkage-less burner management system, or equivalent
- Provide start-up, testing, and commissioning

Overview – Boilers will be provided with a Siemens LMV linkage-less control system that will continuously adjust fuel to air ratios and optimize combustion efficiency at all load conditions. This system is designed to handle multiple fuels and can be setup to accommodate both fuel oil and natural gas simultaneously. In

addition to providing better control of fuel/air ratios over the operating range of the burner/boiler, the system also extends the boiler's minimum operating point, providing better load tracking at low load conditions.

Benefits:

Energy Savings

- Prevents burner short cycling
- Reduces fuel usage
- Maximizes burner efficiency
- Match load to appliance firing rate
- Combustion efficiency maximized throughout the firing curve instead of at a single point
- Up to 15 programmable points for each fuel-air ratio curve providing greater flexibility and tighter control
- Integrated PID temperature/pressure controller with auto tune for extremely accurate process control

Reduced Emissions and Reduced Excess Air

- Reduce thermal NO_X (Nitrous Oxide) by employing the Flue Gas Recirculation (FGR) damper function
- Reduce unburned fuel & products of combustion with FGR
- Controls up to six independent actuators for optimal efficiency in low NO_X burner applications

Increased Equipment Life

- Equipment cycles less frequently, reducing wear and tear and extending its useful life

System Reliability

- No fuel/air ratio curve erosion over time due to component wear and shifting as seen with mechanical linkage systems
- Digital positioning feedback from actuators ensure unmatched repeatability
- Independent ignition position provides reliable light off

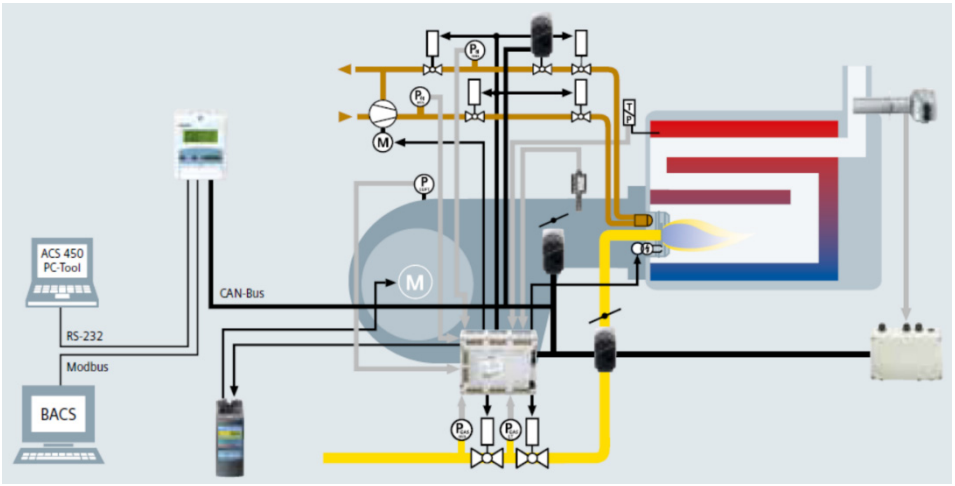
Flexibility

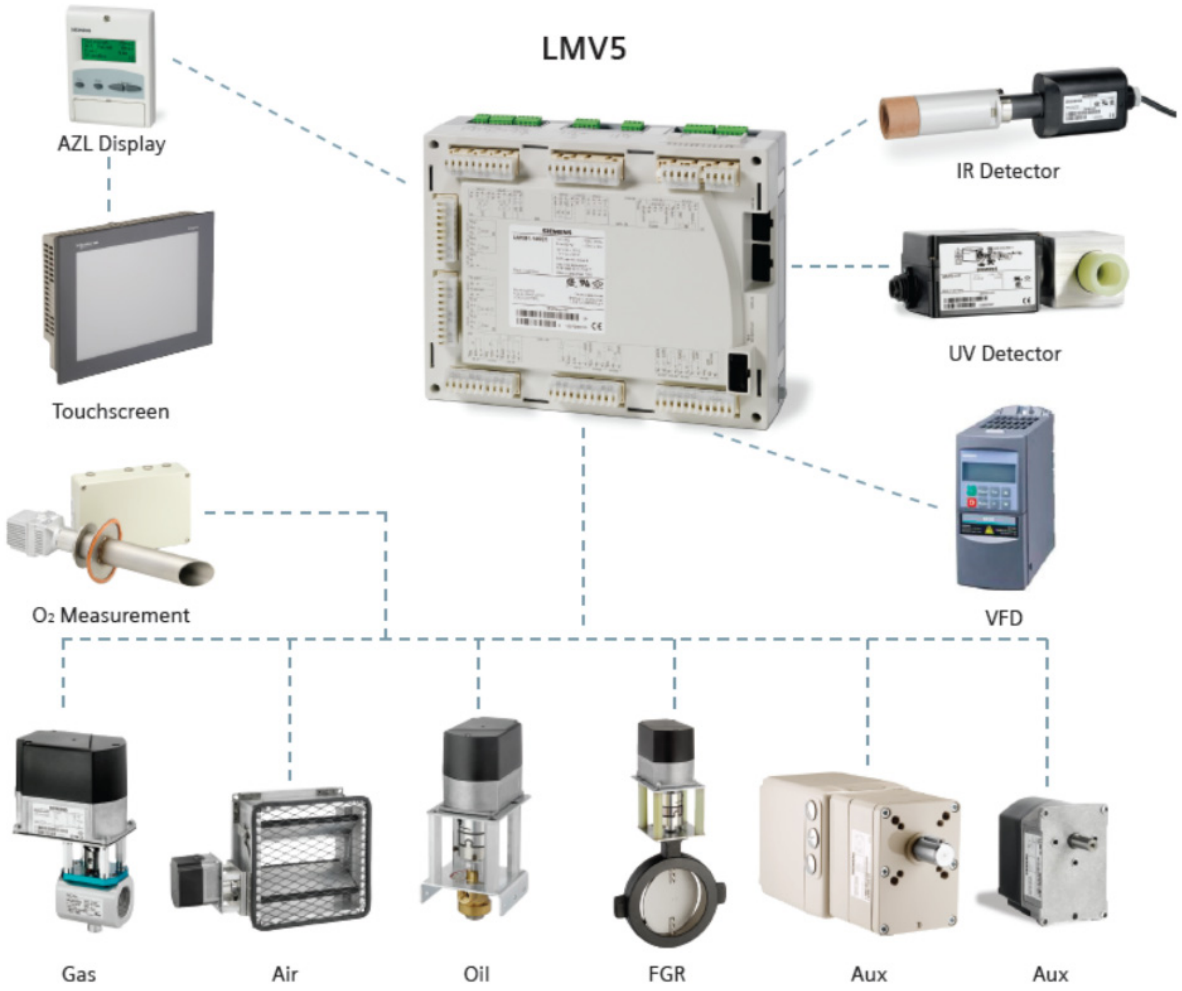
- Single and dual-fuel applications

Safety

- Integrated gas valve proving system checks for leaks on every burner cycle for increased safety
- Annunciation of over 500 fault conditions permits quick, accurate troubleshooting
- Adjustable flame failure response time

Installation:





Siemens LMV Linkage-less Boiler Burner Control System Schematic

Potential Operational & Maintenance Savings

No operational & maintenance savings were included for this measure.

Changes in Infrastructure

New Siemens LMV linkage-less boiler burner controls will be installed per the table above.

Customer Support and Coordination

Minor support will be required during installation so as to minimize the impact on occupants.

Environmental Issues

Resource Use	Energy savings will result from increased boiler burner efficiency and better load tracking
Waste Production	All waste shall be disposed of in accordance with local laws and regulations
Environmental Regulations	No environmental impact is expected

ECM 5: Furnace Upgrades

Buildings Included:
▪ Memorial Park Building

Existing Conditions

The furnace at the Memorial Park Building is inefficient and past its useful life. Replacing this unit with a new, high efficiency version will save energy costs over the long term while reducing repair costs that would otherwise have been necessary to keep the old furnace in operation.



Memorial Park Building Furnace

Building	EXISTING FURNACE			
	Equipment	Make	Model	Qty
Memorial Park Building	Furnace	American Standard	Freedom 80	1

Proposed Solution

Honeywell proposes to replace the existing furnace with a new high efficiency condensing furnace of similar capacity. The new furnace will utilize a secondary heat exchanger that condenses hot exhaust gases to extract "waste" heat that would otherwise be lost up the exhaust stack. This results in a higher operating efficiency and thus will require less energy to operate. In addition, being new equipment, the required repairs will be less frequent.

Scope of Work

- Disconnect piping, wiring, control connections, and ducts from the existing furnace units as detailed in the table above
- Remove and dispose of existing furnace
- Furnish and install new high efficiency condensing furnace of similar capacity
- Rigging and setting in place the above described new equipment
- Reconnect existing piping, wiring, control connections, and ducts to the new furnace
- Modifications to existing ductwork are limited to making furnace connections; no new ductwork is included
- Provide insulation on ductwork damaged during constructions

- Provide start-up, testing, and commissioning

Potential Operational & Maintenance Savings

A conservative estimate of operational & maintenance savings has been carried for this measure. This is a result of a reduction in the Village's current repair spend associated with the existing furnace. Only material savings are included as it is assumed any potential labor force will be reallocated to other tasks. During the IGA, Honeywell will work with the Village to gather additional detail on existing repair spend in order to validate any assumptions.

Changes in Infrastructure

A new high efficiency, condensing furnace will be installed.

Customer Support and Coordination

Coordination will be required during installation so as to minimize the impact to building occupants in the affected spaces.

Environmental Issues

Resource Use	Energy savings will result from an increase in furnace operating efficiency
Waste Production	All waste will be disposed of in accordance with local laws and regulations
Environmental Regulations	No environmental impact is expected

ECM 6: Air Handling Unit Replacement

Buildings Included:
▪ Village Hall

Existing Conditions

The basement and 1st floor air handling units at Village Hall are inefficient and past their useful lives. Replacing these units with new, high efficiency units will save energy costs over the long term while reducing repair costs that would otherwise have been necessary to keep the old air handling units in operation. It should also be noted that some of these units were not accessible during the survey (either they were above hung ceilings and/or located in prohibited areas of the facility) and thus the nameplate information is currently unknown. A more detailed evaluation will be performed during the Investment Grade Audit.



Village Hall Example Existing Air Handling Unit

Building	EXISTING AIR HANDLING UNITS				
	Equipment	Make	Model	Area Served	Qty
Village Hall	AHU-1	Trane	Unknown	Fire Station Lounge	1
	AHU-2	Trane	Unknown	Locker Rooms	1
	AHU-3	Trane	TWE090A300AA	Fire Station Meeting Room	1
	AHU-4	Trane	Unknown	1st Floor Police Station	1

Proposed Solution

Honeywell proposes to replace the existing air handling units with new high efficiency air handling units of similar capacity. The new units will be installed at the same locations as existing. These units will require less energy to operate and, being new, required repairs will be less frequent.

Scope of Work

- Disconnect piping, wiring, control connections, and ducts from the existing air handling units as detailed in the table above
- Remove and dispose of existing air handling units
- Furnish and install new high efficiency air handling units
- Rigging and setting in place the above described new equipment
- Reconnect existing piping, wiring, control connections, and ducts to the new air handling units
- Modifications to existing ductwork are limited to making air handling unit connections; no new ductwork is included

- Provide insulation on adjacent piping and ductwork damaged during constructions
- Provide start-up, testing, commissioning, and balancing

Equipment Information

Manufacturer and Type	Several high quality and cost-effective manufacturer options are available. Honeywell and the Village will determine final selections.
Equipment Identification	Product cut sheets and specifications for typically proposed equipment are available upon request. As part of the measure design and approval process, specific product selection documentation will be provided for review and approval.

Potential Operational & Maintenance Savings

A conservative estimate of operational & maintenance savings has been carried for this measure. This is a result of a reduction in the Village's current repair spend associated with the existing air handling units. Only material savings are included as it is assumed any potential labor force will be reallocated to other tasks. During the IGA, Honeywell will work with the Village to gather additional detail on existing repair spend in order to validate any assumptions.

Changes in Infrastructure

New air handling units will be installed as described above.

Customer Support and Coordination

Coordination will be required during installation so as to minimize the impact to building occupants in the affected spaces.

Environmental Issues

Resource Use	Energy savings will result from an increase in air handling unit operating efficiency
Waste Production	All waste will be disposed of in accordance with local laws and regulations
Environmental Regulations	No environmental impact is expected

ECM 7: Rooftop Unit Replacement

Buildings Included:
▪ Village Hall

Existing Conditions

The rooftop units at Village Hall are inefficient, past their useful lives, and have been noted as an ongoing maintenance issue by building personnel. Replacing these units with new, high efficiency units will save energy costs over the long term while reducing repair costs that would otherwise have been necessary to keep the old rooftop units in operation. It should also be noted that the nameplate information for some of these units were missing or damaged. A more detailed evaluation will be performed during the Investment Grade Audit.




Village Hall Example Existing Rooftop Units




Village Hall Example Existing Rooftop Units

Building	EXISTING ROOFTOP UNITS			
	Equipment	Make	Model	Qty
Village Hall	RTU	Trane	TCP060F300AA	1
	RTU	Trane	TSC060A3E0A00006	1
	RTU	Amana	Unknown	1
	RTU	Trane	Unknown	1
	RTU	Trane	Unknown	1
	RTU	Trane	Unknown	1

Proposed Solution

Honeywell proposes to replace the existing rooftop units with new high efficiency rooftop units of similar capacity. The new units will be installed at the same locations as existing. These units will require less energy to operate and, being new, required repairs will be less frequent. In addition, the newly installed units will come equipped with factory installed microprocessor controls and will be integrated into the Building Management System for scheduling and setpoint adjustment by building personnel.

Scope of Work

- Disconnect piping, wiring, control connections, and ducts from the existing rooftop units as detailed in the table above
- Remove and dispose of existing rooftop units
- Furnish and install new high efficiency rooftop units
- Rigging and setting in place the above described new equipment
- Reconnect existing piping, wiring, control connections, and ducts to the new rooftop units
- Modifications to existing ductwork are limited to making rooftop unit connections; no new ductwork is included
- Provide insulation on adjacent piping and ductwork damaged during constructions
- Provide start-up, testing, commissioning, and balancing

Equipment Information

Manufacturer and Type	Several high quality and cost-effective manufacturer options are available. Honeywell and the Village will determine final selections.
Equipment Identification	Product cut sheets and specifications for typically proposed equipment are available upon request. As part of the measure design and approval process, specific product selection documentation will be provided for review and approval.

Potential Operational & Maintenance Savings

A conservative estimate of operational & maintenance savings has been carried for this measure. This is a result of a reduction in the Village's current repair spend associated with the existing rooftop units. Only material savings are included as it is assumed any potential labor force will be reallocated to other tasks. During the IGA, Honeywell will work with the Village to gather additional detail on existing repair spend in order to validate any assumptions.

Changes in Infrastructure

New rooftop units will be installed as described above.

Customer Support and Coordination

Coordination will be required during installation so as to minimize the impact to building occupants in the affected spaces.

Environmental Issues

Resource Use	Energy savings will result from an increase in rooftop unit operating efficiency
Waste Production	All waste will be disposed of in accordance with local laws and regulations
Environmental Regulations	No environmental impact is expected

ECM 8: Condensing Unit Replacement

Buildings Included:
▪ Village Hall

Existing Conditions

The information used in developing this Energy Conservation Measure (ECM) was obtained through interviews with building operators, conditions observed during site visits, manufacturer's technical literature for existing and new equipment, and data obtained through various technical publications.

The air handling unit air cooled condensing units at Village Hall are past the end of their useful lives. As such, they are becoming less reliable, require increased maintenance, and operate at lower efficiency levels. In addition, some of these condensing units utilize the outdated R-22 refrigerant that is currently banned from production by the US EPA. This will make any future refrigerant charging extremely expensive given the diminishing supply. As with the rooftop units, it should also be noted that the nameplate information for some of these units was missing or damaged. A more detailed evaluation will be performed during the Investment Grade Audit. The table below is a listing of the existing equipment recommended for replacement.




Village Hall Air Cooled Condensing Units





Village Hall Air Cooled Condensing Units

Building	EXISTING CONDENSING UNITS				
	Equipment	Make	Model	Qty	Type
Village Hall	Condensing Unit	Trane	TTA120A300FA	1	Air Cooled
	Condensing Unit	Daikin	DX13SA0603AC	1	Air Cooled
	Condensing Unit	Trane	Unknown	1	Air Cooled
	Condensing Unit	Unknown	Unknown	1	Air Cooled

Proposed Solution

Honeywell proposes to replace the existing air-cooled condensing units with higher efficiency versions of similar capacity. This will provide electrical savings through more efficient operation and will ensure consistent cooling when called upon. These new units will be designed for a modern, more environmentally friendly refrigerant and will help the Village eliminate their use of the banned R-22 formula.

Scope of Work

- Evacuate and reclaim refrigerant from existing condensing units as listed in the table above
- Disconnect refrigerant piping, wiring and control connections from existing condensing units
- Remove and dispose of existing condensing units
- Furnish and install new high efficiency condensing units of similar capacity
- Furnish and install new DX coils of similar capacity to accommodate new refrigerant
- Furnish and install required refrigerant piping to DX coils
- Provide required refrigerant charging as necessary
- Reconnect wiring and control connections to new condensing units
- Provide refrigerant piping insulation as required
- Provide start-up, testing and commissioning

Potential Operational & Maintenance Savings

A conservative estimate of operational & maintenance savings has been carried for this measure. This is a result of a reduction in the Village's current repair spend associated with the existing condensing units. Only material savings are included as it is assumed any potential labor force will be reallocated to other tasks. During the IGA, Honeywell will work with the Village to gather additional detail on existing repair spend in order to validate any assumptions.

Changes in Infrastructure

New high efficiency, air cooled condensing units will be installed as described above.

Customer Support and Coordination

Minor support will be required for equipment installation so as to minimize or eliminate the impact on occupants.

Environmental Issues

Resource Use	Energy savings will result from the operation of higher efficiency equipment
Waste Production	All waste will be disposed of in accordance with local laws and regulations
Environmental Regulations	Existing R-22 refrigerant will be removed from operation

ECM 9: Pump & Motor Replacement

Buildings Included:
▪ Village Hall

Existing Conditions

The hot water pumps at Village Hall are past their useful life and in need of replacement. One of these pumps has been inoperable for some time and did not have a motor installed at the time of the audit. This removes all redundancy from the hot water distribution system, meaning that if the remaining operable pump fails there is no backup to serve building demand. In addition, due to its age the existing motor operates at a lower efficiency than is currently available. Energy savings can be obtained by replacing these motors with a higher efficiency version and installing new hot water pumps.



Village Hall Hot Water Pumps

Proposed Solution

Honeywell proposes to replace the existing hot water pumps and install NEMA Premium efficiency motors. The new pumping system will provide the building with redundancy to cover future equipment failure and the new motors will operate at the latest NEMA rated efficiency and thus will draw considerably less power.

Building	EXISTING PUMPS & MOTORS				
	Equipment Description	Qty	Motor Horsepower [HP]	Replace Pump	Replace Motor
Village Hall	Hot Water Pumps 1 & 2	2	2.0	Yes	Yes

Scope of Work

- Implement tagout/lockout procedures as appropriate
- Disconnect power and control wiring from existing motors
- Remove and dispose of existing pumps and motors as detailed in table above
- Furnish and install new pumps and NEMA Premium efficiency motors of similar size and capacity
- Reconnect power and control wiring to new motors
- Align new pumps and motors
- Verify proper rotation
- Mechanically connect motor and adjust couplings, belts, etc.
- Start equipment and verify operating parameters are within recommended range based on manufacturer's startup sequence
- Replace all guards that were removed
- Label equipment consistent with local practices

- Measure and verify the pre- and post-retrofit voltage, amperage, and RPM
- Provide start-up, testing, and commissioning

Equipment Information

Manufacturer and Type	Several high quality, cost effective manufacturers are available. The following is an example of equipment being utilized. Honeywell and the Village will determine final selections. MagneTek, Inc. – 26 Century Blvd. Suite 600 - Nashville, TN 37214 – (800) MAGNETEK Baldor Electric Corp. – 5711 R.S. Boreham Jr. St., PO Box 2400, Fort Smith, AR, 72901 – (501) 646-4711
Equipment Identification	Product cut sheets and specifications for generally used are available upon request. As part of the measure design and approval process, specific product selection will be provided for your review and approval.

Potential Operational & Maintenance Savings

A conservative estimate of operational & maintenance savings has been carried for this measure. This is a result of a reduction in the Village's current repair spend associated with the existing pumps and motors. Only material savings are included as it is assumed any potential labor force will be reallocated to other tasks. During the IGA, Honeywell will work with the Village to gather additional detail on existing repair spend in order to validate any assumptions.

Changes in Infrastructure

New hot water pumps with NEMA Premium Efficiency motors will be installed as detailed above.

Customer Support and Coordination

Coordination will be required during installation so as to minimize the impact to building occupants.

Environmental Issues

Resource Use	Energy savings will result from improving the operating efficiency of the hot water pumping system
Waste Production	All waste will be disposed of in accordance with local laws and regulations
Environmental Regulations	No environmental impact is expected

ECM 10: De-Stratification Fans

Buildings Included:
▪ Embassy Club

Existing Conditions

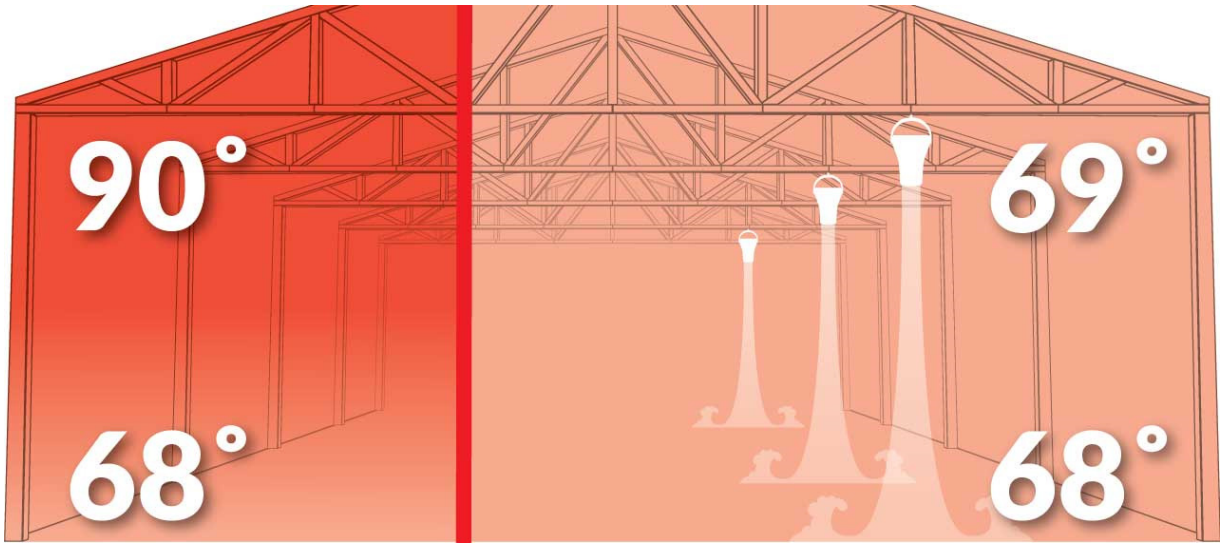
In high ceiling areas, such as in a gymnasium and/or auditorium, warm air stratifies close to the ceiling. Elevated levels of heat transfer through the high walls and roof leads to substantial heat loss. The Embassy Club auditorium is an area that would benefit from de-stratification fans.



Embassy Club Auditorium

Proposed Solution

Honeywell proposes the addition of ceiling fans to help de-stratify these spaces thus reducing energy costs and increasing occupant comfort.



Large Space Temperature Stratification

Scope of Work

- Furnish and install de-stratification fans in select areas to force warm air down to the floor during the heating season
- Provide required power wiring and isolation switch
- Provide start-up, testing and commissioning

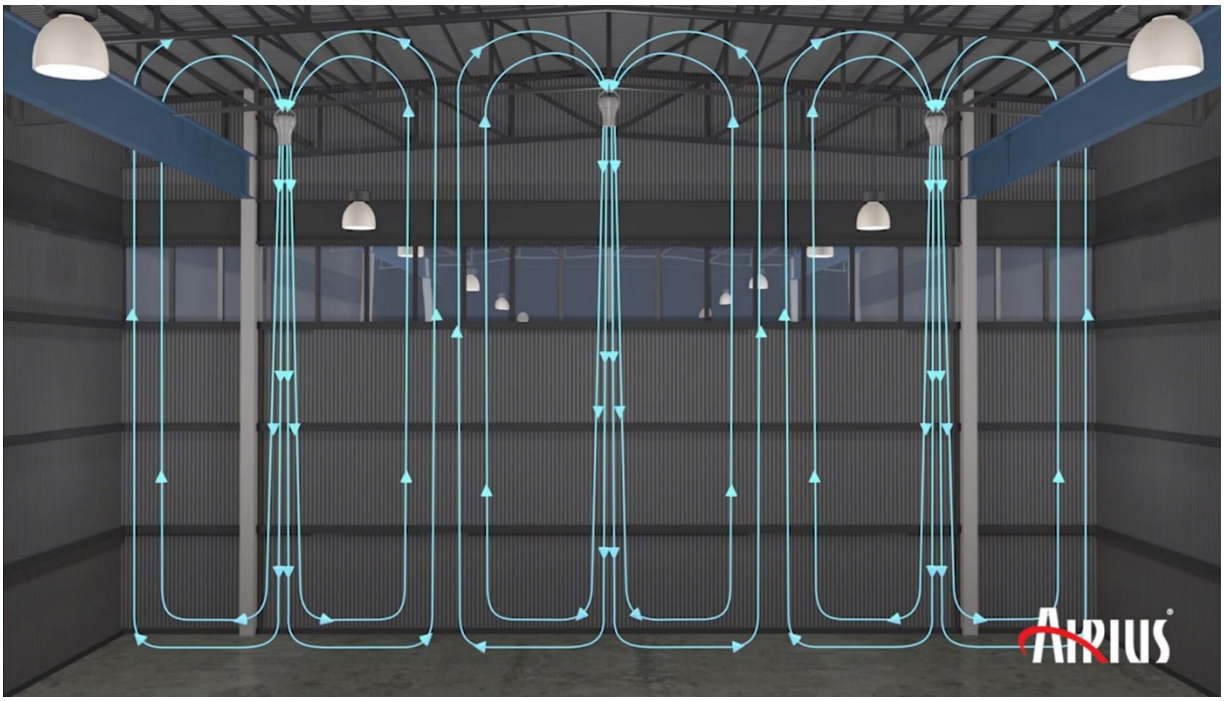
Building	PROPOSED DE-STRATIFICATION FANS		
	Location	Make & Model	Fan Count
Embassy Club	Auditorium	Air Pear 60	2

Benefits of Airius De-Stratification Fans

Airius fans provide temperature and humidity equalization in high ceiling areas through de-stratification. This not only increases thermal comfort for occupants, but also lowers the ceiling temperature which in turn extends the life of lighting and other ceiling mounted equipment. Available features include the following:

- Energy efficient operation (as low as 12W power draw)
- Quick and easy installation
- Patented multi-vane stator and Venturi nozzle maximizes throw
- Speed control and Building Management System integration available
- Ratcheted handle allows installation at any angle
- Hangs from beam clamp/brindle ring, chain-link/carabiner or similar
- Lower structural load than traditional large ceiling fans
- 6-foot steel leash and anchor point for safety
- ETL listed in the US and Canada
- 5VA flame resistance rated
- Locally made in the US





Air Pear Fan De-Stratification Patterns

Potential Operational & Maintenance Savings

No operational & maintenance savings were included for this measure.

Changes in Infrastructure

New de-stratification fans will be installed in the areas listed in the table above.

Customer Support and Coordination

Minor support will be required for coordinating fan installation so as to minimize the impact on occupants.

Environmental Issues

Resource Use	Energy savings will result from reductions in exterior heat transfer and thus a decreased heating load
Waste Production	This measure will produce no waste by-products
Environmental Regulations	No environmental impact is expected

ECM 11: Kitchen Hood Controls

Buildings Included:
▪ Ogden Engine Company
▪ Embassy Club

Existing Conditions

The Ogden Engine Company and Embassy Club currently utilize constant volume kitchen hood exhaust systems. These systems operate at full load, even when there is no activity in the kitchen. They also require the exhaust fan to operate at full speed and cannot be modulated up or down. This not only wastes fan energy, but also heating energy contained in the excess exhaust air. When the kitchen is not being utilized, an opportunity exists to reduce airflow and consequently, conserve energy.



Ogden Engine Company Kitchen Hood



Embassy Club Kitchen Hood

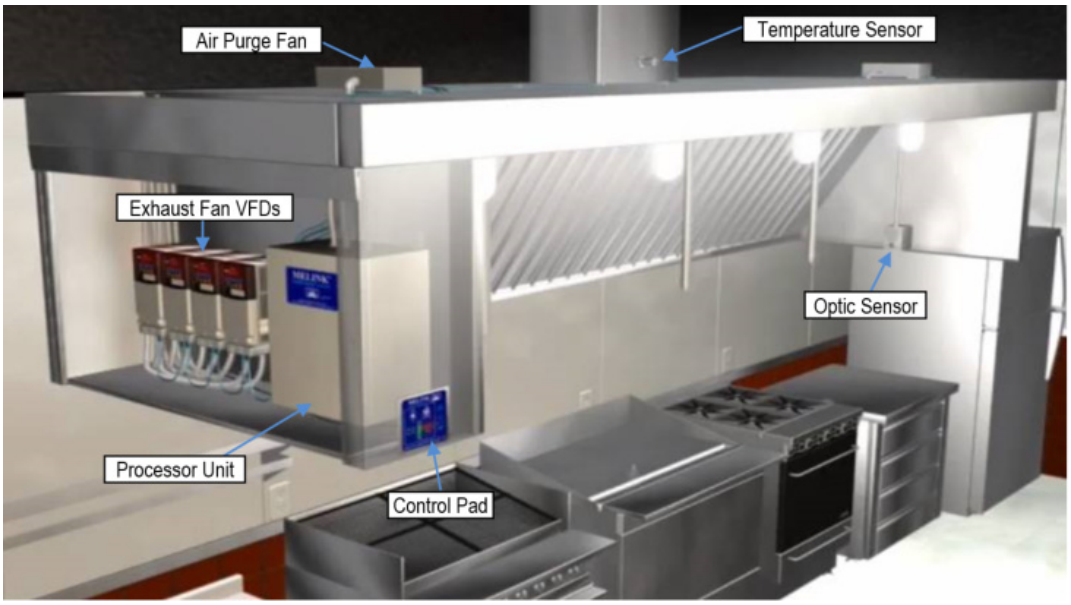
Proposed Solution

Honeywell proposes to install automated kitchen exhaust hood control systems to modulate fan speed based on demand. This will ensure optimal performance and reduce energy consumption. The system consists of a processor unit, exhaust fan variable frequency drive(s), and control pad mounted on the utility cabinet end of the hood. A temperature sensor is mounted in the exhaust dust and optic sensors are mounted inside the ends of the hood to detect the presence of heat or cooking effluent (i.e. smoke, and other combustion products). Small air purge units are also mounted on top of the hood to prevent the optic sensors from clouding over time. Together this system will allow for the exhaust hood load to be controlled based on actual usage. The following table details locations included in this measure.

Building	Number of Hoods
Ogden Engine Company	1
Embassy Club	1

Scope of Work

- Install Melink, or equivalent, control system for the kitchen hoods listed in the table above
- Furnish and install variable frequency drives in NEMA approved enclosure for the kitchen hood exhaust fans
- Reconfigure existing power wiring through the variable frequency drives
- Provide optical and temperature sensors at the kitchen exhaust hood to determine use
- Provide air purge units to prevent optic sensors from clouding
- Provide start-up, testing and commissioning



Typical Kitchen Exhaust Hood Control System

Potential Operational & Maintenance Savings

No operational & maintenance savings were included for this measure.

Changes in Infrastructure

New kitchen hood controls will be installed in the locations listed above.

Customer Support and Coordination

Minor support will be required during installation so as to minimize the impact on kitchen staff.

Environmental Issues

Resource Use	Energy savings will result from a decrease in kitchen exhaust fan motor consumption and a reduction in heating load
Waste Production	All waste shall be properly disposed of in accordance with all federal, state and local codes
Environmental Regulations	No environmental impact is expected

ECM 12: Walk-In Cooler Controls

Buildings Included:
▪ Ogden Engine Company

Existing Conditions

In many refrigeration walk-in freezers and coolers, the compressor is oversized and cycles on/off frequently. This compressor cycling results in higher energy consumption and may reduce the life of the compressor. Evaporator fans run constantly driven by motors that are “shaded pole” or conventional, and door heaters operate continuously to prevent ice from developing regardless of humidity levels.



Ogden Engine Company Walk-In Cooler

Proposed Solution

Honeywell proposes to install walk-in cooler/freezer control systems to improve operating efficiency. Upgrades include replacing shaded pole evaporator fan motors with high efficiency Electronically Commutated Motors (ECMs), cycling evaporator fan motors when cooler/freezer setpoint temperature is satisfied, and controlling door frame heaters with ambient humidity sensors.

Evaporator Fan Control: This strategy involves cycling of evaporator fan motors in the walk-in cooler(s)/freezer(s). A new controller will be provided to monitor the thermostat and solenoid valve associated with each cooler/freezer (independently). When the thermostat achieves set point and the compressor shuts down, the controller will cycle the evaporator fan motors (6 min off/1 min on/6 min off), until the thermostat calls for refrigeration and then fans will run the entire time the compressor is on-line.

Evaporator Fan Motor Replacement: This strategy involves replacing cooler/freezer evaporator fan motors with Electronically Commutated Motors (ECMs). These motors are 65 to 70% more efficient than conventional evaporator fan motors.

Freezer Door Heater Control: This strategy utilizes new controllers to operate door heater circuit(s). Electricity is provided to the door/frame to prevent condensation from developing as a function of relative humidity, which is monitored by a humidistat located at the door(s). Door heaters currently operate at all times, regardless of humidity levels.



Example Walk-In Cooler/Freezer Control System Installation

Building	Count of Walk-In Coolers	Count of Walk-In Freezers	Type
Ogden Engine Company	1	-	Air Cooled

Note: Estimates of compressor and evaporator fan data is being used for the feasibility study. These values will be validated during the Investment Grade Audit.

Potential Operational & Maintenance Savings

No operational & maintenance savings were included for this measure.

Changes in Infrastructure

New walk-in freezer/cooler controls and evaporator fan motors will be installed.

Customer Support and Coordination

Minor support will be required during installation to minimize the impact to occupants and kitchen staff.

Environmental Issues

Resource Use	Energy savings will result from more efficient walk-in freezer/cooler operation
Waste Production	All waste shall be properly disposed of in accordance with all federal, state and local codes
Environmental Regulations	No environmental impact is expected

ECM 13: Building Management System Upgrades

Buildings Included:
▪ Public Library
▪ Village Hall
▪ Memorial Park Building
▪ DPW Office
▪ Ambulance Corps. Building
▪ Ogden Engine Company
▪ Pool House & Offices at Gould Park
▪ Embassy Club

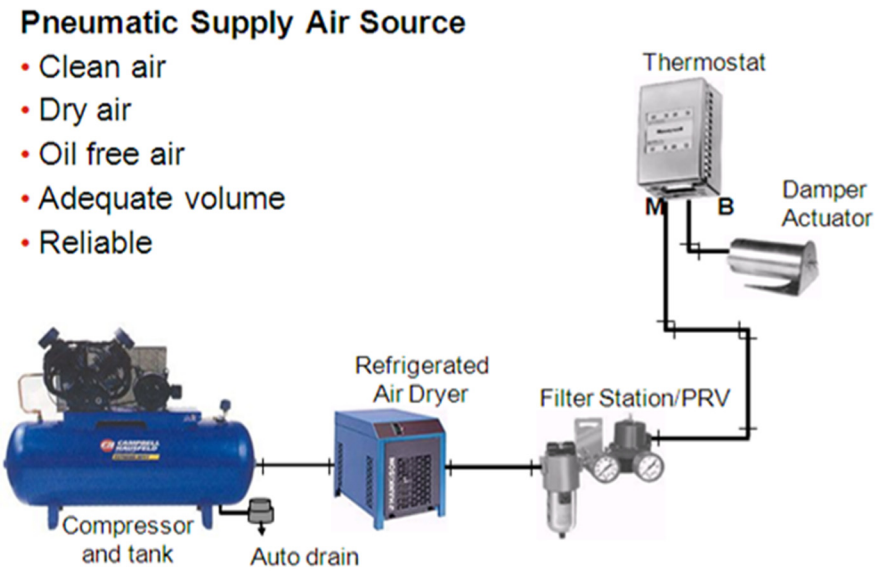
Overview of Control Systems

Pneumatic Controls



Pneumatic control systems are commonly used to control HVAC equipment in commercial buildings, but they are also sometimes used in industrial applications as well. Pneumatic controls are used because:

- Pneumatic equipment is inherently proportional, yet two-position or proportional-integral operation can be provided.
- Pneumatic equipment can be controlled remotely and still have a central panel to monitor building conditions.
- A great variety of control sequences and combinations can be accomplished with rather simple equipment.
- Pneumatic equipment is normally free of operating difficulties.
- Pneumatic equipment is suitable for applications where explosive conditions may exist.
- The cost of pneumatic equipment is generally less in larger installations, where the cost of the air compressor and dryer/pressure reducing valve or PRV can be recouped, especially where codes require that low voltage wiring for similar electric controls be run in conduit.

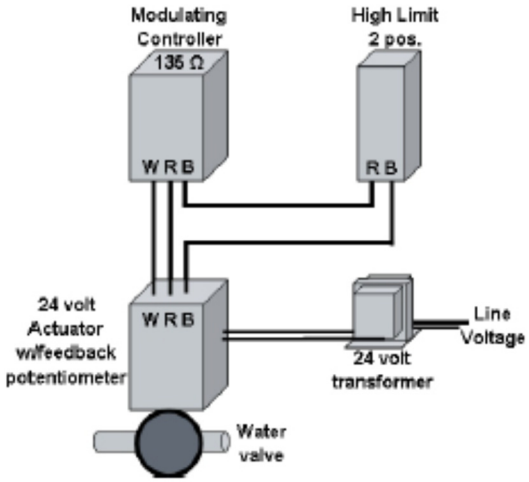


Basic Pneumatic Control System

Electric Controls

In an electric control system, sensing devices and controllers operate with simple electro-mechanical internal components. Notable of basic electric controls:

- Electric controls are an advantage in applications wherever power lines run.
- Electric wiring is usually simple and easy to install.
- Electric controls can amplify a small impulse signal from a sensing device, permitting control over systems that otherwise could not be controlled.
- A single device can perform several functions by producing a combination of output sequences.

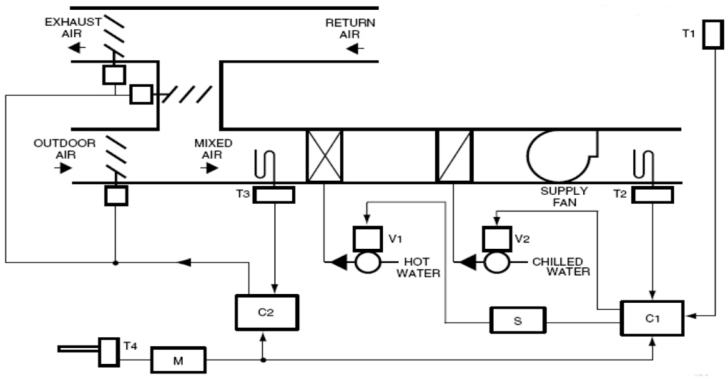


Basic Electric Control System

Electronic Controls

Electronic control systems can be used in the control of all types of HVAC equipment in commercial and residential applications. Electronic controls are often found in older systems when automatic control equipment was modernized with newer, more accurate automatic controls. Notable features of electronic controls are:

- Electronic controls are flexible. They can be combined with either electric or pneumatic circuits.
- The sensing element is smaller in size, which allows for quick response to load changes.
- The sensor can be in a remote location and the controller in a central location.
- This allows for adjustments or calibrations at one location, rather than throughout the building.
- Only simple, low-voltage connections between the sensing element and the electric circuitry are required.



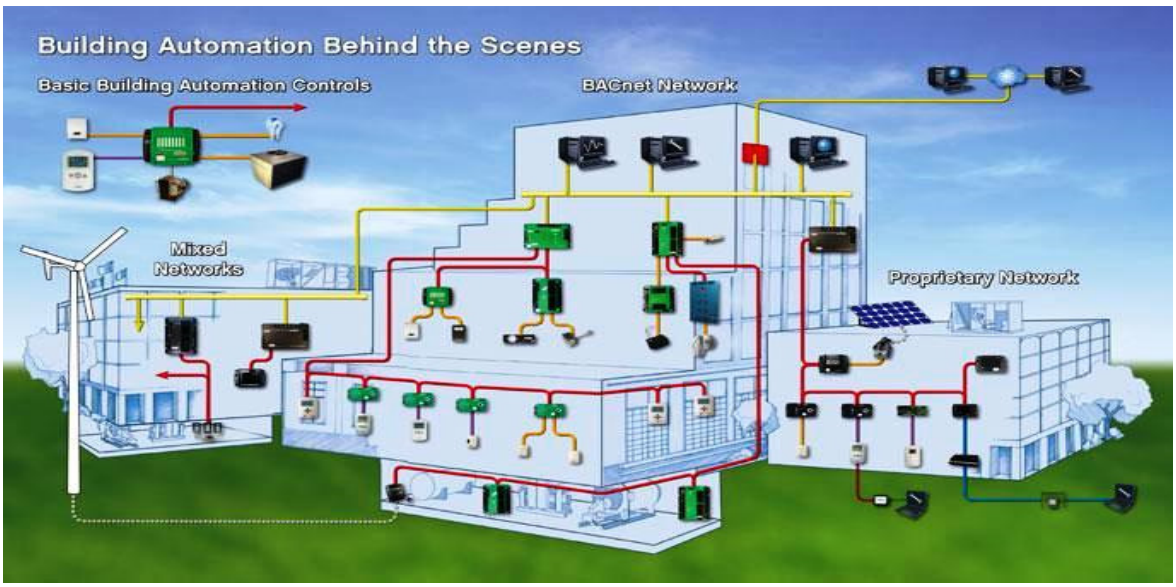
Basic Electronic Control System

Direct Digital Controls (DDC)

Direct Digital Control (DDC) is the most industry accepted state-of-the-art control system available today. DDC is used for control of temperature in commercial buildings, as well as humidity, pressure, and flow. PC-based controllers measure input signals from sensors, perform control routines in software programs, and take corrective action in the form of output signals to actuators. Since the programs are in digital form, the controllers perform what is known as digital control. Since the controller is located at the control location and is assigned directly to a given piece of equipment, it is referred to as direct digital control.

A DDC controller can control a piece of mechanical equipment, such as an air handler, independently or with other interconnected controllers at the site. Controllers can share information and can easily communicate with an operator's station as a part of a Building Automation System (BAS). The operator can then view system points such as building and air handler temperatures and can command points such as set points or override a damper or valve position if needed.

Additionally, any malfunctions will be reported to the station as an alarm, which will call attention for a quick resolve.



Building DDC Control System

Advantages of DDC

Digital control offers many advantages. Discussion of some of the more important advantages are as follows:

- *Lower Cost Per Function*
  - In general, microprocessor and memory costs keep coming down while inherent functionality keeps going up. Compared to earlier systems, physical size of the controller is also reduced while the number of discrete functions is increased. With the use of a PC-based controller, digital control allows more sophisticated and energy efficient control sequences. Digital controls often represent a lower cost than conventional controls.
- *Application Flexibility*
  - Since PC-based controllers are software based, application flexibility is an inherent feature. A wide variety of HVAC functions can be programmed, and, in addition, the controller can perform energy management and/or building management functions. Changes in control sequences, either dictated by system performance or by changes in the owner's use of the facility, can easily be accommodated through software.

- *Coordinated Multifunction Capability*
  - Although basic environmental control and energy management operate as independent programs, PC-based control allows them to be incorporated as an integrated program in order to provide more efficient control sequences. The controller allows critical building information to be analyzed and acted upon as quickly as possible in order to maintain building comfort and reduce energy costs.

- *Precise and Accurate Control*
  - Traditional proportional and two-position control has the inherent problem of offset. The wider the throttling range is set for control stability, the greater the offset. With the PC-based controller, the temperature offset can easily be corrected by the addition of integral action. Even more precise control can be obtained using the derivative algorithm function when the system is programmed. DDC offers control programming flexibility based on the type of control loop(s) in the facility and the accuracy of control desired.

- *Reliability*
  - Digital controllers are conservatively designed and often incorporate self-checking features, so they notify the operator immediately if anything goes wrong. Input and output circuits are filtered and protected from extraneous signals to assure reliable information to the processor.





Existing Conditions

A detailed survey of each facility was performed to evaluate existing building management systems, control capability, and existing practices. The results of these surveys showed a variety of complexity across the included facilities, ranging from standalone thermostat control to complete Direct Digital Control (DDC). Building management system upgrade opportunities of varying degrees were identified in all of the included facilities. For a description of the existing control systems in each facility, please see Section 1 – Building Descriptions.

Proposed Solution

Honeywell proposes to upgrade the existing building management systems through the approach detailed for each facility below. Improving control capability scheduling and setpoint adjustments along with implementing advanced sequences of operation will reduce building energy consumption.

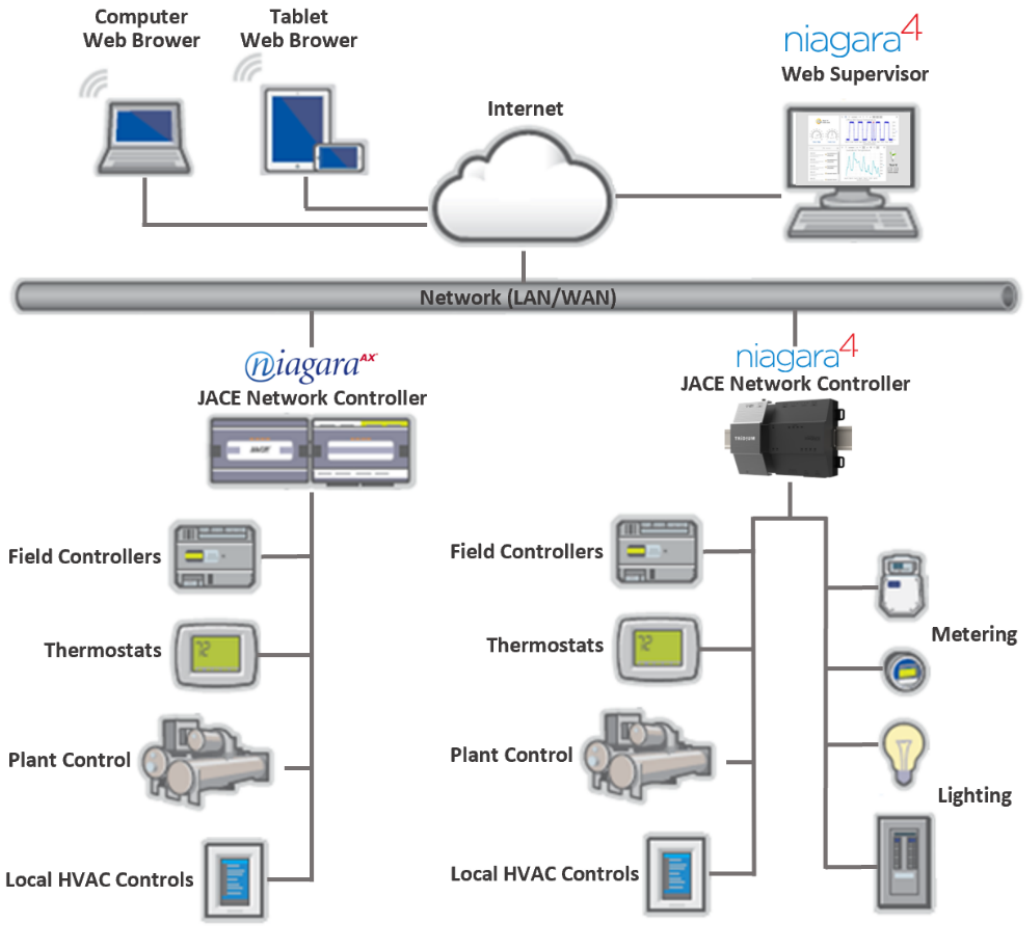
Scope of Work

General

1) *Install New Tridium Niagara N4 Web Supervisor*
   Provide and install a new Tridium Niagara N4 Supervisor, to reside on virtual server provided by the Village, and connect the new Tridium Niagara 4 JACE network controllers in each building listed herein. Provide graphics, alarming, and trending for all buildings which will reside on the new Tridium Niagara N4 Supervisor. Customer to provide LAN drops and IT configuration as needed.

   Overview
   The Tridium Niagara N4 Web Supervisor solution provides the following benefits:

- Single point of access for all maintenance personnel to view building conditions, diagnose comfort issues, and gather equipment data and trends
- Customizable access levels allow varying degree of control (read-only, read/write, etc.)
- Increased cyber security
- The Tridium Niagara platform is an open system can be serviced by any controls vendor, thus allowing the Village to competitively bid out work



Tridium Niagara Architecture Example

Public Library

1) *Install New Tridium N4 JACE Network Controller*

Provide and install new Tridium N4 JACE. Integrate the existing Reliable Controls DDC point into the Tridium Niagara N4 Supervisor. Provide new graphics for each piece of equipment, floor plan graphics, alarms, and trending. The following table lists the existing Reliable Controls DDC that will be integrated into the new Tridium Niagara N4 Supervisor.

Reliable Controls DDC to be Integrated	
Equipment	**Quantity**
Hot Water Boilers	1
Hot Water Pumps	2
Air Handling Units	2
Variable Air Volume Boxes	15
Cabinet Unit Heaters	4

Reliable Controls DDC to be Integrated	
Equipment	Quantity
Fin Tube Radiation	9
Unit Heaters	3
Exhaust Fans	2

2) *Retro-Commission Existing Reliable Controls DDC System*
Provide point-to-point checkout and functional testing for existing Reliable Controls DDC Equipment as per the existing sequence of operations. The following is a list of equipment currently controlled by the Reliable Controls DDC system that will be retro-commissioned and integrated into the new Tridium Niagara N4 JACE controller.

Reliable Controls DDC to be Retro-Commissioned	
Equipment	Quantity
Hot Water Boilers	1
Hot Water Pumps	2
Air Handling Units	2
Variable Air Volume Boxes	15
Cabinet Unit Heaters	4
Fin Tube Radiation	9
Unit Heaters	3
Exhaust Fans	2

Additional Scope Details:

- Repair defective control components as needed to provide a complete functioning system. Provide deficiency list of defective/failed mechanical equipment.

3) *Equipment Runtime Scheduling and Temperature Setpoint Adjustments*
Modify existing equipment runtime schedules and occupied/unoccupied temperature setpoints to drive energy savings.

Village Hall

1) *Install New Tridium N4 JACE Network Controller*
Provide and install new Tridium N4 JACE. Integrate new DDC controls into the Tridium Niagara N4 Supervisor. Provide new graphics as well as trending and alarming strategies.

2) *Boiler Plant Control Upgrade*
Provide and install new DDC for one (1) natural gas fired, four (4) module modular hot water boiler system and two (2) hot water pumps. Implement outside air reset, occupied / unoccupied outside air lockout and provide associated graphics, trending and alarming.

Additional Scope Details:

- Integrate into Tridium N4 Supervisor.

3) *Air Handling Unit Control Upgrade*
Provide and install new DDC for four (4) air handling units serving the basement and 1st floor. These units have hot water heating coils and DX cooling coils associated with them. Implement space temperature control, occupancy schedule and setpoints and provide associated graphics, trending and alarming.

Additional Scope Details:

- Integrate into Tridium N4 Supervisor.
- Furnish and install new DDC valves and actuators.

4) *Rooftop Unit Control Upgrade*

Provide and install BACnet thermostats for six (6) rooftop units that provide heating and cooling to the 2nd floor. These units have interior hot water heating coils and DX cooling coils associated with them. Integrate into the BMS and provide new graphics. Provide space temperature control, OAT lockout, economizer function, occupancy schedule and setpoints.

Additional Scope Details:

- Integrate into Tridium N4 Supervisor.
- Furnish and install new BACnet communicating thermostats.
- Provide communication bus wiring.

5) *Garage Bay Unit Heater Control Upgrade*

Provide and install BACnet thermostats for four (4) unit heaters that provide heating to the Fire Department garage bay. Integrate into the BMS and provide new graphics. Provide space temperature control, OAT lockout, occupancy schedule and setpoints.

Additional Scope Details:

- Integrate into Tridium N4 Supervisor.
- Furnish and install new BACnet communicating thermostats.
- Provide communication bus wiring.

6) *Fin Tube Radiation Control Upgrade*

Provide and install new DDC for the fin tube radiation serving the basement and 1st floor. Implement space temperature control, occupancy schedule and setpoints and provide associated graphics, trending and alarming.

Additional Scope Details:

- Integrate into Tridium N4 Supervisor.
- Furnish and install new DDC valves.

7) *Cabinet Unit Heater Control Upgrade*

Implement reduced temperature setpoint for cabinet unit heaters located in common spaces (entryways, stairwells, etc.). Provide locking thermostat covers to ensure temperature setpoints remain in place.

Additional Scope Details:

- Furnish and install locking thermostat covers.

8) *Equipment Runtime Scheduling and Temperature Setpoint Adjustments*

Modify existing equipment runtime schedules and occupied/unoccupied temperature setpoints to drive energy savings.

Memorial Park Building

1) *Furnace Control Upgrade*
Furnish and install one (1) Honeywell Web Enabled Wi-Fi programmable thermostats for control over the natural gas fired furnace to allow for scheduling equipment and temperature setpoints based on occupancy. Honeywell will program, commission, and check-out new programmable thermostat.

Additional Scope Details:
- Hyperlink for access to Wi-Fi programmable thermostat schedules and setpoints to be added to graphics of Tridium Niagara N4 Web Supervisor.

2) *Equipment Runtime Scheduling and Temperature Setpoint Adjustments*
Modify existing equipment runtime schedules and occupied/unoccupied temperature setpoints to drive energy savings.

DPW Office

1) *Install New Tridium N4 JACE Network Controller*
Provide and install new Tridium N4 JACE. Integrate new DDC controls into the Tridium Niagara N4 Supervisor. Provide new graphics as well as trending and alarming strategies.

2) *Garage Air Handling Unit (GUHs) Control Upgrade*
Provide and install BACnet thermostats for seven (7) air handling units that provide heating to the garage bays. Integrate into the BMS and provide new graphics. Provide space temperature control, OAT lockout, occupancy schedule and setpoints.

Additional Scope Details:
- Integrate into Tridium N4 Supervisor.
- Furnish and install new BACnet communicating thermostats.
- Provide communication bus wiring.

3) *Break Room Heat Pump Control Upgrade*
Provide and install a BACnet thermostat for one (1) heat pump unit that provide heating and cooling to the breakroom. Integrate into the BMS and provide new graphics. Provide space temperature control, OAT lockout, occupancy schedule and setpoints.

Additional Scope Details:
- Integrate into Tridium N4 Supervisor.
- Furnish and install new BACnet communicating thermostat.
- Provide communication bus wiring.

4) *Office Air Handling Unit Control Upgrade*
Provide and install a BACnet thermostat for one (1) air handling unit that provide heating and cooling to the office area. Integrate into the BMS and provide new graphics. Provide space temperature control, OAT lockout, occupancy schedule and setpoints.

Additional Scope Details:
- Integrate into Tridium N4 Supervisor.
- Furnish and install new BACnet communicating thermostat.
- Provide communication bus wiring.

5) *Garage Exhaust Fan Control Upgrade*
Provide and install new DDC for five (5) garage exhaust fans. Include IAQ sensors (CO/NO_2) in three (3) garage bays to determine the presence of vehicle emissions to enable exhaust fan operation. Integrate new DDC controls into the Tridium Niagara N4 Supervisor. Provide new graphics as well as trending and alarming strategies.

Additional Scope Details:
- Integrate into Tridium N4 Supervisor.
- Install new relays to provide start/stop controls.
- Implement IAQ feedback to control fan operation.

6) *Equipment Runtime Scheduling and Temperature Setpoint Adjustments*
Modify existing equipment runtime schedules and occupied/unoccupied temperature setpoints to drive energy savings.

Ambulance Corps. Building

1) *Hot Water Zone & Air Handling Unit Control Upgrade*
Furnish and install five (5) Honeywell Web Enabled Wi-Fi programmable thermostats, two (2) for control over the hot water zone pumps, two (2) for control over bathroom baseboard radiation, and one (1) for control over the air handling unit, to allow for scheduling equipment and temperature setpoints based on occupancy. Honeywell will program, commission, and check-out new programmable thermostats.

Additional Scope Details:
- Hyperlink for access to Wi-Fi programmable thermostat schedules and setpoints to be added to graphics of Tridium Niagara N4 Web Supervisor.

2) *Equipment Runtime Scheduling and Temperature Setpoint Adjustments*
Modify existing equipment runtime schedules and occupied/unoccupied temperature setpoints to drive energy savings.

Ogden Engine Company

1) *Hot Water Zone Control Upgrade*
Furnish and install four (4) Honeywell Web Enabled Wi-Fi programmable thermostats for control over the hot water zone pumps to allow for scheduling equipment and temperature setpoints based on occupancy. Honeywell will program, commission, and check-out new programmable thermostats.

Additional Scope Details:
- Hyperlink for access to Wi-Fi programmable thermostat schedules and setpoints to be added to graphics of Tridium Niagara N4 Web Supervisor.

2) *Equipment Runtime Scheduling and Temperature Setpoint Adjustments*
Modify existing equipment runtime schedules and occupied/unoccupied temperature setpoints to drive energy savings.

Pool House & Offices at Gould Park

1) *Hot Water Zone & Unit Heater Control Upgrade*
Furnish and install three (3) Honeywell Web Enabled Wi-Fi programmable thermostats, two (2) for control over the hot water zone pumps and one (1) for control over the boiler room unit heater, to allow for scheduling equipment and temperature setpoints based on occupancy. Honeywell will program, commission, and check-out new programmable thermostats.

Additional Scope Details:

- Hyperlink for access to Wi-Fi programmable thermostat schedules and setpoints to be added to graphics of Tridium Niagara N4 Web Supervisor.

2) *Equipment Runtime Scheduling and Temperature Setpoint Adjustments*
Modify existing equipment runtime schedules and occupied/unoccupied temperature setpoints to drive energy savings.

Embassy Club

1) *Install New Tridium N4 JACE Network Controller*
Provide and install new Tridium N4 JACE. Integrate the existing Andover Continuum DDC point into the Tridium Niagara N4 Supervisor. Provide new graphics for each piece of equipment, floor plan graphics, alarms, and trending. The following table lists the existing Andover Continuum DDC that will be integrated into the new Tridium Niagara N4 Supervisor.

Andover Continuum DDC to be Integrated	
Equipment	**Quantity**
Hot Water Boilers	2
Hot Water Pumps	3
Air Handling Units	2
Rooftop Units	1
Makeup Air Unit	1
Variable Air Volume Boxes	6
Cabinet Unit Heaters	4
Fin Tube Radiation	7
Unit Heaters	2
Radiant Floor System	1
Exhaust Fans	4

2) *Equipment Runtime Scheduling and Temperature Setpoint Adjustments*
Modify existing equipment runtime schedules and occupied/unoccupied temperature setpoints to drive energy savings.

Potential Operational & Maintenance Savings

A conservative estimate of operational & maintenance savings has been carried for this measure. This is a result of a reduction in the Village's current repair spend associated with the existing control systems. Only material savings are included as it is assumed any potential labor force will be reallocated to other tasks. During the IGA, Honeywell will work with the Village to gather additional detail on existing repair spend in order to validate any assumptions.

Changes in Infrastructure

New building management controls will be installed on various equipment throughout the included facilities.

Customer Support and Coordination

Minor support will be required during installation to schedule work locations and minimize the impacts to occupants.

Environmental Issues

Resource Use	Energy savings will result from implementing tighter control over HVAC equipment operation
Waste Production	All waste will be disposed of in accordance with local laws and regulations
Environmental Regulations	No environmental impact is expected

ECM 14: Building Envelope Improvements

Buildings Included:
▪ Public Library
▪ Village Hall
▪ Memorial Park Building
▪ Ambulance Corps. Building
▪ Ogden Engine Company
▪ Embassy Club

Overview

Air leakage is defined as the "uncontrolled migration of conditioned air through the building envelope." Caused by pressure differences due to wind, chimney (or stack) effect, and mechanical systems it has been shown to represent the single largest source of heat loss or gain through the building envelopes of nearly all types of buildings. Tests carried out by the National Research Council of Canada on high rise commercial and residential buildings, schools, supermarkets, and houses, have shown levels of 30% to 50% of heat loss could be attributed to air leakage.

Beyond representing potential for energy savings, uncontrolled air leakage can affect thermal comfort of occupants, air quality through ingress of contaminants from the outside, the balance of mechanical systems, and the structural integrity of the building envelope (through moisture migration). Control of air leakage involves the sealing of gaps, cracks and holes using appropriate materials and systems to create a continuous plane of "air-tightness" to completely encompass the building envelope.

Part of this process also incorporates the need to "decouple" floor-to-floor, and to "compartmentalize" components of the building in order to equalize pressure differences.

The buildings were inspected visually to identify location and severity of air leakage paths. Air leakage paths are detailed in the following scope of work. Floor plans will be used to mark locations of air sealing measures when completed.

The purpose of this evaluation was to provide a visual exploratory (Phase 1) analysis to determine if the selected buildings have existing structural conditions that cause energy waste due to the heat loss/gain through breaches in the building envelope. In addition, this scope develops a protocol and recommends reasonable corrective actions to alleviate existing concerns and problems. The concerns being considered are (1) Is there excessive air infiltrating into the building? (2) Do the existing structures have areas that could be changed or upgraded to reduce heat loss/gain? (3) Can comfort be increased? And (4) How can these issues be addressed and/or be corrected?

Additionally, visual evaluation helps identify potential design flaws, construction installation errors, inferior or improper material usage (if any), examine existing system conditions and how they interact with one another, and test for deterioration that affects efficiency.

As part of evaluating a structure, the survey team conducts interviews with occupants for historical data. While instrumented testing is accurate, it is only a snapshot. How the systems, occupants and structure react when conditions are constantly changing and what idiosyncrasies exist are key factors in determining where and what to look for when diagnosing the concerns.

There are areas where building upgrades will increase the efficiency of the existing equipment, create a more comfortable interior condition, and impact the sizing of any new equipment intended to be installed

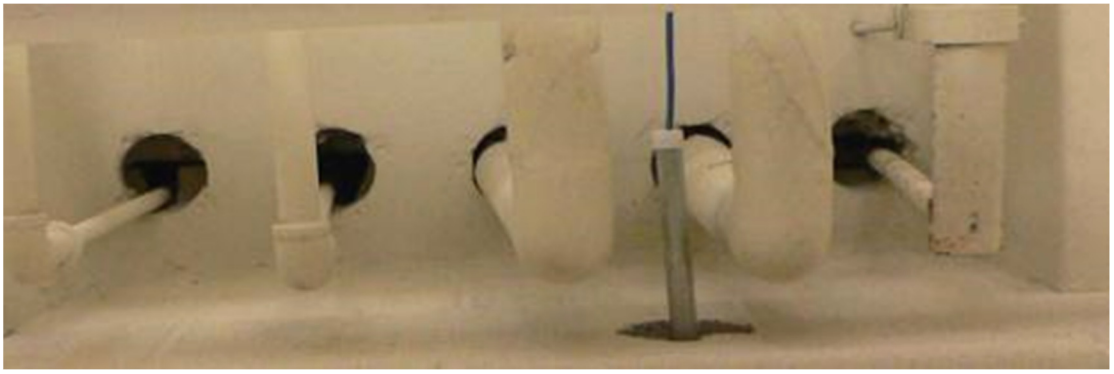
as part of the new building usage plan. The following are the facts, faults and conditions, which were identified to be major contributors to the concerns noted above:

- There are air pathways allowing air infiltration into the buildings through direct penetration points.
- There is direct communication between some occupied spaces and the areas outside the thermal building envelope.
- Mechanical rooms have not been "compartmentalized". Doors are not weather-stripped and some pipe, conduit, and duct penetrations entering the mechanical room are not sealed effectively.
- In some sections of the building the doors, which have been weather-stripped, need to be redone with durable products.
- The stack, wind, and mechanical effect are major contributors to energy costs and comfort.
- Access doors and hatches are neither properly weather-stripped nor insulated.

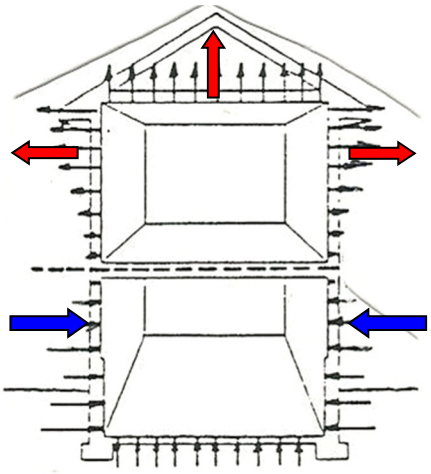
After the initial evaluation on each structure, it appears that the buildings have been kept in good condition with respect to the building envelope. Normally many of these structures would have faults and deterioration that if not repair or corrected soon, they would render many parts of the structure un-correctable but that is not the case with these buildings. What we have found is that areas of concern are those that were "built-in" at the time of construction (roof/wall open to the exterior and openings around the penetrations) or areas where a retrofit was not completely sealed. In addition, the natural wear and tear on "moving part" such as weather-stripping on doors.

Typical Penetrations

Penetration points are areas where, during initial construction and/or retrofits, holes have been opened to accommodate conduits, pipes and ductwork. When open to outside, they are direct points of entry through the building envelope allowing the outside air to enter the building uncontrolled and unconditioned. Holes allow the communication of air between floors, areas above drop ceilings and attics causing increases in the stack effect on buildings and impact negatively on the comfort of the occupants.



The higher the building the greater the pressure differentials that are created between the interior and the exterior. There are three main pressure effects that affect the conditions inside of a structure. These conditions place extreme changes in the manner the interior air is utilized to create comfort for the occupants. The following describes these effects and while the explanations are simple in nature it is usually a combination of all three effects which affect the actual conditions in the building.

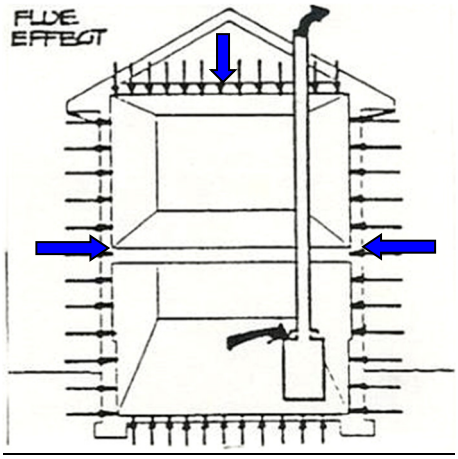


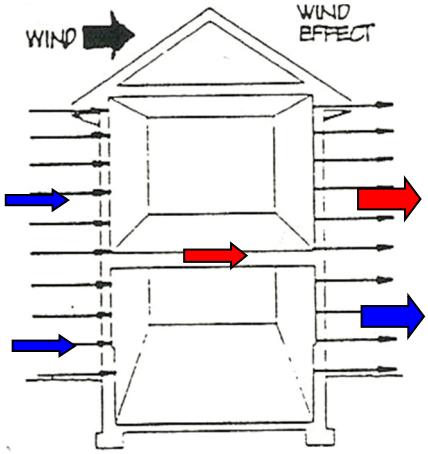
Stack Effect in Two or More Story Buildings

In the winter, the air inside the building is warmer than that outside; it therefore has a lower density. This density difference, between the inside and outside air, sets up a pressure difference across the building envelope. The pattern of this pressure difference is shown in the left drawing, where the arrows show the direction and relative size of the pressure effect. This pattern is present in all heated buildings and is known as the stack effect.

Mechanical Venting (Flue Effect)

If a building has a mechanical venting system, then the flue effect is important. The venting can create negative pressure causing a vacuum on the building. This phenomenon sucks air out of the rest of the building and reduces its pressure. Cold air is pulled into the building through every crack and opening.

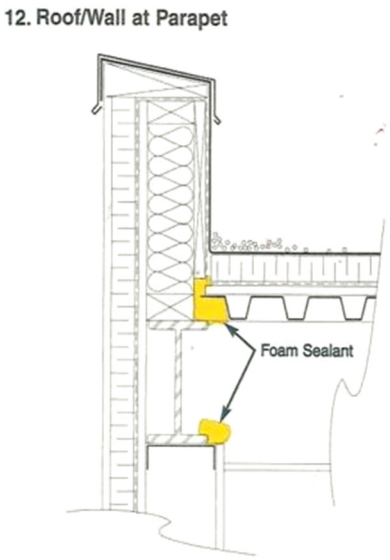




Wind Effect

From everyday experience, it is known that wind creates pressure – the stronger the wind, the greater the pressure. When a wind blows around a building it creates an inward pressure on the up-wind side. A very simplified form of wind effect is shown in the photo to the right. In practice, there is also a complicated wind pressure pattern across the building's ceiling.

Sealing the Roof/Wall/Penetrations/Roof Panning



The diagram to the left is a sample of a roof/wall intersection. Metal panning is installed as part of the roof system on top of a block wall, I-beams and/or bar joist. The corrugated metal panning, by design, does not seal. The openings between each rib of the panning, the roof/wall intersection running parallel with the panning and the bar joist penetrations should be sealed.



All buildings "leak" air. Fresh air is required for all public buildings; it ensures a healthier condition inside of the building and helps reduce sick building syndrome. The building need to breath; unfortunately, many buildings hyperventilate. Air leakage needs to be controlled; if not, then there are barometric pressures that are placed on the building which allows discomfort and higher energy costs. Three of the most crucial effects that affect indoor conditions are the *Stack, Wind and Mechanical Effects* as described above.

The photo to the right is an archive photo taken from above a drop ceiling.



Along the edges (roof/wall intersection) the area is not sealed. Air moisture and insect migration all enter through the roof/wall intersection openings. And as depicted in the diagram above from under the actual flashing of the exterior wall air, moisture and insects can all enter from that area.

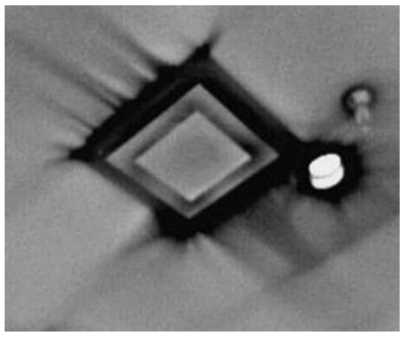
Weather Stripping/Caulking



Window and door openings are the worst areas to deal with when sealing a building. They must not only seal but allow access. In most instances the sealing is permanent, but in these two areas there is friction from the constant opening and closing. Therefore, it is important to seal these areas with a durable product that is not only flexible but strong enough to withstand the abuse, wear and tear.

Compartmentalization

Many of the structures are so large that normally it would be easy to think of it as one building. But most are made up of several connected units. It is easily understandable why it becomes difficult to keep comfortable certain areas that are zoned differently but are actually connected above, under or around the zones. To combat these issues, a blower door test with infrared imaging can be provided to identify the hidden pathways and chase ways.



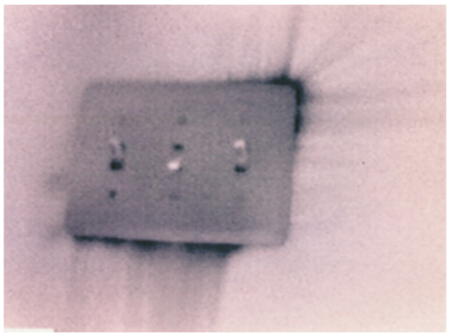
Air Leakage Around Venting



Air Leakage Around Sills



Air Leakage at Doors



Air Leakage Around Receptacles & Switches

Blower Door Methodology



For most structures a series of standard blower doors (photo left) is all that is needed to create air flow for evaluating the leakage points in buildings. While the equipment is exhausting air through the fans outside air is entering through the holes, voids, and seams of the structure. This information is used to create a scope of work.

There are times when identifying the actual leakage point can be difficult as it may be hidden. On those occasions, an infrared camera is used to help identify where the leakage is entering the building.

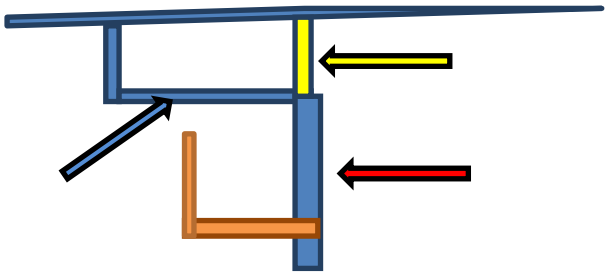
For large buildings, the blower door may be larger as depicted below however the process is the same. Pressure differentials are created to measure the uncontrolled leakiness of the structure.





Blower Door Testing Setup

Open Soffits



Some overhangs and soffits may be open to the exterior. There are seams, cracks and joints in these soffits that allow the free flow of air beyond their exterior skin. The holes that were created as well as the deterioration of the caulking are also entrance points for moisture and insect migration and exit points for heat in the winter. Since heat always travels to cold, the conditioned heat is lost in the winter and the hot humid air gains access in the summer. Add to this the draw of air for a return plenum from this area increases the run time on equipment for extra dehumidification and heating.

What would be proposed is to add a thermal panel (yellow arrow) to complete the interior wall separating the overhang (blue arrow) from the interior conditioned space (red arrow). If any of the ceiling of the soffit area is part of the floor above, then the thermal boundary would be placed (orange color) so that the area is inside of the conditioned space.

Existing Conditions

A building envelope audit was performed for the buildings of the Village of Dobbs Ferry. The results of the audit were the identification of several areas of envelope deficiency. The deficient areas were tabulated and their savings potential calculated. A description of the audit findings and savings opportunities are presented below. The main goals of this energy study were to:

- Assess building envelope conditions for each of the designated facilities
- Identify areas that would benefit most from weatherization measures
- Generate energy savings utilizing recommended infiltration and insulation upgrades/retrofits
- Establish areas and sites that would benefit most from an energy efficient redesign, providing a project with the best ROI

The following locations were included in the building envelope surveys:

Building
Public Library
Village Hall
Memorial Park Building
DPW Office
Ambulance Corps. Building
Ogden Engine Company
Pool House & Offices at Gould Park
Embassy Club

Findings

- Attic Bypass Sealing – Interior walls, plumbing, electrical, and HVAC penetrations entering the attic are not properly sealed allow conditioned air to escape into the vented attic space. Since warm air rises, sealing the attic from the conditioned space is crucial to maintaining an efficient building. Air movement through fibrous insulation reduces the effectiveness of the existing insulation.
- Attic Flat Insulation – Attic insulation is crucial for controlling conductive heat loss in a building. After air gaps are sealed and convective air loss is reduced the biggest remaining form of heat loss becomes

conduction. Likely under-insulated surfaces at the Memorial Park Building result in excessive energy loss due to the lack of a properly insulated thermal barrier.

- Caulking – The newly installed door at the Embassy Club is incomplete, there is exposed fiberglass at the perimeter of the door that needs to be sealed to prevent further air leakage. The basement window lite in the door of the Memorial Park Building is loose and needs to be caulked in place to prevent air leakage.
- Door Weather Stripping – Deteriorated weather-stripping materials, ineffective weather-stripping installation and daylight showing at the perimeter of door systems create direct pathways for unwanted infiltration/ exfiltration throughout the Village buildings.
- Double Hung Window Weatherization – Upper sash sag and a lack of weather-stripping combined result in an inefficient window assembly. Fixing the upper sash and caulking in place will convert double hung windows to single hung windows. The lower sash then requires weather stripping to reduce further air leakage.
- Install Hatch – There is no access into the attic of the Memorial Park Building; and attic hatch needs to be installed to execute the scope of work. The second-floor ladder chase of the Ogden Engine Company is a major conductive and convective heat loss source. The ladder chase needs to be blocked with a hatch to prevent a weak point in the thermal envelope of the building while still allowing occupants to access the full length of the ladder area.
- Overhead / Rollup Door Weather Stripping – Remove existing weather stripping and replace with new commercial grade weather stripping to create a full air seal around the door. With low grade, none, or deteriorating materials in place overhead and roll-up doors are a major air leakage source.
- Retrofit Attic Hatch – The attic around the hatch of the Ogden Engine Company is adequately insulated. There is no insulation on the hatch or weather stripping in place for controlling air leakage. Proper weather stripping and insulation will prevent the hatch from being a weak point in the envelope at the top of the building.
- Wall Air Sealing – A wall assembly that does not have an effective air barrier in place allows unnecessary air leakage losses. An area of poorly insulated and sealed wall assembly at the Ogden Engine Company creates a bypass for air leakage and heat loss that force the heating and cooling systems to work harder than necessary.

Building Specific Notes:

- Memorial Park Building – The attic scope of work is designed without inspecting the attic space, there is no way to access the attic currently. Honeywell is making an assumption that the lack of an access hatch and the older construction of the building will reveal little to no insulation in the attic of this building. Upon installing a proper attic hatch the attic will need to be re-assessed for risks of executing the proposed scope of work. There is some potential for existing insulation to be in place or for hazardous materials in the space to prevent retrofit insulation work without first investing in remediation.
- DPW Office – The newer construction of the butler style DPW building does not require building envelope upgrades. The weather stripping, wall insulation, and roof insulation is adequate throughout the building.
- Pool House & Offices at Gould Park – Water carrying distribution pipes are running through the attic with no insulation at the attic or roof. A roof insulation project should be pursued in order to reduce building envelope deficiencies while containing the water carrying distribution pipes within the envelope to reduce freezing risks. Unfortunately, there is not enough usage to support a building envelope work in this project.



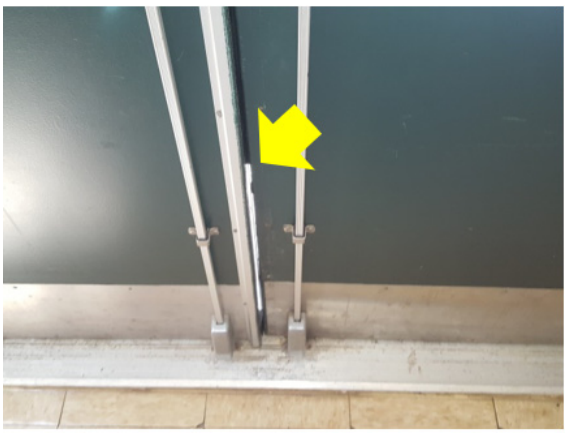
Caulking – The newly installed door was left unfinished; casing gaps filled with fiberglass are allowing air leakage around the perimeter of the door assembly (Embassy Club).



Caulking – The window lite is loose in the door panel resulting in air leakage between the window and door slab; caulking is required to prevent further air leakage (Memorial Park Building).



Double Hung Window Weatherization – Single pane wood frame windows have been outfitted with additional interior storms. There is no weather stripping left at a majority of windows throughout the building resulting in air infiltration at the wood on wood intersections (Village Hall).



Door Weather Stripping – Missing weather stripping at the center of the double door assembly is allowing unwanted air leakage (Public Library).



Install Hatch – The tall chase leading from the second floor closet needs to be blocked to prevent conditioned building air from freely interacting with outside air at the top of the building (Ogden Engine Company).



Overhead Door Weather Stripping – The clearly damaged weather stripping needs to be replaced to prevent air leakage around garage doors (Ambulance Corps. Building).

Proposed Solution

The Village of Dobbs Ferry buildings were found to have areas that would benefit from envelope improvements. Installing the recommended measures will optimize overall building performance by improving the thermal separation between the building interior and the outdoor climate. These recommendations will minimize the heat transfer into and out of conditioned spaces and result in electric and fuel savings for the Village. When air loss is mitigated the HVAC systems will not need to be run as often to maintain a consistent temperature inside the buildings. By reducing the usage of the equipment energy savings will be realized, and the equipment's life will be prolonged.

Honeywell recommends the following building envelope improvements:

- Attic Bypass Air Sealing
- Attic Flat Insulation (12" Open Blown Cellulose)
- Caulking
- Door Weather Stripping
- Double Hung Window Weatherization
- Install New Attic Hatch
- Insulation Soffit Baffles
- Overhead Door Weather Stripping
- Retrofit Attic Hatch
- Wall Air Sealing

Building	Attic Bypass Air Sealing (Sq. Ft.)	Attic Flat Insulation (Sq. Ft.)	Caulking (Lin. Ft.)	Door Jamb Spacers (Units)	Door Weather Stripping – Double (Units)	Door Weather Stripping – Single (Units)
Public Library	-	-	-	-	5	-
Village Hall	-	-	-	-	2	2
Memorial Park Building	800	800	6	2	-	2
Ambulance Corps. Building	-	-	-	-	-	2
Ogden Engine Company	-	-	-	-	1	-
Embassy Club	-	-	17	-	-	3
TOTAL	**800**	**800**	**23**	**2**	**8**	**9**

Building	Double Hung Window Weatherization (Units)	Install New Attic Hatch (Units)	Insulation Soffit Baffles (Units)	Overhead Door Weather Stripping (Units)	Retrofit Attic Roof Hatch (Units)	Wall Air Sealing (Sq. Ft.)
Public Library	-	-	-	-	-	-
Village Hall	24	-	-	2	-	-
Memorial Park Building	-	1	48	-	-	-
Ambulance Corps. Building	-	-	-	2	-	-
Ogden Engine Company	-	1	-	1	1	40
Embassy Club	-	-	-	-	-	-
TOTAL	**24**	**2**	**48**	**5**	**1**	**40**





Example Attic Improvements





Example Caulking Improvements

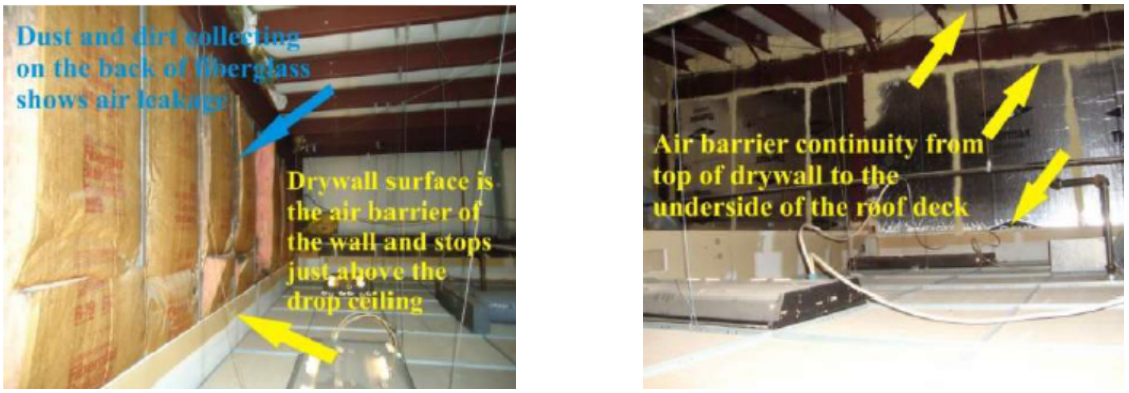




Example Weather-Stripping Improvements



Example Double Hung Window Weatherization Improvements



Example Wall Air Sealing Improvements (Before & After)

Potential Operational & Maintenance Savings

No operational & maintenance savings were included for this measure.

Changes in Infrastructure

New building envelope improvement materials will be installed as described above (caulking, weather-stripping, etc.).

Customer Support and Coordination

Minimal coordination efforts will be needed to reduce or limit impact to building occupants.

Environmental Issues

Resource Use	Energy savings will result from reduced building envelope infiltration/exfiltration.
Waste Production	Some existing caulking and weather-stripping will be removed and disposed of properly.
Environmental Regulations	No environmental impact is expected.

ECM 15: Pipe Insulation

Buildings Included:
▪ Public Library
▪ Village Hall
▪ Ambulance Corps. Building
▪ Embassy Club

Existing Conditions

During the audit, it was noticed that there are sections and components of the heating and domestic hot water systems throughout select facilities lacking proper insulation. Uninsulated piping and fittings create heat loss before the intended end use location (i.e. occupied space). The accumulation of these loses increases the boiler load and requires more fuel to be consumed to satisfy building demand. Bare pipes can also create safety concerns for occupants working in these areas.

- Pipe Insulation – Uninsulated pipes in the steam, condensate, and heating hot water systems are leading to unnecessary distribution losses and wasted energy.
- Valve & Fitting Insulation – Valves and fittings are difficult components of a mechanical system to insulate and as a result are frequently left uninsulated. These uninsulated or poorly insulated components have the same temperature fluids passing through them as their associated piping which leads to unnecessary distribution losses and wasted energy.
- Tank Insulation – Tanks are difficult components of a mechanical system to insulate and as a result are frequently left uninsulated. Uninsulated or poorly insulated tanks have the same temperature fluids passing through them as their associated piping; uninsulated components of the distribution system lead to unnecessary distribution losses and wasted energy.



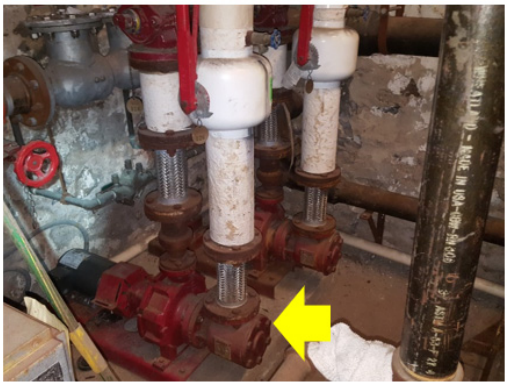
Pipe Insulation – Bare copper pipes need to be insulated in order to reduce distribution losses (Ambulance Corps. Building)



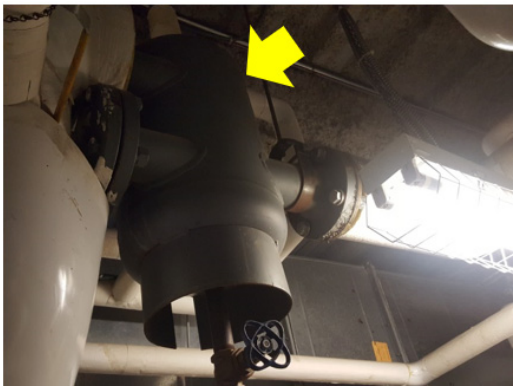
Valve & Fitting Insulation – The pumps and flex fittings are not insulated which is leading to unnecessary distribution losses (Public Library)



Pipe Insulation – Pipes are not insulated which is leading to unnecessary distribution losses (Embassy Club)



Valve & Fitting Insulation – The un-insulated components at the pumps are leading to unnecessary distribution losses (Village Hall)



Tank Insulation – The un-insulated tank represents a large surface area in the heating distribution system resulting in heating losses (Public Library)

Proposed Solution

Honeywell proposes to insulate these pipes and fittings with appropriately thick fiberglass insulation. Because valves and fittings are the hardest components to insulate, custom fabricated insulating blankets will be installed. Once applied this insulation will reduce or eliminate unwanted system heat loss.

It will also serve as a safeguard to protect personnel from burns and stressful high temperature work conditions. ASTM Standard Practice C 1057 contains a standard practice for determination of skin contact temperature from heated surfaces. The standard industry practice is to use 140°F as the maximum temperature of a heated surface that may be contacted by working personnel.

The following pipe insulation work is proposed:

- Pipe Insulation
  - See table below for detailed scope of work
- Valve, Fitting & Tank Insulation
  - Auburn Manufacturing Ever Green Cut ‘n Wrap is recommended at Valves and Fittings for the project. Removable blankets will be custom fabricated on-site.
- Tank Insulation



Example Uninsulated Piping with Infrared Temperature Measurement



Example Uninsulated Fitting with Infrared Temperature Measurement



Example Insulation Blanket Installation on Fitting with Infrared Temperature Measurement

Heating Hot Water									
Building	10" + Diameter	8" Diameter	5" Diameter	4" Diameter	3" Diameter	2.5" Diameter	2" Diameter	1" Diameter	0.75" Diameter
Public Library	-	7.9	-	13.0	19.6	-	-	-	-
Village Hall	-	7.9	-	10.8	74.7	-	6.0	-	-
Ambulance Corps. Building	-	-	-	-	-	-	-	30.8	139.0
Embassy Club	-	-	-	-	-	-	-	117.1	-
Totals	**-**	**15.8**	**-**	**23.8**	**94.3**	**-**	**6.0**	**147.9**	**139.0**

Domestic Hot Water									
Building	10" + Diameter	8" Diameter	5" Diameter	4" Diameter	3" Diameter	2.5" Diameter	2" Diameter	1" Diameter	0.75" Diameter
Ambulance Corps. Building	-	-	-	-	-	-	-	-	50.8
Totals	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**50.8**

MINIMUM PIPE INSULATION (thickness in inches)							
FLUID OPERATING TEMPERATURE RANGE	INSULATION CONDUCTIVITY		NOMINAL PIPE DIAMETER				
	Conductivity Btu-in./(h-ft²-°F)	Mean Rating Temperature, °F	≤ 1.0"	1.0" to < 1.5"	1.5" to < 4.0"	4.0" to < 8.0"	≥ 8.0"
>350°F	0.32-0.34	250	4.5	5.0	5.0	5.0	5.0
251°F - 350°F	0.29-0.32	200	3.0	4.0	4.5	4.5	4.5
201°F - 250°F	0.27-0.30	150	2.5	2.5	2.5	3.0	3.0
141°F - 200°F	0.25-0.29	125	1.5	1.5	2.0	2.0	2.0
105°F - 140°F	0.22-0.28	100	1.0	1.0	1.5	1.5	1.5

* Based on insulation having a conductivity (k) not exceeding 0.27 Btu per inch/h·ft²°F

** In conformance with the latest Energy Conservation Construction Codes

Potential Operational & Maintenance Savings

No operational & maintenance savings were included for this measure.

Changes in Infrastructure

New insulation will be applied to piping and fittings.

Customer Support and Coordination

Coordination with site personnel will be required to minimize interruption to the buildings affected. In areas where asbestos is present, precautions will be required. Areas that are dangerously hot may require coordination with a normally occurring shutdown of that portion of the system.

Environmental Issues

Resource Use	Energy savings will result from reduced heat loss leading to a decrease in boiler fuel consumption.
Waste Production	This measure produces no waste by products.
Environmental Regulations	No environmental impact is expected.

ECM 16: Desktop Computer Power Management

Buildings Included:
▪ Public Library
▪ Village Hall
▪ Memorial Park Building
▪ DPW Office
▪ Ambulance Corps. Building
▪ Ogden Engine Company

Existing Conditions

Energy waste is inherent in large PC networks. While most PCs have energy-saving settings such as stand-by, hibernate, and shutdown, over 80% of users disable their low-power settings. Installation of a network-level control over the power settings of all desktop computers solves this problem by giving IT personnel control. Network managers can easily configure and maintain PC power settings across distributed networks to automatically send PCs into low-power states as needed. A PC typically wastes 100 to 400 kWh of energy a year by remaining on during unoccupied periods. Ideally, everyone would use the built-in energy saving function on their machine; however, as indicated above these existing energy-saving features are rarely enabled.

Proposed Solution

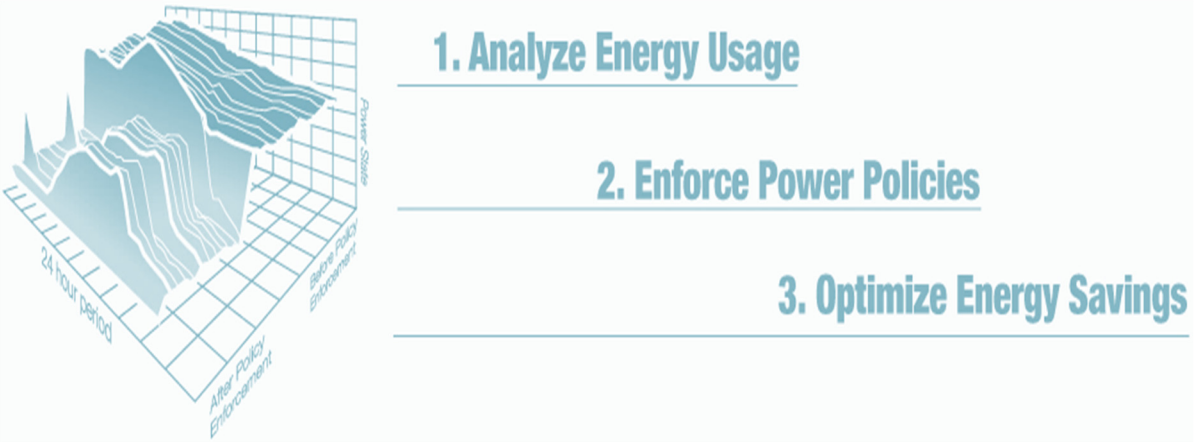
Honeywell proposes to install a centralized computer power management system to control computers. The WakeSMART software by Raptor Technical allows organizations to measure, manage, and monitor all of their computing and mobile devices across their network. It delivers computer energy management that does not interfere with user or IT needs. Before energy management actions are taken CPU, disk, keyboard, mouse, and application activity are analyzed to determine the appropriate computer state.

The software keeps computers running when users need them, and accurately determines when computers are inactive so they can be powered down. It also allows for energy savings reports to be easily generated. WakeSMART is a highly scalable platform supporting hundreds to hundreds of thousands of devices. The software overcomes deficiencies in the operating system that cause sleep disorders and limited savings. To optimize savings, WakeSMART's flexible power management strategies support distributed workforces with policies by role, location, or department. As important, the solution is transparent to end users and incorporates a highly accurate algorithm to determine when a user is actively interacting with their system. No automatic shutdowns or annoying pop-ups are utilized.

The following are some of the benefits that can be realized by utilizing the WakeSMART software:

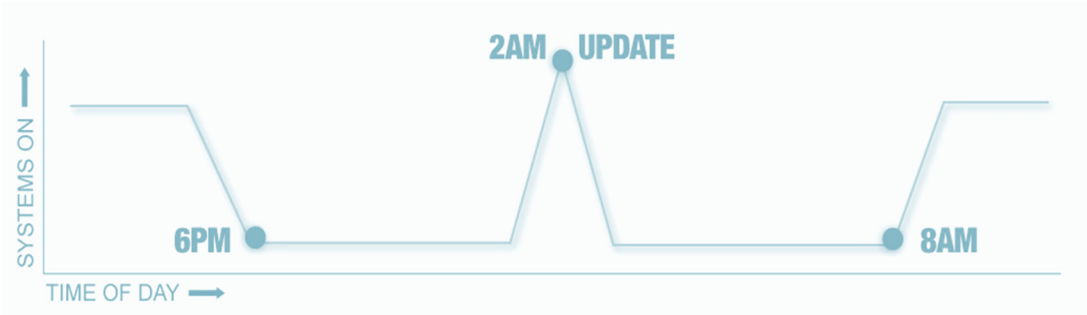
Reduces Energy Consumption

- Can reduce power used to operate a computer fleet by as much as 30%
- Improves the success rate in waking computers for administration
- Allows for measurement and management of savings on an ongoing basis
- If desired, can be incorporated into utility demand-reduction programs



Better Administration Capabilities

- Centrally manage Windows, Mac, Chrome and plug-load devices
- Wake disparate platforms for administration purposes
- Track and manage mobile devices
- Extend battery life of mobile devices
- Enable access for remote workers



Technical Specifications

- Controls Windows, Mac, and Chromebook devices
- Client-Server architecture available in on-premise or Cloud-based versions
- Secure end-to-end SSL communications
- Robust energy and administrative reporting system based on Python technology
- Ability to wake devices anywhere they are located
- Advanced laptop and Chromebook battery life extension capabilities
- On-premise server requires Windows Server 2012 or newer or Linux Server
- Server: 8GB of RAM and 4-Cores CPU
- 64-bit, 200 KB Agent
- API for plug-load device connections

Scope of Work

Honeywell proposes to install the WakeSMART software by Raptor Technical for network level control of energy-saving functions for the computers listed below. Honeywell will work with IT Personnel to install and rapidly deploy the WakeSMART software on the network. This single day installation plan will address server and client installation, basic administrative configurations, logical power management profile groupings, and energy consumption reporting. The primary benefit from the system is the energy savings; however, security of the network is also enhanced because the most secure computer is the one that is off.

Building	Computer Counts
Public Library	5
Village Hall	10
Memorial Parks Building	4
DPW Office	3
Ambulance Corps. Building	1
Ogden Engine Company	1
Total	**24**

Note:
The total count of desktop computers was gathered during site surveys. This total will be confirmed with the IT Department during the Investment Grade Audit to ensure accuracy and capture any changes in technology within the Village.

Potential Operational & Maintenance Savings
No operational & maintenance savings were included for this measure.

Changes in Infrastructure
New computer power management software will be installed.

Customer Support and Coordination
Customer support shall be required in deploying the software.

Environmental Impact

Resource Use	Energy savings will result from reducing unnecessary computer run time
Waste Production	This measure will produce no waste products
Environmental Regulations	No environmental impact is expected

ECM 17: Roof Replacement

Buildings Included:
▪ Village Hall

Existing Conditions

The existing flat roof at Village Hall has multiple leaks which results in consistent water infiltration. This has damaged some of the building interior and has been an ongoing issue for building personnel. The existing roof is a multi-layer flat EPDM style, and visually does not appear to be very old, however as noted above, significant deficiencies are in need of repair. There is also an opportunity to increase the insulation characteristics of this roofing system to further improve the building envelope. The table below shows the approximate square footage of the roof area recommended for replacement, followed by marked satellite images to highlight specific locations.

Building	Approximate Area [Sq. Ft.]
Village Hall	7,117




Village Hall Existing Roof Conditions




Village Hall Interior Water Damage



Village Hall Replacement Roof Area (Shaded Red)

Proposed Solution

Honeywell proposes to replace the existing roof areas noted above with a new, high efficiency Carlisle TPO roofing system. This will improve the roof characteristics and reduce energy loss. The new system will also come with full system 20-year warranty to provide extended protection for the Village. Details of the specific roof design characteristics will be reviewed with the Village during the Investment Grade Audit.

Scope of Work

- Remove existing roofing down to the roof deck
- Provide and install new fully adhered TPO roofing system with R-30 ISO
- Remove existing coping and gravel stops
- Provide and install new coping and gravel stops
- Provide a 20-year NDL warranty

System Features & Benefits

Energy Efficiency – Carlisle's white and tan Sure-Weld TPO membranes are ENERGY STAR® qualified, Cool Roof Rating Council (CRRC) certified, and California Title 24 compliant. The high reflectivity of Carlisle's TPO can significantly reduce air-conditioning costs, particularly for buildings in hot climates. Most manufacturers can produce a white product, but the true measure of how the membrane can reduce your building's cooling costs is found in its three-year reflectivity test results. A smoother top ply and a formulation that resists dirt pick-up gives Carlisle's TPO one of the highest three-year reflectivity values in the industry and enables Carlisle to offer a 10-year reflectivity warranty on all TPO membranes.

Membrane Flexibility – TPO polymer is flexible in its original state prior to being converted to a membrane. This natural flexibility is maintained as the TPO membrane is exposed to extreme heat and UV. Also, this sheeting easily accommodates the building's normal expansion and contraction.

Fire Resistance – Sure-Weld TPO roofing systems meet UL 790 requirements for external fire Class A ratings and UL P assemblies for internal hourly fire ratings. Consult the UL Building Material Directory for specific assemblies.

Chemical Resistance – Sure-Weld TPO membrane is highly chemical- and contaminant resistant. Most liquids and chemicals exhausted onto the roof have no effect on the membrane.

Wind Resistance – Sure-Weld TPO roofing has surpassed many of Factory wind resistance classifications, which consist of the most stringent standards in the industry. Refer to Carlisle's Code Approval Guide for details.

Environmentally Friendly – Sure-Weld TPO membranes are 100% recyclable. All post-industrial scrap is recycled back into the product through an in-house process. Additionally, Carlisle offers recycling options for TPO membrane after usage through a partnership with Nationwide Foam. Carlisle's White Sure-Weld TPO membranes are also NSF P151 certified as a rainwater catchment product. This certification ensures that rainwater that comes in contact with our Sure-Weld membrane will not impart contaminants into the water at levels that exceed U.S. Environmental Protection Agency (EPA) drinking water regulations or advisories.

Ease of Installation – Heat-welded systems are easy to install since minimal labor and few components are required. Sure-Weld TPO membrane welds at fast speeds — 10 to 15 feet per minute at moderate temperature settings. Sure-Weld TPO promotes one of the widest windows of weldability in the industry.

Potential Operational & Maintenance Savings

A conservative estimate of operational & maintenance savings has been carried for this measure. This is a result of a reduction in the Village's current repair spend associated with the existing roofing system. Only material savings are included as it is assumed any potential labor force will be reallocated to other tasks. During the IGA, Honeywell will work with the Village to gather additional detail on existing repair spend in order to validate any assumptions.

Changes in Infrastructure

New roofing systems will be installed in the areas detailed above.

Customer Support and Coordination

Minor support will be required for coordinating roof installation so as to minimize the impact on occupants.

Environmental Issues

Resource Use	Energy savings will result from reductions in HVAC loads due to decreased heat transfer through the roof
Waste Production	All waste will be disposed on in accordance with local laws and regulations.
Environmental Regulations	No environmental impact is expected.

ECM 18: Water Conservation

Buildings Included:
▪ Public Library
▪ Village Hall
▪ Memorial Park Building
▪ DPW Office
▪ Ambulance Corps. Building
▪ Ogden Engine Company
▪ Pool House & Offices at Gould Park
▪ Embassy Club

Existing Conditions

A survey of each facility was performed to evaluate existing water fixtures and measure current water flow rates. Water saving opportunities were identified in all of the Village facilities. For a description of the existing water fixtures in each facility, please see Section 1 – Building Descriptions.

Proposed Solution

Honeywell proposes to replace/retrofit existing standard flow water fixtures with low flow water fixtures. This will reduce water consumption and save on domestic hot water generation requirements. The recommended water conservation project will standardize the flow of new toilets, urinals, faucets and showerheads wherever possible.

A general description of the proposed water fixture upgrades is as follows:

Scope of Work

Toilets

The retrofit includes installation of twenty-nine (29) high-efficiency toilets. Twenty (20) toilets shall be replaced with commercial toilet bowls and flush valves and equipped with new commercial grade open-front toilet seats. Nine (9) toilets shall be replaced with new two-piece commercial grade tank toilets combinations and equipped with new commercial grade closed-front toilet seats.

Commercial toilet bowl & manual flush valve:

- Eleven (11) toilets will be replaced with new floor mount American Standard (or equivalent) 1.28 gallon per flush commercial china with Sloan manual diaphragm 1.28 gallon per flush flush-valves
- Two (2) toilets will be replaced with new floor mount ADA American Standard (or equivalent) 1.28 gallon per flush commercial china with Sloan manual diaphragm 1.28 gallon per flush flush-valves
- Seven (7) toilets will be replaced with new wall mount American Standard (or equivalent) 1.28 gallon per flush commercial china with Sloan manual diaphragm 1.28 gallon per flush flush-valves
- Twenty-four (24) toilets will be replaced with new wall mount American Standard (or equivalent) 1.28 gallon per flush commercial china with Sloan manual diaphragm 1.28 gallon per flush flush-valves
- Six (6) toilets will be replaced with American Standard comfort height floor mount 2-piece 1.28 gallon per flush toilets
- Three (3) toilets will be replaced with American Standard wall mount 2-piece 1.6 gallon per flush pressure assist toilets
- All flush valves are manual operation.

Generally, the retrofit is a like for like material replacement.

- Each new toilet bowl will be installed with appropriate gaskets, trim, and seats to be complete to code.
- All new valves will be plumbed at the correct height and distance from the finished wall to allow plumb valve installation.
- Each valve will be installed with a new spud gasket assembly.
- Flush valves will be installed to meet all state and federal uniform plumbing codes. The ASSE CL1001 atmospheric vacuum breaker code requires that the vacuum breaker critical line (CL) be installed 6" above the flood-plain of the toilet (or urinal). The CL is denoted on the exterior of the flush valve vacuum breaker tailpiece with a visible CL line. The flood-plain of a toilet is defined as the highest point at which water will overflow a fixture.
- New toilets will be installed with new control stop valves as needed.

Urinals

The retrofit includes the installation of seven (7) high-efficiency urinal valves. The installation shall include four (4) 0.5 gallon per flush flush-valves and three (3) 1.0 gallon per flush flush-valves onto existing wall mount wash-out, stall type and blow-out urinal china. The existing china will remain intact.

Generally, the retrofit is a like for like material replacement.

- All new valves will be plumbed at the correct height and distance from the finished wall to allow plumb valve installation.
- Each valve will be installed with a new spud gasket assembly.
- Flush valves will be installed to meet all state and federal uniform plumbing codes. The ASSE CL1001 atmospheric vacuum breaker code requires that the vacuum breaker critical line (CL) be installed 6" above the flood-plain of the toilet (or urinal). The CL is denoted on the exterior of the flush valve vacuum breaker tailpiece with a visible CL line.

Faucets and Showers

Thirty-five (35) high flow faucets will be retrofit with the flow controls manufactured by Neoperl and applicable adaptors onto existing faucets. The faucet, handles, control valves, drain assembly and sink basin will remain intact. Bathroom faucets will be fitted with 0.5 gallon per minute flow restrictors, kitchen hand wash and exam room faucets will be retrofitted with 1.0 gallon per minute laminar-flow restrictors and kitchen faucets will be retrofitted with 1.5 gallon per minute flow restrictors.

Two (2) faucets will be replaced with new American Standard faucets with mechanical mixing valve, braided stainless steel risers and brass craft angle stops. The sink (china), drain and trap will remain intact.

One (1) Pre-rinse sprayer will be replaced with new high efficiency 1.14gpm Fischer 2949 nozzle and 36" braided stainless steel hose to ensure proper functionality. Mounting brackets and springs will be left intact.

Ten (10) high flow showerheads will be replaced with new high-efficiency 1.75gpm showerheads and 2.0gpm shower wands with 36" hose attachments for hand-held showers.

Building	PROPOSED WATER FIXTURE UPGRADES				
	Toilet Replacements	Urinal Retrofits	Faucet Retrofits	Pre-Rinse Sprayers	Shower Replacements
Public Library	4	-	1	-	-
Village Hall	8	1	8	-	2
Memorial Park Building	3	1	3	-	-
DPW Office	3	2	3	-	-

Building	PROPOSED WATER FIXTURE UPGRADES				
	Toilet Replacements	Urinal Retrofits	Faucet Retrofits	Pre-Rinse Sprayers	Shower Replacements
Ambulance Corps. Building	2	-	3	-	1
Ogden Engine Company	4	1	6	-	2
Pool House & Offices at Gould Park	5	2	4	-	5
Embassy Club	-	-	9	1	-
TOTALS	**29**	**7**	**37**	**1**	**10**

Potential Operational & Maintenance Savings

No operational & maintenance savings were included for this measure.

Changes in Infrastructure

New low flow fixtures will be installed as detailed above.

Customer Support and Coordination

Minor support will be required during installation so as to minimize the impact on occupants.

Environmental Issues

Resource Use	Water savings will result from a decrease in fixture flowrates and energy savings will result from associated reductions in domestic hot water generation requirements
Waste Production	All waste shall be properly disposed of in accordance with all federal, state and local codes
Environmental Regulations	No environmental impact is expected

FINANCIAL PRO FORMA

Please see the financial pro forma on the following page. This includes details on potential scope items included in this preliminary cash flow. Honeywell will work with the Village to fully define desired scope options during the Investment Grade Audit.

Village of Dobbs Ferry

Honeywell

BUDGET PRO FORMA
PERFORMANCE CONTRACTING PROJECT
20 YEAR FINANCIAL ANALYSIS

	Project Cost*	**$2,600,000**																			
	Financed Amount**	**$2,495,982**																			
	Interest Rate	**2.50%**			**Savings Inflation Rate**	**2.00%**															
					M&V Service Inflation Rate	**3.00%**															
	Term	**20 Years**																			
Year	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**TOTAL**
Baseline Energy Costs	$265,958	$271,277	$276,703	$282,237	$287,881	$293,639	$299,512	$305,502	$311,612	$317,844	$324,201	$330,685	$337,299	$344,045	$350,926	$357,944	$365,103	$372,405	$379,854	$387,451	$6,462,080
Post Improvement Energy Costs	$172,423	$175,871	$179,389	$182,977	$186,636	$190,369	$194,176	$198,060	$202,021	$206,061	$210,183	$214,386	$218,674	$223,048	$227,508	$232,059	$236,700	$241,434	$246,263	$251,188	$4,189,425
Energy Savings	**$93,535**	**$95,406**	**$97,314**	**$99,260**	**$101,245**	**$103,270**	**$105,336**	**$107,442**	**$109,591**	**$111,783**	**$114,019**	**$116,299**	**$118,625**	**$120,997**	**$123,417**	**$125,886**	**$128,404**	**$130,972**	**$133,591**	**$136,263**	**$2,272,654**
Operational Savings***	$27,991	$28,551	$29,122	$29,704	$30,298	$30,904	$31,522	$32,153	$32,796	$33,452	$34,121	$34,803	$35,499	$36,209	$36,934	$37,672	$38,426	$39,194	$39,978	$40,778	$680,108
TOTAL SAVINGS	**$121,526**	**$123,957**	**$126,436**	**$128,964**	**$131,544**	**$134,175**	**$136,858**	**$139,595**	**$142,387**	**$145,235**	**$148,140**	**$151,102**	**$154,124**	**$157,207**	**$160,351**	**$163,558**	**$166,829**	**$170,166**	**$173,569**	**$177,040**	**$2,952,762**
Project Costs																					
Project Financing****	$161,343	$161,343	$161,343	$161,343	$161,343	$161,343	$161,343	$161,343	$161,343	$161,343	$161,343	$161,343	$161,343	$161,343	$161,343	$161,343	$161,343	$161,343	$161,343	$161,343	$3,226,860
Honeywell M&V (Measurement & Verification)	$6,000	$6,180	$6,365																		$18,545
TOTAL COSTS	$167,343	$167,523	$167,708	$161,343	$161,343	$161,343	$161,343	$161,343	$161,343	$161,343	$161,343	$161,343	$161,343	$161,343	$161,343	$161,343	$161,343	$161,343	$161,343	$161,343	$3,245,405
NET BENEFIT WITHOUT REBATES	**($45,817)**	**($43,566)**	**($41,273)**	**($32,379)**	**($29,799)**	**($27,168)**	**($24,485)**	**($21,748)**	**($18,956)**	**($16,108)**	**($13,203)**	**($10,241)**	**($7,219)**	**($4,136)**	**($992)**	**$2,215**	**$5,486**	**$8,823**	**$12,226**	**$15,697**	**($292,643)**
																					$0
NET BENEFIT WITH REBATES	($45,817)	($43,566)	($41,273)	($32,379)	($29,799)	($27,168)	($24,485)	($21,748)	($18,956)	($16,108)	($13,203)	($10,241)	($7,219)	($4,136)	($992)	$2,215	$5,486	$8,823	$12,226	$15,697	($292,643)
CUMULATIVE CASH FLOW	($45,817)	($89,383)	($130,656)	($163,035)	($192,834)	($220,003)	($244,488)	($266,236)	($285,191)	($301,300)	($314,503)	($324,744)	($331,962)	($336,099)	($337,091)	($334,876)	($329,389)	($320,567)	($308,341)	($292,643)	

***Project Cost includes the following recommended ECMs - ECM #s 1, 2, 3 (just Village Hall), 6, 7, 8, 9, 13, 14, 15, 16, & 17**
****Financed amount is less than Project Cost due to anticipated rebates / grants from Con Edison & NYSERDA**
*****Estimated reduction in maintenance & repair as a result of the lighting, roof replacement, and mechanical scopes of work**
******Fixed semi-annual payments will commence after the installation period (approximately 12 months) - the values shown represent the total yearly amount**

SECTION 5: MEASUREMENT & VERIFICATION

MONITORING, MEASUREMENT & VERIFICATION PLAN OVERVIEW

The Measurement and Verification (M&V) plan establishes an agreed upon process for demonstrating both at the close of project construction and on an ongoing basis during the operational (post-retrofit) period, that the improvements are achieving satisfactory performance. It also lays out the methodology for assessing the actual energy and dollar savings achieved relative to a guarantee level.

The plan for monitoring and verifying energy savings for the proposed ECMs is based on the methods described in the Federal Energy Management Protocol (FEMP). This protocol provides a framework for the most widely accepted and used M&V methods by the industry.

Engineering calculations of energy and cost savings for the project are based on operating parameters (such as weather, temperature settings, run hours, occupancy patterns, and space usage) and equipment performance characteristics. The M&V plan uses the operating parameters established in the baseline for all savings calculations during the term of the project. The intent of the M&V plan is to verify that the ECMs installed by Honeywell will provide the expected energy savings. Therefore, Honeywell will collect data and relative information during the post-retrofit period to demonstrate that the installed equipment is performing at expected levels. It is assumed that the Village of Dobbs Ferry will continue to be a dynamic entity, adding or renovating buildings and desiring to retain the right to set comfort and operating characteristics. To accommodate this dynamic nature, Honeywell will develop its M&V plan in a way that allow the Village to adapt to the demands of future growth and change without the need for negotiating energy baseline adjustments.

Our typical M&V plan will utilize broadband Internet access to the appropriate building control interfaces to both confirm operating status and to download trend data to verify proper equipment maintenance.

One year after the commencement date of the ECMs, Honeywell will submit a report verifying and calculating the energy and cost savings for the first year. This report will be submitted for facility review and approval. For the remaining contract term, Honeywell will provide annual reports. These reports will include results of inspections of the installed equipment/systems, energy and cost savings, and recommendations to provide optimum energy performance.

The following table illustrates the typical M&V equipment used by Honeywell for M&V:

Instrument	Make
Power Multi-meter	Fluke 39
Light Meter	Osram or Phillips
Portable Temperature/Humidity Multi-meter	TSI
Multifunction Data Loggers (Temperature, Humidity, Equipment Run Time, Motor or Electrical Circuit Characteristics)	Onset Computers, Inc.
Retractable Insertion Vortex Flow Meter	Hydro-Flow Model 3100
Ultrasonic Flow Meter	Omega Model FDT-45-Tube
BTU Meter	Hydro-Flow BTU-121 BTU/Energy Measurement System
kW / kWh Transducers	Veris Industries (H6000 SERIES)

All permanent measurement equipment is purchased new with a calibration certificate from the manufacturer. The power multi-meter and the TSI multi-meter are calibrated annually before using them in the annual inspection.

General Approach to M&V

Energy and water savings are determined by comparing the energy and water use associated with a facility or certain systems within a facility before and after the installation of an ECM or other measure. The "before" case is the baseline. The "after" case is the post-installation or performance period. Baseline and post-installation energy use measurements or estimates can be constructed using the methods associated with M&V options A, B, C, and D, as described in the FEMP. The challenge of M&V is to balance M&V costs, accuracy, and repeatability with the value of the ECM(s) or systems being evaluated, and to increase the potential for greater savings by careful monitoring and reporting.

M&V Options

The M&V guidelines as set forth in FEMP 4.0 classify the M&V procedures into four categories, Options A, B, C and D. As shown in the table below, these options differ in their approach to the level of complexity of the M&V procedures.

M&V Option	How Savings are Calculated	Typical Applications
A. Retrofit Isolation: Key Parameter Measurement Savings are determined by field measurement of the key performance parameter(s) which define the energy use of the ECMs affected system(s) and/or the success of the project. Measurement frequency ranges from short-term to continuous, depending on the expected variations in the measured parameter, and the length of the reporting period. Parameters not selected for field measurement are estimated. Estimates can be based on historical data, manufacturer's specifications, or engineering judgment. Documentation of the source or justification of the estimated parameter is required. The plausible savings error arising from estimation rather than measurement is evaluated.	Engineering calculation of baseline and reporting period energy from: Short-term or continuous measurements of key operating parameter(s); and estimated values. Routine and non-routine adjustments as required.	A lighting retrofit where power draw is the key performance parameter that is measured periodically. Estimate operating hours of the lights based on building schedules and occupant behavior.
B. Retrofit Isolation: All Parameter Measurement Savings are determined by field measurement of the energy use of the ECM-affected system. Measurement frequency ranges from short-term to continuous, depending on the expected variations in the savings and the length of the reporting period.	Short-term or continuous measurements of baseline and reporting-period energy, and/or engineering computations using measurements of proxies of energy use. Routine and non-routine adjustments as required.	Application of a variable-speed drive and controls to a motor to adjust pump flow. Measure electric power with a kW meter installed on the electrical supply to the motor, which reads the power every minute. In the baseline period this meter is in place for a week to verify constant loading. The meter is in place throughout the reporting period to track variations in power use.

M&V Option	How Savings are Calculated	Typical Applications
C. Whole Facility Savings are determined by measuring energy use at the whole facility or sub-facility level. Continuous measurements of the entire facility's energy use are taken throughout the reporting period.	Analysis of whole facility baseline and reporting period (utility) meter data. Routine adjustments as required, using techniques such as simple comparison or regression analysis. Non-routine adjustments as required.	Multifaceted energy management program affecting many systems in a facility. Measure energy use with the gas and electric utility meters for a twelve-month baseline period and throughout the reporting period.
D. Calibrated Simulation Savings are determined through simulation of the energy use of the whole facility, or of a sub-facility. Simulation routines are demonstrated to adequately model actual energy performance measured in the facility. This Option usually requires considerable skill in calibrated simulation.	Energy use simulation calibrated with hourly or monthly utility billing data. (Energy end use metering may be used to help refine input data.)	Multifaceted energy management program affecting many systems in a facility but where no meter existed in the baseline period. Energy use measurements, after installation of gas and electric meters, are used to calibrate a simulation. Baseline energy use, determined using the calibrated simulation, is compared to a simulation of reporting period energy use.

In general,

ECM Energy Savings = Baseline Energy Use – Post-Installation Energy Use

and

Energy Cost savings ($) = Total Energy Savings x Contractual Energy Rates

Exceptions to this simple equation are as follows:

Projects where an on/off M&V method is used. For example, after a new energy management system is installed, control features are turned off for a set period of time to recreate baseline conditions. Thus, savings are determined after installation by comparing energy use with and without the control features activated.

Since energy use at a facility is rarely, if ever, constant, another way to define M&V is as a comparison of a facility's post-installation energy use with its usage if the ECM or system had not been installed. This takes into account situations in which baseline energy use must be adjusted to account for changing conditions, such as changes in facility operation, occupancy, or use or external factors such as weather.

POST-RETROFIT M&V ACTIVITIES

There are two components associated with M&V of performance contract projects:

- Verifying the potential of the ECM to generate savings, also stated as confirming that the proper equipment/systems were installed, are performing to specification and have the potential to generate the predicted savings.
- Determining/verifying energy savings achieved by the installed ECM(s).

Verifying the Potential to Generate Savings

Verifying baseline and post-installation conditions involves inspections (or observations), spot measurements, and/or commissioning activities. Commissioning includes the following activities:

- Documentation of ECM or system design assumptions
- Documentation of the ECM or system design intent for use by contractors, agencies and operators
- Functional performance testing and documentation necessary for evaluating the ECM or system for acceptance
- Adjusting the ECM or system to meet actual needs within the capability of the system

Post-Installation Verification

Post-installation M&V verification will be conducted by both Honeywell and the Client to ensure that the proper equipment/systems that were installed are operating correctly and have the potential to generate the predicted savings. Verification methods may include surveys, inspections, and/or spot or short-term metering.

Regular Interval Post-Installation Verification

At least annually, Honeywell will verify that the installed equipment/systems have been properly maintained, continue to operate correctly, and continue to have the potential to generate the predicted savings. A savings report for all the installed ECMs will be submitted each year after the acceptance date of the work performed by Honeywell.

Computation of Energy Savings

After the ECMs are installed, energy and cost savings will be determined annually by Honeywell in accordance with an agreed-upon M&V approach, as defined in a project-specific M&V plan.

Methodology to Adjust Baseline[1]

Honeywell's methodology for establishing and adjusting the baseline is determined by the characteristics of the facility, the conservation technology being installed, the technology being replaced, the type of measurement and verification the customer requires and the needs of the customer for future changes in facilities use.

The purpose of this flexible approach is to make the most accurate possible measurement of the changes in energy uses that are specifically attributable to Honeywell installed ECMs. This creates the ability over the life of the contract to continue measuring only savings achieved by Honeywell and leaves the customer free to make future changes to the building or systems without affecting the savings agreement. It also necessitates fewer provisions for making adjustments to the baseline.

Modifications to the energy baseline or savings will be made for any of the following general situations:

1. Changes in the number of days in the annual review cycle.
2. Changes in the square footage of the facilities.
3. Changes in the operational schedules of the facilities.
4. Changes in facility indoor temperatures.
5. Significant changes in climate.
6. Significant changes in the amount of equipment or lighting utilized in the facility.

[1] The energy baseline modifications shall use commonly accepted energy engineering methods that are mutually agreeable to by both Honeywell and the customer. Should agreement on these methods, including the climate adjustments, not be reached between Honeywell and the customer, both parties could appeal to an independent engineer.

Energy baseline modifications for No. 5 "Significant changes in climate" shall be made using an outdoor dry-bulb temperature regression model in accordance with the FEMP guidelines.

The established procedures will minimize the effect of load creep or load reduction on the project due to influences outside ECMs installed over the project life. Honeywell expects load creep and not load reduction based on our experience with similar facilities.

To compensate for any addition and deletion of buildings and impact on the baseline model, Honeywell will use sound technical methodologies to adjust the baseline. For example, we may add or delete the energy impact of the added floor area via the calculated cooling load in tons as a percentage of the existing facility tonnage baseline. Another method is to use indices like W/ft^2 and Btu/ft^2 to calculate the energy consumption of the building and then add or subtract the energy usage to or from the baseline energy consumption.

Methodology to Assign Dollar Value to Savings

Calculating the units of energy saved is a critical measure of energy efficiency improvements, but it does not indicate the actual dollars saved. To do this, Honeywell and the Village of Dobbs Ferry will jointly establish the base rates that will act as "floor" rates in calculating the savings. These are usually the rates that are in effect at the time of the start of the contract or rates used for audit estimated savings in the Technical Energy Audit.

The following equation will be used to calculate the annual energy savings in dollars. A similar procedure will be used for water and sewer savings.

$$Annual\ Savings\ (\$) = \sum_{m=1}^{12}\{(Rate_{kWh,Base} \times kWh_{Saved,m}) + (Rate_{fuel\ Oil,Base} \times Fuel\ Oil_{Saved,gal,m}) + (Rate_{Steam,Base} \times Steam_{Saved,klbs,m}) + (Rate_{NG} \times NG_{Saved,MCF,m})\}$$

Where:

$Rate_{kWh,Base}$= defined base rate for kWh consumption
$kWh_{Saved,m}$= calculated kWh savings for month *m*
(A similar term will be used if reduction in kW demand is significant)

$Rate_{Fuel\ Oil,\ Base}$= defined base rate for fuel oil savings
$Fuel\ Oil_{Saved,\ m}$= calculated fuel oil savings in gallons for month *m*

$Rate_{Steam,\ Base}$= defined base rate for steam consumption ($/MMBtu.)
$Steam_{Saved,\ m}$= calculated steam savings in MMBtu for month *m*

$Rate_{NG,\ Base}$= defined base rate for natural gas consumption ($/Therm)
$NG_{Saved,\ m}$= calculated natural gas savings in Therms for month *m*

Agreed ($) = Annual savings in dollars for any stipulated items.

ATTACHMENTS

- Attachment 1 – Lighting and Lighting Controls Line by Line
- Attachment 2 – Street Lighting Line by Line
- Attachment 3 – Building Envelope Line by Line
- Attachment 4 – Preliminary Utility Analysis

ATTACHMENT 1 – LIGHTING AND LIGHTING CONTROLS LINE BY LINE

Village of Dobbs Ferry
Attachment 1 - Lighting and Lighting Controls Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
1	Pool House and Offices at Gould Park (Seasonal)	1	2	880	Office - Low Use	FIRST AID	FIRST AID	5X5 RC	LED	8	LED	0	NR	8				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
2	Pool House and Offices at Gould Park (Seasonal)	1	7	500	Use - Telephone, Electrical,	MECHANICAL ROOM/BOILER	MECHANICAL ROOM/BOILER	WRAP	1424T8	2	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	2				1x4 fixture with (2) 4' Lamps T8	4	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	4	0.12	60	0.04	21	0.08	39	0	39
3	Pool House and Offices at Gould Park (Seasonal)	1	7	500	Use - Telephone, Electrical,	POOL PUMP ROOM	POOL PUMP ROOM	STRIP	LED	4	LED	0	NR	4				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
4	Pool House and Offices at Gould Park (Seasonal)	1	9	3750	Hallways:	RR FOYER	RR FOYER	CANOPY	LED	2	LED	0	NR	2				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
5	Pool House and Offices at Gould Park (Seasonal)	1	9	3750	Hallways:	RR CORRIDOR	RR CORRIDOR	VT	1424T8	2	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	2				1x4 fixture with (2) 4' Lamps T8	4	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	4	0.12	450	0.04	158	0.08	293	0	293
6	Pool House and Offices at Gould Park (Seasonal)	1	9	3750	Hallways:	RR CORRIDOR	RR CORRIDOR	SCONCE	CF18	1	CFL	20	LED6SCONCE-K	1				18 Watt CFL	1	Install a 6 watt LED Sconce Kit	0	0.02	75	0.01	23	0.01	53	0	53
7	Pool House and Offices at Gould Park (Seasonal)	1	6	2200	Bath - Common Area:	WOMENS RESTROOM	WOMENS RESTROOM	SCONCE	CF18	2	CFL	20	LED6SCONCE-K	2				18 Watt CFL	2	Install a 6 watt LED Sconce Kit	0	0.04	88	0.01	26	0.03	62	0	62
8	Pool House and Offices at Gould Park (Seasonal)	1	6	2200	Bath - Common Area:	WOMENS RESTROOM	WOMENS RESTROOM	VT	1424T8	4	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	4				1x4 fixture with (2) 4' Lamps T8	8	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	8	0.24	528	0.08	185	0.16	343	0	343
9	Pool House and Offices at Gould Park (Seasonal)	1	6	2200	Bath - Common Area:	MENS RESTROOM	MENS RESTROOM	SCONCE	CF18	2	CFL	20	LED6SCONCE-K	2				18 Watt CFL	2	Install a 6 watt LED Sconce Kit	0	0.04	88	0.01	26	0.03	62	0	62
10	Pool House and Offices at Gould Park (Seasonal)	1	6	2200	Bath - Common Area:	MENS RESTROOM	MENS RESTROOM	VT	1424T8	4	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	4				1x4 fixture with (2) 4' Lamps T8	8	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	8	0.24	528	0.08	185	0.16	343	0	343
11	Pool House and Offices at Gould Park (Seasonal)	1	7	500	Use - Telephone, Electrical,	CUSTODIAN CLOSET	CUSTODIAN CLOSET	WALL	CF2X18	1	CFL	40	LED12-DRUMINT	1	FMS	1	30%	(2) 18 Watt CFL	2	Install a 12w LED Drum Fixture, Interior Type	1	0.04	20	0.01	6	0.03	14	2	16
12	Pool House and Offices at Gould Park (Seasonal)	1	6	2200	Bath - Common Area:	OLD LOCKERS/SPORTS STORAGE	OLD LOCKERS/SPORTS STORAGE	VT	1828	1	T12	138	LED4X10.5TUBE4FT-SOCKETS-8FKIT	1	OSW-1G	1	30%	1x8 fixture with (2) 8' Lamps T12	2	Re-lamp with (4) Type B 10.5 watt LED 4-foot TUBE Lamps, unshunted sockets and 1x8 Strip Kit	4	0.14	304	0.04	92	0.10	211	28	239
13	Pool House and Offices at Gould Park (Seasonal)	1	6	2200	Bath - Common Area:	OLD LOCKERS/SPORTS STORAGE	OLD LOCKERS/SPORTS STORAGE	VT	1424	3	T12	80	LED2X10.5TUBE4FT-SOCKETS	3	OSW-1G	1	30%	1x4 fixture with (2) 4' Lamps T12	6	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	6	0.24	528	0.06	139	0.18	389	42	431
14	Pool House and Offices at Gould Park (Seasonal)	1	1	8760	Continuous Use, Exits, Stairwells:	OLD LOCKERS/SPORTS STORAGE	OLD LOCKERS/SPORTS STORAGE	EXIT	PL2X7	1	CFL	18	KLED-BB	1				(2) 7 Watt CFL Plug In, 2 Pin	2	Install a LED Exit Sign, Battery Backup, Universal, MultiTap	1	0.02	158	0.00	18	0.02	140	0	140
15	Pool House and Offices at Gould Park (Seasonal)	1	6	2200	Bath - Common Area:	OLD LOCKERS/SPORTS STORAGE	OLD LOCKERS/SPORTS STORAGE	KEYLESS	I150	2	INC	150	LED12A19	2				150 Watt Inc	2	Re-lamp with a 12 watt LED A19 lamp	2	0.30	660	0.02	53	0.28	607	0	607
16	Pool House and Offices at Gould Park (Seasonal)	2	7	500	Use - Telephone, Electrical,	2ND FLOOR VACANT	2ND FLOOR VACANT		I100	10	INC	100	LED9A19	10				100 Watt Inc	10	Re-lamp with a 9 watt LED A19 lamps	10	1.00	500	0.09	45	0.91	455	0	455
17	Pool House and Offices at Gould Park (Seasonal)	EXT	10	4380	Exterior:	EXT LOWER	EXT LOWER	WP	S100	2	HPS	130	LED30WP-PC	2				100 Watt High Pressure Sodium	2	Install a 30w LED Wall Pack Fixture for Outdoor Lighting with Photocell	0	0.26	1139	0.06	263	0.20	876	0	876
18	Pool House and Offices at Gould Park (Seasonal)	EXT	10	4380	Exterior:	FRONT CANOPY	FRONT CANOPY	CANOPY	LED	2	LED	0	NR	2				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
19	Pool House and Offices at Gould Park (Seasonal)	EXT	10	4380	Exterior:	OVER CANOPY	OVER CANOPY	WP	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
20	Pool House and Offices at Gould Park (Seasonal)	EXT	10	4380	Exterior:	BALL FIELD POLES	BALL FIELD POLES	TRUN FLOOD	M400	1	MH	455	LED150FLOOD	1				400 Watt Metal Halide	1	Install a 150 Watt LED Flood Fixture	0	0.46	1993	0.15	657	0.31	1336	0	1336
21	Pool House and Offices at Gould Park (Seasonal)	EXT	10	4380	Exterior:	BALL FIELD POLES	BALL FIELD POLES	COBRA HEAD	M70	1	MH	95	LED50COBRA	1				70 Watt Metal Halide	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.10	416	0.05	219	0.05	197	0	197
22	Pool House and Offices at Gould Park (Seasonal)	EXT	10	4380	Exterior:	BALL FIELD POLES	BALL FIELD POLES	CH	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
23	Pool House and Offices at Gould Park (Seasonal)	EXT	10	4380	Exterior:	SCOREBOARD	SCOREBOARD	TRUN FLOOD	M400	1	MH	455	LED150FLOOD	1				400 Watt Metal Halide	1	Install a 150 Watt LED Flood Fixture	0	0.46	1993	0.15	657	0.31	1336	0	1336
24	Pool House and Offices at Gould Park (Seasonal)	EXT	10	4380	Exterior:	SCOREBOARD	SCOREBOARD	SLIP FIT FLOOD	M400	1	MH	455	LED150FLOOD-SF	1				400 Watt Metal Halide	1	Install a 150 Watt LED Flood Fixture,Slipfitter	0	0.46	1993	0.15	657	0.31	1336	0	1336
25	Pool House and Offices at Gould Park (Seasonal)	EXT	10	4380	Exterior:	BASKETBALL COURT	BASKETBALL COURT	SLIP FIT FLOOD	H400	4	MV	455	LED150FLOOD-SF	4				400 Watt Mercury Vapor	4	Install a 150 Watt LED Flood Fixture,Slipfitter	0	1.82	7972	0.60	2628	1.22	5344	0	5344
26	Pool House and Offices at Gould Park (Seasonal)	EXT	10	4380	Exterior:	BASKETBALL COURT	BASKETBALL COURT	SLIP FIT FLOOD, SIL	M400	4	MH	455	LED150FLOOD-SF	4				400 Watt Metal Halide	4	Install a 150 Watt LED Flood Fixture,Slipfitter	0	1.82	7972	0.60	2628	1.22	5344	0	5344
27	Pool House and Offices at Gould Park (Seasonal)	EXT	10	4380	Exterior:	POOL	POOL	TRUN FLOOD, B2	H750	1	MV	795	LED200FLOOD	1				750 Watt Mercury Vapor	1	Install a 200 Watt LED Flood Fixture	0	0.80	3482	0.20	876	0.60	2606	0	2606
28	Ogden Engine Company	1	9	3750	Hallways:	ENTRY (SIDE)	ENTRY (SIDE)	6' RC	CF18	2	CFL	20	LED9A19	2				18 Watt CFL	2	Re-lamp with a 9 watt LED A19 lamps	2	0.04	150	0.02	68	0.02	83	0	83

Village of Dobbs Ferry
Attachment 1 - Lighting and Lighting Controls Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
29	Ogden Engine Company	1	1	8760	Continuous Use, Exits, Stairwells:	GARAGE BAY	GARAGE BAY	8' WRAP	LED	12	LED	0	NR	12				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
30	Ogden Engine Company	1	1	8760	Continuous Use, Exits, Stairwells:	GARAGE BAY	GARAGE BAY	4' WRAP	LED	4	LED	0	NR	4				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
31	Ogden Engine Company	1	7	500	Use - Telephone, Electrical,	CLOSET	CLOSET	KEYLESS	CF26	1	CFL	28	LED9A19	1				26 Watt CFL	1	Re-lamp with a 9 watt LED A19 lamps	1	0.03	14	0.01	5	0.02	10	0	10
32	Ogden Engine Company	1	6	2200	Bath - Common Area:	MENS RESTROOM	MENS RESTROOM	10X10 RC	CF2X18	2	CFL	40	LED2X9A19	2	OSW-2G	1	30%	(2) 18 Watt CFL	4	Re-lamp with (2) 9 watt LED A19 lamps	4	0.08	176	0.04	79	0.04	97	24	121
33	Ogden Engine Company	1	6	2200	Bath - Common Area:	MENS RESTROOM	MENS RESTROOM	6W GLOBE S1	LED	3	LED	0	NR	3	OSW-2G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
34	Ogden Engine Company	1	6	2200	Bath - Common Area:	WOMENS RESTROOM	WOMENS RESTROOM	10X10 RC	CF2X18	2	CFL	40	LED2X9A19	2	OSW-2G	1	30%	(2) 18 Watt CFL	4	Re-lamp with (2) 9 watt LED A19 lamps	4	0.08	176	0.04	79	0.04	97	24	121
35	Ogden Engine Company	1	6	2200	Bath - Common Area:	WOMENS RESTROOM	WOMENS RESTROOM	6W GLOBE S1	LED	6	LED	0	NR	6	OSW-2G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
36	Ogden Engine Company	1	9	3750	Hallways:	VEST (2)	VEST (2)		CF18	2	CFL	20	LED9A19	2				18 Watt CFL	2	Re-lamp with a 9 watt LED A19 lamps	2	0.04	150	0.02	68	0.02	83	0	83
37	Ogden Engine Company	1	8	2500	Common Area:	RECREATION ROOM	RECREATION ROOM	6' RC, 12W PAR38	LED	12	LED	0	NR	12				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
38	Ogden Engine Company	1	8	2500	Common Area:	RECREATION ROOM	RECREATION ROOM	6' RC	LED	2	LED	0	NR	2				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
39	Ogden Engine Company	1	8	2500	Common Area:	RECREATION ROOM	RECREATION ROOM	3", BR20	LED	3	LED	0	NR	3				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
40	Ogden Engine Company	1	8	2500	Common Area:	RECREATION ROOM	RECREATION ROOM	STRIP	1313	1	T12	42	LED1X12TUBE3FT-SOCKETS	1				1x3 fixture with (1) 3' Lamp T12	1	Re-lamp with (1) Type B 12 watt LED 3-foot TUBE Lamp and unshunted sockets	1	0.04	105	0.01	30	0.03	75	0	75
41	Ogden Engine Company	1	1	8760	Continuous Use, Exits, Stairwells:	RECREATION ROOM	RECREATION ROOM	EXIT	I2X7	2	INC	18	KLED-BB	2				(2) 7 Watt Inc	4	Install a LED Exit Sign, Battery Backup, Universal, MultiTap	2	0.04	315	0.00	35	0.03	280	0	280
42	Ogden Engine Company	1	8	2500	Common Area:	KITCHEN	KITCHEN	WRAP	LED	9	LED	0	NR	9	OSW-3G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
43	Ogden Engine Company	1	8	2500	Common Area:	BAR	BAR	TRACK, MR16	LED	5	LED	0	NR	5				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
44	Ogden Engine Company	1	7	500	Use - Telephone, Electrical,	CHAIR STORAGE	CHAIR STORAGE	KEYLESS	I75	1	INC	75	LED9A19	1				75 Watt Inc	1	Re-lamp with a 9 watt LED A19 lamps	1	0.08	38	0.01	5	0.07	33	0	33
45	Ogden Engine Company	1	7	500	Use - Telephone, Electrical,	STORAGE IN TRUCK BAY	STORAGE IN TRUCK BAY	STRIP	1424	1	T12	80	LED2X10.5TUBE4FT-SOCKETS	1				1x4 fixture with (2) 4' Lamps T12	2	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	2	0.08	40	0.02	11	0.06	30	0	30
46	Ogden Engine Company	1	7	500	Use - Telephone, Electrical,	GENERATOR ROOM	GENERATOR ROOM	1X4 2L WRAP	LED	3	LED	0	NR	3				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
47	Ogden Engine Company	sw	1	8760	Continuous Use, Exits, Stairwells:	BASEMENT STAIRS	BASEMENT STAIRS	WRAP	1424T8	1	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	1				1x4 fixture with (2) 4' Lamps T8	2	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	2	0.06	526	0.02	184	0.04	342	0	342
48	Ogden Engine Company	B	1	8760	Continuous Use, Exits, Stairwells:	BASEMENT STORAGE 1	BASEMENT STORAGE 1	WRAP	1424T8	6	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	6	OSW-1G	1	30%	1x4 fixture with (2) 4' Lamps T8	12	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	12	0.36	3154	0.13	1104	0.23	2050	331	2381
49	Ogden Engine Company	B	7	500	Use - Telephone, Electrical,	BOILER ROOM	BOILER ROOM	KEYLESS, A19	LED	2	LED	0	NR	2				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
50	Ogden Engine Company	B	7	500	Use - Telephone, Electrical,	OPEN STORAGE	OPEN STORAGE	KEYLESS, A19	LED	3	LED	0	NR	3				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
51	Ogden Engine Company	B	7	500	Use - Telephone, Electrical,	CLOSETS	CLOSETS	KEYLESS	I75	4	INC	75	LED9A19	4				75 Watt Inc	4	Re-lamp with a 9 watt LED A19 lamps	4	0.30	150	0.04	18	0.26	132	0	132
52	Ogden Engine Company	SW	1	8760	Continuous Use, Exits, Stairwells:	STAIRWELL TO 2ND	STAIRWELL TO 2ND	6' DRUM	LED	2	LED	0	NR	2				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
53	Ogden Engine Company	2	7	500	Use - Telephone, Electrical,	CLOSET TOP OF STAIRWELL	CLOSET TOP OF STAIRWELL	KEYLESS	I75	1	INC	75	LED9A19	1				75 Watt Inc	1	Re-lamp with a 9 watt LED A19 lamps	1	0.08	38	0.01	5	0.07	33	0	33
54	Ogden Engine Company	2	4	4000	Office - High Use	MEETING/MUSEUM	MEETING/MUSEUM	CHANDELIER, TORP	H5X43	3	MV	215	LED5X5CANDLE	3				5 (43) Watt Mercury Vapor	3	Re-lamp with a (5) 5 watt candelabra LED lamps, E12 base	3	0.65	2580	0.02	60	0.63	2520	0	2520
55	Ogden Engine Company	2	4	4000	Office - High Use	MEETING/MUSEUM	MEETING/MUSEUM	TRUCK, PAR38	H70	18	MV	90	LED10PAR38	18				70 Watt Mercury Vapor	18	Re-lamp with a 10 watt LED lamp, PAR 38	18	1.62	6480	0.18	720	1.44	5760	0	5760
56	Ogden Engine Company	2	4	4000	Office - High Use	BACK OFFICE	BACK OFFICE	CHANDELIER	I3X75	1	INC	225	LED3X12A19	1				(3) 75 Watt Inc	3	Re-lamp with (3) 12 watt LED A19 lamps	3	0.23	900	0.04	144	0.19	756	0	756

Village of Dobbs Ferry
Attachment 1 - Lighting and Lighting Controls Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
57	Ogden Engine Company	2	6	2200	Bath - Common Area:	RESTROOM	RESTROOM	GLOBE	I75	1	INC	75	LED9A19	1				75 Watt Inc	1	Re-lamp with a 9 watt LED A19 lamps	1	0.08	165	0.01	20	0.07	145	0	145
58	Ogden Engine Company	EXT	10	4380	Exterior:	SIDE DOOR	SIDE DOOR	TALL PACK	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
59	Ogden Engine Company	EXT	10	4380	Exterior:	OVER HANG	OVER HANG	FLOOD PAR40	I100	1	INC	100	LED10PAR38	1				100 Watt Inc	1	Re-lamp with a 10 watt LED lamp, PAR 38	1	0.10	438	0.01	44	0.09	394	0	394
60	Ogden Engine Company	EXT	10	4380	Exterior:	OVER HANG	OVER HANG	FLOOD	LED	2	LED	0	NR	2				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
61	Ogden Engine Company	EXT	10	4380	Exterior:	OVER HANG	OVER HANG	10W, PAR36 FLOOD	LED	4	LED	0	NR	4				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
62	Ogden Engine Company	EXT	10	4380	Exterior:	FRONT GARAGE	FRONT GARAGE	11WA19 COACH	LED	5	LED	0	NR	5				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
63	Memorial Park Building	1	9	3750	Hallways:	CORRIDOR	CORRIDOR	DRUM	I2X60	2	INC	120	LED12-DRUMINT	2				(2) 60 Watt Inc	4	Install a 12w LED Drum Fixture, Interior Type	2	0.24	900	0.02	90	0.22	810	0	810
64	Memorial Park Building	1	7	500	Use - Telephone, Electrical,	STORAGE	STORAGE	KEYLESS	I150	4	INC	150	LED12A19	4	OSW-1G	1	30%	150 Watt Inc	4	Re-lamp with a 12 watt LED A19 lamp	4	0.60	300	0.05	24	0.55	276	7	283
65	Memorial Park Building	1	6	2200	Bath - Common Area:	WOMENS RESTROOM	WOMENS RESTROOM	DRUM	I2X75	1	INC	150	LED12-DRUMINT	1	OSW-1G	1	30%	(2) 75 Watt Inc	2	Install a 12w LED Drum Fixture, Interior Type	1	0.15	330	0.01	26	0.14	304	8	312
66	Memorial Park Building	1	6	2200	Bath - Common Area:	MENS RESTROOM	MENS RESTROOM	DRUM	I2X75	1	INC	150	LED12-DRUMINT	1				(2) 75 Watt Inc	2	Install a 12w LED Drum Fixture, Interior Type	1	0.15	330	0.01	26	0.14	304	0	304
67	Memorial Park Building	1	7	500	Use - Telephone, Electrical,	CUSTODIAN CLOSET	CUSTODIAN CLOSET	9W A19, KEYLESS	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
68	Memorial Park Building	1	7	500	Use - Telephone, Electrical,	FURNACE ROOM	FURNACE ROOM	KEYLESS	I100	1	INC	100	LED12A19	1				100 Watt Inc	1	Re-lamp with a 12 watt LED A19 lamp	1	0.10	50	0.01	6	0.09	44	0	44
69	Memorial Park Building	SW	1	8760	Continuous Use, Exits, Stairwells:	STAIRS	STAIRS	DRUM	CF2X18	1	CFL	40	LED12-DRUMINT	1				(2) 18 Watt CFL	2	Install a 12w LED Drum Fixture, Interior Type	1	0.04	350	0.01	105	0.03	245	0	245
70	Memorial Park Building	2	3	2200	Office - Normal Use:	OPEN OFFICE	OPEN OFFICE	WRAP	LED	9	LED	0	NR	9	OSW-3G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
71	Memorial Park Building	EXT	10	4380	Exterior:	RIGHT SIDE EXIT	RIGHT SIDE EXIT	WALL JAR	S100	2	HPS	130	LED40WP-PC	2			30%	100 Watt High Pressure Sodium	2	Install a 30w LED Tall Wall Pack Fixture for Outdoor Lighting with Photocell	0	0.26	1139	0.08	350	0.18	788	105	894
72	Memorial Park Building	EXT	10	4380	Exterior:	LEFT SIDE WALL	LEFT SIDE WALL	WP	S150	2	HPS	190	LED30WP-PC	2			30%	150 Watt High Pressure Sodium	2	Install a 30w LED Wall Pack Fixture for Outdoor Lighting with Photocell	0	0.38	1664	0.06	263	0.32	1402	79	1480
73	Memorial Park Building	EXT	10	4380	Exterior:	FRONT WALL	FRONT WALL	HO 6' WALL WASH	1616	1	T12	80	LED78-1X8VT	1				1x6 fixture with (1) 6' Lamp T12	1	Install a 78 Watt LED Vapor Tight Fixture	0	0.08	350	0.08	342	0.00	9	0	9
74	Memorial Park Building	EXT	10	4380	Exterior:	BACK WALL	BACK WALL	WP TRUNION	S250	2	HPS	295	LED78FL	2			30%	250 Watt High Pressure Sodium	2	Install a 78 Watt LED Flood Fixture	0	0.59	2584	0.16	683	0.43	1901	205	2106
76	Memorial Park Building	EXT	10	4380	Exterior:	PARK STAIR POLES	PARK STAIR POLES	SB	M400	4	MH	455	LED150AREA	4				400 Watt Metal Halide	4	Install a 150 Watt LED Area Light	0	1.82	7972	0.60	2628	1.22	5344	0	5344
77	Embassy Club	1	3	2200	Office - Normal Use:	ENTIRE BUILDING	ENTIRE BUILDING		LED		LED	0	NR					LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
78	Embassy Club	1	9	3750	Hallways:	CORRIDOR	CORRIDOR	6" RC, BR30	CF15	6	CFL	17	LED8.5BR30	6				15 Watt CFL	6	Re-lamp with a 8.5 watt LED lamp, BR30 Reflector	6	0.10	383	0.05	191	0.05	191	0	191
79	Embassy Club	1	9	3750	Hallways:	SITTING ROOM	SITTING ROOM	6" RC, BR30	CF15	4	CFL	17	LED8.5BR30	4	OSW-1G	1	30%	15 Watt CFL	4	Re-lamp with a 8.5 watt LED lamp, BR30 Reflector	4	0.07	255	0.03	128	0.03	128	38	166
80	Embassy Club	1	3	2200	Office - Normal Use:	BACK OFFICE	BACK OFFICE	6" RC, BR30	CF15	1	CFL	17	LED8.5BR30	1				15 Watt CFL	1	Re-lamp with a 8.5 watt LED lamp, BR30 Reflector	1	0.02	37	0.01	19	0.01	19	0	19
81	Embassy Club	1	3	2200	Office - Normal Use:	I.T. CLOSET	I.T. CLOSET	STRIP	1424T8	1	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	1				1x4 fixture with (2) 4' Lamps T8	2	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	2	0.06	132	0.02	46	0.04	86	0	86
82	Embassy Club	1	9	3750	Hallways:	BAR/DINING	BAR/DINING	9W DRUM	LED	4	LED	0	NR	4				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
83	Embassy Club	1	9	3750	Hallways:	FAN/LIGHT	FAN/LIGHT	CEILING FAN	I3X75	1	INC	225	LED3X12A19	1				(3) 75 Watt Inc	3	Re-lamp with (3) 12 watt LED A19 lamps	3	0.23	844	0.04	135	0.19	709	0	709
84	Embassy Club	1	9	3750	Hallways:	POOL TABLE	POOL TABLE	PAR20	H60	3	MV	80	LED8.5BR30	3				60 Watt Mercury Vapor	3	Re-lamp with a 8.5 watt LED lamp, BR30 Reflector	3	0.24	900	0.03	96	0.21	804	0	804
85	Embassy Club	1	6	2200	Bath - Common Area:	MENS RESTROOM	MENS RESTROOM	TROFFER	2424T8	1	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	1	OSW-2G	1	30%	2x4 fixture with (2) 4' Lamps T8	2	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	2	0.06	132	0.02	46	0.04	86	14	100

Village of Dobbs Ferry
Attachment 1 - Lighting and Lighting Controls Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
86	Embassy Club	1	6	2200	Bath - Common Area:	MENS RESTROOM	MENS RESTROOM	VANITY	1323	1	T12	73	LED2X12TUBE3FT-SOCKETS	1	OSW-2G	1	30%	1x3 fixture with (2) 3' Lamps T12	2	Re-lamp with (2) Type B 12 watt LED 3-foot TUBE Lamps and unshunted sockets	2	0.07	161	0.02	53	0.05	108	16	124
87	Embassy Club	1	6	2200	Bath - Common Area:	WOMENS RESTROOM	WOMENS RESTROOM	TROFFER	2424T8	1	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	1	OSW-2G	1	30%	2x4 fixture with (2) 4' Lamps T8	2	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	2	0.06	132	0.02	46	0.04	86	14	100
88	Embassy Club	1	6	2200	Bath - Common Area:	WOMENS RESTROOM	WOMENS RESTROOM	VANITY	1323	1	T12	73	LED2X12TUBE3FT-SOCKETS	1	OSW-2G	1	30%	1x3 fixture with (2) 3' Lamps T12	2	Re-lamp with (2) Type B 12 watt LED 3-foot TUBE Lamps and unshunted sockets	2	0.07	161	0.02	53	0.05	108	16	124
89	Embassy Club	1	9	3750	Hallways:	KITCHEN	KITCHEN	TROFFER	2444T8	2	T8-32	112	LED4X10.5TUBE4FT-SOCKETS	2	OSW-1G	1	30%	2x4 fixture with (4) 4' Lamps T8	8	Re-lamp with (4) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	8	0.22	840	0.08	315	0.14	525	95	620
90	Embassy Club	1	7	500	Use - Telephone, Electrical,	FURNACE ROOM	FURNACE ROOM	STRIP	1424T8	1	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	1	OSW-1G	1	30%	1x4 fixture with (2) 4' Lamps T8	2	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	2	0.06	30	0.02	11	0.04	20	3	23
91	Embassy Club	1	7	500	Use - Telephone, Electrical,	FURNACE ROOM	FURNACE ROOM	KEYLESS	I75	1	INC	75	LED9A19	1	OSW-1G	1	30%	75 Watt Inc	1	Re-lamp with a 9 watt LED A19 lamps	1	0.08	38	0.01	5	0.07	33	1	34
92	Embassy Club	1	7	500	Use - Telephone, Electrical,	KITCHEN STORAGE	KITCHEN STORAGE	6" RC, BR30	CF15	2	CFL	17	LED8.5BR30	2	OSW-1G	1	30%	15 Watt CFL	2	Re-lamp with a 8.5 watt LED lamp, BR30 Reflector	2	0.03	17	0.02	9	0.02	9	3	11
93	Ambulance Corps. Building	1	1	8760	Continuous Use, Exits, Stairwells:	AMBULANCE BAYS	AMBULANCE BAYS	1X4 2L STRIP	LED	13	LED	0	NR	13				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
94	Ambulance Corps. Building	1	4	4000	Office - High Use	LOUNGE	LOUNGE		LED	7	LED	0	NR	7				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
95	Ambulance Corps. Building	1	6	2200	Bath - Common Area:	RESTROOM	RESTROOM	3X9W DRUM	LED	2	LED	0	NR	2				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
96	Ambulance Corps. Building	1	6	2200	Bath - Common Area:	RESTROOM	RESTROOM	3X9W WRAP	LED	2	LED	0	NR	2				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
97	Ambulance Corps. Building	1	4	4000	Office - High Use	OFFICE 1	OFFICE 1	1X4 2L STRIP	LED	2	LED	0	NR	2	OSW-2G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
98	Ambulance Corps. Building	1	4	4000	Office - High Use	OFFICE 2	OFFICE 2	TROFFER	2444T8	2	T8-32	112	LED32WPANEL-2X4	2	OSW-1G	1	30%	2x4 fixture with (4) 4' Lamps T8	8	Install a 32 watt LED 2x4' Recessed Panel Fixture	0	0.22	896	0.06	256	0.16	640	77	717
99	Ambulance Corps. Building	1	7	500	Use - Telephone, Electrical,	BOILER STORAGE	BOILER STORAGE	KEYLESS	I100	4	INC	100	LED12A19	4				100 Watt Inc	4	Re-lamp with a 12 watt LED A19 lamp	4	0.40	200	0.05	24	0.35	176	0	176
100	Ambulance Corps. Building	EXT	10	4380	Exterior:	BACK EXIT	BACK EXIT	12W A19JJ	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
101	Public Library	G	8	2500	Common Area:	LOBBY	LOBBY	2X2 PB TROFFER	LED	4	LED	0	NR	4				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
102	Public Library	G	7	500	Use - Telephone, Electrical,	SLOP SINK	SLOP SINK	STRIP	1424T8	1	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	1				1x4 fixture with (2) 4' Lamps T8	2	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	2	0.06	30	0.02	11	0.04	20	0	20
103	Public Library	G	1	8760	Continuous Use, Exits, Stairwells:	ELEVATOR	ELEVATOR	STRIP	1424T8	1	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	1				1x4 fixture with (2) 4' Lamps T8	2	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	2	0.06	526	0.02	184	0.04	342	0	342
104	Public Library	G	7	500	Use - Telephone, Electrical,	BOILER ROOM	BOILER ROOM	STRIP	1424T8	14	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	14				1x4 fixture with (2) 4' Lamps T8	28	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	28	0.84	420	0.29	147	0.55	273	0	273
105	Public Library	G	7	500	Use - Telephone, Electrical,	I.T.	I.T.	STRIP	1424T8	1	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	1				1x4 fixture with (2) 4' Lamps T8	2	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	2	0.06	30	0.02	11	0.04	20	0	20
106	Public Library	G	7	500	Use - Telephone, Electrical,	ELECTRIC ROOM	ELECTRIC ROOM	STRIP	1424T8	2	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	2				1x4 fixture with (2) 4' Lamps T8	4	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	4	0.12	60	0.04	21	0.08	39	0	39
107	Public Library	G	7	500	Use - Telephone, Electrical,	ELEVATOR ROOM	ELEVATOR ROOM	STRIP	1424T8	1	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	1				1x4 fixture with (2) 4' Lamps T8	2	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	2	0.06	30	0.02	11	0.04	20	0	20
108	Public Library	G	7	500	Use - Telephone, Electrical,	STORAGE	STORAGE	STRIP	1424T8	4	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	4				1x4 fixture with (2) 4' Lamps T8	8	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	8	0.24	120	0.08	42	0.16	78	0	78
109	Public Library	1	8	2500	Common Area:	ENT/VESTIBULE	ENT/VESTIBULE	8" RC	PL2X13	2	CFL	30	LED8RC6-TK	2				(2) 13 Watt CFL Plug In, 2 Pin	4	Retrofit with an 8 watt LED Kit for 6" Recessed Can w/trim kit	0	0.06	150	0.02	40	0.04	110	0	110
110	Public Library	1	8	2500	Common Area:	ENT/VESTIBULE	ENT/VESTIBULE	8" RC	PL2X13	2	CFL	30	LED8RC6-TK	2				(2) 13 Watt CFL Plug In, 2 Pin	4	Retrofit with an 8 watt LED Kit for 6" Recessed Can w/trim kit	0	0.06	150	0.02	40	0.04	110	0	110
111	Public Library	1	8	2500	Common Area:	ENT/VESTIBULE	ENT/VESTIBULE	8" RC	PL2X13	2	CFL	30	LED8RC6-TK	2				(2) 13 Watt CFL Plug In, 2 Pin	4	Retrofit with an 8 watt LED Kit for 6" Recessed Can w/trim kit	0	0.06	150	0.02	40	0.04	110	0	110
112	Public Library	1	8	2500	Common Area:	LIBRARY OPEN AREA	LIBRARY OPEN AREA	8" RC/GRID	PL2X13	15	CFL	30	LED8RC6-TK	15				(2) 13 Watt CFL Plug In, 2 Pin	30	Retrofit with an 8 watt LED Kit for 6" Recessed Can w/trim kit	0	0.45	1125	0.12	300	0.33	825	0	825
113	Public Library	1	8	2500	Common Area:	LIBRARY OPEN AREA	LIBRARY OPEN AREA	8" RC/GRID	PL2X13	10	CFL	30	LED8RC6-TK	10				(2) 13 Watt CFL Plug In, 2 Pin	20	Retrofit with an 8 watt LED Kit for 6" Recessed Can w/trim kit	0	0.30	750	0.08	200	0.22	550	0	550

Village of Dobbs Ferry
Attachment 1 - Lighting and Lighting Controls Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
114	Public Library	1	8	2500	Common Area:	LIBRARY OPEN AREA	LIBRARY OPEN AREA	8" RC, 12W	LED	22	LED	0	NR	22				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
115	Public Library	1	8	2500	Common Area:	LIBRARY OPEN AREA	LIBRARY OPEN AREA	4X8.5W 4PIN, PENDANT SALAD BOWL	LED	20	LED	0	NR	20				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
116	Public Library	1	8	2500	Common Area:	LIBRARY OPEN AREA	LIBRARY OPEN AREA	4X8.5W 4PIN, PENDANT SALAD BOWL	LED	10	LED	0	NR	10				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
117	Public Library	1	8	2500	Common Area:	LIBRARY OPEN AREA	LIBRARY OPEN AREA	WALL DRUM	LED	6	LED	0	NR	6				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
118	Public Library	1	8	2500	Common Area:	LIBRARY OPEN AREA	LIBRARY OPEN AREA	6X8.5W 4PIN, PENDANT SALAD BOWL	LED	12	LED	0	NR	**12**				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
119	Public Library	1	7	500	Use - Telephone, Electrical,	STORAGE AREA	STORAGE AREA	2X2 4L PB TROFFER	LED	4	LED	0	NR	4				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
120	Public Library	1	3	2200	Office - Normal Use:	OFFICE 1	OFFICE 1	2X2 4L PB TROFFER	LED	4	LED	0	NR	4				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
121	Public Library	1	6	2200	Bath - Common Area:	RESTROOM	RESTROOM	2X2 4L PB TROFFER	LED	6	LED	0	NR	6				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
122	Public Library	1	6	2200	Bath - Common Area:	RESTROOM	RESTROOM	2X2 4L PB TROFFER	LED	6	LED	0	NR	6				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
123	Public Library	1	6	2200	Bath - Common Area:	RESTROOM	RESTROOM	2X2 4L PB TROFFER	LED	6	LED	0	NR	6				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
124	Public Library	1	3	2200	Office - Normal Use:	KITCHEN	KITCHEN	2X2 4L PB TROFFER	LED	3	LED	0	NR	3				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
125	DPW Office	1	4	4000	Office - High Use	FOREMAN OFFICE	FOREMAN OFFICE	TROFFER PB	2434T8	7	T8-32	88	LED3X10.5TUBE4FT-SOCKETS	7	OSC-1D	1	30%	2x4 fixture with (3) 4' Lamps T8	21	Re-lamp with (3) new Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	21	0.62	2464	0.22	882	0.40	1582	265	1847
126	DPW Office	1	6	2200	Bath - Common Area:	RESTROOM	RESTROOM	TROFFER PB	222UT8	1	UT8	58	LED2X2 Volumetric Door Kit	1	OSW-1G	1	30%	2x2 fixture with (2) U-Bend T8 Lamps	2	Retrofit new 2x2' Volumetric Kit	3	0.06	128	0.02	37	0.04	90	11	101
127	DPW Office	1	7	500	Use - Telephone, Electrical,	STORAGE	STORAGE	TROFFER PB	222UT8	1	UT8	58	LED2X2 Volumetric Door Kit	1	OSW-1G	1	30%	2x2 fixture with (2) U-Bend T8 Lamps	2	Retrofit new 2x2' Volumetric Kit	3	0.06	29	0.02	9	0.04	21	3	23
128	DPW Office	1	4	4000	Office - High Use	MECHANICAL OFFICE	MECHANICAL OFFICE	TROFFER PB	2444T8	6	T8-32	112	LED4X10.5TUBE4FT-SOCKETS	6	OSC-1D	1	30%	2x4 fixture with (4) 4' Lamps T8	24	Re-lamp with (4) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	24	0.67	2688	0.25	1008	0.42	1680	302	1982
129	DPW Office	1	3	2200	Office - Normal Use:	BREAK ROOM	BREAK ROOM	IND HOOD	1824T8	1	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	1	OSW-1G	1	30%	1x8 fixture with (2) 4' Lamps T8	2	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	2	0.06	132	0.02	46	0.04	86	14	100
130	DPW Office	1	7	500	Use - Telephone, Electrical,	SPRINKLER	SPRINKLER	IND HOOD	1824T8	1	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	1	OSW-1G	1	30%	1x8 fixture with (2) 4' Lamps T8	2	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	2	0.06	30	0.02	11	0.04	20	3	23
131	DPW Office	1	7	500	Use - Telephone, Electrical,	IT CLOSET	IT CLOSET	STRIP	1323T8	1	T8-25	47	LED2X12TUBE3FT-SOCKETS	1	OSW-1G	1	30%	1x3 fixture with (2) 3' Lamps T8	2	Re-lamp with (2) Type B 12 watt LED 3-foot TUBE Lamps and unshunted sockets	2	0.05	24	0.02	12	0.02	12	4	15
132	DPW Office	1	7	500	Use - Telephone, Electrical,	TOOL ROOM	TOOL ROOM	STRIP	1844T8	2	T8-32	112	LED4X10.5TUBE4FT-SOCKETS	2	OSW-1G	1	30%	1x8 fixture with (4) 4' Lamps T8	8	Re-lamp with (4) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	8	0.22	112	0.08	42	0.14	70	13	83
133	DPW Office	1	7	500	Use - Telephone, Electrical,	ELECTRICAL SUPPLY	ELECTRICAL SUPPLY	STRIP	1844T8	3	T8-32	112	LED4X10.5TUBE4FT-SOCKETS	3	OSW-1G	1	30%	1x8 fixture with (4) 4' Lamps T8	12	Re-lamp with (4) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	12	0.34	168	0.13	63	0.21	105	19	124
134	DPW Office	1	6	2200	Bath - Common Area:	RESTROOM 1	RESTROOM 1	WRAP	1424T8	1	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	1	OSW-1G	1	30%	1x4 fixture with (2) 4' Lamps T8	2	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	2	0.06	132	0.02	46	0.04	86	14	100
135	DPW Office	1	6	2200	Bath - Common Area:	RESTROOM 1	RESTROOM 1	WRAP	1222T8	1	T8-17	37	LED2X8TUBE2FT-SOCKETS	1	OSW-1G	1	30%	1x2 fixture with (2) 2' Lamps T8	2	Re-lamp with (2) new Type B 8 watt LED 2-foot TUBE Lamps and unshunted sockets	2	0.04	81	0.02	35	0.02	46	11	57
136	DPW Office	1	6	2200	Bath - Common Area:	RESTROOM 2	RESTROOM 2	TROFFER PB	2434T8	1	T8-32	88	LED3X10.5TUBE4FT-SOCKETS	1	OSW-1G	1	30%	2x4 fixture with (3) 4' Lamps T8	3	Re-lamp with (3) new Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	3	0.09	194	0.03	69	0.06	124	21	145
137	DPW Office	1	6	2200	Bath - Common Area:	RESTROOM 2	RESTROOM 2	TROFFER PB	222UT8	1	UT8	58	LED2X2 Volumetric Door Kit	1	OSW-1G	1	30%	2x2 fixture with (2) U-Bend T8 Lamps	2	Retrofit new 2x2' Volumetric Kit	3	0.06	128	0.02	37	0.04	90	11	101
138	DPW Office	1	9	3750	Hallways:	BACK HALL	BACK HALL	DRUM	CIRC32	3	CIRC	34	LED12-DRUMINT	3	FMS	2	30%	32W Circline Fluorescent Lamp	3	Install a 12w LED Drum Fixture, Interior Type	3	0.10	383	0.04	135	0.07	248	41	288
139	DPW Office	1	8	2500	Common Area:	WASH BAY	WASH BAY	HB	PL8X42	4	CFL	376	LED100HB	4	FMS	3	30%	(8) 42 Watt CFL Plug In, 2 Pin	12	Install a new 100w LED High Bay Fixture.	4	1.50	3760	0.40	1000	1.10	2760	300	3060
140	DPW Office	1	8	2500	Common Area:	MECHANICS BAYS	MECHANICS BAYS	HB	PL8X42	11	CFL	376	LED100HB	11	FMS	9	30%	(8) 42 Watt CFL Plug In, 2 Pin	33	Install a new 100w LED High Bay Fixture.	11	4.14	10340	1.10	2750	3.04	7590	825	8415
141	DPW Office	1	8	2500	Common Area:	MECHANICS BAYS	MECHANICS BAYS	HB	LED	4	LED	0	NR	4				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0

Village of Dobbs Ferry
Attachment 1 - Lighting and Lighting Controls Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
142	DPW Office	1	8	2500	Common Area:	MECHANICS OVER BENCH	MECHANICS OVER BENCH	IND HOOD	1828T8	1	T8-59	109	LED57-1X8LSTRIP	1				1x8 fixture with (2) 8' Lamps T8	2	Install a new 57 watt LED 1'x8' strip fixture	1	0.11	273	0.06	143	0.05	130	0	130
143	DPW Office	1	8	2500	Common Area:	MECHANICS WORK LIGHT	MECHANICS WORK LIGHT	IND HOOD	1848	1	T12	276	LED57-1X8LSTRIP	1				1x8 fixture with (4) 8' Lamps T12	4	Install a new 57 watt LED 1'x8' strip fixture	1	0.28	690	0.06	143	0.22	548	0	548
144	DPW Office	1	8	2500	Common Area:	MECHANICS ENTRY	MECHANICS ENTRY	TROFFER	2444T8	1	T8-32	112	LED4X10.5TUBE4FT-SOCKETS	1				2x4 fixture with (4) 4' Lamps T8	4	Re-lamp with (4) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	4	0.11	280	0.04	105	0.07	175	0	175
145	DPW Office	1	9	3750	Hallways:	HALL TO EQUIPMENT BAY	HALL TO EQUIPMENT BAY	WRAP	1424T8	1	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	1				1x4 fixture with (2) 4' Lamps T8	2	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	2	0.06	225	0.02	79	0.04	146	0	146
146	DPW Office	1	6	2200	Bath - Common Area:	LOCKER ROOM	LOCKER ROOM	WRAP	1424T8	3	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	3	OSW-1G	1	30%	1x4 fixture with (2) 4' Lamps T8	6	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	6	0.18	396	0.06	139	0.12	257	42	299
147	DPW Office	1	6	2200	Bath - Common Area:	LOCKER ROOM	LOCKER ROOM	6" RC FIXED	PL2X18	2	CFL	40	LED8RC6-K	2			30%	(2) 18 Watt CFL Plug In, 2 Pin	4	Retrofit with an 8 watt LED Kit for 6" Recessed Can	0	0.08	176	0.02	35	0.06	141	11	151
148	DPW Office	1	7	500	Use - Telephone, Electrical,	CUSTODIAL CLOSET	CUSTODIAL CLOSET	STRIP	1323T8	1	T8-25	47	LED2X12TUBE3FT-SOCKETS	1				1x3 fixture with (2) 3' Lamps T8	2	Re-lamp with (2) Type B 12 watt LED 3-foot TUBE Lamps and unshunted sockets	2	0.05	24	0.02	12	0.02	12	0	12
149	DPW Office	1	3	2200	Office - Normal Use:	BREAK ROOM	BREAK ROOM	WRAP	1424T8	6	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	6	OSW-1G	1	30%	1x4 fixture with (2) 4' Lamps T8	12	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	12	0.36	792	0.13	277	0.23	515	83	598
150	DPW Office	1	8	2500	Common Area:	EQUIPMENT BAY	EQUIPMENT BAY	HB	PL8X42	22	CFL	376	LED100HB	22	FMS	20	30%	(8) 42 Watt CFL Plug In, 2 Pin	66	Install a new 100w LED High Bay Fixture.	22	8.27	20680	2.20	5500	6.07	15180	1650	16830
151	DPW Office	1	8	2500	Common Area:	EQUIPMENT BAY	EQUIPMENT BAY	HB	PL8X42	4	CFL	376	LED100HB	4				(8) 42 Watt CFL Plug In, 2 Pin	12	Install a new 100w LED High Bay Fixture.	4	1.50	3760	0.40	1000	1.10	2760	0	2760
152	DPW Office	1	7	500	Use - Telephone, Electrical,	GENERATOR ROOM	GENERATOR ROOM	WALL MOUNTED, IND HOOD	1828	1	T12	138	LED4X10.5TUBE4FT-SOCKETS-8FKIT	1	OSW-1G	1	30%	1x8 fixture with (2) 8' Lamps T12	2	Re-lamp with (4) Type B 10.5 watt LED 4-foot TUBE Lamps, unshunted sockets and 1x8 Strip Kit	4	0.14	69	0.04	21	0.10	48	6	54
153	DPW Office	2	7	500	Use - Telephone, Electrical,	LOFT/SIGN STORAGE	LOFT/SIGN STORAGE	STRIP	1844T8	1	T8-32	112	LED4X10.5TUBE4FT-SOCKETS	1				1x8 fixture with (4) 4' Lamps T8	4	Re-lamp with (4) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	4	0.11	56	0.04	21	0.07	35	0	35
154	DPW Office	2	7	500	Use - Telephone, Electrical,	LOFT/ FILE STORAGE	LOFT/ FILE STORAGE	STRIP	1844T8	3	T8-32	112	LED4X10.5TUBE4FT-SOCKETS	3	OSW-1G	1	30%	1x8 fixture with (4) 4' Lamps T8	12	Re-lamp with (4) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	12	0.34	168	0.13	63	0.21	105	19	124
155	DPW Office	EXT	10	4380	Exterior:	OVER BAY DOORS	OVER BAY DOORS	SLIPFITTER, FLOOD	M400	5	MH	455	LED150FLOOD	5				400 Watt Metal Halide	5	Install a 150 Watt LED Flood Fixture	0	2.28	9965	0.75	3285	1.53	6680	0	6680
156	DPW Office	EXT	10	4380	Exterior:	OVER MAN DOORS	OVER MAN DOORS	DRUM	M70	5	MH	95	LED12-DRUMINT	5				70 Watt Metal Halide	5	Install a 12w LED Drum Fixture, Interior Type	5	0.48	2081	0.06	263	0.42	1818	0	1818
157	DPW Office	EXT	10	4380	Exterior:	OVER MAN DOORS	OVER MAN DOORS	CEILING JAR	I100	1	INC	100	LED28CANOPY	1				100 Watt Inc	1	Install a new 28 watt LED Canopy Fixture	0	0.10	438	0.03	123	0.07	315	0	315
158	DPW Office	EXT	10	4380	Exterior:	BACK WALLS	BACK WALLS	DA SHOE BOX	M250	4	MH	295	LED150FLOOD	4				250 Watt Metal Halide	4	Install a 150 Watt LED Flood Fixture	0	1.18	5168	0.60	2628	0.58	2540	0	2540
159	DPW Office	EXT	10	4380	Exterior:	BY OFFICE DOOR	BY OFFICE DOOR	TALLPACK	M70	1	MH	95	LED10WP	1				70 Watt Metal Halide	1	Install a new 10 watt LED Wall Pack Fixture.	0	0.10	416	0.01	44	0.09	372	0	372
160	Village Hall	2	8	2500	Common Area:	BACK ENTERANCE	BACK ENTERANCE	OPEN FLOOD	PL42	12	CFL	48	LED22FLOOD	12				42 Watt CFL Plug In, 2 Pin	12	Install a new 22 Watt LED Flood Fixture	0	0.58	1440	0.26	660	0.31	780	0	780
161	Village Hall	2	9	3750	Hallways:	HALLWAY	HALLWAY	TROFFER, DOOR KIT	LED	1	LED	0	NR	1	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
162	Village Hall	2	7	500	Use - Telephone, Electrical,	IT CLOSET	IT CLOSET	TROFFER, DOOR KIT	LED	2	LED	0	NR	2	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
163	Village Hall	2	3	2200	Office - Normal Use:	CONFERENCE	CONFERENCE	TROFFER, DOOR KIT	LED	4	LED	0	NR	4	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
164	Village Hall	2	3	2200	Office - Normal Use:	BOARD ROOM	BOARD ROOM	TROFFER	2222T8	12	T8-17	37	LED24-2X2TGDK	12				2x2 fixture with (2) 2' Lamps T8	24	Install a new 24 watt LED 2'x2' Recessed Troffer Grid Kit	12	0.44	977	0.25	554	0.19	422	0	422
165	Village Hall	2	3	2200	Office - Normal Use:	BOARD ROOM	BOARD ROOM	8" RC	LED	15	LED	0	NR	15				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
166	Village Hall	2	3	2200	Office - Normal Use:	BOARD ROOM	BOARD ROOM	WALL SCONCE	LED	10	LED	0	NR	10				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
167	Village Hall	2	4	4000	Office - High Use	COURT CLERK	COURT CLERK	TROFFER	LED	8	LED	0	NR	8				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
168	Village Hall	2	7	500	Use - Telephone, Electrical,	SUPPLY	SUPPLY	DRUM	CIRC54	1	CIRC	58	LED12-DRUMINT	1				22W & 32W Circline Fluorescent Lamps	2	Install a 12w LED Drum Fixture, Interior Type	1	0.06	29	0.01	6	0.05	23	0	23
169	Village Hall	2	3	2200	Office - Normal Use:	COURT ROOM	COURT ROOM	TROFFER, DK	LED	6	LED	0	NR	6				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0

Village of Dobbs Ferry
Attachment 1 - Lighting and Lighting Controls Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
170	Village Hall	2	3	2200	Office - Normal Use:	COURT ROOM	COURT ROOM	TROFFER	2242T8	8	T8-17	62	LED24-2X2TGDK	8				2x2 fixture with (4) 2' Lamps T8	32	Install a new 24 watt LED 2'x2' Recessed Troffer Grid Kit	8	0.50	1091	0.17	370	0.33	722	0	722
171	Village Hall	2	9	3750	Hallways:	CORRIDOR	CORRIDOR	TROFFER, DK	LED	4	LED	0	NR	4				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
172	Village Hall	2	9	3750	Hallways:	CORRIDOR	CORRIDOR	8" RC	PL26	4	CFL	28	LED24RC8-K	4				26 Watt CFL Plug In, 2 Pin	4	Retrofit with an 24 watt LED Kit for 8" Recessed Can	0	0.11	420	0.10	360	0.02	60	0	60
173	Village Hall	2	9	3750	Hallways:	CORRIDOR	CORRIDOR	RECESSED	1844T8	4	T8-32	112	LED4X10.5TUBE4FT-SOCKETS	4				1x8 fixture with (4) 4' Lamps T8	16	Re-lamp with (4) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	16	0.45	1680	0.17	630	0.28	1050	0	1050
174	Village Hall	2	4	4000	Office - High Use	ADMIN OPEN OFFICE	ADMIN OPEN OFFICE	TROFFER, DK	LED	7	LED	0	NR	7	OSC-1D	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
175	Village Hall	2	4	4000	Office - High Use	OFFICE 1	OFFICE 1	TROFFER, DK	LED	2	LED	0	NR	2	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
176	Village Hall	2	4	4000	Office - High Use	OFFICE 2	OFFICE 2	TROFFER, DK	LED	2	LED	0	NR	2	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
177	Village Hall	2	7	500	Use - Telephone, Electrical,	SAFE	SAFE	WRAP	LED	1	NR	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
178	Village Hall	2	3	2200	Office - Normal Use:	BREAK ROOM	BREAK ROOM	TROFFER, DK	LED	2	LED	0	NR	2				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
179	Village Hall	2	9	3750	Hallways:	RESTROOM HALL	RESTROOM HALL	TROFFER	2222T8	1	T8-17	37	LED24-2X2TGDK	1				2x2 fixture with (2) 2' Lamps T8	2	Install a new 24 watt LED 2'x2' Recessed Troffer Grid Kit	1	0.04	139	0.02	79	0.02	60	0	60
180	Village Hall	2	6	2200	Bath - Common Area:	WOMENS RESTROOM	WOMENS RESTROOM	TROFFER	LED	1	LED	0	NR	1	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
181	Village Hall	2	6	2200	Bath - Common Area:	MENS RESTROOM	MENS RESTROOM	DRUM	LED	1	LED	0	NR	1	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
182	Village Hall	2	8	2500	Common Area:	BUILDING DEPT OPEN	BUILDING DEPT OPEN	TROFFER, DK	LED	6	LED	0	NR	6	OSC-1D	2	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
183	Village Hall	2	4	4000	Office - High Use	BUILDING OFFICE	BUILDING OFFICE	TROFFER, DK	LED	5	LED	0	NR	5	OSC-1D	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
184	Village Hall	2	4	4000	Office - High Use	CLERKS OPEN OFFICE	CLERKS OPEN OFFICE	TROFFER, DK	LED	5	LED	0	NR	5	OSC-1D	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
185	Village Hall	2	4	4000	Office - High Use	CLERKS OFFICE 1	CLERKS OFFICE 1	TROFFER, DK	LED	2	LED	0	NR	2	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
186	Village Hall	2	4	4000	Office - High Use	ADMINISTRATORS OFFICE	ADMINISTRATORS OFFICE	TROFFER, DK	LED	6	LED	0	NR	6	OSC-1D	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
187	Village Hall	2	4	4000	Office - High Use	MAYORS OFFICE	MAYORS OFFICE	TROFFER, DK	LED	3	LED	0	NR	3	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
188	Village Hall	SW	1	8760	Continuous Use, Exits, Stairwells:	STAIRWAY	STAIRWAY	WALL VANITY	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
189	Village Hall	SW	1	8760	Continuous Use, Exits, Stairwells:	STAIRWAY	STAIRWAY	WALL SCONCE	LED	4	LED	0	NR	4				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
190	Village Hall	1	9	3750	Hallways:	CORRIDOR	CORRIDOR	8" RC	LED	12	LED	0	NR	12				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
191	Village Hall	1	9	3750	Hallways:	CORRIDOR	CORRIDOR	TROFFER	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
192	Village Hall	1	7	500	Use - Telephone, Electrical,	CUSTODIAL CLOSET	CUSTODIAL CLOSET	DRUM	LED	1	LED	0	NR	1	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
193	Village Hall	1	6	2200	Bath - Common Area:	WOMENS RESTROOM	WOMENS RESTROOM	TROFFER, DK	LED	1	LED	0	NR	1	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
194	Village Hall	1	6	2200	Bath - Common Area:	MENS RESTROOM	MENS RESTROOM	TROFFER, DK	LED	1	LED	0	NR	1	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
195	Village Hall	1	8	2500	Common Area:	POLICE OPEN	POLICE OPEN	TROFFER, DK	LED	8	LED	0	NR	8	OSC-1D	2	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
196	Village Hall	1	6	2200	Bath - Common Area:	POLICE RESTROOM	POLICE RESTROOM	DRUM	LED	1	LED	0	NR	1	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
197	Village Hall	1	9	3750	Hallways:	POLICE CORRIDOR	POLICE CORRIDOR	TROFFER, DK	LED	4	LED	0	NR	4				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0

Village of Dobbs Ferry
Attachment 1 - Lighting and Lighting Controls Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
198	Village Hall	1	4	4000	Office - High Use	POLICE INTERVIEW 1	POLICE INTERVIEW 1	TROFFER, DK	LED	1	LED	0	NR	1	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
199	Village Hall	1	3	2200	Office - Normal Use:	INTERVIEW 2	INTERVIEW 2	TROFFER, DK	LED	3	LED	0	NR	3	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
200	Village Hall	1	7	500	Use - Telephone, Electrical,	FILE ROOM 1	FILE ROOM 1	TROFFER, DK	LED	1	LED	0	NR	1	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
201	Village Hall	1	7	500	Use - Telephone, Electrical,	FILE ROOM 2	FILE ROOM 2	TROFFER, DK	LED	1	LED	0	NR	1	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
202	Village Hall	1	4	4000	Office - High Use	CHIEF	CHIEF	TROFFER, DK	LED	6	LED	0	NR	6	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
203	Village Hall	1	4	4000	Office - High Use	LIEUTENANT	LIEUTENANT	TROFFER, DK	LED	2	LED	0	NR	2	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
204	Village Hall	1	6	2200	Bath - Common Area:	LOCKER ROOM	LOCKER ROOM	TROFFER, DK	LED	1	LED	0	NR	1	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
205	Village Hall	1	3	2200	Office - Normal Use:	CONFERENCE ROOM	CONFERENCE ROOM	TROFFER, DK	LED	4	LED	0	NR	4	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
206	Village Hall	1	7	500	Use - Telephone, Electrical,	POLICE CUSTODIAL CLOSET	POLICE CUSTODIAL CLOSET	DRUM	CIRC54	2	CIRC	58	LED12-DRUMINT	2	OSW-1G	1	30%	22W & 32W Circline Fluorescent Lamps	4	Install a 12w LED Drum Fixture, Interior Type	2	0.12	58	0.02	12	0.09	46	4	50
207	Village Hall	1	6	2200	Bath - Common Area:	POICE RESTROOM	POICE RESTROOM	DRUM	LED	1	LED	0	NR	1	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
208	Village Hall	1	4	4000	Office - High Use	BOOKING	BOOKING	TROFFER, DK	LED	4	LED	0	NR	4				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
209	Village Hall	SW	1	8760	Continuous Use, Exits, Stairwells:	BACK STAIRWAY	BACK STAIRWAY	WALL VANITY	LED	3	LED	0	NR	3				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
210	Village Hall	SW	1	8760	Continuous Use, Exits, Stairwells:	BACK STAIRWAY	BACK STAIRWAY	STRIP	1828	1	T12	138	LED4X10.5TUBE4FT-SOCKETS-8FKIT	1	OSW-1G	1	30%	1x8 fixture with (2) 8' Lamps T12	2	Re-lamp with (4) Type B 10.5 watt LED 4-foot TUBE Lamps, unshunted sockets and 1x8 Strip Kit	4	0.14	1209	0.04	368	0.10	841	110	951
211	Village Hall	SW	1	8760	Continuous Use, Exits, Stairwells:	BACK STAIRWAY	BACK STAIRWAY	STRIP	1424T8	1	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	1	OSW-1G	1	30%	1x4 fixture with (2) 4' Lamps T8	2	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	2	0.06	526	0.02	184	0.04	342	55	397
212	Village Hall	B	7	500	Use - Telephone, Electrical,	HOLDING CELL AREA	HOLDING CELL AREA	CORNER MOUNT	1424T8	3	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	3				1x4 fixture with (2) 4' Lamps T8	6	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	6	0.18	90	0.06	32	0.12	59	0	59
213	Village Hall	B	4	4000	Office - High Use	DETECTIVES OFFICE	DETECTIVES OFFICE	TROFFER,DK	LED	3	LED	0	NR	3	OSW-2G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
214	Village Hall	B	4	4000	Office - High Use	DETECTIVES OFFICE	DETECTIVES OFFICE	EXIT SIGN	I2X7	1	INC	18	KLED-BB	1				(2) 7 Watt Inc	2	Install a LED Exit Sign, Battery Backup, Universal, MultiTap	1	0.02	72	0.00	8	0.02	64	0	64
215	Village Hall	B	7	500	Use - Telephone, Electrical,	BOILER ROOM	BOILER ROOM	IND HOOD	1424T8	5	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	5				1x4 fixture with (2) 4' Lamps T8	10	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	10	0.30	150	0.11	53	0.20	98	0	98
216	Village Hall	B	7	500	Use - Telephone, Electrical,	BOILER ROOM	BOILER ROOM	EXIT SIGN	I2X7	1	INC	18	KLED-BB	1				(2) 7 Watt Inc	2	Install a LED Exit Sign, Battery Backup, Universal, MultiTap	1	0.02	9	0.00	1	0.02	8	0	8
217	Village Hall	B	7	500	Use - Telephone, Electrical,	POLICE STORAGE	POLICE STORAGE	TROFFER, DK	LED	2	LED	0	NR	2				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
218	Village Hall	B	6	2200	Bath - Common Area:	MENS LOCKERS	MENS LOCKERS	TROFFER, DK	LED	3	LED	0	NR	3	OSC-1D	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
219	Village Hall	B	6	2200	Bath - Common Area:	WOMENS LOCKERS	WOMENS LOCKERS	TROFFER, DK	LED	1	LED	0	NR	1	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
220	Village Hall	B	6	2200	Bath - Common Area:	WOMENS RESTROOM	WOMENS RESTROOM	DRUM	LED	1	LED	0	NR	1	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
221	Village Hall	B	6	2200	Bath - Common Area:	S. LOCKERS	S. LOCKERS	TROFFER	1424T8	2	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	2	OSC-1D	1	30%	1x4 fixture with (2) 4' Lamps T8	4	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	4	0.12	264	0.04	92	0.08	172	28	199
222	Village Hall	B	6	2200	Bath - Common Area:	S. RESTROOM	S. RESTROOM	DRUM	LED	2	LED	0	NR	2	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
223	Village Hall	B	7	500	Use - Telephone, Electrical,	METER ROOM	METER ROOM	TROFFER	LED	1	LED	0	NR	1	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
224	Village Hall	B	3	2200	Office - Normal Use:	EVIDENCE	EVIDENCE	TROFFER, DK	LED	8	LED	0	NR	8	OSC-1D	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
225	Village Hall	B	9	3750	Hallways:	CORRIDOR	CORRIDOR	TROFFER, DK	LED	6	LED	0	NR	6				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0

Village of Dobbs Ferry
Attachment 1 - Lighting and Lighting Controls Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
226	Village Hall	B	9	3750	Hallways:	CORRIDOR	CORRIDOR	TROFFER	2222T8	1	T8-17	37	LED24-2X2TGDK	1				2x2 fixture with (2) 2' Lamps T8	2	Install a new 24 watt LED 2'x2' Recessed Troffer Grid Kit	1	0.04	139	0.02	79	0.02	60	0	60
227	Village Hall	B	7	500	Use - Telephone, Electrical,	IT CLOSET	IT CLOSET	DRUM	CIRC54	1	CIRC	58	LED12-DRUMINT	1	OSW-1G	1	30%	22W & 32W Circline Fluorescent Lamps	2	Install a 12w LED Drum Fixture, Interior Type	1	0.06	29	0.01	6	0.05	23	2	25
228	Village Hall	B	9	3750	Hallways:	FIREHOUSE CORRIDOR	FIREHOUSE CORRIDOR	TROFFER, DK	LED	5	LED	0	NR	5				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
229	Village Hall	B	8	2500	Common Area:	FIREHOUSE OPEN AREA	FIREHOUSE OPEN AREA	TROFFER, DK	LED	8	LED	0	NR	8	OSC-1D	2	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
230	Village Hall	B	6	2200	Bath - Common Area:	MENS ROOM	MENS ROOM	TROFFER, DK	LED	1	LED	0	NR	1	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
231	Village Hall	B	6	2200	Bath - Common Area:	WOMENS ROOM	WOMENS ROOM	TROFFER, DK	LED	1	LED	0	NR	1	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
232	Village Hall	B	3	2200	Office - Normal Use:	LOUNGE (2)	LOUNGE (2)	6" RC	LED	48	LED	0	NR	48				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
233	Village Hall	B	7	500	Use - Telephone, Electrical,	STORAGE 1	STORAGE 1	DRUM	CIRC54	1	CIRC	58	LED12-DRUMINT	1	OSW-1G	1	30%	22W & 32W Circline Fluorescent Lamps	2	Install a 12w LED Drum Fixture, Interior Type	1	0.06	29	0.01	6	0.05	23	2	25
234	Village Hall	B	7	500	Use - Telephone, Electrical,	STORAGE 2	STORAGE 2	DRUM	CIRC54	1	CIRC	58	LED12-DRUMINT	1	OSW-1G	1	30%	22W & 32W Circline Fluorescent Lamps	2	Install a 12w LED Drum Fixture, Interior Type	1	0.06	29	0.01	6	0.05	23	2	25
235	Village Hall	B	8	2500	Common Area:	TROPHY LANE	TROPHY LANE	STRIP	1313	2	T12	42	LED1X12TUBE3FT-SOCKETS	2				1x3 fixture with (1) 3' Lamp T12	2	Re-lamp with (1) Type B 12 watt LED 3-foot TUBE Lamp and unshunted sockets	2	0.08	210	0.02	60	0.06	150	0	150
236	Village Hall	B	3	2200	Office - Normal Use:	KITCHEN	KITCHEN	TROFFER, DK	LED	2	LED	0	NR	2	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
237	Village Hall	B	3	2200	Office - Normal Use:	KITCHEN	KITCHEN	TROFFER	2222T8	4	T8-17	37	LED2X8TUBE2FT-SOCKETS	4	OSW-1G	1	30%	2x2 fixture with (2) 2' Lamps T8	8	Re-lamp with (2) new Type B 8 watt LED 2-foot TUBE Lamps and unshunted sockets	8	0.15	326	0.06	141	0.08	185	42	227
238	Village Hall	B	3	2200	Office - Normal Use:	KITCHEN HOOD	KITCHEN HOOD	JJ	I60	1	INC	60	LED9A19	1				60 Watt Inc	1	Re-lamp with a 9 watt LED A19 lamps	1	0.06	132	0.01	20	0.05	112	0	112
238	Village Hall	B	3	2200	Office - Normal Use:	DINING	DINING	TROFFER	2222T8	16	T8-17	37	LED2X8TUBE2FT-SOCKETS	16				2x2 fixture with (2) 2' Lamps T8	32	Re-lamp with (2) new Type B 8 watt LED 2-foot TUBE Lamps and unshunted sockets	32	0.59	1302	0.26	563	0.34	739	0	739
239	Village Hall	B	3	2200	Office - Normal Use:	DINING	DINING	TROFFER, DK	LED	3	LED	0	NR	3	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
240	Village Hall	B	3	2200	Office - Normal Use:	DINING	DINING	WALL SCONCE	LED	16	LED	0	NR	16				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
241	Village Hall	B	7	500	Use - Telephone, Electrical,	AIR HANDLER	AIR HANDLER	KEYLESS	CF26	1	CFL	28	LED12A19	1				26 Watt CFL	1	Re-lamp with a 12 watt LED A19 lamp	1	0.03	14	0.01	6	0.02	8	0	8
242	Village Hall	B	7	500	Use - Telephone, Electrical,	ELECTRIC ROOM	ELECTRIC ROOM	DRUM	CIRC54	1	CIRC	58	LED12-DRUMINT	1				22W & 32W Circline Fluorescent Lamps	2	Install a 12w LED Drum Fixture, Interior Type	1	0.06	29	0.01	6	0.05	23	0	23
243	Village Hall	B	8	2500	Common Area:	VEST	VEST	TROFFER, DK	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
244	Village Hall	B	7	500	Use - Telephone, Electrical,	FIRE ALARM	FIRE ALARM	TROFFER, DK	LED	1	LED	0	NR	1	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
245	Village Hall	B	7	500	Use - Telephone, Electrical,	ELEVATOR MACHINE	ELEVATOR MACHINE	TROFFER, DK	LED	1	LED	0	NR	1	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
246	Village Hall	B	7	500	Use - Telephone, Electrical,	GENERATOR ROOM	GENERATOR ROOM	IND	1424T8	6	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	6	OSW-1G	1	30%	1x4 fixture with (2) 4' Lamps T8	12	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	12	0.36	180	0.13	63	0.23	117	19	136
247	Village Hall	B	7	500	Use - Telephone, Electrical,	ELEVATOR	ELEVATOR	STRIP	1424	1	T12	80	LED2X10.5TUBE4FT-SOCKETS	1				1x4 fixture with (2) 4' Lamps T12	2	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	2	0.08	40	0.02	11	0.06	30	0	30
248	Village Hall	B	1	8760	Continuous Use, Exits, Stairwells:	STAIRS	STAIRS	WRAP	1424T8	1	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	1				1x4 fixture with (2) 4' Lamps T8	2	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	2	0.06	526	0.02	184	0.04	342	0	342
249	Village Hall	B	8	2500	Common Area:	FIRE TRUCK BAYS	FIRE TRUCK BAYS	STRIP	1424T8	3	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	3				1x4 fixture with (2) 4' Lamps T8	6	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	6	0.18	450	0.06	158	0.12	293	0	293
250	Village Hall	B	8	2500	Common Area:	FIRE TRUCK BAYS	FIRE TRUCK BAYS	STRIP	1828T8	25	T8-59	109	LED4X10.5TUBE4FT-SOCKETS-8FKIT	25				1x8 fixture with (2) 8' Lamps T8	50	Re-lamp with (4) Type B 10.5 watt LED 4-foot TUBE Lamps, unshunted sockets and 1x8 Strip Kit	100	2.73	6813	1.05	2625	1.68	4188	0	4188
251	Village Hall	B	7	500	Use - Telephone, Electrical,	STORAGE 1	STORAGE 1	STRIP	1828T8	1	T8-59	109	LED4X10.5TUBE4FT-SOCKETS-8FKIT	1	OSW-1G	1	30%	1x8 fixture with (2) 8' Lamps T8	2	Re-lamp with (4) Type B 10.5 watt LED 4-foot TUBE Lamps, unshunted sockets and 1x8 Strip Kit	4	0.11	55	0.04	21	0.07	34	6	40
252	Village Hall	B	7	500	Use - Telephone, Electrical,	STORAGE 2	STORAGE 2	STRIP	1828T8	1	T8-59	109	LED4X10.5TUBE4FT-SOCKETS-8FKIT	1	OSW-1G	1	30%	1x8 fixture with (2) 8' Lamps T8	2	Re-lamp with (4) Type B 10.5 watt LED 4-foot TUBE Lamps, unshunted sockets and 1x8 Strip Kit	4	0.11	55	0.04	21	0.07	34	6	40

Village of Dobbs Ferry
Attachment 1 - Lighting and Lighting Controls Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
253	Village Hall	B	6	2200	Bath - Common Area:	REST ROOM	REST ROOM	WRAP	1424T8	1	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	1	OSW-1G	1	30%	1x4 fixture with (2) 4' Lamps T8	2	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	2	0.06	132	0.02	46	0.04	86	14	100
254	Village Hall	B	4	4000	Office - High Use	CHIEF OFFICE	CHIEF OFFICE	TROIFFER, DK	LED	6	LED	0	NR	6	OSW-1G	1	30%	LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
255	Village Hall	B	4	4000	Office - High Use	OFFICE	OFFICE	WRAP	1424T8	3	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	3	OSW-1G	1	30%	1x4 fixture with (2) 4' Lamps T8	6	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	6	0.18	720	0.06	252	0.12	468	76	544
256	Village Hall	B	9	3750	Hallways:	HALLWAY	HALLWAY	WRAP	1424T8	3	T8-32	60	LED2X10.5TUBE4FT-SOCKETS	3				1x4 fixture with (2) 4' Lamps T8	6	Re-lamp with (2) Type B 10.5 watt LED 4-foot TUBE Lamps and unshunted sockets	6	0.18	675	0.06	236	0.12	439	0	439
257	Village Hall	EXT	10	4380	Exterior:	FRONT ENTRY	FRONT ENTRY	WALL COACH	I100	2	INC	100	LED12A19	2				100 Watt Inc	2	Re-lamp with a 12 watt LED A19 lamp	2	0.20	876	0.02	105	0.18	771	0	771
258	Village Hall	EXT	10	4380	Exterior:	FRONT WALL	FRONT WALL	LED WP	LED	2	LED	0	NR	2				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
259	Village Hall	EXT	10	4380	Exterior:	BACK WALL	BACK WALL	TP	LED	2	LED	0	NR	2				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
260	Village Hall	EXT	10	4380	Exterior:	BACK ENTERANCE	BACK ENTERANCE	STRIP, HO	1818	1	T12	83	LED57-1X8LSTRIP	1				1x8 fixture with (1) 8' Lamp T12	1	Install a new 57 watt LED 1'x8' strip fixture	1	0.08	364	0.06	250	0.03	114	0	114

ATTACHMENT 2 – STREET LIGHTING LINE BY LINE

Village of Dobbs Ferry
Attachment 2 - Street Lighting Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
125	STREET LIGHTING	EXT	10	4380	Exterior:				I189	1	INC	189	LED50COBRA	1				189 Watt Inc	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	828	0.05	219	0.14	609	0	609
126	STREET LIGHTING	EXT	10	4380	Exterior:				I189	1	INC	189	LED50COBRA	1				189 Watt Inc	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	828	0.05	219	0.14	609	0	609
127	STREET LIGHTING	EXT	10	4380	Exterior:				I189	1	INC	189	LED50COBRA	1				189 Watt Inc	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	828	0.05	219	0.14	609	0	609
128	STREET LIGHTING	EXT	10	4380	Exterior:				I189	1	INC	189	LED50COBRA	1				189 Watt Inc	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	828	0.05	219	0.14	609	0	609
129	STREET LIGHTING	EXT	10	4380	Exterior:				H200	1	MV	240	LED100COBRA	1				200 Watt Mercury Vapor	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.24	1051	0.10	438	0.14	613	0	613
130	STREET LIGHTING	EXT	10	4380	Exterior:				H200	1	MV	240	LED100COBRA	1				200 Watt Mercury Vapor	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.24	1051	0.10	438	0.14	613	0	613
131	STREET LIGHTING	EXT	10	4380	Exterior:	ALLEN ST	ALLEN ST	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
132	STREET LIGHTING	EXT	10	4380	Exterior:	ALLEN ST	ALLEN ST	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
133	STREET LIGHTING	EXT	10	4380	Exterior:	ALLEN ST	ALLEN ST	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
134	STREET LIGHTING	EXT	10	4380	Exterior:	ALLEN ST	ALLEN ST	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
135	STREET LIGHTING	EXT	10	4380	Exterior:	APPLETON PL	APPLETON PL	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
136	STREET LIGHTING	EXT	10	4380	Exterior:	APPLETON PL	APPLETON PL	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
137	STREET LIGHTING	EXT	10	4380	Exterior:	APPLETON PL	APPLETON PL		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
138	STREET LIGHTING	EXT	10	4380	Exterior:	APPLETON PL	APPLETON PL		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
139	STREET LIGHTING	EXT	10	4380	Exterior:	APPLETON PL	APPLETON PL		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
140	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
141	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
142	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
143	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
144	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
145	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
146	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		H200	1	MV	240	LED100COBRA	1				200 Watt Mercury Vapor	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.24	1051	0.10	438	0.14	613	0	613
147	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		H200	1	MV	240	LED100COBRA	1				200 Watt Mercury Vapor	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.24	1051	0.10	438	0.14	613	0	613
148	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		H200	1	MV	240	LED100COBRA	1				200 Watt Mercury Vapor	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.24	1051	0.10	438	0.14	613	0	613
149	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
150	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
151	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
152	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420

Village of Dobbs Ferry
Attachment 2 - Street Lighting Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
153	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
154	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
155	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
156	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
157	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
158	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
159	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
160	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
161	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
162	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
163	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
164	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
165	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
166	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
167	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
168	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
169	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
170	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
171	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
172	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
173	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
174	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
175	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
176	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
177	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
178	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
179	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
180	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854

Village of Dobbs Ferry
Attachment 2 - Street Lighting Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
181	STREET LIGHTING	EXT	10	4380	Exterior:	ATILDA AVE	ATILDA AVE		S141	1	HPS	141	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	618	0.05	219	0.09	399	0	399
182	STREET LIGHTING	EXT	10	4380	Exterior:	ATILDA AVE	ATILDA AVE		S141	1	HPS	141	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	618	0.05	219	0.09	399	0	399
183	STREET LIGHTING	EXT	10	4380	Exterior:	ATILDA AVE	ATILDA AVE		S141	1	HPS	141	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	618	0.05	219	0.09	399	0	399
184	STREET LIGHTING	EXT	10	4380	Exterior:	BEACON HILL DR	BEACON HILL DR		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
185	STREET LIGHTING	EXT	10	4380	Exterior:	BEACON HILL DR	BEACON HILL DR		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
186	STREET LIGHTING	EXT	10	4380	Exterior:	BEACON HILL DR	BEACON HILL DR		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
187	STREET LIGHTING	EXT	10	4380	Exterior:	BEACON HILL DR	BEACON HILL DR		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
188	STREET LIGHTING	EXT	10	4380	Exterior:	BEACON HILL DR	BEACON HILL DR		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
189	STREET LIGHTING	EXT	10	4380	Exterior:	BEACON HILL DR	BEACON HILL DR		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
190	STREET LIGHTING	EXT	10	4380	Exterior:	BEACON HILL DR	BEACON HILL DR		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
191	STREET LIGHTING	EXT	10	4380	Exterior:	BEACON HILL DR	BEACON HILL DR		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
192	STREET LIGHTING	EXT	10	4380	Exterior:	BEACON HILL DR	BEACON HILL DR		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
193	STREET LIGHTING	EXT	10	4380	Exterior:	BEACON HILL DR	BEACON HILL DR		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
194	STREET LIGHTING	EXT	10	4380	Exterior:	BEACON HILL DR	BEACON HILL DR		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
195	STREET LIGHTING	EXT	10	4380	Exterior:	BEACON HILL DR	BEACON HILL DR		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
196	STREET LIGHTING	EXT	10	4380	Exterior:	BEACON HILL DR	BEACON HILL DR		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
197	STREET LIGHTING	EXT	10	4380	Exterior:	BEACON HILL DR	BEACON HILL DR		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
198	STREET LIGHTING	EXT	10	4380	Exterior:	BEACON HILL DR	BEACON HILL DR		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
199	STREET LIGHTING	EXT	10	4380	Exterior:	BEACON HILL DR	BEACON HILL DR		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
200	STREET LIGHTING	EXT	10	4380	Exterior:	BEACON HILL DR	BEACON HILL DR		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
201	STREET LIGHTING	EXT	10	4380	Exterior:	BEACON HILL DR	BEACON HILL DR		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
202	STREET LIGHTING	EXT	10	4380	Exterior:	BEACON HILL DR	BEACON HILL DR		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
203	STREET LIGHTING	EXT	10	4380	Exterior:	BEECHDALE RD	BEECHDALE RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
204	STREET LIGHTING	EXT	10	4380	Exterior:	BEECHDALE RD	BEECHDALE RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
205	STREET LIGHTING	EXT	10	4380	Exterior:	BEECHDALE RD	BEECHDALE RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
206	STREET LIGHTING	EXT	10	4380	Exterior:	BEECHDALE RD	BEECHDALE RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
207	STREET LIGHTING	EXT	10	4380	Exterior:	BEECHDALE RD	BEECHDALE RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
208	STREET LIGHTING	EXT	10	4380	Exterior:	BEECHDALE RD	BEECHDALE RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0

Village of Dobbs Ferry
Attachment 2 - Street Lighting Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
209	STREET LIGHTING	EXT	10	4380	Exterior:	BEECHDALE RD	BEECHDALE RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
210	STREET LIGHTING	EXT	10	4380	Exterior:	BEECHWOOD COURT	BEECHWOOD COURT	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
211	STREET LIGHTING	EXT	10	4380	Exterior:	BELDEN AVE	BELDEN AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
212	STREET LIGHTING	EXT	10	4380	Exterior:	BELDEN AVE	BELDEN AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
213	STREET LIGHTING	EXT	10	4380	Exterior:	BELDEN AVE	BELDEN AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
214	STREET LIGHTING	EXT	10	4380	Exterior:	BELDEN AVE	BELDEN AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
215	STREET LIGHTING	EXT	10	4380	Exterior:	BELDEN AVE	BELDEN AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
216	STREET LIGHTING	EXT	10	4380	Exterior:	BELDEN AVE	BELDEN AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
217	STREET LIGHTING	EXT	10	4380	Exterior:	BELDEN AVE	BELDEN AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
218	STREET LIGHTING	EXT	10	4380	Exterior:	BELDEN AVE	BELDEN AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
219	STREET LIGHTING	EXT	10	4380	Exterior:	BELDEN AVE	BELDEN AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
220	STREET LIGHTING	EXT	10	4380	Exterior:	BELDEN AVE	BELDEN AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
221	STREET LIGHTING	EXT	10	4380	Exterior:	BELLAIR DRIVEWA	BELLAIR DRIVEWA	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
222	STREET LIGHTING	EXT	10	4380	Exterior:	BELLAIR DRIVEWA	BELLAIR DRIVEWA	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
223	STREET LIGHTING	EXT	10	4380	Exterior:	BELLAIR DRIVEWA	BELLAIR DRIVEWA	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
224	STREET LIGHTING	EXT	10	4380	Exterior:	BELLAIR DRIVEWA	BELLAIR DRIVEWA	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
225	STREET LIGHTING	EXT	10	4380	Exterior:	BELLAIR DRIVEWA	BELLAIR DRIVEWA	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
226	STREET LIGHTING	EXT	10	4380	Exterior:	BELLAIR DRIVEWA	BELLAIR DRIVEWA	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
227	STREET LIGHTING	EXT	10	4380	Exterior:	BELLAIR DRIVEWA	BELLAIR DRIVEWA	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
228	STREET LIGHTING	EXT	10	4380	Exterior:	BELLAIR DRIVEWA	BELLAIR DRIVEWA	70	S70	1	HPS	90	LED50COBRA	1				70 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.09	394	0.05	219	0.04	175	0	175
229	STREET LIGHTING	EXT	10	4380	Exterior:	BELLAIR DRIVEWA	BELLAIR DRIVEWA		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
230	STREET LIGHTING	EXT	10	4380	Exterior:	BELLAIR DRIVEWA	BELLAIR DRIVEWA		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
231	STREET LIGHTING	EXT	10	4380	Exterior:	BELLVUE AVE	BELLVUE AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
232	STREET LIGHTING	EXT	10	4380	Exterior:	BELLVUE AVE	BELLVUE AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
233	STREET LIGHTING	EXT	10	4380	Exterior:	BELLVUE AVE	BELLVUE AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
234	STREET LIGHTING	EXT	10	4380	Exterior:	BELLWOOD AVE	BELLWOOD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
235	STREET LIGHTING	EXT	10	4380	Exterior:	BELLWOOD AVE	BELLWOOD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
236	STREET LIGHTING	EXT	10	4380	Exterior:	BELLWOOD AVE	BELLWOOD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0

Village of Dobbs Ferry
Attachment 2 - Street Lighting Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
237	STREET LIGHTING	EXT	10	4380	Exterior:	BELLWOOD AVE	BELLWOOD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
238	STREET LIGHTING	EXT	10	4380	Exterior:	BELLWOOD AVE	BELLWOOD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
239	STREET LIGHTING	EXT	10	4380	Exterior:	BELLWOOD AVE	BELLWOOD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
240	STREET LIGHTING	EXT	10	4380	Exterior:	BLANCHARD AVE	BLANCHARD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
241	STREET LIGHTING	EXT	10	4380	Exterior:	BLANCHARD AVE	BLANCHARD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
242	STREET LIGHTING	EXT	10	4380	Exterior:	BLANCHARD AVE	BLANCHARD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
243	STREET LIGHTING	EXT	10	4380	Exterior:	BLANCHARD AVE	BLANCHARD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
244	STREET LIGHTING	EXT	10	4380	Exterior:	BLANCHARD AVE	BLANCHARD AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
245	STREET LIGHTING	EXT	10	4380	Exterior:	BRACE TERR	BRACE TERR	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
246	STREET LIGHTING	EXT	10	4380	Exterior:	BRACE TERR	BRACE TERR	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
247	STREET LIGHTING	EXT	10	4380	Exterior:	BRADLEY ST	BRADLEY ST	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
248	STREET LIGHTING	EXT	10	4380	Exterior:	BRADLEY ST	BRADLEY ST	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
249	STREET LIGHTING	EXT	10	4380	Exterior:	BRADLEY ST	BRADLEY ST	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
250	STREET LIGHTING	EXT	10	4380	Exterior:	BRADLEY ST	BRADLEY ST	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
251	STREET LIGHTING	EXT	10	4380	Exterior:	BRADLEY ST	BRADLEY ST		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
252	STREET LIGHTING	EXT	10	4380	Exterior:	BRADLEY ST	BRADLEY ST		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
253	STREET LIGHTING	EXT	10	4380	Exterior:	BRIARY RD	BRIARY RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
254	STREET LIGHTING	EXT	10	4380	Exterior:	BRIARY RD	BRIARY RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
255	STREET LIGHTING	EXT	10	4380	Exterior:	BRIARY RD	BRIARY RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
256	STREET LIGHTING	EXT	10	4380	Exterior:	BRIARY RD	BRIARY RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
257	STREET LIGHTING	EXT	10	4380	Exterior:	BRIARY RD	BRIARY RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
258	STREET LIGHTING	EXT	10	4380	Exterior:	BRIARY RD	BRIARY RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
259	STREET LIGHTING	EXT	10	4380	Exterior:	BRIARY RD	BRIARY RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
260	STREET LIGHTING	EXT	10	4380	Exterior:	BRIARY RD	BRIARY RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
261	STREET LIGHTING	EXT	10	4380	Exterior:	BRIARY RD	BRIARY RD		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
262	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		M175	1	MH	205	LED50COBRA	1				175 Watt Metal Halide	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.21	898	0.05	219	0.16	679	0	679
263	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		M175	1	MH	205	LED50COBRA	1				175 Watt Metal Halide	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.21	898	0.05	219	0.16	679	0	679
264	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854

Village of Dobbs Ferry
Attachment 2 - Street Lighting Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
265	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
266	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
267	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
268	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
269	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
270	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
271	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
272	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
273	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
274	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
275	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
276	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
277	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
278	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
279	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
280	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
281	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
282	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
283	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
284	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
285	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
286	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
287	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
288	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
289	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
290	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
291	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
292	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S313	1	HPS	313	LED170COBRA	1				313 Watt High Pressure Sodium	1	Install a 170w LED Cobra Head Light for Outdoor Lighting	0	0.31	1371	0.17	745	0.14	626	0	626

Village of Dobbs Ferry
Attachment 2 - Street Lighting Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
293	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S313	1	HPS	313	LED170COBRA	1				313 Watt High Pressure Sodium	1	Install a 170w LED Cobra Head Light for Outdoor Lighting	0	0.31	1371	0.17	745	0.14	626	0	626
294	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S313	1	HPS	313	LED170COBRA	1				313 Watt High Pressure Sodium	1	Install a 170w LED Cobra Head Light for Outdoor Lighting	0	0.31	1371	0.17	745	0.14	626	0	626
295	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S313	1	HPS	313	LED170COBRA	1				313 Watt High Pressure Sodium	1	Install a 170w LED Cobra Head Light for Outdoor Lighting	0	0.31	1371	0.17	745	0.14	626	0	626
296	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S313	1	HPS	313	LED170COBRA	1				313 Watt High Pressure Sodium	1	Install a 170w LED Cobra Head Light for Outdoor Lighting	0	0.31	1371	0.17	745	0.14	626	0	626
297	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S313	1	HPS	313	LED170COBRA	1				313 Watt High Pressure Sodium	1	Install a 170w LED Cobra Head Light for Outdoor Lighting	0	0.31	1371	0.17	745	0.14	626	0	626
298	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S313	1	HPS	313	LED170COBRA	1				313 Watt High Pressure Sodium	1	Install a 170w LED Cobra Head Light for Outdoor Lighting	0	0.31	1371	0.17	745	0.14	626	0	626
299	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S313	1	HPS	313	LED170COBRA	1				313 Watt High Pressure Sodium	1	Install a 170w LED Cobra Head Light for Outdoor Lighting	0	0.31	1371	0.17	745	0.14	626	0	626
300	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S313	1	HPS	313	LED170COBRA	1				313 Watt High Pressure Sodium	1	Install a 170w LED Cobra Head Light for Outdoor Lighting	0	0.31	1371	0.17	745	0.14	626	0	626
301	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S313	1	HPS	313	LED170COBRA	1				313 Watt High Pressure Sodium	1	Install a 170w LED Cobra Head Light for Outdoor Lighting	0	0.31	1371	0.17	745	0.14	626	0	626
302	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY		S486	1	HPS	486	LED170COBRA	1				486 Watt High Pressure Sodium	1	Install a 170w LED Cobra Head Light for Outdoor Lighting	0	0.49	2129	0.17	745	0.32	1384	0	1384
303	STREET LIGHTING	EXT	10	4380	Exterior:	BROOKSIDE LA	BROOKSIDE LA	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
304	STREET LIGHTING	EXT	10	4380	Exterior:	BROOKSIDE LA	BROOKSIDE LA	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
305	STREET LIGHTING	EXT	10	4380	Exterior:	BUENA VISTA DR	BUENA VISTA DR	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
306	STREET LIGHTING	EXT	10	4380	Exterior:	BUENA VISTA DR	BUENA VISTA DR	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
307	STREET LIGHTING	EXT	10	4380	Exterior:	BUENA VISTA DR	BUENA VISTA DR		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
308	STREET LIGHTING	EXT	10	4380	Exterior:	BUENA VISTA DR	BUENA VISTA DR		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
309	STREET LIGHTING	EXT	10	4380	Exterior:	BYRON PL	BYRON PL		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
310	STREET LIGHTING	EXT	10	4380	Exterior:	CASTLE HILL CLOSE	CASTLE HILL CLOSE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
311	STREET LIGHTING	EXT	10	4380	Exterior:	CASTLE HILL CLOSE	CASTLE HILL CLOSE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
312	STREET LIGHTING	EXT	10	4380	Exterior:	CEDAR ST	CEDAR ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
313	STREET LIGHTING	EXT	10	4380	Exterior:	CEDAR ST	CEDAR ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
314	STREET LIGHTING	EXT	10	4380	Exterior:	CEDAR ST	CEDAR ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
315	STREET LIGHTING	EXT	10	4380	Exterior:	CEDAR ST	CEDAR ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
316	STREET LIGHTING	EXT	10	4380	Exterior:	CEDAR ST	CEDAR ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
317	STREET LIGHTING	EXT	10	4380	Exterior:	CEDAR ST	CEDAR ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
318	STREET LIGHTING	EXT	10	4380	Exterior:	CEDAR ST	CEDAR ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
319	STREET LIGHTING	EXT	10	4380	Exterior:	CEDAR ST	CEDAR ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
320	STREET LIGHTING	EXT	10	4380	Exterior:	CEDAR ST	CEDAR ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653

Village of Dobbs Ferry
Attachment 2 - Street Lighting Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
321	STREET LIGHTING	EXT	10	4380	Exterior:	CEDAR ST	CEDAR ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
322	STREET LIGHTING	EXT	10	4380	Exterior:	CEDAR ST	CEDAR ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
323	STREET LIGHTING	EXT	10	4380	Exterior:	CEDAR ST	CEDAR ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
324	STREET LIGHTING	EXT	10	4380	Exterior:	CEDAR ST	CEDAR ST		S313	1	HPS	313	LED170COBRA	1				313 Watt High Pressure Sodium	1	Install a 170w LED Cobra Head Light for Outdoor Lighting	0	0.31	1371	0.17	745	0.14	626	0	626
325	STREET LIGHTING	EXT	10	4380	Exterior:	CHESTNUT RDGE WAY	CHESTNUT RDGE WAY		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
326	STREET LIGHTING	EXT	10	4380	Exterior:	CHESTNUT RDGE WAY	CHESTNUT RDGE WAY		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
327	STREET LIGHTING	EXT	10	4380	Exterior:	CHESTNUT RDGE WAY	CHESTNUT RDGE WAY		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
328	STREET LIGHTING	EXT	10	4380	Exterior:	CHESTNUT RDGE WAY	CHESTNUT RDGE WAY		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
329	STREET LIGHTING	EXT	10	4380	Exterior:	CHESTNUT ST	CHESTNUT ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
330	STREET LIGHTING	EXT	10	4380	Exterior:	CHESTNUT ST	CHESTNUT ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
331	STREET LIGHTING	EXT	10	4380	Exterior:	CHESTNUT ST	CHESTNUT ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
332	STREET LIGHTING	EXT	10	4380	Exterior:	CHESTNUT ST	CHESTNUT ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
333	STREET LIGHTING	EXT	10	4380	Exterior:	CHESTNUT ST	CHESTNUT ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
334	STREET LIGHTING	EXT	10	4380	Exterior:	CLINTON AVE	CLINTON AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
335	STREET LIGHTING	EXT	10	4380	Exterior:	CLINTON AVE	CLINTON AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
336	STREET LIGHTING	EXT	10	4380	Exterior:	CLINTON AVE	CLINTON AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
337	STREET LIGHTING	EXT	10	4380	Exterior:	CLINTON AVE	CLINTON AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
338	STREET LIGHTING	EXT	10	4380	Exterior:	CLINTON AVE	CLINTON AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
339	STREET LIGHTING	EXT	10	4380	Exterior:	CLINTON AVE	CLINTON AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
340	STREET LIGHTING	EXT	10	4380	Exterior:	CLINTON AVE	CLINTON AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
341	STREET LIGHTING	EXT	10	4380	Exterior:	CLINTON AVE	CLINTON AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
342	STREET LIGHTING	EXT	10	4380	Exterior:	CLINTON AVE	CLINTON AVE	105	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
343	STREET LIGHTING	EXT	10	4380	Exterior:	CLINTON AVE	CLINTON AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
344	STREET LIGHTING	EXT	10	4380	Exterior:	CLINTON AVE	CLINTON AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
345	STREET LIGHTING	EXT	10	4380	Exterior:	CLINTON AVE	CLINTON AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
346	STREET LIGHTING	EXT	10	4380	Exterior:	CLINTON AVE	CLINTON AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
347	STREET LIGHTING	EXT	10	4380	Exterior:	CLINTON AVE	CLINTON AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
348	STREET LIGHTING	EXT	10	4380	Exterior:	CLINTON AVE	CLINTON AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350

Village of Dobbs Ferry
Attachment 2 - Street Lighting Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
349	STREET LIGHTING	EXT	10	4380	Exterior:	CLINTON AVE	CLINTON AVE		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
350	STREET LIGHTING	EXT	10	4380	Exterior:	CLINTON AVE	CLINTON AVE		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
351	STREET LIGHTING	EXT	10	4380	Exterior:	COCHRANE AVE	COCHRANE AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
352	STREET LIGHTING	EXT	10	4380	Exterior:	COCHRANE AVE	COCHRANE AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
353	STREET LIGHTING	EXT	10	4380	Exterior:	COCHRANE AVE	COCHRANE AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
354	STREET LIGHTING	EXT	10	4380	Exterior:	COCHRANE AVE	COCHRANE AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
355	STREET LIGHTING	EXT	10	4380	Exterior:	COCHRANE AVE	COCHRANE AVE	55	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
356	STREET LIGHTING	EXT	10	4380	Exterior:	COLONIAL AVE	COLONIAL AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
357	STREET LIGHTING	EXT	10	4380	Exterior:	COLONIAL AVE	COLONIAL AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
358	STREET LIGHTING	EXT	10	4380	Exterior:	COLONIAL AVE	COLONIAL AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
359	STREET LIGHTING	EXT	10	4380	Exterior:	COLONIAL AVE	COLONIAL AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
360	STREET LIGHTING	EXT	10	4380	Exterior:	COLONIAL AVE	COLONIAL AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
361	STREET LIGHTING	EXT	10	4380	Exterior:	COLONIAL AVE	COLONIAL AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
362	STREET LIGHTING	EXT	10	4380	Exterior:	COLONIAL AVE	COLONIAL AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
363	STREET LIGHTING	EXT	10	4380	Exterior:	CONSTANCE AVE	CONSTANCE AVE		S141	1	HPS	141	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	618	0.05	219	0.09	399	0	399
364	STREET LIGHTING	EXT	10	4380	Exterior:	CRESENT LANE	CRESENT LANE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
365	STREET LIGHTING	EXT	10	4380	Exterior:	CRESENT LANE	CRESENT LANE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
366	STREET LIGHTING	EXT	10	4380	Exterior:	CRICKET LANE	CRICKET LANE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
367	STREET LIGHTING	EXT	10	4380	Exterior:	DANFORTH AVE	DANFORTH AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
368	STREET LIGHTING	EXT	10	4380	Exterior:	DANFORTH AVE	DANFORTH AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
369	STREET LIGHTING	EXT	10	4380	Exterior:	DEVOE ST	DEVOE ST		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
370	STREET LIGHTING	EXT	10	4380	Exterior:	DEVOE ST	DEVOE ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
371	STREET LIGHTING	EXT	10	4380	Exterior:	DEVOE ST	DEVOE ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
372	STREET LIGHTING	EXT	10	4380	Exterior:	DEVOE ST	DEVOE ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
373	STREET LIGHTING	EXT	10	4380	Exterior:	DEVOE ST	DEVOE ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
374	STREET LIGHTING	EXT	10	4380	Exterior:	DRAPER LA	DRAPER LA		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
375	STREET LIGHTING	EXT	10	4380	Exterior:	DRAPER LA	DRAPER LA		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
376	STREET LIGHTING	EXT	10	4380	Exterior:	DRAPER LA	DRAPER LA		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854

Village of Dobbs Ferry
Attachment 2 - Street Lighting Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
377	STREET LIGHTING	EXT	10	4380	Exterior:	ELDRIDGE PL	ELDRIDGE PL	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
378	STREET LIGHTING	EXT	10	4380	Exterior:	ELDRIDGE PL	ELDRIDGE PL	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
379	STREET LIGHTING	EXT	10	4380	Exterior:	ELM ST	ELM ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
380	STREET LIGHTING	EXT	10	4380	Exterior:	ELM ST	ELM ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
381	STREET LIGHTING	EXT	10	4380	Exterior:	ELM ST	ELM ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
382	STREET LIGHTING	EXT	10	4380	Exterior:	ELM ST	ELM ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
383	STREET LIGHTING	EXT	10	4380	Exterior:	ENGLISH LA	ENGLISH LA		S141	1	HPS	141	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	618	0.05	219	0.09	399	0	399
384	STREET LIGHTING	EXT	10	4380	Exterior:	ESTERWOOD AVE	ESTERWOOD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
385	STREET LIGHTING	EXT	10	4380	Exterior:	ESTERWOOD AVE	ESTERWOOD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
386	STREET LIGHTING	EXT	10	4380	Exterior:	ESTERWOOD AVE	ESTERWOOD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
387	STREET LIGHTING	EXT	10	4380	Exterior:	ESTERWOOD AVE	ESTERWOOD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
388	STREET LIGHTING	EXT	10	4380	Exterior:	ESTERWOOD AVE	ESTERWOOD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
389	STREET LIGHTING	EXT	10	4380	Exterior:	ESTERWOOD AVE	ESTERWOOD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
390	STREET LIGHTING	EXT	10	4380	Exterior:	ESTERWOOD AVE	ESTERWOOD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
391	STREET LIGHTING	EXT	10	4380	Exterior:	ESTERWOOD AVE	ESTERWOOD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
392	STREET LIGHTING	EXT	10	4380	Exterior:	FAIRLAWN AVE	FAIRLAWN AVE		S141	1	HPS	141	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	618	0.05	219	0.09	399	0	399
393	STREET LIGHTING	EXT	10	4380	Exterior:	FAIRLAWN AVE	FAIRLAWN AVE		S141	1	HPS	141	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	618	0.05	219	0.09	399	0	399
394	STREET LIGHTING	EXT	10	4380	Exterior:	FAIRLAWN AVE	FAIRLAWN AVE		S141	1	HPS	141	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	618	0.05	219	0.09	399	0	399
395	STREET LIGHTING	EXT	10	4380	Exterior:	FLORENCE AVE	FLORENCE AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
396	STREET LIGHTING	EXT	10	4380	Exterior:	FLORENCE AVE	FLORENCE AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
397	STREET LIGHTING	EXT	10	4380	Exterior:	FLORENCE AVE	FLORENCE AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
398	STREET LIGHTING	EXT	10	4380	Exterior:	FLORENCE AVE	FLORENCE AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
399	STREET LIGHTING	EXT	10	4380	Exterior:	FLORENCE AVE	FLORENCE AVE		S141	1	HPS	141	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	618	0.05	219	0.09	399	0	399
400	STREET LIGHTING	EXT	10	4380	Exterior:	GOULD AVE	GOULD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
401	STREET LIGHTING	EXT	10	4380	Exterior:	GOULD AVE	GOULD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
402	STREET LIGHTING	EXT	10	4380	Exterior:	GOULD AVE	GOULD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
403	STREET LIGHTING	EXT	10	4380	Exterior:	GOULD AVE	GOULD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
404	STREET LIGHTING	EXT	10	4380	Exterior:	GOULD AVE	GOULD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0

Village of Dobbs Ferry
Attachment 2 - Street Lighting Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
405	STREET LIGHTING	EXT	10	4380	Exterior:	GRANDVIEW AVE	GRANDVIEW AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
406	STREET LIGHTING	EXT	10	4380	Exterior:	GRANDVIEW AVE	GRANDVIEW AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
407	STREET LIGHTING	EXT	10	4380	Exterior:	GRANDVIEW AVE	GRANDVIEW AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
408	STREET LIGHTING	EXT	10	4380	Exterior:	GRANDVIEW AVE	GRANDVIEW AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
409	STREET LIGHTING	EXT	10	4380	Exterior:	GRANDVIEW AVE	GRANDVIEW AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
410	STREET LIGHTING	EXT	10	4380	Exterior:	GRANDVIEW AVE	GRANDVIEW AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
411	STREET LIGHTING	EXT	10	4380	Exterior:	GRANDVIEW AVE	GRANDVIEW AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
412	STREET LIGHTING	EXT	10	4380	Exterior:	GROVE ST	GROVE ST		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
413	STREET LIGHTING	EXT	10	4380	Exterior:	HATCH TERR	HATCH TERR		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
414	STREET LIGHTING	EXT	10	4380	Exterior:	HATCH TERR	HATCH TERR		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
415	STREET LIGHTING	EXT	10	4380	Exterior:	HAYNES AVE	HAYNES AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
416	STREET LIGHTING	EXT	10	4380	Exterior:	HAYNES AVE	HAYNES AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
417	STREET LIGHTING	EXT	10	4380	Exterior:	HAYNES AVE	HAYNES AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
418	STREET LIGHTING	EXT	10	4380	Exterior:	HEATHER WAY	HEATHER WAY	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
419	STREET LIGHTING	EXT	10	4380	Exterior:	HEATHER WAY	HEATHER WAY	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
420	STREET LIGHTING	EXT	10	4380	Exterior:	HEATHER WAY	HEATHER WAY	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
421	STREET LIGHTING	EXT	10	4380	Exterior:	HEATHER WAY	HEATHER WAY	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
422	STREET LIGHTING	EXT	10	4380	Exterior:	HENRY CT	HENRY CT	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
423	STREET LIGHTING	EXT	10	4380	Exterior:	HENRY CT	HENRY CT	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
424	STREET LIGHTING	EXT	10	4380	Exterior:	HICKORY HILL RD	HICKORY HILL RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
425	STREET LIGHTING	EXT	10	4380	Exterior:	HICKORY HILL RD	HICKORY HILL RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
426	STREET LIGHTING	EXT	10	4380	Exterior:	HICKORY HILL RD	HICKORY HILL RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
427	STREET LIGHTING	EXT	10	4380	Exterior:	HICKORY HILL RD	HICKORY HILL RD		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
428	STREET LIGHTING	EXT	10	4380	Exterior:	HICKORY HILL RD	HICKORY HILL RD		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
429	STREET LIGHTING	EXT	10	4380	Exterior:	HICKORY HILL RD	HICKORY HILL RD		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
430	STREET LIGHTING	EXT	10	4380	Exterior:	HICKORY HILL RD	HICKORY HILL RD		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
431	STREET LIGHTING	EXT	10	4380	Exterior:	HICKORY HILL RD	HICKORY HILL RD		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
432	STREET LIGHTING	EXT	10	4380	Exterior:	HICKORY HILL RD	HICKORY HILL RD		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350

Village of Dobbs Ferry
Attachment 2 - Street Lighting Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
433	STREET LIGHTING	EXT	10	4380	Exterior:	HICKORY HILL RD	HICKORY HILL RD		S155	1	HPS	155	LED50COBRA	1				146 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.16	679	0.05	219	0.11	460	0	460
434	STREET LIGHTING	EXT	10	4380	Exterior:	HICKORY HILL RD	HICKORY HILL RD		S155	1	HPS	155	LED50COBRA	1				146 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.16	679	0.05	219	0.11	460	0	460
435	STREET LIGHTING	EXT	10	4380	Exterior:	HIGH ST	HIGH ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
436	STREET LIGHTING	EXT	10	4380	Exterior:	HIGH ST	HIGH ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
437	STREET LIGHTING	EXT	10	4380	Exterior:	HIGH ST	HIGH ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
438	STREET LIGHTING	EXT	10	4380	Exterior:	HIGH ST	HIGH ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
439	STREET LIGHTING	EXT	10	4380	Exterior:	HIGH ST	HIGH ST		S199	2	HPS	199	LED50COBRA	2				199 Watt High Pressure Sodium	2	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.40	1743	0.10	438	0.30	1305	0	1305
440	STREET LIGHTING	EXT	10	4380	Exterior:	HIGH ST	HIGH ST		S199	2	HPS	199	LED50COBRA	2				199 Watt High Pressure Sodium	2	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.40	1743	0.10	438	0.30	1305	0	1305
441	STREET LIGHTING	EXT	10	4380	Exterior:	HIGH ST	HIGH ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
442	STREET LIGHTING	EXT	10	4380	Exterior:	HIGHLAND AVE	HIGHLAND AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
443	STREET LIGHTING	EXT	10	4380	Exterior:	HIGHLAND AVE	HIGHLAND AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
444	STREET LIGHTING	EXT	10	4380	Exterior:	HILLDALE AVE	HILLDALE AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
445	STREET LIGHTING	EXT	10	4380	Exterior:	HILLDALE AVE	HILLDALE AVE		S141	1	HPS	141	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	618	0.05	219	0.09	399	0	399
446	STREET LIGHTING	EXT	10	4380	Exterior:	HILLDALE RD	HILLDALE RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
447	STREET LIGHTING	EXT	10	4380	Exterior:	HILLSIDE RD	HILLSIDE RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
448	STREET LIGHTING	EXT	10	4380	Exterior:	HILLSIDE RD	HILLSIDE RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
449	STREET LIGHTING	EXT	10	4380	Exterior:	HOLLYWOOD DRIVE	HOLLYWOOD DRIVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
450	STREET LIGHTING	EXT	10	4380	Exterior:	HOWARD ST	HOWARD ST	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
451	STREET LIGHTING	EXT	10	4380	Exterior:	IRVINGTON ST	IRVINGTON ST	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
452	STREET LIGHTING	EXT	10	4380	Exterior:	IRVINGTON ST	IRVINGTON ST	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
453	STREET LIGHTING	EXT	10	4380	Exterior:	JUDSON AVE	JUDSON AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
454	STREET LIGHTING	EXT	10	4380	Exterior:	JUDSON AVE	JUDSON AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
455	STREET LIGHTING	EXT	10	4380	Exterior:	JUDSON AVE	JUDSON AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
456	STREET LIGHTING	EXT	10	4380	Exterior:	JUDSON AVE	JUDSON AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
457	STREET LIGHTING	EXT	10	4380	Exterior:	JUDSON AVE	JUDSON AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
458	STREET LIGHTING	EXT	10	4380	Exterior:	JUDSON AVE	JUDSON AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
459	STREET LIGHTING	EXT	10	4380	Exterior:	JUDSON AVE	JUDSON AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
460	STREET LIGHTING	EXT	10	4380	Exterior:	JUDSON AVE	JUDSON AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350

Village of Dobbs Ferry
Attachment 2 - Street Lighting Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
461	STREET LIGHTING	EXT	10	4380	Exterior:	JUDSON AVE	JUDSON AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
462	STREET LIGHTING	EXT	10	4380	Exterior:	JUDSON AVE	JUDSON AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
463	STREET LIGHTING	EXT	10	4380	Exterior:	JUDSON AVE	JUDSON AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
464	STREET LIGHTING	EXT	10	4380	Exterior:	JUDSON AVE	JUDSON AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
465	STREET LIGHTING	EXT	10	4380	Exterior:	JUDSON AVE	JUDSON AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
466	STREET LIGHTING	EXT	10	4380	Exterior:	JUDSON AVE	JUDSON AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
467	STREET LIGHTING	EXT	10	4380	Exterior:	JUDSON AVE	JUDSON AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
468	STREET LIGHTING	EXT	10	4380	Exterior:	KELLER LA	KELLER LA		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
469	STREET LIGHTING	EXT	10	4380	Exterior:	KELLER LA	KELLER LA		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
470	STREET LIGHTING	EXT	10	4380	Exterior:	KELLER LA	KELLER LA		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
471	STREET LIGHTING	EXT	10	4380	Exterior:	KING ST	KING ST	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
472	STREET LIGHTING	EXT	10	4380	Exterior:	KING ST	KING ST	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
473	STREET LIGHTING	EXT	10	4380	Exterior:	KING ST	KING ST	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
474	STREET LIGHTING	EXT	10	4380	Exterior:	KING ST	KING ST	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
475	STREET LIGHTING	EXT	10	4380	Exterior:	KING ST	KING ST	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
476	STREET LIGHTING	EXT	10	4380	Exterior:	LAUREL HILL RD	LAUREL HILL RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
477	STREET LIGHTING	EXT	10	4380	Exterior:	LAUREL HILL RD	LAUREL HILL RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
478	STREET LIGHTING	EXT	10	4380	Exterior:	LAWRENCE ST	LAWRENCE ST		M275	1	MH	305	LED100COBRA	1				275 Watt Metal Halide	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.31	1336	0.10	438	0.21	898	0	898
479	STREET LIGHTING	EXT	10	4380	Exterior:	LAWRENCE ST	LAWRENCE ST		M275	1	MH	305	LED100COBRA	1				275 Watt Metal Halide	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.31	1336	0.10	438	0.21	898	0	898
480	STREET LIGHTING	EXT	10	4380	Exterior:	LEFURGY AVE	LEFURGY AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
481	STREET LIGHTING	EXT	10	4380	Exterior:	LEFURGY AVE	LEFURGY AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
482	STREET LIGHTING	EXT	10	4380	Exterior:	LEFURGY AVE	LEFURGY AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
483	STREET LIGHTING	EXT	10	4380	Exterior:	LEFURGY AVE	LEFURGY AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
484	STREET LIGHTING	EXT	10	4380	Exterior:	LEFURGY AVE	LEFURGY AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
485	STREET LIGHTING	EXT	10	4380	Exterior:	LEFURGY AVE	LEFURGY AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
486	STREET LIGHTING	EXT	10	4380	Exterior:	LEFURGY AVE	LEFURGY AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
487	STREET LIGHTING	EXT	10	4380	Exterior:	LEFURGY AVE	LEFURGY AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
488	STREET LIGHTING	EXT	10	4380	Exterior:	LEFURGY AVE	LEFURGY AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350

Village of Dobbs Ferry
Attachment 2 - Street Lighting Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
489	STREET LIGHTING	EXT	10	4380	Exterior:	LEWIS ROAD	LEWIS ROAD		S130	1	HPS	170	LED50COBRA	1				130 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.17	745	0.05	219	0.12	526	0	526
490	STREET LIGHTING	EXT	10	4380	Exterior:	LEWIS ROAD	LEWIS ROAD		S130	1	HPS	170	LED50COBRA	1				130 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.17	745	0.05	219	0.12	526	0	526
491	STREET LIGHTING	EXT	10	4380	Exterior:	LEWIS ROAD	LEWIS ROAD		S130	1	HPS	170	LED50COBRA	1				130 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.17	745	0.05	219	0.12	526	0	526
492	STREET LIGHTING	EXT	10	4380	Exterior:	LIVINGSTON AVE	LIVINGSTON AVE		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
493	STREET LIGHTING	EXT	10	4380	Exterior:	LIVINGSTON AVE	LIVINGSTON AVE		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
494	STREET LIGHTING	EXT	10	4380	Exterior:	LIVINGSTON AVE	LIVINGSTON AVE		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
495	STREET LIGHTING	EXT	10	4380	Exterior:	LIVINGSTON AVE	LIVINGSTON AVE		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
496	STREET LIGHTING	EXT	10	4380	Exterior:	LIVINGSTON AVE	LIVINGSTON AVE		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
497	STREET LIGHTING	EXT	10	4380	Exterior:	LIVINGSTON AVE	LIVINGSTON AVE		S486	1	HPS	486	LED170COBRA	1				486 Watt High Pressure Sodium	1	Install a 170w LED Cobra Head Light for Outdoor Lighting	0	0.49	2129	0.17	745	0.32	1384	0	1384
498	STREET LIGHTING	EXT	10	4380	Exterior:	LIVINGSTON MANOR	LIVINGSTON MANOR		M288	1	MH	325	LED100COBRA	1				288 Watt Metal Halide	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.33	1424	0.10	438	0.23	986	0	986
499	STREET LIGHTING	EXT	10	4380	Exterior:	LIVINGSTON MANOR	LIVINGSTON MANOR		M288	1	MH	325	LED100COBRA	1				288 Watt Metal Halide	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.33	1424	0.10	438	0.23	986	0	986
500	STREET LIGHTING	EXT	10	4380	Exterior:	LIVINGSTON MANOR	LIVINGSTON MANOR		M288	1	MH	325	LED100COBRA	1				288 Watt Metal Halide	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.33	1424	0.10	438	0.23	986	0	986
501	STREET LIGHTING	EXT	10	4380	Exterior:	LIVINGSTON MANOR	LIVINGSTON MANOR		M288	1	MH	325	LED100COBRA	1				288 Watt Metal Halide	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.33	1424	0.10	438	0.23	986	0	986
502	STREET LIGHTING	EXT	10	4380	Exterior:	LIVINGSTON MANOR	LIVINGSTON MANOR		M288	1	MH	325	LED100COBRA	1				288 Watt Metal Halide	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.33	1424	0.10	438	0.23	986	0	986
503	STREET LIGHTING	EXT	10	4380	Exterior:	LIVINGSTON MANOR	LIVINGSTON MANOR		M288	1	MH	325	LED100COBRA	1				288 Watt Metal Halide	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.33	1424	0.10	438	0.23	986	0	986
504	STREET LIGHTING	EXT	10	4380	Exterior:	LIVINGSTON MANOR	LIVINGSTON MANOR		M288	1	MH	325	LED100COBRA	1				288 Watt Metal Halide	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.33	1424	0.10	438	0.23	986	0	986
505	STREET LIGHTING	EXT	10	4380	Exterior:	LIVINGSTONE AVE	LIVINGSTONE AVE		M275	1	MH	305	LED100COBRA	1				275 Watt Metal Halide	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.31	1336	0.10	438	0.21	898	0	898
506	STREET LIGHTING	EXT	10	4380	Exterior:	LIVINGSTONE AVE	LIVINGSTONE AVE		M275	1	MH	305	LED100COBRA	1				275 Watt Metal Halide	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.31	1336	0.10	438	0.21	898	0	898
507	STREET LIGHTING	EXT	10	4380	Exterior:	LIVINGSTONE AVE	LIVINGSTONE AVE		M275	1	MH	305	LED100COBRA	1				275 Watt Metal Halide	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.31	1336	0.10	438	0.21	898	0	898
508	STREET LIGHTING	EXT	10	4380	Exterior:	LIVINGSTONE AVE	LIVINGSTONE AVE		M275	1	MH	305	LED100COBRA	1				275 Watt Metal Halide	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.31	1336	0.10	438	0.21	898	0	898
509	STREET LIGHTING	EXT	10	4380	Exterior:	LIVINGSTONE AVE	LIVINGSTONE AVE		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
510	STREET LIGHTING	EXT	10	4380	Exterior:	LUZERN& RD	LUZERN& RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
511	STREET LIGHTING	EXT	10	4380	Exterior:	LUZERN& RD	LUZERN& RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
512	STREET LIGHTING	EXT	10	4380	Exterior:	LUZERN& RD	LUZERN& RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
513	STREET LIGHTING	EXT	10	4380	Exterior:	LUZERN& RD	LUZERN& RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
514	STREET LIGHTING	EXT	10	4380	Exterior:	LUZERN& RD	LUZERN& RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
515	STREET LIGHTING	EXT	10	4380	Exterior:	LUZERN& RD	LUZERN& RD		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
516	STREET LIGHTING	EXT	10	4380	Exterior:	LYMAN PL	LYMAN PL	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0

Village of Dobbs Ferry
Attachment 2 - Street Lighting Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
517	STREET LIGHTING	EXT	10	4380	Exterior:	LYMAN PL	LYMAN PL	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
518	STREET LIGHTING	EXT	10	4380	Exterior:	MAGNOLIA DR	MAGNOLIA DR	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
519	STREET LIGHTING	EXT	10	4380	Exterior:	MAGNOLIA DR	MAGNOLIA DR	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
520	STREET LIGHTING	EXT	10	4380	Exterior:	MAGNOLIA DR	MAGNOLIA DR	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
521	STREET LIGHTING	EXT	10	4380	Exterior:	MAGNOLIA DR	MAGNOLIA DR	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
522	STREET LIGHTING	EXT	10	4380	Exterior:	MAGNOLIA DR	MAGNOLIA DR	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
523	STREET LIGHTING	EXT	10	4380	Exterior:	MAGNOLIA DR	MAGNOLIA DR	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
524	STREET LIGHTING	EXT	10	4380	Exterior:	MAGNOLIA DR	MAGNOLIA DR	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
525	STREET LIGHTING	EXT	10	4380	Exterior:	MAGNOLIA DR	MAGNOLIA DR	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
526	STREET LIGHTING	EXT	10	4380	Exterior:	MAGNOLIA DR	MAGNOLIA DR	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
527	STREET LIGHTING	EXT	10	4380	Exterior:	MAIN ST	MAIN ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
528	STREET LIGHTING	EXT	10	4380	Exterior:	MAIN ST	MAIN ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
529	STREET LIGHTING	EXT	10	4380	Exterior:	MAIN ST	MAIN ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
530	STREET LIGHTING	EXT	10	4380	Exterior:	MAIN ST	MAIN ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
531	STREET LIGHTING	EXT	10	4380	Exterior:	MAIN ST	MAIN ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
532	STREET LIGHTING	EXT	10	4380	Exterior:	MAIN ST	MAIN ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
533	STREET LIGHTING	EXT	10	4380	Exterior:	MAIN ST	MAIN ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
534	STREET LIGHTING	EXT	10	4380	Exterior:	MAIN ST	MAIN ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
535	STREET LIGHTING	EXT	10	4380	Exterior:	MAIN ST	MAIN ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
536	STREET LIGHTING	EXT	10	4380	Exterior:	MAIN ST	MAIN ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
537	STREET LIGHTING	EXT	10	4380	Exterior:	MAIN ST	MAIN ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
538	STREET LIGHTING	EXT	10	4380	Exterior:	MAIN ST	MAIN ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
539	STREET LIGHTING	EXT	10	4380	Exterior:	MAIN ST	MAIN ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
540	STREET LIGHTING	EXT	10	4380	Exterior:	MAIN ST	MAIN ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
541	STREET LIGHTING	EXT	10	4380	Exterior:	MAIN ST	MAIN ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
542	STREET LIGHTING	EXT	10	4380	Exterior:	MAIN ST	MAIN ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
543	STREET LIGHTING	EXT	10	4380	Exterior:	MAIN ST	MAIN ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
544	STREET LIGHTING	EXT	10	4380	Exterior:	MAIN ST	MAIN ST		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653

Village of Dobbs Ferry
Attachment 2 - Street Lighting Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
545	STREET LIGHTING	EXT	10	4380	Exterior:	MANOR HOUSE DR	MANOR HOUSE DR		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
546	STREET LIGHTING	EXT	10	4380	Exterior:	MANOR HOUSE DR	MANOR HOUSE DR		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
547	STREET LIGHTING	EXT	10	4380	Exterior:	MANOR HOUSE DR	MANOR HOUSE DR		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
548	STREET LIGHTING	EXT	10	4380	Exterior:	MANOR PL	MANOR PL	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
549	STREET LIGHTING	EXT	10	4380	Exterior:	MANOR PL	MANOR PL	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
550	STREET LIGHTING	EXT	10	4380	Exterior:	MAPLE AVE	MAPLE AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
551	STREET LIGHTING	EXT	10	4380	Exterior:	MAPLE AVE	MAPLE AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
552	STREET LIGHTING	EXT	10	4380	Exterior:	MAPLE AVE	MAPLE AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
553	STREET LIGHTING	EXT	10	4380	Exterior:	MAPLE AVE	MAPLE AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
554	STREET LIGHTING	EXT	10	4380	Exterior:	MAPLE AVE	MAPLE AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
555	STREET LIGHTING	EXT	10	4380	Exterior:	MAPLE AVE	MAPLE AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
556	STREET LIGHTING	EXT	10	4380	Exterior:	MAPLE AVE	MAPLE AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
557	STREET LIGHTING	EXT	10	4380	Exterior:	MAPLE AVE	MAPLE AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
558	STREET LIGHTING	EXT	10	4380	Exterior:	MAPLE AVE	MAPLE AVE		S143	1	HPS	143	LED50COBRA	1				155 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	626	0.05	219	0.09	407	0	407
559	STREET LIGHTING	EXT	10	4380	Exterior:	MAPLEWOOD AVE	MAPLEWOOD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
560	STREET LIGHTING	EXT	10	4380	Exterior:	MAPLEWOOD AVE	MAPLEWOOD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
561	STREET LIGHTING	EXT	10	4380	Exterior:	MCCLELLAND AVE	MCCLELLAND AVE		S141	1	HPS	141	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	618	0.05	219	0.09	399	0	399
562	STREET LIGHTING	EXT	10	4380	Exterior:	MCCLELLAND AVE	MCCLELLAND AVE		S141	1	HPS	141	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	618	0.05	219	0.09	399	0	399
563	STREET LIGHTING	EXT	10	4380	Exterior:	MOHICAN PARK AV	MOHICAN PARK AV	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
564	STREET LIGHTING	EXT	10	4380	Exterior:	MOHICAN PARK AV	MOHICAN PARK AV	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
565	STREET LIGHTING	EXT	10	4380	Exterior:	MOHICAN PARK AV	MOHICAN PARK AV	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
566	STREET LIGHTING	EXT	10	4380	Exterior:	MOHICAN PARK AV	MOHICAN PARK AV	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
567	STREET LIGHTING	EXT	10	4380	Exterior:	MOHICAN PARK AV	MOHICAN PARK AV	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
568	STREET LIGHTING	EXT	10	4380	Exterior:	MOHICAN PARK AV	MOHICAN PARK AV	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
569	STREET LIGHTING	EXT	10	4380	Exterior:	MOHICAN PARK AV	MOHICAN PARK AV	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
570	STREET LIGHTING	EXT	10	4380	Exterior:	MOHICAN PARK AV	MOHICAN PARK AV	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
571	STREET LIGHTING	EXT	10	4380	Exterior:	MOHICAN PARK AV	MOHICAN PARK AV		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
572	STREET LIGHTING	EXT	10	4380	Exterior:	MOHICAN PARK AV	MOHICAN PARK AV		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420

Village of Dobbs Ferry
Attachment 2 - Street Lighting Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
573	STREET LIGHTING	EXT	10	4380	Exterior:	MOHICAN PARK AV	MOHICAN PARK AV		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
574	STREET LIGHTING	EXT	10	4380	Exterior:	MOULTON AVE	MOULTON AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
575	STREET LIGHTING	EXT	10	4380	Exterior:	MOULTON AVE	MOULTON AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
576	STREET LIGHTING	EXT	10	4380	Exterior:	MOULTON AVE	MOULTON AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
577	STREET LIGHTING	EXT	10	4380	Exterior:	MOULTON AVE	MOULTON AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
578	STREET LIGHTING	EXT	10	4380	Exterior:	MYRTLE AVE	MYRTLE AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
579	STREET LIGHTING	EXT	10	4380	Exterior:	MYRTLE AVE	MYRTLE AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
580	STREET LIGHTING	EXT	10	4380	Exterior:	MYRTLE AVE	MYRTLE AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
581	STREET LIGHTING	EXT	10	4380	Exterior:	MYRTLE AVE	MYRTLE AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
582	STREET LIGHTING	EXT	10	4380	Exterior:	MYRTLE AVE	MYRTLE AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
583	STREET LIGHTING	EXT	10	4380	Exterior:	MYRTLE AVE	MYRTLE AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
584	STREET LIGHTING	EXT	10	4380	Exterior:	MYRTLE AVE	MYRTLE AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
585	STREET LIGHTING	EXT	10	4380	Exterior:	NO FIELD AVE	NO FIELD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
586	STREET LIGHTING	EXT	10	4380	Exterior:	NO FIELD AVE	NO FIELD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
587	STREET LIGHTING	EXT	10	4380	Exterior:	NO FIELD AVE	NO FIELD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
588	STREET LIGHTING	EXT	10	4380	Exterior:	NO FIELD AVE	NO FIELD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
589	STREET LIGHTING	EXT	10	4380	Exterior:	NO FIELD AVE	NO FIELD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
590	STREET LIGHTING	EXT	10	4380	Exterior:	NO FIELD AVE	NO FIELD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
591	STREET LIGHTING	EXT	10	4380	Exterior:	NO FIELD AVE	NO FIELD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
592	STREET LIGHTING	EXT	10	4380	Exterior:	NO FIELD AVE	NO FIELD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
593	STREET LIGHTING	EXT	10	4380	Exterior:	NO FIELD AVE	NO FIELD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
594	STREET LIGHTING	EXT	10	4380	Exterior:	NO FIELD AVE	NO FIELD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
595	STREET LIGHTING	EXT	10	4380	Exterior:	NO FIELD AVE	NO FIELD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
596	STREET LIGHTING	EXT	10	4380	Exterior:	NO FIELD AVE	NO FIELD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
597	STREET LIGHTING	EXT	10	4380	Exterior:	NO FIELD AVE	NO FIELD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
598	STREET LIGHTING	EXT	10	4380	Exterior:	NO FIELD AVE	NO FIELD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
599	STREET LIGHTING	EXT	10	4380	Exterior:	NO FIELD AVE	NO FIELD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
600	STREET LIGHTING	EXT	10	4380	Exterior:	NO FIELD AVE	NO FIELD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0

Village of Dobbs Ferry
Attachment 2 - Street Lighting Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
601	STREET LIGHTING	EXT	10	4380	Exterior:	NO FIELD AVE	NO FIELD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
602	STREET LIGHTING	EXT	10	4380	Exterior:	NORTH DRIVEWAY	NORTH DRIVEWAY		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
603	STREET LIGHTING	EXT	10	4380	Exterior:	NORTH DRIVEWAY	NORTH DRIVEWAY		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
604	STREET LIGHTING	EXT	10	4380	Exterior:	NORTH DRIVEWAY	NORTH DRIVEWAY		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
605	STREET LIGHTING	EXT	10	4380	Exterior:	OAK ST	OAK ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
606	STREET LIGHTING	EXT	10	4380	Exterior:	OAK ST	OAK ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
607	STREET LIGHTING	EXT	10	4380	Exterior:	OAK ST	OAK ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
608	STREET LIGHTING	EXT	10	4380	Exterior:	OAK ST	OAK ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
609	STREET LIGHTING	EXT	10	4380	Exterior:	OGDEN AVE	OGDEN AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
610	STREET LIGHTING	EXT	10	4380	Exterior:	OGDEN AVE	OGDEN AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
611	STREET LIGHTING	EXT	10	4380	Exterior:	OGDEN AVE	OGDEN AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
612	STREET LIGHTING	EXT	10	4380	Exterior:	OGDEN AVE	OGDEN AVE	146	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
613	STREET LIGHTING	EXT	10	4380	Exterior:	OGDEN AVE	OGDEN AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
614	STREET LIGHTING	EXT	10	4380	Exterior:	OGDEN AVE	OGDEN AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
615	STREET LIGHTING	EXT	10	4380	Exterior:	OGDEN AVE	OGDEN AVE		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
616	STREET LIGHTING	EXT	10	4380	Exterior:	OGDEN AVE	OGDEN AVE		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
617	STREET LIGHTING	EXT	10	4380	Exterior:	OGDEN AVE	OGDEN AVE		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
618	STREET LIGHTING	EXT	10	4380	Exterior:	OGDEN AVE	OGDEN AVE		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
619	STREET LIGHTING	EXT	10	4380	Exterior:	OGDEN AVE	OGDEN AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
620	STREET LIGHTING	EXT	10	4380	Exterior:	OGDEN PLACE	OGDEN PLACE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
621	STREET LIGHTING	EXT	10	4380	Exterior:	OGDEN PLACE	OGDEN PLACE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
622	STREET LIGHTING	EXT	10	4380	Exterior:	OGDEN PLACE	OGDEN PLACE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
623	STREET LIGHTING	EXT	10	4380	Exterior:	OGDEN PLACE	OGDEN PLACE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
624	STREET LIGHTING	EXT	10	4380	Exterior:	OGDEN PLACE	OGDEN PLACE	74	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
625	STREET LIGHTING	EXT	10	4380	Exterior:	OLIPHANT AVE	OLIPHANT AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
626	STREET LIGHTING	EXT	10	4380	Exterior:	OLIPHANT AVE	OLIPHANT AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
627	STREET LIGHTING	EXT	10	4380	Exterior:	OLIPHANT AVE	OLIPHANT AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
628	STREET LIGHTING	EXT	10	4380	Exterior:	OLIPHANT AVE	OLIPHANT AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0

Village of Dobbs Ferry
Attachment 2 - Street Lighting Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
629	STREET LIGHTING	EXT	10	4380	Exterior:	OLIPHANT AVE	OLIPHANT AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
630	STREET LIGHTING	EXT	10	4380	Exterior:	OLIPHANT AVE	OLIPHANT AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
631	STREET LIGHTING	EXT	10	4380	Exterior:	OLIPHANT AVE	OLIPHANT AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
632	STREET LIGHTING	EXT	10	4380	Exterior:	ORCHARD ST	ORCHARD ST		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
633	STREET LIGHTING	EXT	10	4380	Exterior:	OSCEOLA AVE	OSCEOLA AVE	70	S70	1	HPS	90	LED50COBRA	1				70 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.09	394	0.05	219	0.04	175	0	175
634	STREET LIGHTING	EXT	10	4380	Exterior:	OSCEOLA AVE	OSCEOLA AVE	70	S70	1	HPS	90	LED50COBRA	1				70 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.09	394	0.05	219	0.04	175	0	175
635	STREET LIGHTING	EXT	10	4380	Exterior:	OSCEOLA AVE	OSCEOLA AVE	70	S70	1	HPS	90	LED50COBRA	1				70 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.09	394	0.05	219	0.04	175	0	175
636	STREET LIGHTING	EXT	10	4380	Exterior:	OSCEOLA AVE	OSCEOLA AVE	70	S70	1	HPS	90	LED50COBRA	1				70 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.09	394	0.05	219	0.04	175	0	175
637	STREET LIGHTING	EXT	10	4380	Exterior:	OVERLOOK RD	OVERLOOK RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
638	STREET LIGHTING	EXT	10	4380	Exterior:	OVERLOOK RD	OVERLOOK RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
639	STREET LIGHTING	EXT	10	4380	Exterior:	OVERLOOK RD	OVERLOOK RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
640	STREET LIGHTING	EXT	10	4380	Exterior:	PALISADE AVE	PALISADE AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
641	STREET LIGHTING	EXT	10	4380	Exterior:	PALISADE AVE	PALISADE AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
642	STREET LIGHTING	EXT	10	4380	Exterior:	PALISADE AVE	PALISADE AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
643	STREET LIGHTING	EXT	10	4380	Exterior:	PALISADE AVE	PALISADE AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
644	STREET LIGHTING	EXT	10	4380	Exterior:	PALISADE AVE	PALISADE AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
645	STREET LIGHTING	EXT	10	4380	Exterior:	PALISADE AVE	PALISADE AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
646	STREET LIGHTING	EXT	10	4380	Exterior:	PALISADE AVE	PALISADE AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
647	STREET LIGHTING	EXT	10	4380	Exterior:	PALISADE AVE	PALISADE AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
648	STREET LIGHTING	EXT	10	4380	Exterior:	PALISADE AVE	PALISADE AVE	105	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
649	STREET LIGHTING	EXT	10	4380	Exterior:	PALISADE AVE	PALISADE AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
650	STREET LIGHTING	EXT	10	4380	Exterior:	PALISADE PL	PALISADE PL		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
651	STREET LIGHTING	EXT	10	4380	Exterior:	PALISADE ST	PALISADE ST		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
652	STREET LIGHTING	EXT	10	4380	Exterior:	PALISADE ST	PALISADE ST		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
653	STREET LIGHTING	EXT	10	4380	Exterior:	PALISADE ST	PALISADE ST		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
654	STREET LIGHTING	EXT	10	4380	Exterior:	PALISADE ST	PALISADE ST		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
655	STREET LIGHTING	EXT	10	4380	Exterior:	PALISADE ST	PALISADE ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
656	STREET LIGHTING	EXT	10	4380	Exterior:	PALISADE ST	PALISADE ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420

Village of Dobbs Ferry
Attachment 2 - Street Lighting Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
657	STREET LIGHTING	EXT	10	4380	Exterior:	PALISADE ST	PALISADE ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
658	STREET LIGHTING	EXT	10	4380	Exterior:	PALISADE ST	PALISADE ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
659	STREET LIGHTING	EXT	10	4380	Exterior:	PALISADE ST	PALISADE ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
660	STREET LIGHTING	EXT	10	4380	Exterior:	PALISADE ST	PALISADE ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
661	STREET LIGHTING	EXT	10	4380	Exterior:	PALISADE ST	PALISADE ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
662	STREET LIGHTING	EXT	10	4380	Exterior:	PALISADE ST	PALISADE ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
663	STREET LIGHTING	EXT	10	4380	Exterior:	PALISADE ST	PALISADE ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
664	STREET LIGHTING	EXT	10	4380	Exterior:	PALISADE ST	PALISADE ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
665	STREET LIGHTING	EXT	10	4380	Exterior:	PALISADE ST	PALISADE ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
666	STREET LIGHTING	EXT	10	4380	Exterior:	PALISADE ST	PALISADE ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
667	STREET LIGHTING	EXT	10	4380	Exterior:	PARKHILL TERR	PARKHILL TERR	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
668	STREET LIGHTING	EXT	10	4380	Exterior:	PARKHILL TERR	PARKHILL TERR		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
669	STREET LIGHTING	EXT	10	4380	Exterior:	PARKHILL TERR	PARKHILL TERR		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
670	STREET LIGHTING	EXT	10	4380	Exterior:	PARKWAY DR	PARKWAY DR	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
671	STREET LIGHTING	EXT	10	4380	Exterior:	PARKWAY DR	PARKWAY DR	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
672	STREET LIGHTING	EXT	10	4380	Exterior:	PEARL ST	PEARL ST	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
673	STREET LIGHTING	EXT	10	4380	Exterior:	PEARL ST	PEARL ST	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
674	STREET LIGHTING	EXT	10	4380	Exterior:	PEARL ST	PEARL ST	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
675	STREET LIGHTING	EXT	10	4380	Exterior:	PIETRO PL	PIETRO PL		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
676	STREET LIGHTING	EXT	10	4380	Exterior:	PIETRO PL	PIETRO PL		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
677	STREET LIGHTING	EXT	10	4380	Exterior:	POTER PLACE	POTER PLACE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
678	STREET LIGHTING	EXT	10	4380	Exterior:	PRICE ST	PRICE ST	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
679	STREET LIGHTING	EXT	10	4380	Exterior:	PRICE ST	PRICE ST	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
680	STREET LIGHTING	EXT	10	4380	Exterior:	PRICE ST	PRICE ST		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
681	STREET LIGHTING	EXT	10	4380	Exterior:	PRICE ST	PRICE ST		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
682	STREET LIGHTING	EXT	10	4380	Exterior:	PRICE ST	PRICE ST		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
683	STREET LIGHTING	EXT	10	4380	Exterior:	PRICE ST	PRICE ST		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
684	STREET LIGHTING	EXT	10	4380	Exterior:	RAYSON LA	RAYSON LA	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0

Village of Dobbs Ferry
Attachment 2 - Street Lighting Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
685	STREET LIGHTING	EXT	10	4380	Exterior:	RIDGE ROAD	RIDGE ROAD		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
686	STREET LIGHTING	EXT	10	4380	Exterior:	RIDGE ROAD	RIDGE ROAD		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
687	STREET LIGHTING	EXT	10	4380	Exterior:	RIVERSIDE PLACE	RIVERSIDE PLACE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
688	STREET LIGHTING	EXT	10	4380	Exterior:	RIVERSIDE PLACE	RIVERSIDE PLACE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
689	STREET LIGHTING	EXT	10	4380	Exterior:	RIVERSIDE PLACE	RIVERSIDE PLACE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
690	STREET LIGHTING	EXT	10	4380	Exterior:	RIVERSIDE PLACE	RIVERSIDE PLACE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
691	STREET LIGHTING	EXT	10	4380	Exterior:	ROCHAMBEAU AVE	ROCHAMBEAU AVE	105	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
692	STREET LIGHTING	EXT	10	4380	Exterior:	ROCHAMBEAU AVE	ROCHAMBEAU AVE		S141	1	HPS	141	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	618	0.05	219	0.09	399	0	399
693	STREET LIGHTING	EXT	10	4380	Exterior:	ROCHAMBEAU AVE	ROCHAMBEAU AVE		S141	1	HPS	141	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	618	0.05	219	0.09	399	0	399
694	STREET LIGHTING	EXT	10	4380	Exterior:	ROCHAMBEAU AVE	ROCHAMBEAU AVE		S141	1	HPS	141	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	618	0.05	219	0.09	399	0	399
695	STREET LIGHTING	EXT	10	4380	Exterior:	ROCHAMBEAU AVE	ROCHAMBEAU AVE		S141	1	HPS	141	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	618	0.05	219	0.09	399	0	399
696	STREET LIGHTING	EXT	10	4380	Exterior:	RUSSELL PLACE	RUSSELL PLACE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
697	STREET LIGHTING	EXT	10	4380	Exterior:	RUSSELL PLACE	RUSSELL PLACE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
698	STREET LIGHTING	EXT	10	4380	Exterior:	SANDROCK AVE	SANDROCK AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
699	STREET LIGHTING	EXT	10	4380	Exterior:	SANDROCK AVE	SANDROCK AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
700	STREET LIGHTING	EXT	10	4380	Exterior:	SANDROCK AVE	SANDROCK AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
701	STREET LIGHTING	EXT	10	4380	Exterior:	SANDROCK AVE	SANDROCK AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
702	STREET LIGHTING	EXT	10	4380	Exterior:	SANDROCK AVE	SANDROCK AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
703	STREET LIGHTING	EXT	10	4380	Exterior:	SARANAC ST	SARANAC ST		S141	1	HPS	141	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	618	0.05	219	0.09	399	0	399
704	STREET LIGHTING	EXT	10	4380	Exterior:	SARANAC ST	SARANAC ST		S141	1	HPS	141	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	618	0.05	219	0.09	399	0	399
705	STREET LIGHTING	EXT	10	4380	Exterior:	SARANAC ST	SARANAC ST		S141	1	HPS	141	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	618	0.05	219	0.09	399	0	399
706	STREET LIGHTING	EXT	10	4380	Exterior:	SCENIC DRIVEWAY	SCENIC DRIVEWAY	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
707	STREET LIGHTING	EXT	10	4380	Exterior:	SCENIC DRIVEWAY	SCENIC DRIVEWAY	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
708	STREET LIGHTING	EXT	10	4380	Exterior:	SCOTT ST	SCOTT ST	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
709	STREET LIGHTING	EXT	10	4380	Exterior:	SECOR ROAD	SECOR ROAD		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
710	STREET LIGHTING	EXT	10	4380	Exterior:	SECOR ROAD	SECOR ROAD		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
711	STREET LIGHTING	EXT	10	4380	Exterior:	SENECA ST	SENECA ST	55	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
712	STREET LIGHTING	EXT	10	4380	Exterior:	SENECA ST	SENECA ST	105	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0

Village of Dobbs Ferry
Attachment 2 - Street Lighting Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
713	STREET LIGHTING	EXT	10	4380	Exterior:	SENECA ST	SENECA ST		S141	1	HPS	141	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	618	0.05	219	0.09	399	0	399
714	STREET LIGHTING	EXT	10	4380	Exterior:	SENECA ST	SENECA ST		S141	1	HPS	141	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	618	0.05	219	0.09	399	0	399
715	STREET LIGHTING	EXT	10	4380	Exterior:	SENECA ST	SENECA ST		S141	1	HPS	141	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	618	0.05	219	0.09	399	0	399
716	STREET LIGHTING	EXT	10	4380	Exterior:	SENECA ST	SENECA ST		S141	1	HPS	141	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	618	0.05	219	0.09	399	0	399
717	STREET LIGHTING	EXT	10	4380	Exterior:	SHADY LA	SHADY LA	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
718	STREET LIGHTING	EXT	10	4380	Exterior:	SHADY LA	SHADY LA	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
719	STREET LIGHTING	EXT	10	4380	Exterior:	SHADY LA	SHADY LA	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
720	STREET LIGHTING	EXT	10	4380	Exterior:	SHADY LA	SHADY LA	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
721	STREET LIGHTING	EXT	10	4380	Exterior:	SHADY LA	SHADY LA	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
722	STREET LIGHTING	EXT	10	4380	Exterior:	SHERMAN AVE	SHERMAN AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
723	STREET LIGHTING	EXT	10	4380	Exterior:	SHERMAN AVE	SHERMAN AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
724	STREET LIGHTING	EXT	10	4380	Exterior:	SHERMAN AVE	SHERMAN AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
725	STREET LIGHTING	EXT	10	4380	Exterior:	SHERMAN AVE	SHERMAN AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
726	STREET LIGHTING	EXT	10	4380	Exterior:	SHERMAN AVE	SHERMAN AVE		S141	1	HPS	141	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	618	0.05	219	0.09	399	0	399
727	STREET LIGHTING	EXT	10	4380	Exterior:	SHERMAN AVE	SHERMAN AVE		S141	1	HPS	141	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	618	0.05	219	0.09	399	0	399
728	STREET LIGHTING	EXT	10	4380	Exterior:	SHERMAN AVE	SHERMAN AVE		S141	1	HPS	141	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	618	0.05	219	0.09	399	0	399
729	STREET LIGHTING	EXT	10	4380	Exterior:	SO FIELD AVE	SO FIELD AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
730	STREET LIGHTING	EXT	10	4380	Exterior:	SO FIELD AVE	SO FIELD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
731	STREET LIGHTING	EXT	10	4380	Exterior:	SO FIELD AVE	SO FIELD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
732	STREET LIGHTING	EXT	10	4380	Exterior:	SO FIELD AVE	SO FIELD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
733	STREET LIGHTING	EXT	10	4380	Exterior:	SO FIELD AVE	SO FIELD AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
734	STREET LIGHTING	EXT	10	4380	Exterior:	SOUTH LANE	SOUTH LANE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
735	STREET LIGHTING	EXT	10	4380	Exterior:	SOUTH LAWN AVE	SOUTH LAWN AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
736	STREET LIGHTING	EXT	10	4380	Exterior:	SOUTH LAWN AVE	SOUTH LAWN AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
737	STREET LIGHTING	EXT	10	4380	Exterior:	SOUTH LAWN AVE	SOUTH LAWN AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
738	STREET LIGHTING	EXT	10	4380	Exterior:	SOUTH LAWN AVE	SOUTH LAWN AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
739	STREET LIGHTING	EXT	10	4380	Exterior:	SOUTH LAWN AVE	SOUTH LAWN AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
740	STREET LIGHTING	EXT	10	4380	Exterior:	SOUTH LAWN AVE	SOUTH LAWN AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0

Village of Dobbs Ferry
Attachment 2 - Street Lighting Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
741	STREET LIGHTING	EXT	10	4380	Exterior:	SOUTH LAWN AVE	SOUTH LAWN AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
742	STREET LIGHTING	EXT	10	4380	Exterior:	SOUTH LAWN AVE	SOUTH LAWN AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
743	STREET LIGHTING	EXT	10	4380	Exterior:	SOUTH RUSSELL PL	SOUTH RUSSELL PL		S141	1	HPS	141	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.14	618	0.05	219	0.09	399	0	399
744	STREET LIGHTING	EXT	10	4380	Exterior:	STANLEY AVE	STANLEY AVE		M275	1	MH	305	LED100COBRA	1				275 Watt Metal Halide	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.31	1336	0.10	438	0.21	898	0	898
745	STREET LIGHTING	EXT	10	4380	Exterior:	STANLEY AVE	STANLEY AVE		M275	1	MH	305	LED100COBRA	1				275 Watt Metal Halide	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.31	1336	0.10	438	0.21	898	0	898
746	STREET LIGHTING	EXT	10	4380	Exterior:	STANLEY AVE	STANLEY AVE	105	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
747	STREET LIGHTING	EXT	10	4380	Exterior:	STANLEY AVE	STANLEY AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
748	STREET LIGHTING	EXT	10	4380	Exterior:	STANLEY AVE	STANLEY AVE		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
749	STREET LIGHTING	EXT	10	4380	Exterior:	STATION PLAZA	STATION PLAZA		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
750	STREET LIGHTING	EXT	10	4380	Exterior:	STATION PLAZA	STATION PLAZA		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
751	STREET LIGHTING	EXT	10	4380	Exterior:	STATION PLAZA	STATION PLAZA		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
752	STREET LIGHTING	EXT	10	4380	Exterior:	STATION PLAZA	STATION PLAZA		S199	1	HPS	199	LED50COBRA	1				199 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.20	872	0.05	219	0.15	653	0	653
753	STREET LIGHTING	EXT	10	4380	Exterior:	STORM ST	STORM ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
754	STREET LIGHTING	EXT	10	4380	Exterior:	SUMMIT TERR	SUMMIT TERR	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
755	STREET LIGHTING	EXT	10	4380	Exterior:	SUMMIT TERR	SUMMIT TERR	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
756	STREET LIGHTING	EXT	10	4380	Exterior:	SUMMIT TERR	SUMMIT TERR	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
757	STREET LIGHTING	EXT	10	4380	Exterior:	TEMPLE RD	TEMPLE RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
758	STREET LIGHTING	EXT	10	4380	Exterior:	TEMPLE RD	TEMPLE RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
759	STREET LIGHTING	EXT	10	4380	Exterior:	TEMPLE RD	TEMPLE RD	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
760	STREET LIGHTING	EXT	10	4380	Exterior:	TIERNANS LA	TIERNANS LA	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
761	STREET LIGHTING	EXT	10	4380	Exterior:	TIERNANS LA	TIERNANS LA	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
762	STREET LIGHTING	EXT	10	4380	Exterior:	TRANSVALL ST	TRANSVALL ST		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
763	STREET LIGHTING	EXT	10	4380	Exterior:	VIRGINIA AVE	VIRGINIA AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
764	STREET LIGHTING	EXT	10	4380	Exterior:	VIRGINIA AVE	VIRGINIA AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
765	STREET LIGHTING	EXT	10	4380	Exterior:	VIRGINIA AVE	VIRGINIA AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
766	STREET LIGHTING	EXT	10	4380	Exterior:	VIRGINIA AVE	VIRGINIA AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
767	STREET LIGHTING	EXT	10	4380	Exterior:	VIRGINIA AVE	VIRGINIA AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
768	STREET LIGHTING	EXT	10	4380	Exterior:	VIRGINIA AVE	VIRGINIA AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350

Village of Dobbs Ferry
Attachment 2 - Street Lighting Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
769	STREET LIGHTING	EXT	10	4380	Exterior:	VIRGINIA AVE	VIRGINIA AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
770	STREET LIGHTING	EXT	10	4380	Exterior:	VIRGINIA AVE	VIRGINIA AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
771	STREET LIGHTING	EXT	10	4380	Exterior:	WALGROVE AVE	WALGROVE AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
772	STREET LIGHTING	EXT	10	4380	Exterior:	WALGROVE AVE	WALGROVE AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
773	STREET LIGHTING	EXT	10	4380	Exterior:	WALGROVE AVE	WALGROVE AVE		H200	1	MV	240	LED100COBRA	1				200 Watt Mercury Vapor	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.24	1051	0.10	438	0.14	613	0	613
774	STREET LIGHTING	EXT	10	4380	Exterior:	WALGROVE AVE	WALGROVE AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
775	STREET LIGHTING	EXT	10	4380	Exterior:	WALGROVE AVE	WALGROVE AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
776	STREET LIGHTING	EXT	10	4380	Exterior:	WALGROVE AVE	WALGROVE AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
777	STREET LIGHTING	EXT	10	4380	Exterior:	WALGROVE AVE	WALGROVE AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
778	STREET LIGHTING	EXT	10	4380	Exterior:	WALGROVE AVE	WALGROVE AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
779	STREET LIGHTING	EXT	10	4380	Exterior:	WALGROVE AVE	WALGROVE AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
780	STREET LIGHTING	EXT	10	4380	Exterior:	WALGROVE AVE	WALGROVE AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
781	STREET LIGHTING	EXT	10	4380	Exterior:	WALGROVE AVE	WALGROVE AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
782	STREET LIGHTING	EXT	10	4380	Exterior:	WALGROVE AVE	WALGROVE AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
783	STREET LIGHTING	EXT	10	4380	Exterior:	WALGROVE AVE	WALGROVE AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
784	STREET LIGHTING	EXT	10	4380	Exterior:	WALGROVE AVE	WALGROVE AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
785	STREET LIGHTING	EXT	10	4380	Exterior:	WALGROVE AVE	WALGROVE AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
786	STREET LIGHTING	EXT	10	4380	Exterior:	WALGROVE AVE	WALGROVE AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
787	STREET LIGHTING	EXT	10	4380	Exterior:	WALGROVE AVE	WALGROVE AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
788	STREET LIGHTING	EXT	10	4380	Exterior:	WALGROVE AVE	WALGROVE AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
789	STREET LIGHTING	EXT	10	4380	Exterior:	WALGROVE AVE	WALGROVE AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
790	STREET LIGHTING	EXT	10	4380	Exterior:	WALGROVE AVE	WALGROVE AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
791	STREET LIGHTING	EXT	10	4380	Exterior:	WALGROVE AVE	WALGROVE AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
792	STREET LIGHTING	EXT	10	4380	Exterior:	WALGROVE AVE	WALGROVE AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
793	STREET LIGHTING	EXT	10	4380	Exterior:	WALGROVE AVE	WALGROVE AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
794	STREET LIGHTING	EXT	10	4380	Exterior:	WALGROVE AVE	WALGROVE AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
795	STREET LIGHTING	EXT	10	4380	Exterior:	WALGROVE AVE	WALGROVE AVE		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854
796	STREET LIGHTING	EXT	10	4380	Exterior:	WALGROVE AVE	WALGROVE AVE		S250	1	HPS	295	LED100COBRA	1				250 Watt High Pressure Sodium	1	Install a 100w LED Cobra Head Light for Outdoor Lighting	0	0.30	1292	0.10	438	0.20	854	0	854

Village of Dobbs Ferry
Attachment 2 - Street Lighting Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
797	STREET LIGHTING	EXT	10	4380	Exterior:	WALGROVE AVE	WALGROVE AVE		S400	1	HPS	460	LED170COBRA	1				400 Watt High Pressure Sodium	1	Install a 170w LED Cobra Head Light for Outdoor Lighting	0	0.46	2015	0.17	745	0.29	1270	0	1270
798	STREET LIGHTING	EXT	10	4380	Exterior:	WALNUT ST	WALNUT ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
799	STREET LIGHTING	EXT	10	4380	Exterior:	WALNUT ST	WALNUT ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
800	STREET LIGHTING	EXT	10	4380	Exterior:	WALNUT ST	WALNUT ST		S146	1	HPS	146	LED50COBRA	1				141 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.15	639	0.05	219	0.10	420	0	420
801	STREET LIGHTING	EXT	10	4380	Exterior:	WASHINGTON AVE	WASHINGTON AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
802	STREET LIGHTING	EXT	10	4380	Exterior:	WASHINGTON AVE	WASHINGTON AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
803	STREET LIGHTING	EXT	10	4380	Exterior:	WASHINGTON AVE	WASHINGTON AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
804	STREET LIGHTING	EXT	10	4380	Exterior:	WASHINGTON AVE	WASHINGTON AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
805	STREET LIGHTING	EXT	10	4380	Exterior:	WASHINGTON AVE	WASHINGTON AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
806	STREET LIGHTING	EXT	10	4380	Exterior:	WASHINGTON AVE	WASHINGTON AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
807	STREET LIGHTING	EXT	10	4380	Exterior:	WASHINGTON AVE	WASHINGTON AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
808	STREET LIGHTING	EXT	10	4380	Exterior:	WASHINGTON AVE	WASHINGTON AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
809	STREET LIGHTING	EXT	10	4380	Exterior:	WASHINGTON AVE	WASHINGTON AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
810	STREET LIGHTING	EXT	10	4380	Exterior:	WASHINGTON AVE	WASHINGTON AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
811	STREET LIGHTING	EXT	10	4380	Exterior:	WASHINGTON AVE	WASHINGTON AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
812	STREET LIGHTING	EXT	10	4380	Exterior:	WASHINGTON AVE	WASHINGTON AVE		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
813	STREET LIGHTING	EXT	10	4380	Exterior:	WASHINGTON AVE	WASHINGTON AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
814	STREET LIGHTING	EXT	10	4380	Exterior:	WASHINGTON AVE	WASHINGTON AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
815	STREET LIGHTING	EXT	10	4380	Exterior:	WASHINGTON AVE	WASHINGTON AVE		S150	1	HPS	190	LED50COBRA	1				150 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.19	832	0.05	219	0.14	613	0	613
816	STREET LIGHTING	EXT	10	4380	Exterior:	WOODBINE TERR	WOODBINE TERR		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
817	STREET LIGHTING	EXT	10	4380	Exterior:	YOUNG ST	YOUNG ST		S100	1	HPS	130	LED50COBRA	1				100 Watt High Pressure Sodium	1	Install a 50w LED Cobra Head Light for Outdoor Lighting	0	0.13	569	0.05	219	0.08	350	0	350
818	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE	10	LED	2	LED	0	NR	2				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
819	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE	10	LED	2	LED	0	NR	2				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
820	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE	15	LED	8	LED	0	NR	8				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
821	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE	15	LED	2	LED	0	NR	2				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
822	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE	14	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
823	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE	14	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
824	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE	14	LED	3	LED	0	NR	3				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0

Village of Dobbs Ferry
Attachment 2 - Street Lighting Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
825	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE	10	LED	6	LED	0	NR	6				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
826	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE	10	LED	5	LED	0	NR	5				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
827	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE	10	LED	6	LED	0	NR	6				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
828	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE	10	LED	7	LED	0	NR	7				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
829	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE	10	LED	2	LED	0	NR	2				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
830	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE	10	LED	6	LED	0	NR	6				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
831	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE	10	LED	2	LED	0	NR	2				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
832	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE	10	LED	6	LED	0	NR	6				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
833	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE	10	LED	6	LED	0	NR	6				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
834	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE	10	LED	4	LED	0	NR	4				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
835	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE	10	LED	6	LED	0	NR	6				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
836	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE	10	LED	2	LED	0	NR	2				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
837	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE	10	LED	6	LED	0	NR	6				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
838	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE	10	LED	8	LED	0	NR	8				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
839	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE	10	LED	6	LED	0	NR	6				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
840	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE	25	CONTROLLER	2	CONTROLLEI	0	NR	2				LED traffic light controller	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
841	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE	25	CONTROLLER	4	CONTROLLEI	0	NR	4				LED traffic light controller	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
842	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE	25	CONTROLLER	1	CONTROLLEI	0	NR	1				LED traffic light controller	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
843	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE	25	CONTROLLER	1	CONTROLLEI	0	NR	1				LED traffic light controller	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
844	STREET LIGHTING	EXT	10	4380	Exterior:	ASHFORD AVE	ASHFORD AVE	100	CONTROLLER	1	CONTROLLEI	0	NR	1				LED traffic light controller	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
845	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY	21	CONTROLLER	1	CONTROLLEI	0	NR	1				LED traffic light controller	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
846	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY	21	CONTROLLER	1	CONTROLLEI	0	NR	1				LED traffic light controller	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
847	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY	15	LED	2	LED	0	NR	2				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
848	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY	15	LED	2	LED	0	NR	2				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
849	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY	15	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
850	STREET LIGHTING	EXT	10	4380	Exterior:	BROADWAY	BROADWAY	15	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
851	STREET LIGHTING	EXT	10	4380	Exterior:	CHESTNUT ST	CHESTNUT ST	15	LED	8	LED	0	NR	8				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
852	STREET LIGHTING	EXT	10	4380	Exterior:	CHESTNUT ST	CHESTNUT ST	10	LED	4	LED	0	NR	4				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0

Village of Dobbs Ferry
Attachment 2 - Street Lighting Line by Line

Line #	Site/Building	Int/Ext	Floor/ Ext	Rm Type	Annual Hours	Room Type	Location Description	Type/Mount	Existing Code	Existing Qty	Existing Tech	Existing Watts	Proposed Code	Proposed QTY	Sensor	Qty	%	Existing Description	Existing Lamp Total Qty	Proposed Description	Proposed Lamp Total Qty	Total kW Existing	Total kWh Existing	Total kW Proposed	Total kWh Proposed	Total kW Saved	Total kWh Saved	Sensor kWH Savings	Total kWh Saved Lighting and Sensors
853	STREET LIGHTING	EXT	10	4380	Exterior:	CHESTNUT ST	CHESTNUT ST	10	LED	4	LED	0	NR	4				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
854	STREET LIGHTING	EXT	10	4380	Exterior:	CHESTNUT ST	CHESTNUT ST	15	LED	4	LED	0	NR	4				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
855	STREET LIGHTING	EXT	10	4380	Exterior:	CHESTNUT ST	CHESTNUT ST	100	CONTROLLER	1	CONTROLLEI	0	NR	1				LED traffic light controller	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0
856	STREET LIGHTING	EXT	10	4380	Exterior:	LEFURGY AVE	LEFURGY AVE	50	LED	1	LED	0	NR	1				LED EXISTING	0	No Retrofit	0	0.00	0	0.00	0	0.00	0	0	0

ATTACHMENT 3 – BUILDING ENVELOPE LINE BY LINE

Village of Dobbs Ferry
Attachment 3 - Building Envelope Line by Line

Building	Report Group	Task	Units	Crack Size	LF/ Unit	Surface Area	Starting U-Value	Ending U-Value	Crack Length (LF)	Leakage Area (SF)
Ambulance Corps Building	Door Weather Stripping	Single Door - Sides, Top, Sweep (UT)	2	1/24	20.0				40.0	0.1
Ambulance Corps Building	Garage Door Weather Stripping	Overhead Door Weather Strip - Sides, Top	2	1/24	34.0				68.0	0.2
									0.0	0.0
Embassy Community Center	Door Weather Stripping	Single Door - Sweep (UT)	3	1/12	3.0				9.0	0.1
Embassy Community Center	Caulking	Interior Seal Oversized (LF)	17	1/8	1.0				17.0	0.2
									0.0	0.0
Memorial Park Building	Attic Bypass Air Sealing	Install Soffit Baffles (UT)	48						0.0	0.0
Memorial Park Building	Attic Bypass Air Sealing	Seal (SF)	800	1/12	1.0				64.0	0.4
Memorial Park Building	Attic Bypass Air Sealing	Install New Attic Hatch (UT)	1						0.0	0.0
Memorial Park Building	Attic Insulation	12" Open Blow Cellulose (SF)	800			800.00	0.17	0.02	0.0	0.0
Memorial Park Building	Door Weather Stripping	Single Door - Sides, Top, Sweep (UT)	2	1/12	20.0				40.0	0.3
Memorial Park Building	Door Weather Stripping	Install Door Jamb Spacer (UT)	2						0.0	0.0
Memorial Park Building	Caulking	Interior Seal (LF)	6	1/24	1.0				6.0	0.0
									0.0	0.0
Public Library	Door Weather Stripping	Double Door - Sweep, Center (UT)	5	1/8	13.0				65.0	0.7
									0.0	0.0
Ogden Engine Co.	Door Weather Stripping	Double Door - Sweep, Center (UT)	1	1/12	13.0				13.0	0.1
Ogden Engine Co.	Garage Door Weather Stripping	Overhead Door Weather Strip - Sides, Top	1	1/12	36.0				36.0	0.3
Ogden Engine Co.	Attic Bypass Air Sealing	Install New Attic Hatch (UT)	1	1/8	16.0				16.0	0.2
Ogden Engine Co.	Attic Bypass Air Sealing	Retrofit Existing Attic Hatch (UT)	1	1/12	10.0				10.0	0.1
Ogden Engine Co.	Wall Air Sealing	Block, Seal Exposed (SF)	40			40.00	0.33	0.10	0.0	0.0
									0.0	0.0
Village Hall	Door Weather Stripping	Single Door - Sides, Top, Sweep (UT)	2	1/12	20.0				40.0	0.3
Village Hall	Door Weather Stripping	Double Door - Sides, Top, Sweep (UT)	1	1/12	26.0				26.0	0.2
Village Hall	Door Weather Stripping	Double Door - Sides, Top, Sweep, Center (UT)	1	1/12	33.0				33.0	0.2
Village Hall	Garage Door Weather Stripping	Overhead Door Weather Strip - Sides, Top	2	1/12	39.0				78.0	0.5
Village Hall	Window Weatherization	Double Hung Window Weatherization (UT)	15	1/24	19.0				285.0	1.0
Village Hall	Window Weatherization	Double Hung Window Weatherization (UT)	6	1/24	12.5				75.0	0.3
Village Hall	Window Weatherization	Double Hung Window Weatherization (UT)	3	1/24	21.2				63.5	0.2

ATTACHMENT 4 – PRELIMINARY UTILITY ANALYSIS

Honeywell

Energy Benchmark

CBECS Report

Village of Dobbs Ferry
Dobbs Ferry, NY



Honeywell

Utility Summary: January 2019 - December 2019
Village of Dobbs Ferry
Dobbs Ferry, NY

Building	Square Footage	Electricity				
		Annual kW	Annual kWh	Total $	$ / kW	$ / kWh
Public Library	16,000	1,095	242,160	$ 33,980	$ 19.199	$ 0.047
Village Hall	9,000	640	209,720	$ 26,091	$ 23.883	$ 0.047
Memorial Park Building	1,600	3	10,260	$ 2,614	$ -	$ 0.245
DPW Office	1,141	277	64,826	$ 10,681	$ 25.702	$ 0.048
Ambulance Corps. Building	2,000	-	20,741	$ 5,294	$ -	$ 0.246
Ogden Engine Company	4,000	129	29,304	$ 5,071	$ 27.329	$ 0.047
Pool House and Offices at Gould Park	2,000	108	32,994	$ 3,800	$ 19.017	$ 0.047
Embassy Club	4,000	116	41,400	$ 4,696	$ 26.171	$ 0.037
Street Lights	-	-	299,414	$ 73,835	$ -	$ 0.247
Total	39,741	2,368	950,819	$ 166,062	$ 21.981	$ 0.120

Building	Natural Gas			Propane		
	Therms	Total $	$ / Therm	Gallons	Total $	$ / Gallon
Public Library	14,186	$ 16,684	$ 1.176	-	$ -	$ -
Village Hall	10,492	$ 21,446	$ 2.044	-	$ -	$ -
Memorial Park Building	2,054	$ 4,238	$ 2.063	-	$ -	$ -
DPW Office	-	$ -	$ -	8,110	$ 14,120	$ 1.729
Ambulance Corps. Building	2,585	$ 6,010	$ 2.325	-	$ -	$ -
Ogden Engine Company	4,407	$ 9,328	$ 2.117	-	$ -	$ -
Pool House and Offices at Gould Park	1,481	$ 3,530	$ 2.383	-	$ -	$ -
Embassy Club	5,713	$ 10,264	$ 1.797	-	$ -	$ -
Street Lights	-	$ -	$ -	-	$ -	$ -
Total	40,918	$ 71,500	$ 1.747	8,110	$ 14,120	$ 1.741

Building	Water		
	kGallons	Total $	$ / kGallon
Public Library	91	$ 1,747	$ 8.202
Village Hall	247	$ 2,989	$ 8.531
Memorial Park Building	8	$ 615	$ 8.414
DPW Office	79	$ 2,864	$ 8.534
Ambulance Corps. Building	53	$ 638	$ 8.574
Ogden Engine Company	58	$ 774	$ 8.556
Pool House and Offices at Gould Park	154	$ 3,745	$ 8.623
Embassy Club	57	$ 904	$ 8.583
Street Lights	-	$ -	$ -
Total	747	$ 14,277	$ 8.518

Utility	Total $
Electricity	$ 166,062
Natural Gas	$ 71,500
Propane	$ 14,120
Water	$ 14,277
Total	$ 265,958

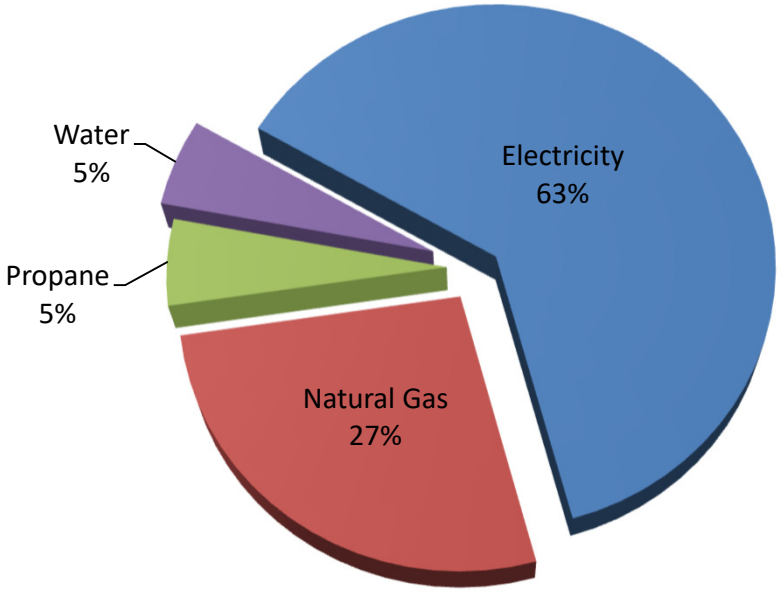
Historical Summary:

DOBBS FERRY
NEW YORK

Baseline Summary

	Electricity	Natural Gas	Propane	Water
Utility Costs	$ 166,062	$ 71,500	$ 14,120	$ 14,277
Utility Usage (kWh, Therm, Gal, kGal)	950,819	40,918	8,110	747
$ Cost/Unit (kWh, Therm, Gal, kGal)	$ 0.120	$ 1.747	$ 1.741	$ 8.518
Electric Demand (kW)	2,368	-	-	-

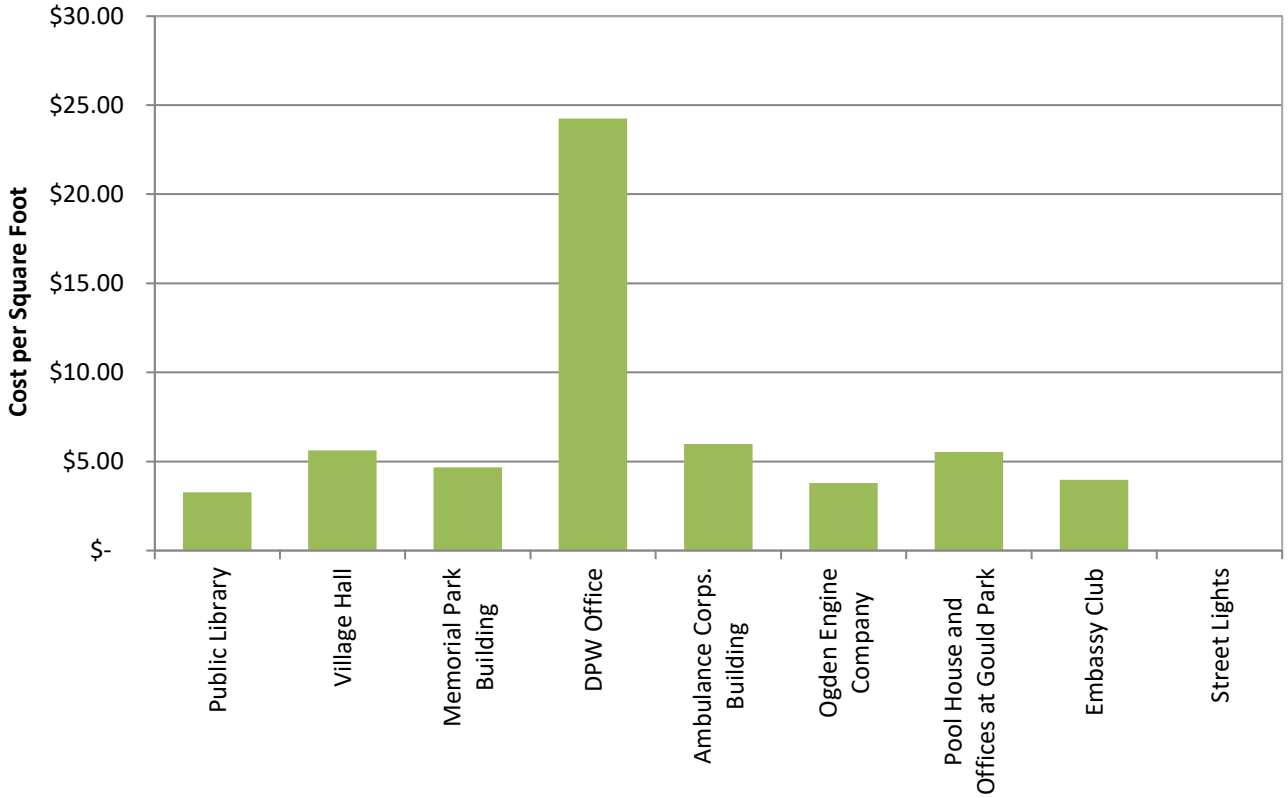
Baseline Utility Cost Breakdown



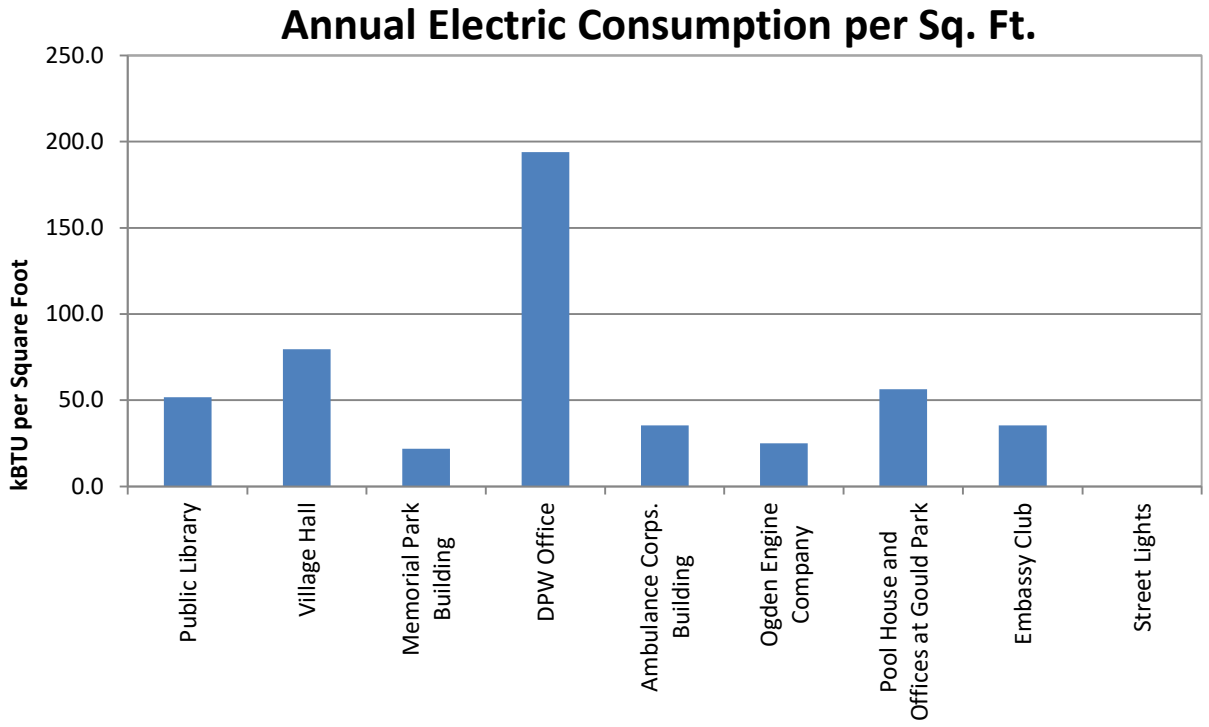
Utility Cost per Square Foot:

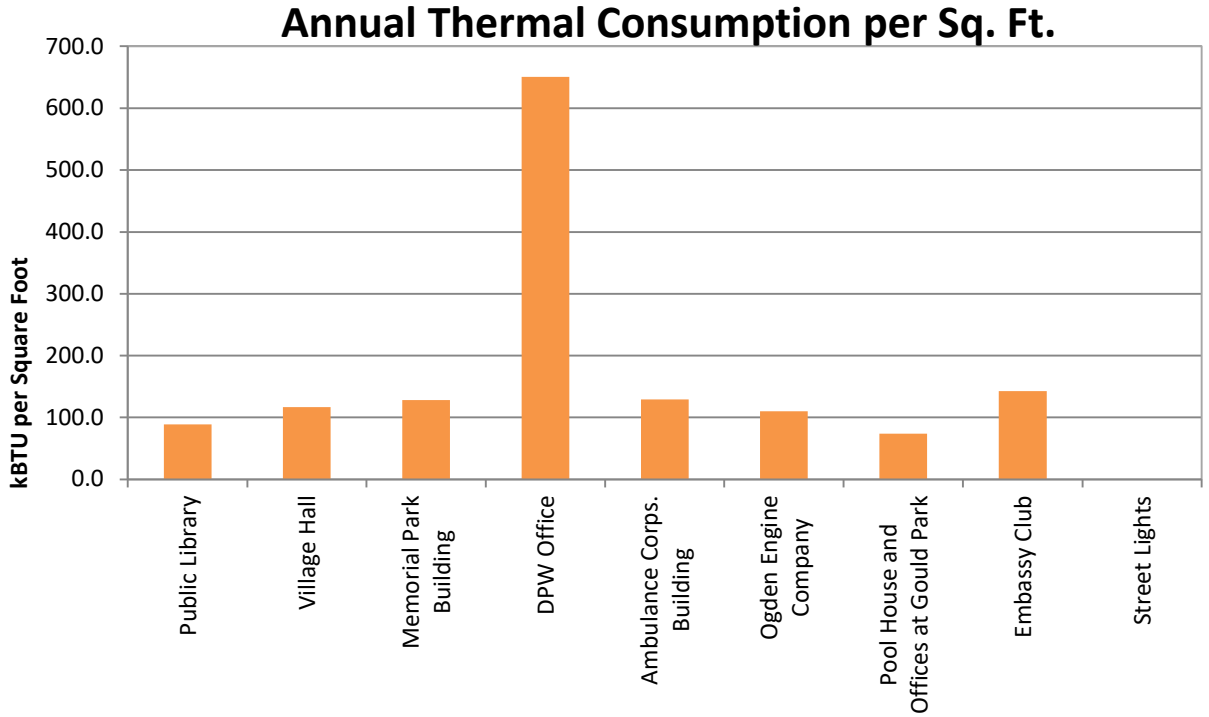
Building	Sq. Ft.	Total Utility Cost	Utility Cost per SF
Public Library	16,000	$ 52,411	$ 3.276
Village Hall	9,000	$ 50,527	$ 5.614
Memorial Park Building	1,600	$ 7,466	$ 4.666
DPW Office	1,141	$ 27,665	$ 24.246
Ambulance Corps. Building	2,000	$ 11,942	$ 5.971
Ogden Engine Company	4,000	$ 15,173	$ 3.793
Pool House and Offices at Gould Park	2,000	$ 11,075	$ 5.538
Embassy Club	4,000	$ 15,863	$ 3.966
Street Lights	-	$ 73,835	$ -
TOTAL	**39,741**	**$ 265,958**	**$ 6.692**

Total Utility Cost per Sq. Ft.

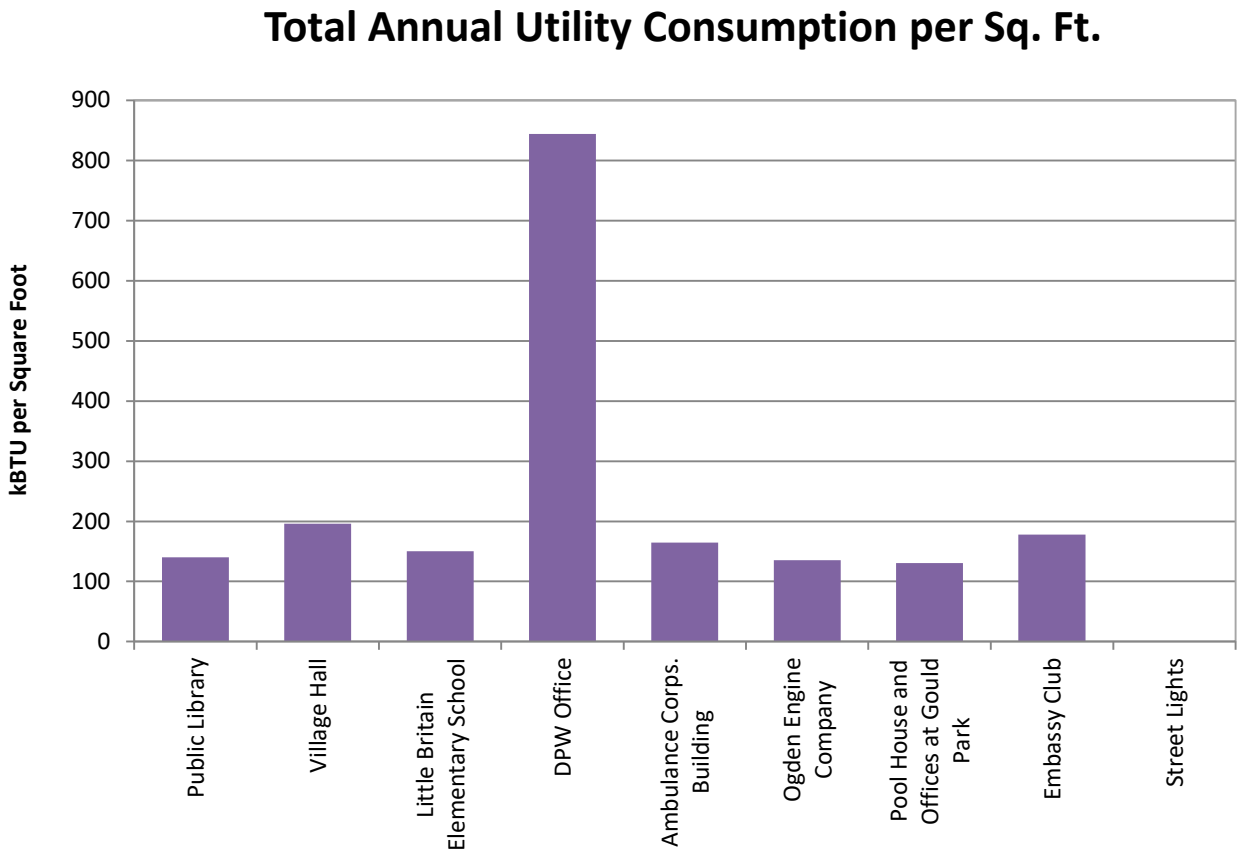


Utility Consumption per Square Foot:





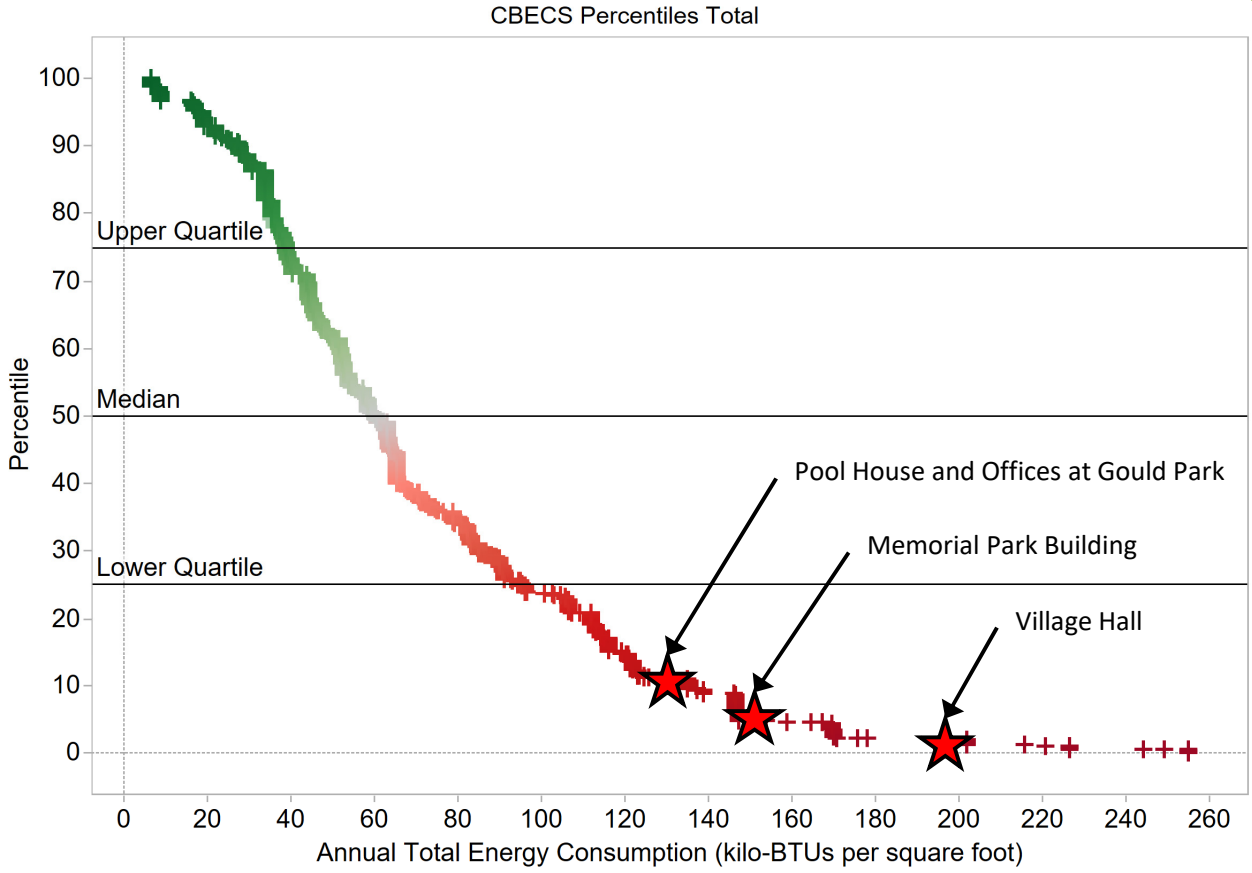
Utility Consumption per Square Foot:



Energy Benchmark:

Comparing the Village of Dobbs Ferry buildings to other similar buildings in the same region creates a reference point for how well they are performing relative to their peers. The following energy benchmarking charts are based on Commercial Building Energy Consumption Survey (CBECS) data from 2016. This is the most recent survey. No additional surveys have been published as of 2021. Facilities that fall below the Upper Quartile present a great opportunity for energy efficiency improvements. For reference see http://www.eia.gov/emeu/cbecs/

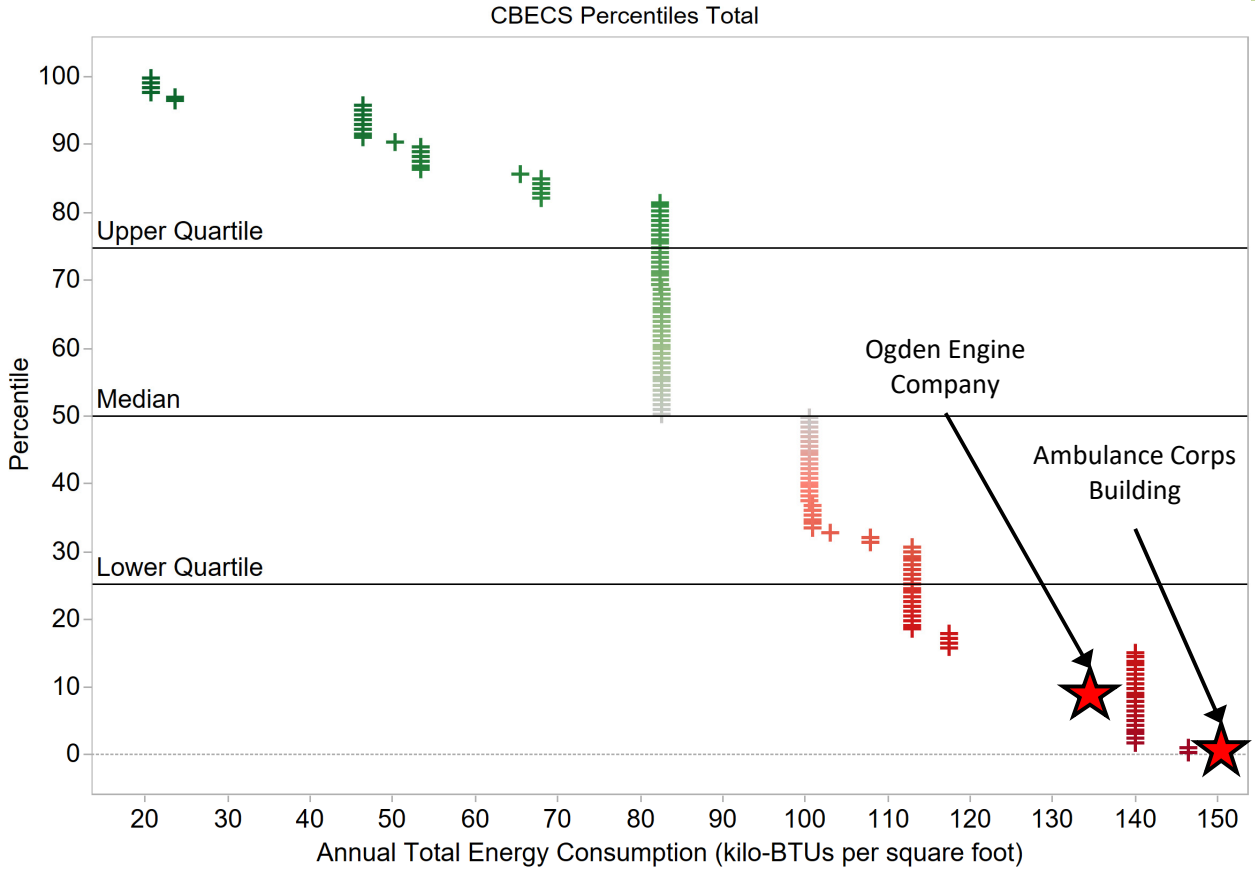
Total Energy Efficiency of the Village of Dobbs Ferry Buildings Compared to Other Similar Office Buildings in the Northeast Region



Energy Benchmark:

Comparing the Village of Dobbs Ferry buildings to other similar buildings in the same region creates a reference point for how well they are performing relative to their peers. The following energy benchmarking charts are based on Commercial Building Energy Consumption Survey (CBECS) data from 2016. This is the most recent survey. No additional surveys have been published as of 2021. Facilities that fall below the Upper Quartile present a great opportunity for energy efficiency improvements. For reference see http://www.eia.gov/emeu/cbecs/

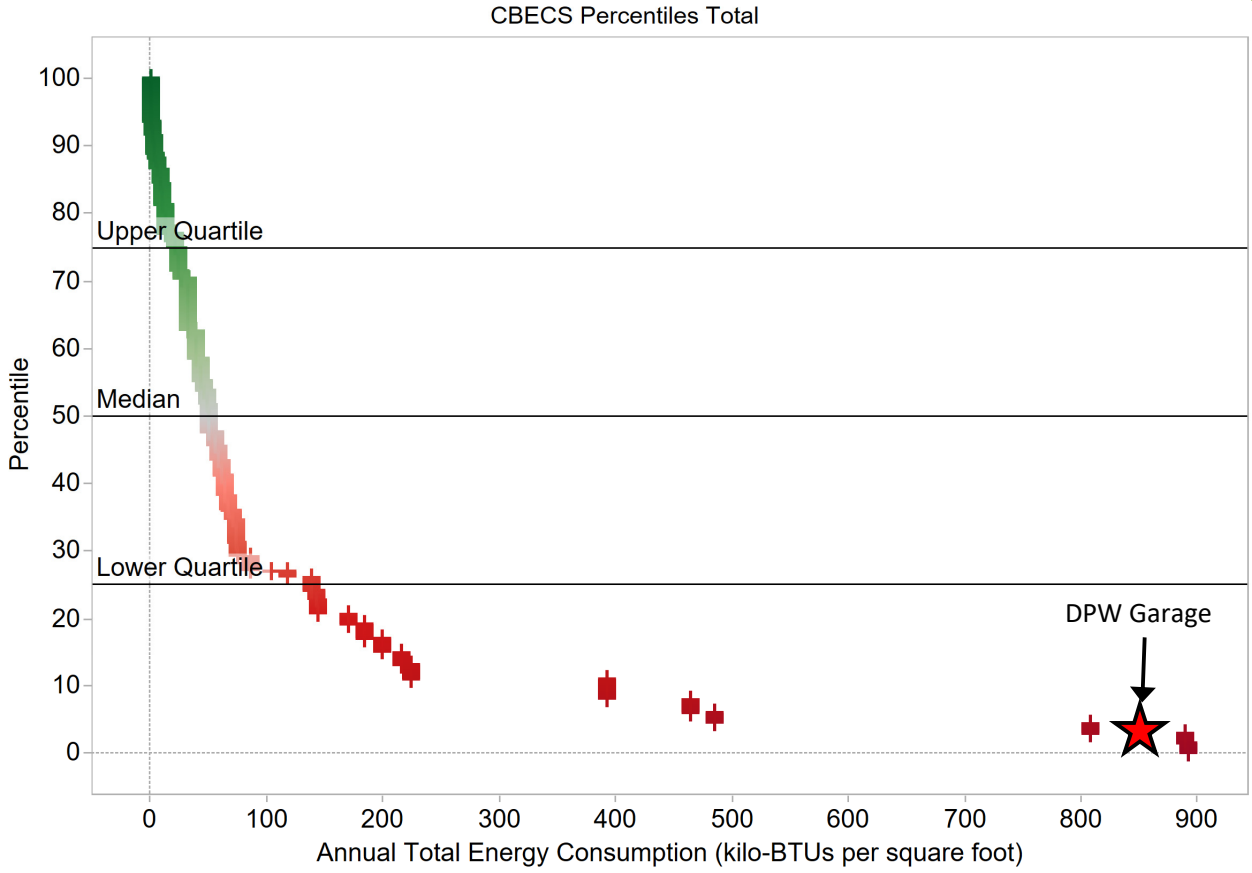
Total Energy Efficiency of the Village of Dobbs Ferry Buildings Compared to Other Similar Public Safety Buildings in the Northeast Region



Energy Benchmark:

Comparing the Village of Dobbs Ferry buildings to other similar buildings in the same region creates a reference point for how well they are performing relative to their peers. The following energy benchmarking charts are based on Commercial Building Energy Consumption Survey (CBECS) data from 2016. This is the most recent survey. No additional surveys have been published as of 2021. Facilities that fall below the Upper Quartile present a great opportunity for energy efficiency improvements. For reference see http://www.eia.gov/emeu/cbecs/

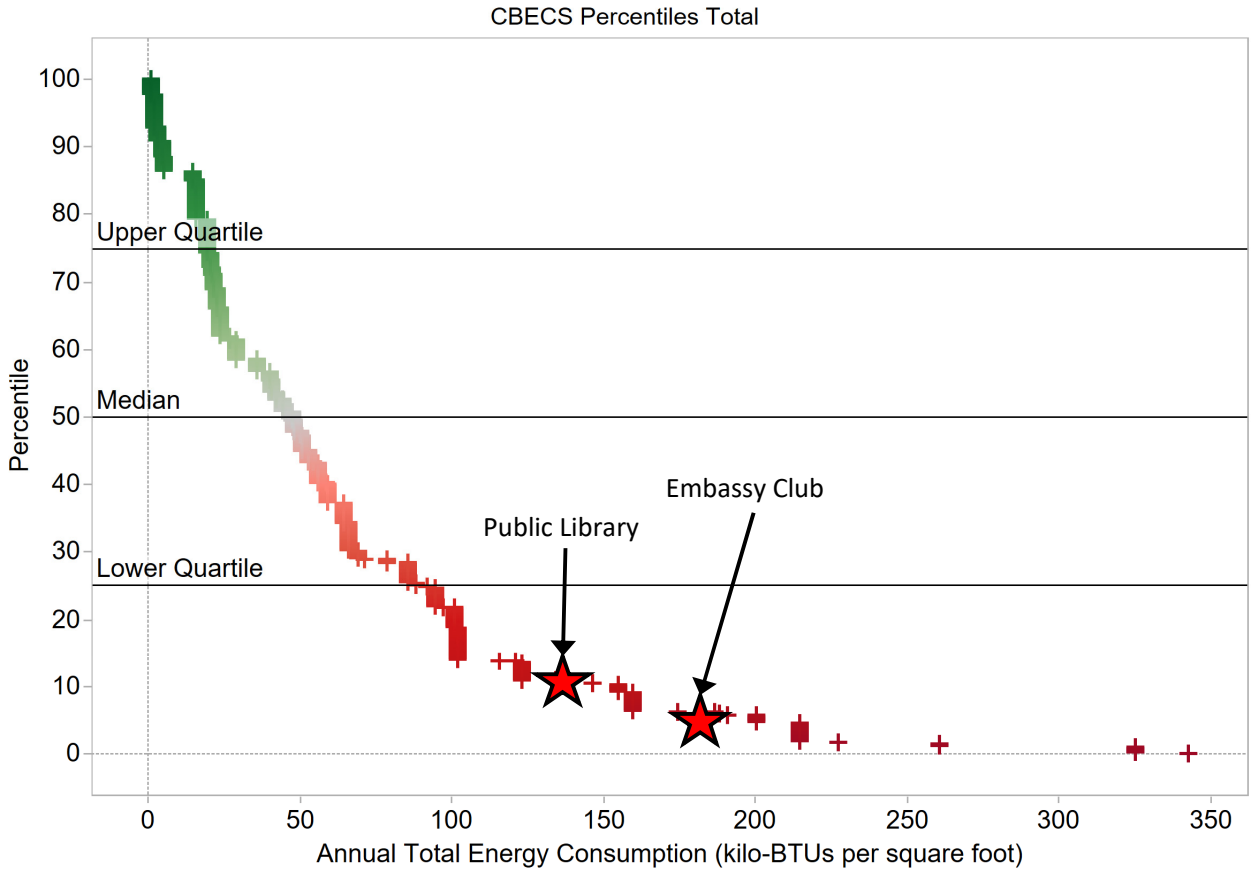
Total Energy Efficiency of the Village of Dobbs Ferry Buildings Compared to Other Similar Garage Buildings in the Northeast Region



Energy Benchmark:

Comparing the Village of Dobbs Ferry buildings to other similar buildings in the same region creates a reference point for how well they are performing relative to their peers. The following energy benchmarking charts are based on Commercial Building Energy Consumption Survey (CBECS) data from 2016. This is the most recent survey. No additional surveys have been published as of 2021. Facilities that fall below the Upper Quartile present a great opportunity for energy efficiency improvements. For reference see http://www.eia.gov/emeu/cbecs/

Total Energy Efficiency of the Village of Dobbs Ferry Buildings Compared to Other Similar Public Assembly Library Buildings in the Northeast Region













Terence Guiry
October 12, 2021

ENERGY & FACILITY RENEWAL SOLUTIONS
VILLAGE OF DOBBS FERRY

Honeywell

Agenda

- Introduction
- Growing Municipal Challenges / Concerns
- What is Energy Performance Contracting (EPC)?
- Typical Municipal ECMs (Energy Conservation Measures)
- Utility Analysis
- Initial Program Overview
- Preliminary Environmental Impact
- Suggested Timeline
- Q&A

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Introduction

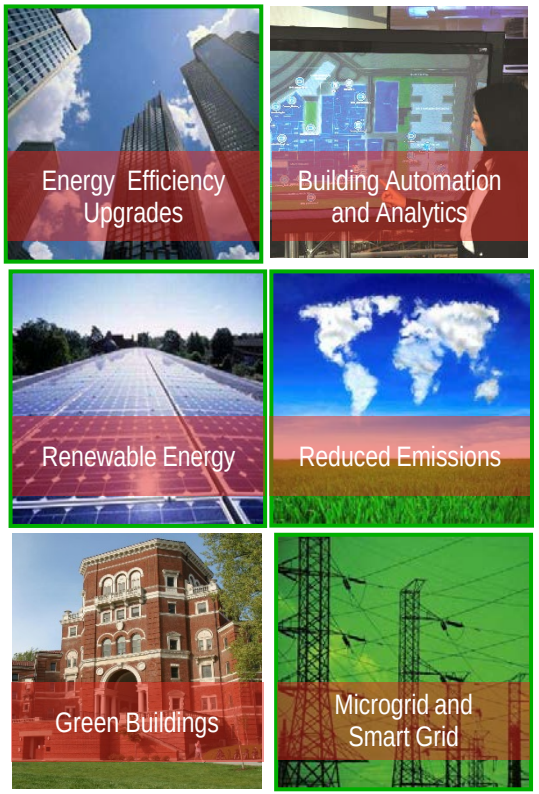
- Terence Guiry
  - Senior Business Consultant, Honeywell Energy Services Group
  - Leading NYS Public Sector Team
  - 30+ years in the energy conservation & building automation industry
  - BS Electrical Engineering, Rensselaer Polytechnic Institute

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Honeywell Business History & Qualifications

- A U.S. Business since 1886
- Dedicated to Energy Efficiency - 50% of products and services are energy-efficiency related
- $32.6 Billion in 2020 Sales
- 133,000 worldwide employees – 1,105 in New York State
- Delivered over 1100 EPC projects with a total value of more than $3.5 Billion
- Deeply committed to local job creation & the community
- World's Most Admired Companies (Fortune)
- World's Most Ethical Companies (Ethisphere Institute)



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Current Situation

Tight Budgets

Rapidly Advancing Technologies



Aging Infrastructure & Workforce

Environmental Issues

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What Is Performance Contracting?

- Proven method to achieve targeted infrastructure upgrades while minimizing project risk
- Design Build, Performance Based Construction Method
- Comprehensive Turnkey Service
  - Energy Infrastructure Auditing
  - Engineering and Design
  - Financing
  - Construction and Commissioning
  - Training
  - Maintenance
  - Measurement and Verification of Results / Performance Criteria
  - Guaranteed Results
- Energy Service Company (ESCO) is responsible for project risks

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Contracting Method Comparison

FACTOR	BID/SPEC	PERFORMANCE CONTRACTING
Financial	Capital/Bond	Current Budget
Contract Team	Only During Installation & Warranty	1-20 Years
Upfront Fees	Yes	No
Technology & Contractor Selection	Low bid	Long-term Value and Performance
Guarantee	No	Financial & Performance

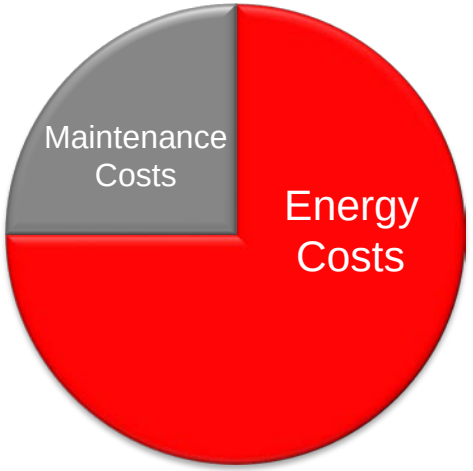
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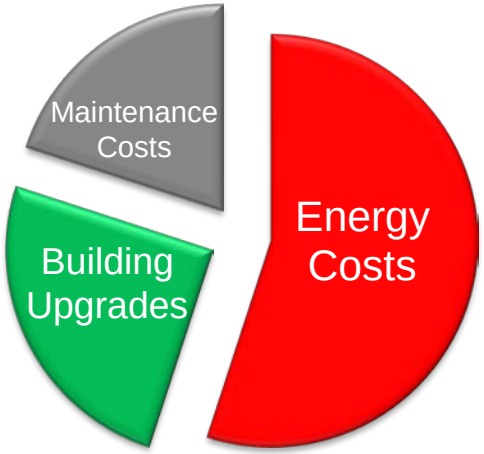
Performance Contracting Value

- **Achieve Priority Infrastructure Upgrades**
  - Address deferred maintenance and allow capital budget to be focused on other priorities
  - Select technologies and contractors based on long-term value not only lowest first-cost
- **Budget-Neutral, Fiscally-Responsible Funding Mechanism**
  - Upgrades paid for with energy & operational savings
  - Tax increases avoided by using alternative funding
  - No up-front funding required
- **Peace-of-Mind**
  - Guaranteed savings and performance throughout the life of the contract
  - Single point of responsibility for results
  - Enable proactive vs. reactive maintenance
- **Community/Environmental Leadership**
  - Showcases commitment to environmental stewardship and energy-efficiency
  - Improved building comfort
  - Enhanced staff productivity & health

Before Improvements



After Improvements



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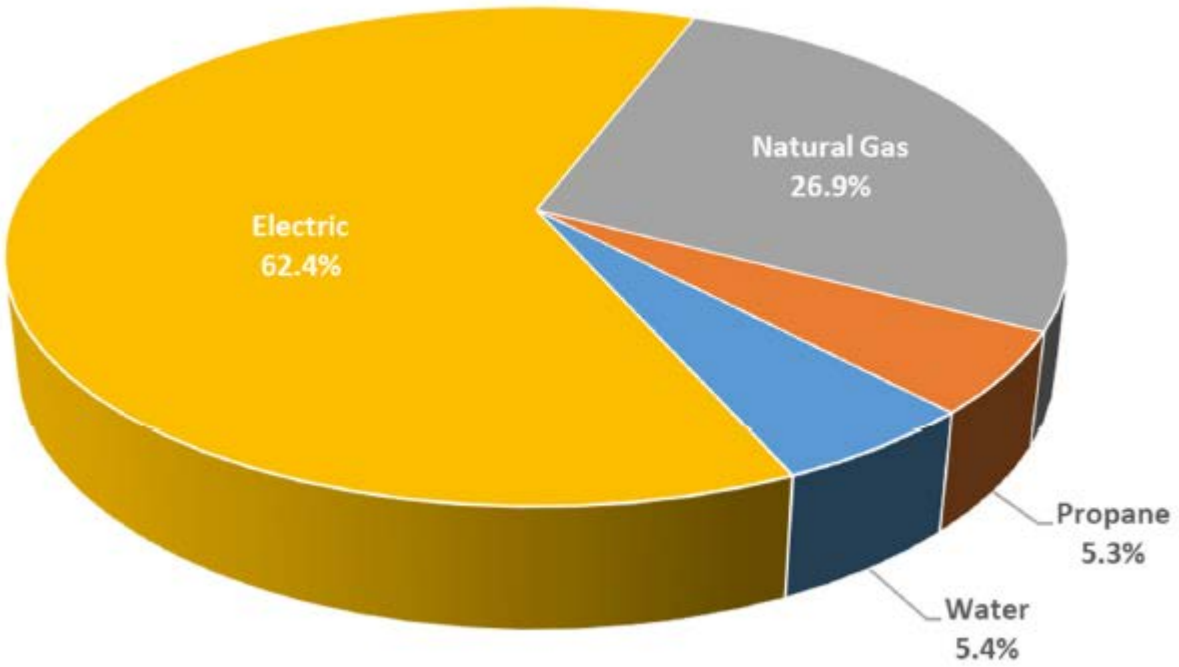
Typical Energy Upgrades and Payback

Payback	Short	Medium	Long
	1 to 5 years	**5 to 10 years**	**More than 10 years**
Energy Conservation Measure (ECM) Examples	Start/stop controls Steam traps Energy efficient motors/ variable speed drives Building envelope Retro-commissioning	Lighting and lighting controls Energy management system De-stratification fans	HVAC retrofits Renewable energy Systems Boiler replacement Window & roof replacements

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Funding Needed Upgrades by Bundling Short and Long ROI Measures

Utility Analysis



Utility	Annual Baseline Cost
Electric	$166,062
Natural Gas	$71,500
Propane	$14,120
Water	$14,277
Total	**$265,958**

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Initial Program Overview

#	ECM	Public Library	Village Hall	Memorial Park Building	DPW Office	Ambulance Corps. Building	Ogden Engine Company	Pool House & Offices at Gould Park	Embassy Club	Street Lighting
1	LED Lighting & Controls Upgrade	X	X	X	X	X	X	X	X	
2	Street Lighting Upgrades									X
3	Boiler Replacements		X			X		X		
4	Boiler Burner Controls	X								
5	Furnace Upgrades			X						
6	Air Handling Unit Replacement		X							
7	Rooftop Unit Replacement		X							
8	Condensing Unit Replacement		X							
9	Pump & Motor Replacement		X							
10	De-Stratification Fans								X	
11	Kitchen Hood Controls						X		X	
12	Walk-In Cooler Controls						X			
13	Building Management System Upgrades	X	X	X	X	X	X	X	X	
14	Building Envelope Improvements	X	X	X		X	X		X	
15	Pipe Insulation	X	X			X			X	
16	Desktop Computer Power Management	X	X	X	X	X	X			
17	Roof Replacement		X							
18	Water Conservation	X	X	X	X	X	X	X	X	

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Preliminary Environmental Impact

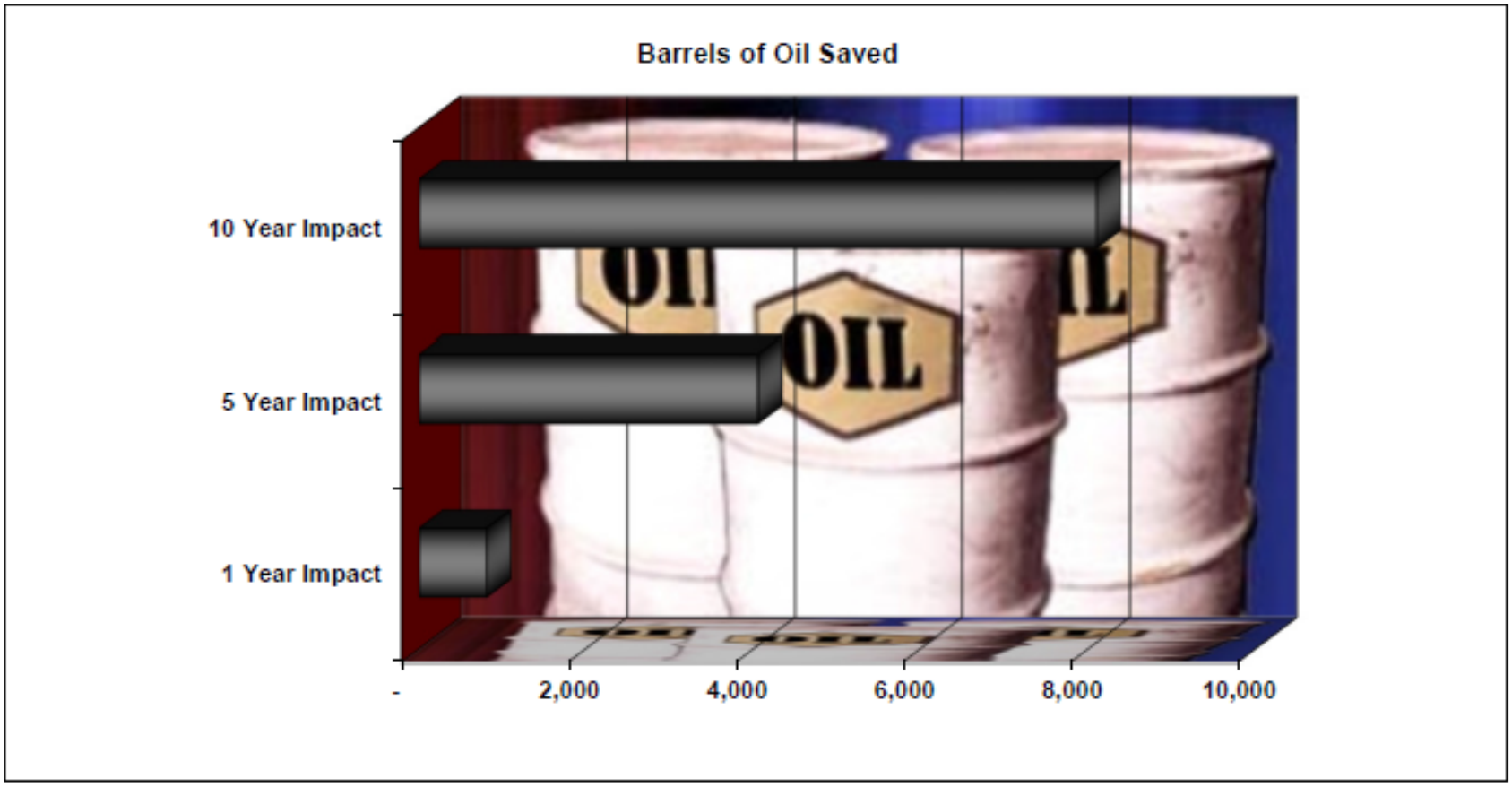
ECM #	Description	Electric Savings [kWh]	Natural Gas Savings [Therms]	Fuel Oil Savings [Gallons]	CO_2 Emission Reduction [Tons]	SO_X Emission Reduction [Tons]	NO_X Emission Reduction [Tons]
1	LED Lighting and Lighting Controls Upgrade	86,813	(204)	-	71.24	0.56	0.19
2	Street Lighting Upgrades	209,307	-	-	174.77	1.36	0.47
3	Boiler Plant Upgrades	-	1,076	-	6.57	0.00	0.01
6	Air Handling Unit Replacement	-	504	-	3.07	0.00	0.00
7	Roof Top Unit Replacement	3,092	-	-	2.58	0.02	0.01
8	Condensing Unit Replacement	1,519	-	-	1.27	0.01	0.00
9	Pump & Motor Replacement	106	-	-	0.09	0.00	0.00
13	Building Management System Upgrades	14,002	8,922	-	66.11	0.09	0.08
14	Building Envelope Improvements	2,635	1,148	-	9.21	0.02	0.01
15	Pipe Insulation	-	1,842	-	11.24	0.00	0.01
16	Desktop Computer Power Management	3,600	-	-	3.01	0.02	0.01
17	Roof Replacement	100	443	-	2.79	0.00	0.00
TOTAL		321,175	13,731	-	351.94	2.09	0.80

Greenhouse Gas Emissions Reduction		
Metric Tons of CO_2 Saved per Year	351.94	Tons
Metric Tons of SO_X Saved per Year	2.09	Tons
Metric Tons of NO_X Saved per Year	0.80	Tons

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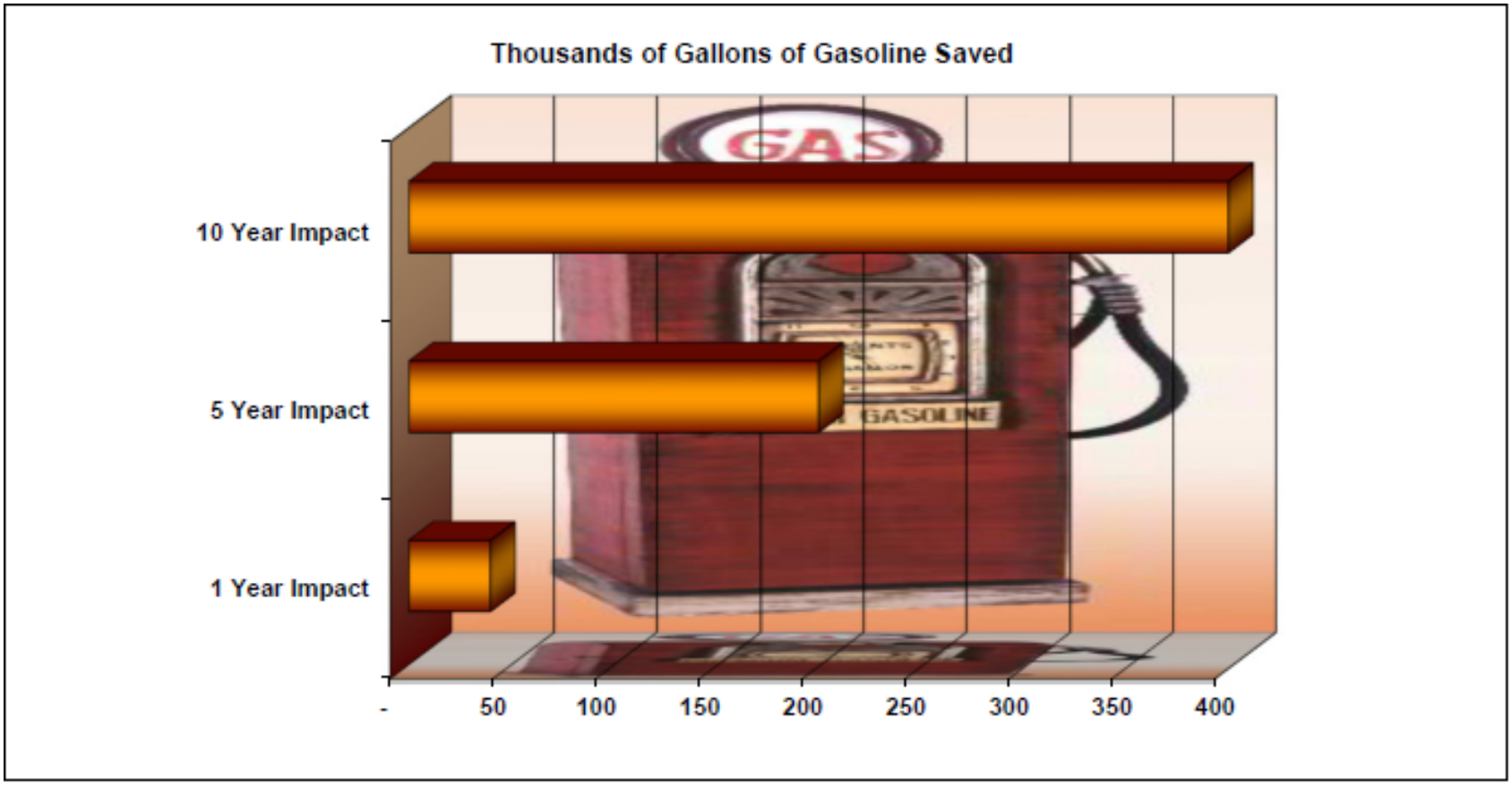
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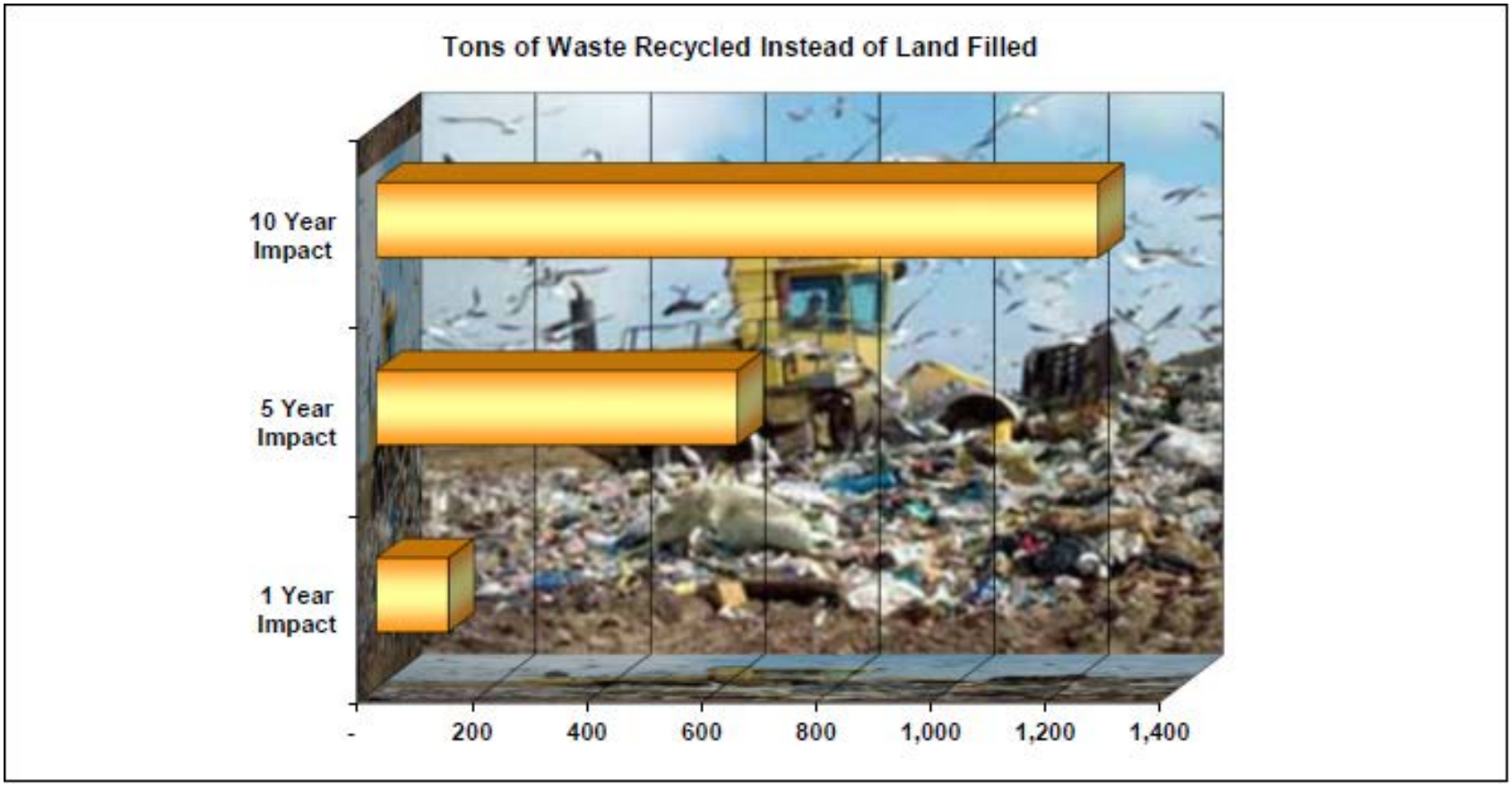
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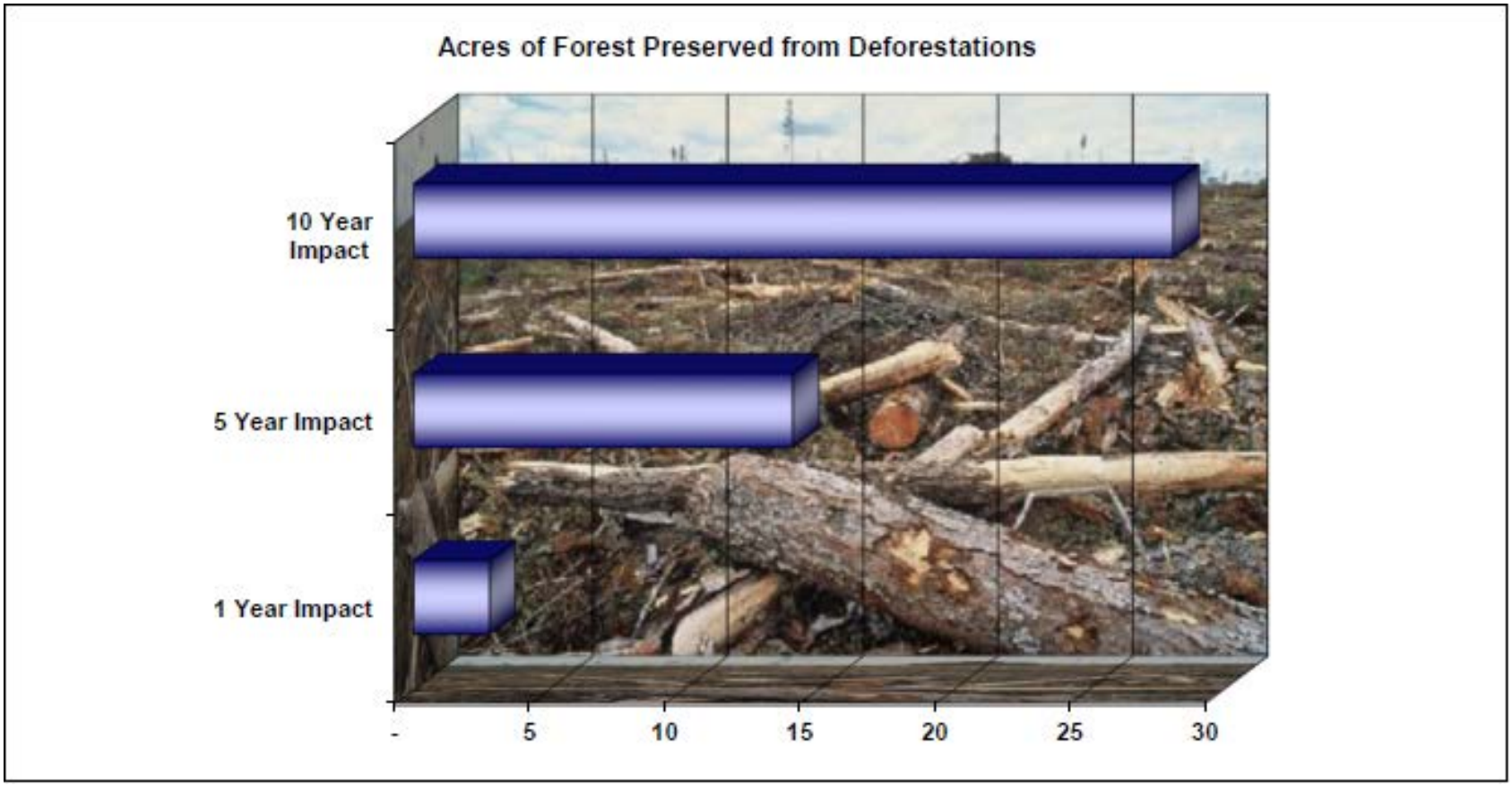
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Suggested Timeline

- Preliminary Audit to Assess Opportunity – ***July ’21***
- RFP to Select Energy Service Company (ESCO) – ***October / November ‘21***
- Complete Comprehensive Energy Audit (CEA) and Submit a Contract – ***February ‘22***
- Execute Contract and Close on Financing – ***April ’22***
- Implement the Work – ***March ’23***
- Commence the Guarantee and required Measurement & Verification (M&V) – ***April ‘23***

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Questions / Discussion

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