

**Honeywell**

Americas M&V Services

**Town of Mamaroneck, NY**  
**Energy Cost Avoidance Report**  
**Year 1 Performance Period**  
**September 2015 – August 2016**



*Helping customers manage energy resources to improve financial performance*

# Program Summary

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## Measurement & Verification Services

Honeywell is pleased to provide this comprehensive report of your energy consumption. This report was processed using an industry-standard program based on proven and accepted engineering formulas for energy conservation and analysis.

<b>Service Contract Number:</b>	40143657
<b>Baseline Period:</b>	January 2013 - December 2013
<b>Guarantee Period:</b>	September 2015 - August 2035
<b>Guarantee Term:</b>	20 Years
<b>Presented To:</b>	Town of Mamaroneck, NY
<b>Report Preparation by:</b>	Americas M&V Services Team Gary McAvoy (M&V Specialist) Joel Bruedigam (Energy Analyst)
<b>Report Creation Date:</b>	December 14, 2016

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**1.0 Overview**

### 1.1 Executive Summary

This report documents the measurement and verification activities for the Town of Mamaroneck, NY energy retrofit project for Year 1 of the performance phase (September 2015 – August 2016). It serves to reconcile the guaranteed savings against the measured savings, using methodology outlined in the contract.

The total guarantee term for this project is 20 years, with the guaranteed savings schedule shown below:

Year	Energy	Operational	Total
1	\$189,377	\$101,030	\$290,407
2	\$196,005	\$104,566	\$300,571
3	\$202,865	\$108,225	\$311,090
4	\$209,965	\$112,013	\$321,978
5	\$217,314	\$115,934	\$333,248
6	\$224,920	\$119,991	\$344,911
7	\$232,792	\$124,191	\$356,983
8	\$240,940	\$128,538	\$369,478
9	\$249,373	\$133,037	\$382,410
10	\$258,101	\$137,693	\$395,794
11	\$267,135	\$142,512	\$409,647
12	\$276,484	\$147,500	\$423,984
13	\$286,161	\$152,663	\$438,824
14	\$296,177	\$158,006	\$454,183
15	\$306,543	\$163,536	\$470,079
16	\$317,272	\$169,260	\$486,532
17	\$328,377	\$175,184	\$503,561
18	\$339,870	\$181,315	\$521,185
19	\$351,765	\$187,661	\$539,426
20	\$364,077	\$194,230	\$558,307
Total	\$5,355,513	\$2,857,085	\$8,212,598

### Year 1 Results

<b>Energy Cost Avoidance:</b>	\$157,196
<b>Baseline Adjustments:</b>	\$0
<b>Operational Savings:</b>	\$101,030
<b>Total Cost Avoidance:</b>	\$258,226
<hr/>	
<b>Annual Guarantee:</b>	\$290,407
<b>Excess/Shortfall:</b>	(\$32,181)
<b>Percentage of Guarantee:</b>	89%

## Year 1 Results by M&V Option

	Actual	Target	Excess/ (Shortfall)
[1] Option A Cost Avoidance - Electrical:	\$127,306	\$126,406	\$900
Option C Cost Avoidance – Electrical:	\$5,281	\$22,977	(\$17,696)
[2] Option C Cost Avoidance – Natural Gas/Fuel Oil:	\$24,609	\$39,994	(\$15,385)
ECM Adjustments:	\$0	\$0	\$0
Operational Savings:	\$101,030	\$101,030	\$0
<b>Total Cost Avoidance:</b>	<b>\$258,226</b>	<b>\$290,407</b>	<b>(\$32,181)</b>

[1] Street Lighting realized savings assumed to be equal to the target savings in this analysis. See Section 3.1.1.2 for further description.  
 [2] Fuel Oil reflected here due to pre-retrofit Fuel Oil to Natural Gas conversions.

## Cumulative Results

Time Period		Total Cost Avoidance	Annual Guarantee	Excess/ (Shortfall)
Install		\$0	\$0	\$0
Year 1	09/15 - 08/16	\$258,226	\$290,407	(\$32,181)
<b>TOTAL</b>		<b>\$258,226</b>	<b>\$290,407</b>	<b>(\$32,181)</b>

## 1.2 Prime Concerns

### Ice Rink – Remote and on-site connectivity to BMS Front End

During the Year 1 performance period, remote and on-site connection to the energy management system has been sporadic and extremely limited to properly assess equipment scheduling, temperature status, and occupied / unoccupied setpoints. Remote connection is done through the Cisco VPN Client software. Ice Rink Manager, Rob Lunde, has also been unsuccessful in accessing the BMS (Building Management System) directly from his front end. System would either lock up or connection speed so slow that we would be unable to navigate to other equipment or schedules. To date, a clean connection cannot be established and a request to the IT Dept. (Roz) has been issued.

### Ice Rink – Gas Infrared Heating

One manual controlled thermostat provides heat to a large bank of infrared heaters for the bleachers in the Ice arena. Heat is being provided in sections of the bleachers where there are no spectators. This is wasting heat energy. Rob Lunde ensures that thermostat setting is maintained at 55 Deg F with a lockbox to prevent overrides.

### Fire Dept. HQ's – Remote and on-site connectivity to BMS Front End

During the Year 1 performance period, remote connection to the energy management system does not work; limiting M&V to properly assess equipment scheduling, temperature status, and occupied / unoccupied setpoints. Currently, thermostats are locked out and cannot be changed manually. Remote connection is done through the Cisco VPN client software. The ability to change setpoints and start / stop equipment cannot be done remotely as required in the Honeywell / Town of Mamaroneck agreement.

#### **Issues / Actions**

Initial date	Discussed items	Issues	Actions	By	Status
4/14/16	Ice Rink shortfall	Connectivity issues at ice rink front-end.	Resolve connection issues with IT Dept.	Town IT Dept.	Pending
4/14/16	Ice Rink shortfall mitigation	Demand limiting on chiller.	Review rate class of existing meters at ice rink. Time-of-Day rate.	SDE / MVS	Completed
4/14/16	Ice Rink shortfall mitigation – Infrared Heaters	One (1) T-stat controls large banks of heaters; heating areas where there are no spectators.	Install Lock-box to ensure temp. setpoint maintained at 55 Deg F.	Ice Rink Mngr	Completed
4/14/16	Fire Dept. T-stats	Connectivity issues at Fire Dept.	Resolve connection issues with IT Dept.	Town IT Dept.	Pending

### **1.3 M&V Activities**

As part of the ongoing M&V activities for Performance Year 1, site visits were conducted on June 9<sup>th</sup> 2015, Dec 16<sup>th</sup>, 2015, and a meeting with Town Administrator and SDE's on April 14<sup>th</sup>, 2016. The purpose of these site visits were to verify the status of the energy conservation measures (ECMs) installed for the Town of Mamaroneck and their ability to perform.

Remote and on-site connectivity to both the Ice Rink and the Fire Dept. HQ's to date have been limited. The IT Department has not been able to establish consistently clean remote connections.

The site visit results can be found in *Appendix 5.1: M&V Site Visit*.

**2.0 Summary**



**2.1 Energy Conservation Measures Overview**

*Energy Conservation Measures by Location*

	Town Center		Hommoeks Ice Rink		Weaver Street Fire HQ		Chatsworth Avenue Parking Lot	Street Lighting
	Electric	Gas	Electric	Gas	Electric	Gas	Electric	Electric
ECM #1 Lighting Retrofit	Option A	Option C	Option C	Option C	Option A	Option C	Option A	
ECM #2 Street Lighting								Option A
ECM #3 Boiler Plant Upgrades		Option C						
ECM #4 Ice Rink Upgrades			Option C	Option C				
ECM #5 Building Management System Upgrades		Option C	Option C	Option C		Option C		
ECM #6 Building Envelope Improvements		Option C		Option C		Option C		
ECM #7 Pipe Insulation		Option C		Option C				
ECM #8 Window Film	Option A	Option C			Option A	Option C		
ECM #9 Replace Condensing Units	Option A							

*Selected Energy Rates*

The selected energy rates shown below in Table 1 were used to calculate the cost avoidance of the ECMs installed in accordance with the contract.

Table 1

Location	Electric		Natural Gas	Fuel Oil
	/kWh	\$/kW	\$/Therm	\$/Gallon
Town Center	\$0.059	\$23.34	\$4.14	\$3.46
Hommoeks Ice Rink	\$0.057	\$23.66	\$1.14	
Weaver Street Fire HQ	\$0.058	\$23.51	\$1.25	
Chatsworth Avenue Parking Lot	\$0.052	\$24.54		
Street Lighting	\$0.235			



## 2.2 M&V Methodology

Energy conservation measures (ECM) include the installation of equipment or systems for the purpose of reducing energy use and/or costs. The cost of ECM implementation is recovered through the savings created by the ECM. The Federal Energy Management Program (F.E.M.P) of the U.S. Department of Energy and its Measurement and Verification Guidelines for Federal Energy Projects classify measurement and verification approaches as Options A, B, C, and D. The F.E.M.P. Guideline is based on the International Performance Measurement and Verification Protocol (I.P.M.V.P.).

This project uses Option A and C methodologies, outlined below:

**Option A - Retrofit Isolation (Key Parameter Measurement):** Determine savings by field measurement of key performance parameter(s) critical to the ECM performance. Measurement frequency ranges from short-term to continuous. Parameters not selected for field measurement are estimated using historic data, manufacturer specifications, or engineering judgment, supported by documentation. Savings are calculated using engineering calculation of baseline and reporting period energy from the key operating parameter(s) measurements and estimated values.

**Option C - Whole Facility:** Determine savings 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 to identify the effects of the energy project. Energy use before and after the retrofit project is compared to determine savings.

### *List of Covered Facilities and ECMs by M&V Methodology*

Location	ECMs	M&V Methodology
Town Center	<ul style="list-style-type: none"> <li>• ECM #1 Lighting Retrofit</li> <li>• ECM #8 Window Film</li> <li>• ECM #9 Replace Condensing Units</li> </ul>	Electric: Option A
Town Center	<ul style="list-style-type: none"> <li>• ECM #1 Lighting Retrofit</li> <li>• ECM #3 Boiler Plant Upgrades</li> <li>• ECM #5 Building Management System Upgrades</li> <li>• ECM #6 Building Envelopment Improvements</li> <li>• ECM #7 Pipe Insulation</li> <li>• ECM #8 Window Film</li> </ul>	Fuel: Option C
Hommocks Ice Rink	<ul style="list-style-type: none"> <li>• ECM #1 Lighting Retrofit</li> <li>• ECM #4 Ice Rink Upgrades</li> <li>• ECM #5 Building Management System Upgrades</li> </ul>	Electric: Option C

## Summary –M&V Methodology

Location	ECMs	M&V Methodology
Hommocks Ice Rink	<ul style="list-style-type: none"> <li>• ECM #4 Ice Rink Upgrades</li> <li>• ECM #5 Building Management System Upgrades</li> <li>• ECM #6 Building Envelopment Improvements</li> <li>• ECM #7 Pipe Insulation</li> <li>• ECM #8 Window Film</li> </ul>	Fuel: Option C
Weaver Street Fire HQ	<ul style="list-style-type: none"> <li>• ECM #1 Lighting Retrofit</li> <li>• ECM #8 Window Film</li> </ul>	Electric: Option A
Weaver Street Fire HQ	<ul style="list-style-type: none"> <li>• ECM #1 Lighting Retrofit</li> <li>• ECM #5 Building Management System Upgrades</li> <li>• ECM #6 Building Envelopment Improvements</li> <li>• ECM #8 Window Film</li> </ul>	Fuel: Option C
Chatsworth Avenue Parking Lot	<ul style="list-style-type: none"> <li>• ECM #1 Lighting Retrofit</li> </ul>	Electric: Option A
Street Lighting	<ul style="list-style-type: none"> <li>• ECM #2 Street Lighting</li> </ul>	Electric: Option A

# Summary – Reconciliation of Guaranteed Savings

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## 2.3 Reconciliation of Guaranteed Savings

Guaranteed Savings will be determined in accordance with the methodology(s), operating parameters, formulas, and constants described below and/or defined in Attachment G of the Contract.

### Option A

For reconciliation of Guarantee Savings employing the Option A method consistent with I.P.M.V.P and/or F.E.M.P., for each ECM, Honeywell will employ an M&V plan which may be comprised of any or all of the following elements:

- Pre-retrofit model of energy consumption or demand
- Post-retrofit measured energy consumption
- Post-retrofit measured demand and time-of-use
- Post-retrofit energy and demand charges
- Stipulated Values

The value of the energy savings will be derived from the measured data and engineering formulae included in the Contract and the applicable energy charges as defined in the Contract.

### Option C

For reconciliation of Guarantee Savings employing the method of utility bill analysis consistent with F.E.M.P. Option C (Electric savings at Hommocks Ice Rink and Fuel savings at Town Center, Hommocks Ice Rink and Weaver Street Fire HQ):

Energy usage for the Facilities for such Guarantee Year will be summarized and compared with the adjusted Baseline Period usage for the Facilities through the use of energy accounting software (Metrix).

Option C meters tracked in Metrix are tuned against weather (Heating and Cooling Degree Days in this project) to calculate a baseline regression model equation showing the effect of Heating and Cooling Degree Days and number of Billing Days on the expected usage (electric, natural gas or fuel oil). The number of Heating Degree Days (HDD) and Cooling Degree Days (CDD) and billing days for each individual billing period is used to calculate the expected usage based on those HDD, CDD and billing period to create the adjusted baseline.

The difference between the Adjusted Baseline Period energy usage and the Guarantee Year energy usage will be the Energy Avoidance. The difference between the Adjusted Baseline Period energy usage multiplied by the applicable energy rate as defined in the Contract, and the Guarantee Year energy usage multiplied by the applicable energy rate, as defined in the Contract, will be used to calculate the Energy Cost Avoidance. Energy cost avoidance may also include, but are not limited to, savings from demand charges, power factor correction, taxes, ratchet charges, rate changes and other utility tariff changes that are reduced as a result of the Honeywell involvement. An energy Baseline was specified in Attachment G of the Contract for the purpose of utility bill analysis. Adjustments will be derived from baseline variables.

## Summary – Reconciliation of Guaranteed Savings

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### **Baseline Variables**

There are variables affecting consumption which warrant adjustment to the baseline, including billing days, weather, cost, runtime and other miscellaneous adjustments. The contract allows the adjustment of the following variables:

**Billing Days Adjustment** - Typically utility companies do not bill for the same number of days each month. An adjustment is made when the number of days in a pre-installation billing period does not equal the number of days in the corresponding post-installation billing period.

**Weather Adjustment** - Energy consumption is often weather-related. A regression analysis is performed to identify the relationship between historic meter performance and weather, denoted by heating or cooling degree-day variables. The analysis results in a regression model utilized in calculating the baseline, adjusted for the weather difference between the pre- and post-installation period.

**Cost Adjustment** - Utility company rate schedules are generally used to calculate the cost of energy consumption. These rates may change frequently. The applicable utility rate schedule as determined by the performance contract is used for cost calculation in the current review period. This schedule achieves an accurate comparison of the pre- and post-installation period cost of energy.

**Runtime Adjustment** - A building's hours of operation (runtime) typically vary and will affect usage. Set hours of operation are agreed upon on a building-by-building basis and documented in the contract. Review period runtime is tracked on a monthly basis and compared to the agreed upon operating hours. Adjustments can be made in the event actual hours of operation exceed agreed upon hours.

**Miscellaneous Adjustments** - A change in consumption will occur if the square footage or occupancy levels of the facility change or if the facility adds, deletes, or changes equipment that affects building load. Savings lost or gained by the change can be calculated by standard engineering formulas.

# Summary - Energy Cost Avoidance by Meter

## 2.4 Energy Cost Avoidance by Meter with NO BL Adjustments

### Year 1

		Actual	Target	Excess/ (Shortfall)	Excess/ (Shortfall)		
<b>Hommocks Ice Rink</b>							
<b>Meter #</b>							
Opt. C - Electric	7441666	\$19,424					
Opt. C - Electric	7247659	\$4,559					
Opt. C - Electric	7700793	(\$18,701)					
	Option C Electric Meter	\$5,281	\$22,977	(\$17,696)	-77%		
Opt. C - Gas	3521146	Natural Gas	Option C Gas Meter	\$7,584	\$18,442	(\$10,858)	-59%
	BuildingTotal	\$12,866	\$41,419	(\$28,553)	-69%		
<b>Mamaroneck Town Center</b>							
	<b>ECM# ECM</b>						
Opt. A - Electric	74883391	1	Lighting Upgrades	\$12,491	\$12,003	\$488	4%
Opt. A - Electric	76642401	8	Window Film	\$213	\$213	\$0	0%
Opt. A - Electric	76642401	9	Replace Condensing Units	\$852	\$852	\$0	0%
Opt. C - Gas / Oil	4663/A.1620.4005		Natural Gas / Fuel Oil	\$17,447	\$20,893	(\$3,446)	-16%
	Building Total	\$31,003	\$33,961	(\$2,958)	-9%		
	Option A	\$13,556	\$13,068	\$488	4%		
	Option C	\$17,447	\$20,893	(\$3,446)	-16%		
<b>Weaver Street Fire HQ</b>							
	<b>ECM# ECM</b>						
Opt. A - Electric	7826526	1	Lighting Upgrades	\$3,232	\$2,922	\$310	11%
Opt. A - Electric	7826526	8	Window Film	\$69	\$69	\$0	0%
Opt. C - Gas	3692272		Natural Gas	(\$423)	\$659	(\$1,082)	-164%
	Building Total	\$2,878	\$3,650	(\$772)	-21%		
	Option A	\$3,301	\$2,991	\$310	10%		
	Option C	(\$423)	\$659	(\$1,082)	-164%		
<b>Chatsworth Ave Parking Lot</b>							
	<b>ECM# ECM</b>						
Opt. A - Electric	5909141	1	Lighting Upgrades	\$4,595	\$4,553	\$42	1%
	Total	\$4,595	\$4,553	\$42	1%		
	Option A	\$4,595	\$4,553	\$42	1%		
<b>Street Lighting</b>							
	<b>ECM# ECM</b>						
Opt. A - Electric	4515450	2	Lighting Upgrades	\$105,854	\$105,794	\$60	0%
	Total	\$105,854	\$105,794	\$60	0%		
	Option A	\$105,854	\$105,794	\$60	0%		
	<b>GRAND TOTAL</b>	\$157,196	\$189,377	(\$32,181)	-17%		
	Option A	\$127,306	\$126,406	\$900	1%		
	Option C	\$29,890	\$62,971	(\$33,081)	-53%		



**3.0 Cost Avoidance Calculations**

# Summary – Cost Avoidance Calculations

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## **3.1 Cost Avoidance Calculations**

### **3.1.1 *Option A Avoidance***

Option A was selected to calculate electrical energy avoidance for all ECMs, except for electric at Hommocks Ice Rink and Fuel avoidance at Town Center, Hommocks Ice Rink and Weaver Street Fire HQ. The actual performance is based on verification of an accurate baseline, equipment installation/type and operational guidelines, engineering calculations, and/or customer sign-off. Honeywell provides this one-time determination of the quantity of energy avoidance for the first year of the guarantee only. After the ECMs potential-to-save has been verified, Honeywell stipulates the quantity of cost avoidance or determines the cost avoidance from engineering calculations and measurements of specific variables.

The cost avoidance calculations are summarized by ECM, with the actual calculations provided in the Appendix section of the Year 1 Cost Avoidance Report.

The calculation of energy cost avoidance is based upon the utility rate paid during the Guarantee Year, the Baseline Period utility rate, or whichever provides higher cost avoidance.

#### **3.1.1.1 *ECM 1 – Lighting Retrofit***

Honeywell has implemented the lighting retrofit project in accordance with an in-depth lighting audit, as detailed in the line by line scope. The following facilities were included:

- Town Center
- Hommocks Ice Rink
- Chatsworth Avenue Parking Lot
- Weaver Street Fire HQ

Measurement and Verification of this ECM uses Option A methodology for Electric (with stipulated burn hours) to determine energy and cost avoidance. A post-retrofit as-built audit was conducted and used to calculate the verified savings for the Option A savings for this ECM. Utility bill data is used to calculate the Option C savings at Hommocks Ice Rink during the performance phase. As-builts, measurements and calculations for this ECM can be found in *Appendix 5.2: Lighting As-Builts in the Year 1 Energy Cost Avoidance Report*.

## Summary – Cost Avoidance Calculations

### *Lighting Retrofit Year 1 Verified Savings*

Building	Electric energy savings (kWh/yr)	Electric demand savings (kW/yr)	Total Electric savings, Year 1 (\$/yr)	Target	Excess/ (Shortfall)
Town Center	74,328	28	\$12,491	\$12,003	\$488
Weaver Street Fire HQ	21,735	6	\$3,232	\$2,922	\$310
Chatsworth Avenue Parking Lot	42,945	6	\$4,595	\$4,553	\$42
<b>Total savings</b>	<b>139,008</b>	<b>40</b>	<b>\$20,318</b>	<b>\$19,478</b>	<b>\$840</b>

*\* The electric savings for Hommocks Ice Rink are verified using Option C methodology.*

### **3.1.1.2 ECM 2 – Street Lighting**

Honeywell has implemented the lighting retrofit project in accordance with an in-depth lighting audit.

Please note: Changes were made by Town Highway Dept., including changes to illumination percentages and commissioning of the control system by the Town. The numbers shown in the table below are reflective of what the savings would have been had no changes taken place after project implementation.

	Electric energy savings (kWh/yr)	Total Electric savings, Year 1 (\$/yr)	Target	Excess/ (Shortfall)
Street Lighting (Town Wide)	333,946	\$78,480	\$78,450	\$30
Street Lighting Control Savings (Sentinel)	116,483	\$27,374	\$27,344	\$30
<b>Total savings</b>	<b>450,429</b>	<b>\$105,854</b>	<b>\$105,794</b>	<b>\$60</b>

Measurement and Verification of this ECM uses Option A methodology for Electric to determine energy and cost avoidance.



## Summary – Cost Avoidance Calculations

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### 3.1.1.3 ECM 9 – Replace Condensing Units (Town Center)

Honeywell replaced 23 Lennox units.

	Electric energy savings (kWh/yr)	Total Electric savings, Year 1 (\$/yr)	Target	Excess/ (Shortfall)
Town Center	14,270	\$852	\$852	\$0
<b>Total savings</b>	<b>14,270</b>	<b>\$852</b>	<b>\$852</b>	<b>\$0</b>

Measurement and Verification of this ECM uses Option A methodology for Electric. As-builts, measurements and calculations for this ECM can be found in *Appendix 5.4: Replace Condensing Units As-Builts, Measurements & Calculations in the Year 1 Energy Cost Avoidance Report*.

## Summary – Cost Avoidance Calculations

### 3.1.2 Option C Avoidance

Option C was selected to calculate fuel energy avoidance at Town Center, Hommocks Ice Rink and Weaver Street Fire HQ. Option C was also selected to calculate electric use avoidance for Hommocks Ice Rink. The actual utility bill performance is calculated each year of the guarantee.

The calculation of energy cost avoidance during the performance phase is based upon the utility rate paid during the Guarantee Year or the Baseline Period utility rate, whichever provides higher cost avoidance as per the contract agreement.

The meter details generated by Metrix can be found in *Appendix 5.5: Option C Meter Details*

Location	ECMs
Town Center	<ul style="list-style-type: none"> <li>• ECM #1 Lighting Retrofit</li> <li>• ECM #3 Boiler Plant Upgrades</li> <li>• ECM #5 Building Management System Upgrades</li> <li>• ECM #6 Building Envelopment Improvements</li> <li>• ECM #7 Pipe Insulation</li> <li>• ECM #8 Window Film</li> </ul>
Hommocks Ice Rink	<ul style="list-style-type: none"> <li>• ECM #1 Lighting Retrofit</li> <li>• ECM #4 Ice Rink Upgrades</li> <li>• ECM #5 Building Management System Upgrades</li> <li>• ECM #6 Building Envelopment Improvements</li> <li>• ECM #7 Pipe Insulation</li> <li>• ECM #8 Window Film</li> </ul>
Weaver Street Fire HQ	<ul style="list-style-type: none"> <li>• ECM #1 Lighting Retrofit</li> <li>• ECM #5 Building Management System Upgrades</li> <li>• ECM #6 Building Envelopment Improvements</li> <li>• ECM #8 Window Film</li> </ul>

	Electric						Natural Gas					
	Electric energy savings (kWh/yr)	Target	Excess/ (Shortfall)	Total Electric savings, Year 1 (\$/yr)	Target	Excess/ (Shortfall)	Gas energy savings (therm/yr)	Target	Excess/ (Shortfall)	Total Gas savings, Year 1 (\$/yr)	Target	Excess/ (Shortfall)
Hommocks Ice Rink	42,765	251,307	(208,542)	\$5,281	\$22,977	(\$17,696)	8,888	16,120	(7,232)	\$7,584	\$18,442	(\$10,858)
Mamaroneck Town Center							1,898	7,358	(5,460)	\$17,447	\$20,893	(\$3,446)
Weaver Street Fire Headquarters							(441)	526	(967)	(\$423)	\$659	(\$1,082)
<b>Total savings</b>	<b>42,765</b>			<b>\$5,281</b>	<b>\$22,977</b>	<b>(\$17,696)</b>	<b>10,345</b>	<b>24,004</b>	<b>(13,659)</b>	<b>\$24,609</b>	<b>\$39,994</b>	<b>(\$15,385)</b>

## Summary – Cost Avoidance Calculations

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### 3.1.3 Operational Cost Avoidance

The Operational Cost Avoidance is agreed to and stipulated per Schedule G of the Contract. This annual operational cost avoidance is shown in the following table. Operational cost avoidance escalates by 3.5% annually.

ECM	O&M Cost Avoidance
Lighting Retrofit	\$4,420
Street Lighting Upgrades	\$35,000
Boiler Plant Upgrades	\$5,000
Ice Rink Upgrades	\$40,000
Replace Condensing Units	\$16,610
<b>Total</b>	<b>\$101,030</b>

**Lighting retrofit** – Operational costs were calculated based on Material Savings due to reduced lighting equipment plus extended lighting material life due to mass retrofit.

**Street Lighting Upgrades** – Operational costs were calculated based on Material Savings due to reduced lighting equipment plus extended lighting material life due to mass retrofit.

**Boiler Plant Upgrades** – Operational costs were calculated based on elimination of existing repair cost of existing boilers.

**Ice Rink Upgrades** – Operational costs were calculated based on elimination of repair cost of existing ice rink chiller and associated equipment.

**Replace Condensing Units** – Operational costs were calculated based on elimination of existing repair cost of existing condensing units.

**4.0 Adjustments**

**4.1.1 Adjustments**

There are no adjustments required for this performance period.

**5.0 Appendix**

**5.1 M&V Site Visits**

**HONEYWELL M&V SERVICES TEAM  
CUSTOMER SITE VISIT/MEETING REPORT**

<b>Site Visit/Meeting Date:</b>	June 9 <sup>th</sup> 2015	<b>In Attendance:</b> (Full name and title)	Mike Orchanian - Town Center Maintenance Anthony Siligato – Town Comptroller Joe Russo - Deputy Fire Chief Joe Croce – Town IT Dept David Goessl – Town Civil Engineer Richard Ink – Controls sub (Phone only) Gary McAvoy – MVS
<b>Customer Name:</b>	Town of Mamaroneck		
<b>Region:</b>	NorthEast		
<b>Job Number:</b>	USB-006269	<b>Report copied to:</b>	Vivian Lee-Grasby - Honeywell Joel Breudigam - Honeywell Paddy Phelan – Honeywell Bob Corcoran - Honeywell Terry Guiry - Honeywell
<b>Purpose of Site Visit/Meeting:</b>	Review of schedules, setpoints, and trends with customer. Obtain utility bill data from Comptroller.		
<b>Author:</b>	Gary McAvoy, MVS		

**1. Issues and actions (New)**

Initial date	Building	Discussed items	Issues	Actions	By	Status
06/09/15	Town Hall	Utility bills	2014/2015 utility bills requested for Town bldgs	Provide utility bills to M&V team	Town Comptroller	Complete
06/09/15	Town Hall	Outdoor air sensor	Outdoor air sensor located near boiler room exposed to sunlight causing approximate 8 Deg F temperature difference	Realign sensor and provide proper shroud	Install team	Complete
06/09/15	Town Hall	Programmable T-stats	Setpoints can be manually overridden on individual T-stats	Change heating/cooling setpoint limits	MVS / Install team	Complete
06/09/15	Town Hall	Trends	Trends only records history for 10-14 days before overwritten	Change trend history to 6 months	Install team	Complete



## Appendix – M&V Site Visit

06/09/15	Town Hall	HW pump Alarm notifications	Unnecessary alarm notifications via email every hour when HW pumps shut down manually	Lower HW pump lockout setpoint during summer	Install team	Complete
06/09/15	Town Hall	AHU to Police Locker room	Significant air leakage from AHU located in Ambulance Dispatch closet	Check to see if air leakage can be limited	Mechanical sub / Install	Pending
06/09/15	Town Hall	Boilers	Pressure relief valve of new boiler at 160psi while backup boilers at 50psi.	Switch to 50 psi pressure relief valve.	Mechanical sub / Install	Complete
06/09/15	Town Hall	BMS	Future holiday schedules need to be entered for 4 <sup>th</sup> of July, Labor Day, etc.	Provide training on holiday scheduling	Install	Complete
06/09/15	Town Hall	Remote connection	VPN Client software to be installed	IT Dept to install software	Mamaroneck IT Dept	Complete
06/09/15	Fire Dept.	Fire Dept HQ's	Remote connection not communicating	Troubleshoot connection	Mamaroneck IT Dept / Deputy Chief	Pending

### 2. Details

The purpose of this site visit was to validate current schedules and setpoints against contractual parameters for Mamaroneck Town Center and to introduce myself to Town of Mamaroneck representatives.

- Met Mike Orchanian (Head of Maintenance – Town Center) to discuss contractual obligations
- Mr. Orchanian introduced me to Anthony Siligato to obtain utility bill history for Town bldgs
- No setpoint lockout on programmable thermostats. Setpoints can be changed manually with no occupied or unoccupied setpoint ranges. Since programmable t-stats are tied to the computer “front-end”, Mike and I troubleshooted several t-stats and were able to change the occupied and unoccupied setpoint limit ranges directly from the computer. Therefore, we were able to limit occupied setpoint range to 74 Deg F cooling and 70 Deg F heating. UnOccupied setpoint limits were set to 85 Deg F cooling and 60 Deg F heating.
- During review Mike mentioned that the outdoor air sensor was off by 8 – 10 Deg F due to its south facing location. A “band-aid” fix was attempted by covering sensor with metal shield but change not significant. This has affected the boiler lockout program a few times this winter. For example - if OA sensor is reading 62 Deg F then the actual outdoor air temperature is closer to 54 Deg F, thus causing the boilers to shutoff. Boilers then need to be manually overridden to operate. OA sensor needs to be relocated to prevent sunlight from hitting sensor. Sensor was realigned and outdoor sensor is now reading properly. Mr. Orchanian to notify us if sensor deviates to real time outside air temps.



## Appendix – M&V Site Visit

- Mike also receiving unnecessary alarms when he manually shuts off HW pumps for the summer. HW pumps set-up with a lockout program so pumps should not be manually shut down. Lockout program will shut them down when temps above 60 Deg F.
- Review of trend data showed histories only being kept for 10 – 14 days before overwriting. I contacted Richard Ink from AME, Inc. who stated that JACE controller has limited trend sampling ability for multiple trend points. Upon further review, many unnecessary points were being trended. I requested Rich Ink to reset histories for trends that were provided to him on Trend Points requirements list. He will eliminate unnecessary trends and that will increase sampling to approximately 6 months.

Additional Issues and Actions specific to this site visit are shown in ‘Issues and Actions’ table: Schedules and setpoints for each area served are shown in Table 1 below.

CONTRACTUAL OPERATING SCHEDULES = 6:00AM – 7:00PM [Mon thru Friday] and 8:00AM – 12:00PM [Saturday]

Contractual occupied setpoints are:

74 Deg F heating and 74 Deg F cooling

Contractual Unoccupied setpoints are:

60 Deg F heating and 85 Deg F cooling

**Table 1:**

<b>Mamaroneck EMS Scheduling</b>											
Location	Floor	AREA Served	Current Occupied Time Schedule	Days	Contractual Occupied Schedule	Days	Occupied Heating Setpoints	UnOccupied Heating Setpoints	Occupied Cooling Setpoints	UnOccupied Cooling Setpoints	
Town Hall	1st Floor	Maint Entrance	6:00AM - 6:00PM	Mon, Wed, Thu	6:30AM - 7:00PM	Mon-Fri	68	60	76	85	
			6:00AM - 4:00PM	Tue, Fri							
			8:00AM - 12:00PM	Sat							
		Storage Room	6:00AM - 6:00PM	Mon, Wed, Thu							
			6:00AM - 4:00PM	Tue, Fri							
			8:00AM - 12:00PM	Sat							
		Recreation Dept	6:00AM - 6:00PM	Mon, Wed, Thu							
			6:00AM - 4:00PM	Tue, Fri							
			8:00AM - 12:00PM	Sat							
		Town Clerk	6:00AM - 6:00PM	Mon, Wed, Thu							
			6:00AM - 4:00PM	Tue, Fri							
			8:00AM - 12:00PM	Sat							
		Conference Room D	6:00AM - 6:00PM	Mon, Wed, Thu							
			6:00AM - 4:00PM	Tue, Fri							
			8:00AM - 12:00PM	Sat							
		Director's Office	6:00AM - 6:00PM	Mon, Wed, Thu							
			6:00AM - 4:00PM	Tue, Fri							
			8:00AM - 12:00PM	Sat							
		Lunch Room	6:00AM - 6:00PM	Mon, Wed, Thu							
			6:00AM - 4:00PM	Tue, Fri							
			8:00AM - 12:00PM	Sat							
		Conference Room C	6:00AM - 6:00PM	Mon, Wed, Thu							
			6:00AM - 4:00PM	Tue, Fri							
			8:00AM - 12:00PM	Sat							
Community Service	6:00AM - 6:00PM	Mon, Wed, Thu									
	6:00AM - 4:00PM	Tue, Fri									
	8:00AM - 12:00PM	Sat									
Police Locker Rm	24 hrs/day	Mon - Sun	85	60	69	85					
Detective Room	24 hrs/day	Mon - Sun	68	60	70	85					
Police Desk Hall	24 hrs/day	Mon - Sun	70	60	72	85					

# Appendix – M&V Site Visit

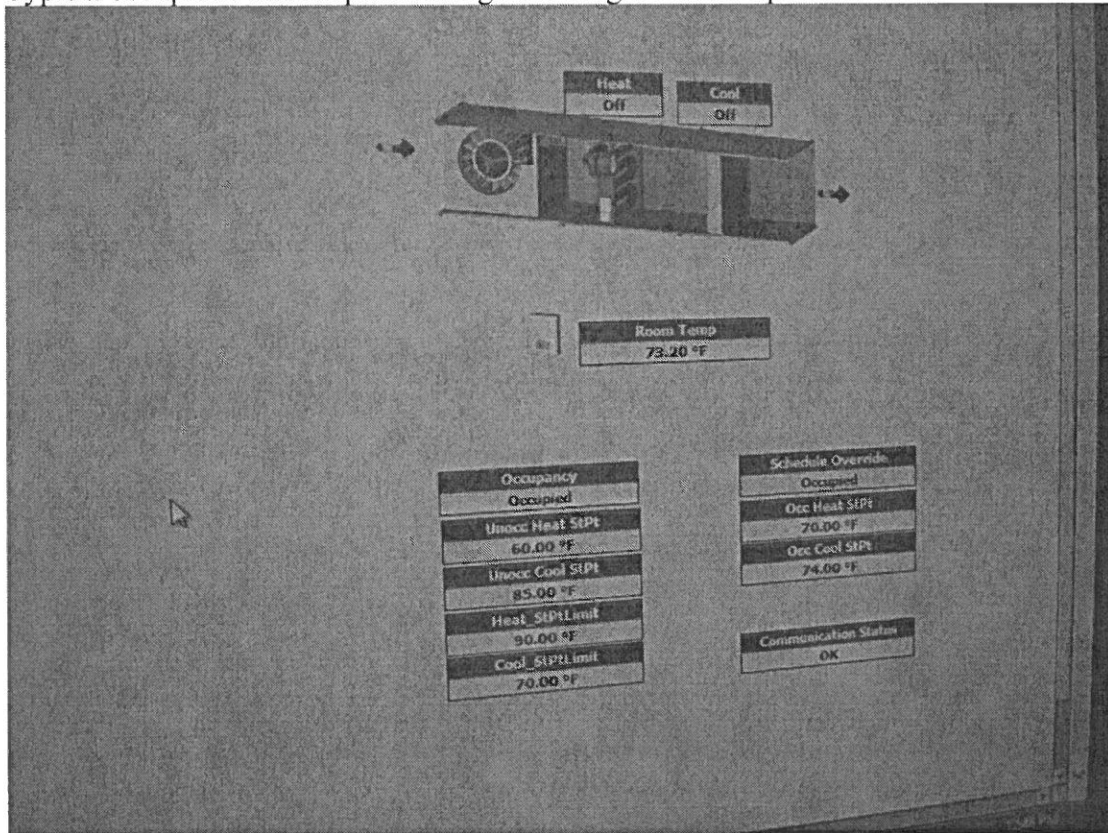
Mamaroneck EMS Scheduling											
Location	Floor	AREA Served	Current Occupied Time Schedule	Days	Contractual Occupied Schedule	Days	Occupied Heating Setpoints	UnOccupied Heating Setpoints	Occupied Cooling Setpoints	UnOccupied Cooling Setpoints	
Town Hall	2nd Floor	Court Clerk	6:00AM - 6:00PM	Mon, Wed, Thu			68	60	72	85	
			6:00AM - 4:00PM	Tue, Fri							
			8:00AM - 12:00PM	Sat							
		Judges Chambers	6:00AM - 6:00PM	Mon, Wed, Thu				72	60	74	85
			6:00AM - 4:00PM	Tue, Fri							
			8:00AM - 12:00PM	Sat							
		Court Room	6:00AM - 6:00PM	Mon, Wed, Thu				62.5	60	71	85
			6:00AM - 4:00PM	Tue, Fri							
			8:00AM - 12:00PM	Sat							
		Ambulance Dispatch	6:00AM - 6:00PM	Mon, Wed, Thu				70	60	72	85
			6:00AM - 4:00PM	Tue, Fri					60		85
			8:00AM - 12:00PM	Sat					60		85
		Building Dept	6:00AM - 6:00PM	Mon, Wed, Thu				66	60	72	85
			6:00AM - 4:00PM	Tue, Fri					60		85
			8:00AM - 12:00PM	Sat					60		85
		Assesor	6:00AM - 6:00PM	Mon, Wed, Thu				63	60	73	85
			6:00AM - 4:00PM	Tue, Fri					60		85
			8:00AM - 12:00PM	Sat					60		85
		Copier Area	6:00AM - 6:00PM	Mon, Wed, Thu				70	60	75	85
			6:00AM - 4:00PM	Tue, Fri					60		85
			8:00AM - 12:00PM	Sat					60		85
		Admin Office	6:00AM - 6:00PM	Mon, Wed, Thu				70	60	72	85
			6:00AM - 4:00PM	Tue, Fri					60		85
			8:00AM - 12:00PM	Sat					60		85
Tax Office	6:00AM - 6:00PM	Mon, Wed, Thu				63	60	73	85		
	6:00AM - 4:00PM	Tue, Fri					60		85		
	8:00AM - 12:00PM	Sat					60		85		
Executive Office	6:00AM - 6:00PM	Mon, Wed, Thu				70	60	73	85		
	6:00AM - 4:00PM	Tue, Fri					60		85		
	8:00AM - 12:00PM	Sat					60		85		

Mamaroneck EMS Scheduling											
Location	Floor	AREA Served	Current Occupied Time Schedule	Days	Contractual Occupied Schedule	Days	Occupied Heating Setpoints	UnOccupied Heating Setpoints	Occupied Cooling Setpoints	UnOccupied Cooling Setpoints	
Town Hall	3rd Floor	SEC_A	6:00AM - 6:00PM	Mon, Wed, Thu			61.5	60	73	85	
			6:00AM - 4:00PM	Tue, Fri				60		85	
			8:00AM - 12:00PM	Sat				60		85	
		SEC_B	6:00AM - 6:00PM	Mon, Wed, Thu				65	60	73	85
			6:00AM - 4:00PM	Tue, Fri					60		85
			8:00AM - 12:00PM	Sat					60		85
		Historical Society	6:00AM - 6:00PM	Mon, Wed, Thu				68	60	73	85
			6:00AM - 4:00PM	Tue, Fri					60		85
			8:00AM - 12:00PM	Sat					60		85
		Room 301	6:00AM - 6:00PM	Mon, Wed, Thu				70	60	74	85
			6:00AM - 4:00PM	Tue, Fri					60		85
			8:00AM - 12:00PM	Sat					60		85
		LMC TV	6:00AM - 6:00PM	Mon, Wed, Thu				65	60	70	70
			6:00AM - 4:00PM	Tue, Fri					60		85
			8:00AM - 12:00PM	Sat					60		85
		3rd Fir Hall	6:00AM - 6:00PM	Mon, Wed, Thu				70	60	76	85
			6:00AM - 4:00PM	Tue, Fri					60		85
			8:00AM - 12:00PM	Sat					60		85
		Law Office	6:00AM - 6:00PM	Mon, Wed, Thu				70	60	74	85
			6:00AM - 4:00PM	Tue, Fri					60		85
			8:00AM - 12:00PM	Sat					60		85
		Room 304	6:00AM - 6:00PM	Mon, Wed, Thu				65	60	76	85
			6:00AM - 4:00PM	Tue, Fri					60		85
			8:00AM - 12:00PM	Sat					60		85
Room 302	6:00AM - 6:00PM	Mon, Wed, Thu				70	60	76	85		
	6:00AM - 4:00PM	Tue, Fri					60		85		
	8:00AM - 12:00PM	Sat					60		85		
3rd Flr Hall_2	6:00AM - 6:00PM	Mon, Wed, Thu				70	60	76	85		
	6:00AM - 4:00PM	Tue, Fri					60		85		
	8:00AM - 12:00PM	Sat					60		85		
Room 312	6:00AM - 6:00PM	Mon, Wed, Thu				68	60	75	85		
	6:00AM - 4:00PM	Tue, Fri					60		85		
	8:00AM - 12:00PM	Sat					60		85		

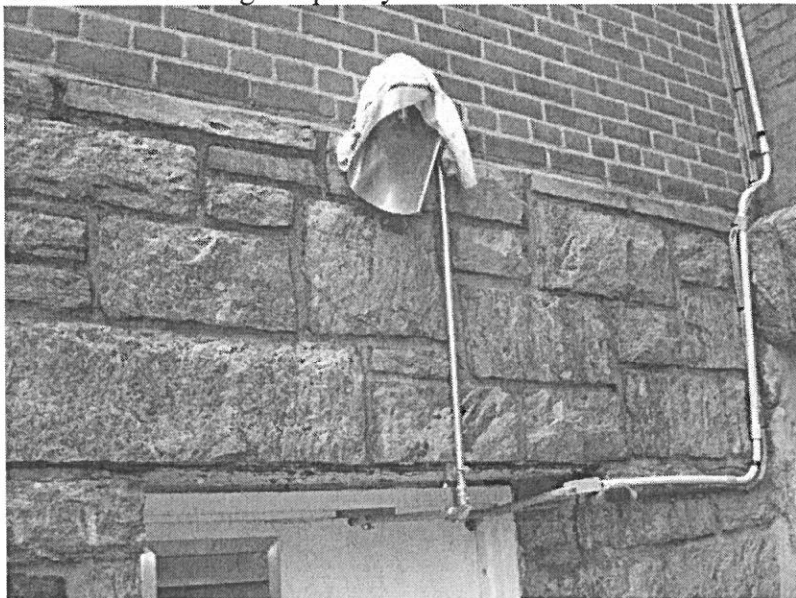


3. Supplemental Information

Typical occupied / unoccupied settings showing revised setpoint limits



OA sensor showing temporary shield. Has now been fixed.



## Appendix – M&V Site Visit

<b>Site Visit/Meeting Date:</b>	Dec 16 <sup>th</sup> 2015	<b>In Attendance:</b> (Full name and title)	Mike Orchanian - Town Center Maintenance Rob Lunde – Ice Rink Joe Croce – Town IT Dept David Goessl – Town Civil Engineer Gary McAvoy – MVS
<b>Customer Name:</b>	Town of Mamaroneck		
<b>Region:</b>	NorthEast	<b>Report copied to:</b>	Vivian Lee-Grasby - Honeywell Joel Breudigam - Honeywell
<b>Job Number:</b>	USB-006269		
<b>Purpose of Site Visit/Meeting:</b>	Review of schedules, setpoints, and trends with customer.		
<b>Author:</b>	Gary McAvoy, MVS		

#### 4. Issues and actions (New)

Initial date	Building	Discussed items	Issues	Actions	By	Status
12/16/15	Ice Rink	Connectivity	Slow or no access to read schedules / setpoints	IT Dept to troubleshoot connection issues	Joe Croce (IT Dept)	Pending
12/16/15	Ice Rink	Infrared Heaters	Only one T-stat connected to whole bank of infrared heaters causing wasted heat	Look into adding 2 more T-stats so that heating can be limited in areas where there are no people in the bleachers	Install team	Pending

<b>Site Visit/Meeting Date:</b>	April 15 <sup>th</sup> , 2016	<b>In Attendance:</b> (Full name and title)	Rob Lunde – Ice Rink Supervisor Anil Bansal – Honeywell SDE Venkat Iyer – Honeywell SDE Bob Corcoran – Honeywell Prjct Mngr Gary McAvoy – Honeywell MVS
<b>Customer Name:</b>	Town of Mamaroneck		
<b>Region:</b>	NorthEast		

## Appendix – M&V Site Visit

<b>Contract Number:</b>		<b>Report copied to:</b>	Marco Clerx – Honeywell MVFL
<b>Purpose of Site Visit/Meeting:</b>	Discuss street lighting results to date. Ice Rink walk-through.		Joel Bruedigam – Honeywell EA
<b>Report Author:</b>	Gary McAvoy, MVS		Bob Corcoran – Honeywell Project Manager Venkat Iyer – Honeywell SDE

### 5. Executive Summary

The purpose of this meeting was to discuss street lighting credits shown in the latest NYPA / ConEd billing statements. It has been agreed between the Town of Mamaroneck, Honeywell, New York Power Authority, and Con Edison that energy savings will be based on manufacturer’s data, contractual operating hours, and a 2 month trend report to validate proposed kWh consumption. Once the post-retrofit data has been cross-referenced against manufacturer’s specifications, the savings will be stipulated for the full term of the energy guarantee. Equipment numbers and locations will not vary and operating hours are not projected to change after the project is implemented.

We reviewed existing street light registry but the post-retrofit registry had not yet been updated. The lighting subcontractor will update the street light registry for the average watts per fixture and submit for approval to Con Edison. Once approved, Con Edison will adjust the NYPA (New York Power Authority) bill in accordance with the approved register. The cost avoidance will be stipulated for the term of the contract once lighting data has been validated. Currently waiting for subcontractor results.

After the meeting, Honeywell attendees met with Rob Lunde (Ice Rink Supervisor) at the Hommocks Rd Ice Rink. Connection to the BMS could not be established. Mr. Lunde has stated that computer constantly locks up or is extremely slow when trying to connect to IP Address. IT Dept is looking into improving connectivity.

We checked with (PM) Bob Corcoran to see how much it would cost to add 2 more thermostats to limit infrared heaters use. Cost not viable (approx. \$3k) but Rob Lunde was willing to add a shield w/ a lock to prevent anyone from adjusting temperatures. Current status of thermostat was 55 Deg F.

Site specific details regarding each energy conservation measure installed per building are shown in section ‘3. *Supplemental Information*’ of this report. Issues and Actions specific to this site visit are shown in the table below:



**6. Issues and Actions**

<b>Initial date</b>	<b>Discussed items</b>	<b>Issues</b>	<b>Actions</b>	<b>By</b>	<b>Status</b>
4/14/16	Ice Rink shortfall	Connectivity issues at ice rink front-end.	Resolve connection issues with IT Dept.	Town IT Dept.	Pending
4/14/16	Ice Rink shortfall mitigation	Demand limiting on chiller.	Review rate class of existing meters at ice rink. Time-of-Day rate.	SDE / MVS	Completed
4/14/16	Ice Rink shortfall mitigation – Infrared Heaters	One (1) T-stat controls large banks of heaters; heating areas where there are no spectators.	Install Lock-box to ensure temp. setpoint maintained at 55 Deg F.	Ice Rink Mngr	Completed
4/14/16	Fire Dept. T-stats	Connectivity issues at Fire Dept.	Resolve connection issues with IT Dept.	Town IT Dept.	Pending

# Appendix – Lighting As-Builts

## 5.2 Lighting As-Builts

Building Name	Floor	Pre-Retrofit Qty	Post-Retrofit Qty	Pre-Retrofit kW	Post-Retrofit kW	Pre-Retrofit Description	Post-Retrofit Description	Total Hours	Total Pre kW	Total Post kW	Total Saved kW	Total kWh Pre-Retrofit	Total kWh Post-Retrofit	Total kWh Saved	Total kWh Dollars Saved	Total kW Dollars Saved	Total Dollars Saved
Weaver Street Firehouse Headquarters	2	6	6	0.0850	0.0640	2x4, 3-Lamp TB DS	Elect LP Bal. & (3) 4' T8's, Att	2,406	0.48	0.36	0.12	1,166	878	288	\$ 17	\$ 34	\$ 50
Weaver Street Firehouse Headquarters	2	1	1	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line	693	0.02	0.01	0.02	17	4	13	\$ 1	\$ 5	\$ 6
Weaver Street Firehouse Headquarters	2	2	2	0.0850	0.0640	2x4, 3-Lamp TB	Elect LP Bal. & (3) 4' T8's	4,001	0.16	0.12	0.04	646	487	160	\$ 9	\$ 11	\$ 21
Weaver Street Firehouse Headquarters	2	4	4	0.0850	0.0640	2x4, 3-Lamp TB	Elect LP Bal. & (3) 4' T8's	4,001	0.32	0.24	0.08	1,292	973	319	\$ 19	\$ 23	\$ 41
Weaver Street Firehouse Headquarters	2	1	1	0.0600	0.0060	Inc 60w	LED Lamp, 6w A-Line	693	0.06	0.01	0.05	40	4	36	\$ 2	\$ 14	\$ 17
Weaver Street Firehouse Headquarters	2	1	1	0.0500	0.0276	1x2, 2-Lamp TB	Elect LP Bal. & (2) 2' T8's	642	0.05	0.03	0.02	30	17	14	\$ 1	\$ 6	\$ 7
Weaver Street Firehouse Headquarters	2	6	6	0.0850	0.0640	2x4, 3-Lamp TB	Elect LP Bal. & (3) 4' T8's	4,001	0.48	0.36	0.12	1,938	1,460	479	\$ 26	\$ 34	\$ 62
Weaver Street Firehouse Headquarters	2	4	4	0.0260	0.0260	PL (2) 13w	No Retrofit	4,001	0.10	0.10	-	395	395	-	\$ -	\$ -	\$ -
Weaver Street Firehouse Headquarters	2	1	1	0.0850	0.0640	2x4, 3-Lamp TB	Elect LP Bal. & (3) 4' T8's	2,800	0.08	0.06	0.02	226	170	56	\$ 3	\$ 6	\$ 9
Weaver Street Firehouse Headquarters	2	1	1	0.2400	0.0240	Inc (4) 60w	LED Lamp, (4) 6w A-Line	2,800	0.23	0.02	0.21	638	64	575	\$ 33	\$ 58	\$ 91
Weaver Street Firehouse Headquarters	2	1	1	0.0850	0.0640	2x4, 3-Lamp TB	Elect LP Bal. & (3) 4' T8's	2,800	0.08	0.06	0.02	226	170	56	\$ 3	\$ 6	\$ 9
Weaver Street Firehouse Headquarters	2	1	1	0.2400	0.0240	Inc (4) 60w	LED Lamp, (4) 6w A-Line	2,800	0.23	0.02	0.21	638	64	575	\$ 33	\$ 58	\$ 91
Weaver Street Firehouse Headquarters	2	6	6	0.0850	0.0640	2x4, 3-Lamp TB	Elect LP Bal. & (3) 4' T8's	4,001	0.48	0.36	0.12	1,938	1,460	479	\$ 26	\$ 34	\$ 62
Weaver Street Firehouse Headquarters	2	3	3	0.0260	0.0260	PL (2) 13w	No Retrofit	4,001	0.07	0.07	-	296	296	-	\$ -	\$ -	\$ -
Weaver Street Firehouse Headquarters	2	2	2	0.0260	0.0260	PL (2) 13w	No Retrofit	4,001	0.05	0.05	-	198	198	-	\$ -	\$ -	\$ -
Weaver Street Firehouse Headquarters	2	6	6	0.1560	0.1560	CFL (6) 26w	No Retrofit	802	0.89	0.89	-	713	713	-	\$ -	\$ -	\$ -
Weaver Street Firehouse Headquarters	2	8	8	0.0520	0.0120	CFL (2) 26w	LED Lamp, (2) 6w A-Line	802	0.40	0.09	0.30	317	73	244	\$ 14	\$ 86	\$ 100
Weaver Street Firehouse Headquarters	2	4	4	0.0260	0.0260	PL (2) 13w	No Retrofit	802	0.10	0.10	-	79	79	-	\$ -	\$ -	\$ -
Weaver Street Firehouse Headquarters	2	3	3	0.0180	0.0020	Exit Sign - (2) 7w PLS	Exit Sign - New Universal LED w/ BB	8,760	0.05	0.01	0.05	449	50	399	\$ 23	\$ 13	\$ 36
Weaver Street Firehouse Headquarters	2	1	1	0.0300	0.0020	Exit Sign - (2) 15w Inc's	Exit Sign - New Universal LED w/ BB	8,760	0.03	0.00	0.03	250	17	233	\$ 14	\$ 8	\$ 21
Weaver Street Firehouse Headquarters	2	6	6	0.0260	0.0260	PL (2) 13w	No Retrofit	802	0.15	0.15	-	119	119	-	\$ -	\$ -	\$ -
Weaver Street Firehouse Headquarters	2	4	4	0.0520	0.0520	CFL (2) 26w	No Retrofit	4,243	0.20	0.20	-	838	838	-	\$ -	\$ -	\$ -
Weaver Street Firehouse Headquarters	2	1	1	0.0180	0.0020	Exit Sign - (2) 7w PLS	Exit Sign - New Universal LED w/ BB	8,760	0.02	0.00	0.02	150	17	133	\$ 8	\$ 4	\$ 12
Weaver Street Firehouse Headquarters	2	1	1	0.0320	0.0220	1x4, 1-Lamp TB	Elect LP Bal. & (1) 4' TB	4,115	0.03	0.02	0.01	125	86	39	\$ 2	\$ 3	\$ 5
Weaver Street Firehouse Headquarters	2	4	4	0.0260	0.0260	PL (2) 13w	No Retrofit	8,760	0.10	0.10	-	865	865	-	\$ -	\$ -	\$ -
Weaver Street Firehouse Headquarters	1	13	13	0.0260	0.0260	PL (2) 13w	No Retrofit	4,380	0.32	0.32	-	1,406	1,406	-	\$ -	\$ -	\$ -
Weaver Street Firehouse Headquarters	1	1	1	0.0180	0.0020	Exit Sign - (2) 7w PLS	Exit Sign - New Universal LED w/ BB	8,760	0.02	0.00	0.02	150	17	133	\$ 8	\$ 4	\$ 12
Weaver Street Firehouse Headquarters	1	6	6	0.0850	0.0640	2x4, 3-Lamp TB	Elect LP Bal. & (3) 4' T8's	8,760	0.48	0.36	0.12	4,244	3,196	1,049	\$ 61	\$ 34	\$ 95
Weaver Street Firehouse Headquarters	1	2	2	0.0600	0.0130	Inc 60w	LED Lamp, 13w PAR 30	8,760	0.11	0.02	0.09	999	216	782	\$ 45	\$ 25	\$ 71
Weaver Street Firehouse Headquarters	1	1	1	0.0180	0.0020	Exit Sign - (2) 7w PLS	Exit Sign - New Universal LED w/ BB	8,760	0.02	0.00	0.02	150	17	133	\$ 8	\$ 4	\$ 12
Weaver Street Firehouse Headquarters	1	1	1	0.0850	0.0640	2x4, 3-Lamp TB	Elect LP Bal. & (3) 4' T8's	8,760	0.08	0.06	0.02	707	533	175	\$ 10	\$ 6	\$ 16
Weaver Street Firehouse Headquarters	1	2	2	0.0260	0.0260	PL (2) 13w	No Retrofit	693	0.05	0.05	-	34	34	-	\$ -	\$ -	\$ -
Weaver Street Firehouse Headquarters	1	2	2	0.0260	0.0260	PL (2) 13w	No Retrofit	693	0.05	0.05	-	34	34	-	\$ -	\$ -	\$ -
Weaver Street Firehouse Headquarters	1	1	1	0.0592	0.0276	2x2, 2-Lamp U TB	Elect LP Bal. & (2) 2' T8's, Refl	1,329	0.06	0.03	0.03	75	35	40	\$ 2	\$ 8	\$ 11
Weaver Street Firehouse Headquarters	1	1	1	0.2400	0.0240	Inc (4) 60w	LED Lamp, (4) 6w A-Line	1,329	0.23	0.02	0.21	303	30	273	\$ 16	\$ 58	\$ 74
Weaver Street Firehouse Headquarters	1	1	1	0.0592	0.0276	2x2, 2-Lamp U TB	Elect LP Bal. & (2) 2' T8's, Refl	1,329	0.06	0.03	0.03	75	35	40	\$ 2	\$ 8	\$ 11
Weaver Street Firehouse Headquarters	1	1	1	0.2400	0.0240	Inc (4) 60w	LED Lamp, (4) 6w A-Line	1,329	0.23	0.02	0.21	303	30	273	\$ 16	\$ 58	\$ 74
Weaver Street Firehouse Headquarters	1	2	2	0.0260	0.0260	PL (2) 13w	No Retrofit	8,760	0.05	0.05	-	433	433	-	\$ -	\$ -	\$ -
Weaver Street Firehouse Headquarters	1	2	2	0.0605	0.0419	1x8, 2-Lamp TB 4'	Elect LP Bal. & (2) 4' T8's	8,760	0.11	0.08	0.04	1,006	698	309	\$ 18	\$ 10	\$ 28
Weaver Street Firehouse Headquarters	1	14	14	0.0605	0.0419	1x4, 2-Lamp TB	Elect LP Bal. & (2) 4' T8's	4,001	0.80	0.56	0.25	3,217	2,230	987	\$ 57	\$ 70	\$ 127
Weaver Street Firehouse Headquarters	1	3	3	0.0605	0.0419	1x4, 2-Lamp TB	Elect LP Bal. & (2) 4' T8's	4,001	0.17	0.12	0.05	689	478	211	\$ 12	\$ 15	\$ 27
Weaver Street Firehouse Headquarters	1	2	2	0.0180	0.0020	Exit Sign - (2) 7w PLS	Exit Sign - New Universal LED w/ BB	8,760	0.03	0.00	0.03	300	33	267	\$ 15	\$ 9	\$ 24
Weaver Street Firehouse Headquarters	1	2	2	0.0605	0.0419	1x4, 2-Lamp TB	Elect LP Bal. & (2) 4' T8's	8,760	0.11	0.08	0.04	1,006	698	309	\$ 18	\$ 10	\$ 28
Weaver Street Firehouse Headquarters	1	32	32	0.0605	0.0419	1x4, 2-Lamp TB	Elect LP Bal. & (2) 4' T8's	4,001	1.84	1.27	0.56	7,363	5,097	2,256	\$ 131	\$ 159	\$ 290
Weaver Street Firehouse Headquarters	1	2	2	0.0605	0.0419	1x4, 2-Lamp TB	Elect LP Bal. & (2) 4' T8's	1,329	0.11	0.08	0.04	153	106	47	\$ 3	\$ 10	\$ 13
Weaver Street Firehouse Headquarters	1	29	29	0.0605	0.0419	1x4, 2-Lamp TB	Elect LP Bal. & (2) 4' T8's	4,001	1.67	1.15	0.51	6,964	4,620	2,044	\$ 119	\$ 144	\$ 263
Weaver Street Firehouse Headquarters	1	2	2	0.0180	0.0020	Exit Sign - (2) 7w PLS	Exit Sign - New Universal LED w/ BB	8,760	0.03	0.00	0.03	300	33	266	\$ 15	\$ 9	\$ 24



# Appendix - Lighting As-Builts

Weaver Street Firehouse Headquarters	1	1	1	0.0605	0.0419	1x4, 2-Lamp TB	Elect LP Bal. & (2) 4 TB's	693	0.06	0.04	0.02	40	28	12	\$ 1	\$ 5	\$ 6		
Weaver Street Firehouse Headquarters	B	4	4	0.1120	0.0419	2x4, 4-Lamp TB	Elect LP Bal. & (2) 4 TB's, Refl	693	0.43	0.16	0.27	295	110	185	\$ 11	\$ 75	\$ 86		
Weaver Street Firehouse Headquarters	B	2	2	0.0320	0.0220	1x4, 1-Lamp TB	Elect LP Bal. & (1) 4 TB	693	0.06	0.04	0.02	42	29	13	\$ 1	\$ 5	\$ 6		
Weaver Street Firehouse Headquarters	B	3	3	0.0260	0.0260	PL (2) 13w	No Retrofit	8,760	0.07	0.07	-	649	649	-	\$ -	\$ -	\$ -		
Weaver Street Firehouse Headquarters	B	1	1	0.0180	0.0020	Exit Sign - (2) 7w PLS	Exit Sign - New Universal LED w/ BB	8,760	0.02	0.00	0.02	150	17	133	\$ 8	\$ 4	\$ 12		
Weaver Street Firehouse Headquarters	B	2	2	0.0260	0.0260	PL (2) 13w	No Retrofit	8,760	0.05	0.05	-	433	433	-	\$ -	\$ -	\$ -		
Weaver Street Firehouse Headquarters	B	3	3	0.0260	0.0260	PL (2) 13w	No Retrofit	4,243	0.07	0.07	-	314	314	-	\$ -	\$ -	\$ -		
Weaver Street Firehouse Headquarters	B	1	1	0.0180	0.0020	Exit Sign - (2) 7w PLS	Exit Sign - New Universal LED w/ BB	8,760	0.02	0.00	0.02	150	17	133	\$ 8	\$ 4	\$ 12		
Weaver Street Firehouse Headquarters	B	4	4	0.0260	0.0260	PL (2) 13w	No Retrofit	4,001	0.10	0.10	-	395	395	-	\$ -	\$ -	\$ -		
Weaver Street Firehouse Headquarters	B	1	1	0.1800	0.0180	Inc (3) 60w	LED Lamp, (3) 6w A-Line	4,001	0.17	0.02	0.15	684	68	616	\$ 36	\$ 43	\$ 79		
Weaver Street Firehouse Headquarters	B	1	1	0.0180	0.0020	Exit Sign - (2) 7w PLS	Exit Sign - New Universal LED w/ BB	8,760	0.02	0.00	0.02	150	17	133	\$ 8	\$ 4	\$ 12		
Weaver Street Firehouse Headquarters	B	2	2	0.0850	0.0640	2x4, 3-Lamp, TB	Elect LP Bal. & (3) 4 TB's	2,800	0.16	0.12	0.04	452	340	112	\$ 6	\$ 11	\$ 18		
Weaver Street Firehouse Headquarters	B	2	2	0.2400	0.0240	Inc (4) 60w	LED Lamp, (4) 6w A-Line	2,800	0.46	0.05	0.41	1,277	128	1,149	\$ 67	\$ 116	\$ 182		
Weaver Street Firehouse Headquarters	B	2	2	0.0850	0.0640	2x4, 3-Lamp, TB	Elect LP Bal. & (3) 4 TB's	2,800	0.16	0.12	0.04	452	340	112	\$ 6	\$ 11	\$ 18		
Weaver Street Firehouse Headquarters	B	2	2	0.2400	0.0240	Inc (4) 60w	LED Lamp, (4) 6w A-Line	2,800	0.46	0.05	0.41	1,277	128	1,149	\$ 67	\$ 116	\$ 182		
Weaver Street Firehouse Headquarters	B	1	1	0.0260	0.0260	PL (2) 13w	No Retrofit	1,329	0.02	0.02	-	33	33	-	\$ -	\$ -	\$ -		
Weaver Street Firehouse Headquarters	B	12	12	0.0260	0.0260	PL (2) 13w	No Retrofit	4,001	0.30	0.30	-	1,186	1,186	-	\$ -	\$ -	\$ -		
Weaver Street Firehouse Headquarters	B	2	2	0.0180	0.0020	Exit Sign - (2) 7w PLS	Exit Sign - New Universal LED w/ BB	8,760	0.03	0.00	0.03	300	33	266	\$ 15	\$ 9	\$ 24		
Weaver Street Firehouse Headquarters	B	3	3	0.0500	0.0500	Inc 50w	No Retrofit	4,115	0.14	0.14	-	586	586	-	\$ -	\$ -	\$ -		
Weaver Street Firehouse Headquarters	B	6	6	0.0280	0.0280	1x2, 1-Lamp TB	No Retrofit	4,115	0.16	0.16	-	657	657	-	\$ -	\$ -	\$ -		
Weaver Street Firehouse Headquarters	B	6	6	0.0850	0.0490	2x4, 3-Lamp, TB	Elect NP Bal. & (2) 4 TB's, Refl	4,001	0.48	0.28	0.21	1,938	1,117	821	\$ 48	\$ 58	\$ 106		
Weaver Street Firehouse Headquarters	B	1	1	0.0180	0.0020	Exit Sign - (2) 7w PLS	Exit Sign - New Universal LED w/ BB	8,760	0.02	0.00	0.02	150	17	133	\$ 8	\$ 4	\$ 12		
Weaver Street Firehouse Headquarters	B	3	3	0.0500	0.0100	Inc 50w	LED Lamp, 10w MR16	8,760	0.14	0.03	0.11	1,248	250	999	\$ 58	\$ 32	\$ 90		
Weaver Street Firehouse Headquarters	B	6	6	0.0280	0.0280	1x2, 1-Lamp TB	No Retrofit	4,115	0.16	0.16	-	657	657	-	\$ -	\$ -	\$ -		
Weaver Street Firehouse Headquarters	B	9	9	0.0260	0.0260	PL (2) 13w	No Retrofit	4,001	0.22	0.22	-	889	889	-	\$ -	\$ -	\$ -		
Weaver Street Firehouse Headquarters	B	1	1	0.1500	0.1500	HAL (3) 50w PL	No Retrofit	4,001	0.14	0.14	-	570	570	-	\$ -	\$ -	\$ -		
Weaver Street Firehouse Headquarters	B	3	3	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line	4,001	0.07	0.02	0.06	296	68	228	\$ 13	\$ 16	\$ 29		
Weaver Street Firehouse Headquarters	B	4	4	0.0260	0.0260	PL (2) 13w	No Retrofit	4,001	0.10	0.10	-	395	395	-	\$ -	\$ -	\$ -		
Weaver Street Firehouse Headquarters	B	2	2	0.0180	0.0020	Exit Sign - (2) 7w PLS	Exit Sign - New Universal LED w/ BB	8,760	0.03	0.00	0.03	300	33	266	\$ 15	\$ 9	\$ 24		
Weaver Street Firehouse Headquarters	B	1	1	0.0320	0.0220	1x4, 1-Lamp TB	Elect LP Bal. & (1) 4 TB	8,760	0.03	0.02	0.01	266	183	83	\$ 5	\$ 3	\$ 8		
Weaver Street Firehouse Headquarters	B	1	1	0.0180	0.0020	Exit Sign - (2) 7w PLS	Exit Sign - New Universal LED w/ BB	8,760	0.02	0.00	0.02	150	17	133	\$ 8	\$ 4	\$ 12		
Weaver Street Firehouse Headquarters	B	3	3	0.0320	0.0220	1x4, 1-Lamp TB	Elect LP Bal. & (1) 4 TB	693	0.09	0.06	0.03	63	43	20	\$ 1	\$ 8	\$ 9		
Weaver Street Firehouse Headquarters	B	1	1	0.0605	0.0419	1x4, 2-Lamp TB	Elect LP Bal. & (2) 4 TB's	693	0.06	0.04	0.02	40	28	12	\$ 1	\$ 5	\$ 6		
Weaver Street Firehouse Headquarters	B	2	2	0.0320	0.0220	1x4, 1-Lamp TB	Elect LP Bal. & (1) 4 TB	693	0.06	0.04	0.02	42	29	13	\$ 1	\$ 5	\$ 6		
Weaver Street Firehouse Headquarters	B	3	3	0.0320	0.0220	1x4, 1-Lamp TB	Elect LP Bal. & (1) 4 TB	693	0.09	0.06	0.03	63	43	20	\$ 1	\$ 8	\$ 9		
Weaver Street Firehouse Headquarters	B	1	1	0.0320	0.0220	1x4, 1-Lamp TB	Elect LP Bal. & (1) 4 TB	693	0.03	0.02	0.01	21	14	7	\$ 0	\$ 3	\$ 3		
Weaver Street Firehouse Headquarters	B	2	2	0.0130	0.0130	CFL PL 13w	No Retrofit	693	0.02	0.02	-	17	17	-	\$ -	\$ -	\$ -		
Weaver Street Firehouse Headquarters	B	1	1	0.0180	0.0020	Exit Sign - (2) 7w PLS	Exit Sign - New Universal LED w/ BB	8,760	0.02	0.00	0.02	150	17	133	\$ 8	\$ 4	\$ 12		
Weaver Street Firehouse Headquarters	Ext	3	3	0.0260	0.0260	PL (2) 13w	No Retrofit	4,380	0.07	0.07	-	325	325	-	\$ -	\$ -	\$ -		
Weaver Street Firehouse Headquarters	Ext	2	2	0.0180	0.0180	PL (2) 9w	No Retrofit	4,380	0.03	0.03	-	150	150	-	\$ -	\$ -	\$ -		
Weaver Street Firehouse Headquarters	Ext	2	2	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line	4,380	0.05	0.01	0.04	216	50	166	\$ 10	\$ 11	\$ 20		
Weaver Street Firehouse Headquarters	Ext	1	1	0.1380	0.1380	LED 138w Fixture	No Retrofit	4,380	0.13	0.13	-	574	574	-	\$ -	\$ -	\$ -		
Weaver Street Firehouse Headquarters	Ext	4	4	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line	4,380	0.10	0.02	0.08	433	100	333	\$ 19	\$ 21	\$ 41		
Weaver Street Firehouse Headquarters	Ext	2	2	0.0260	0.0260	PL (2) 13w	No Retrofit	4,380	0.05	0.05	-	216	216	-	\$ -	\$ -	\$ -		
Weaver Street Firehouse Headquarters	Ext	2	2	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line	4,380	0.05	0.01	0.04	216	50	166	\$ 10	\$ 11	\$ 20		
Weaver Street Firehouse Headquarters	Ext	2	2	0.0360	0.0360	LED (2) 18w Fixture	No Retrofit	4,380	0.07	0.07	-	300	300	-	\$ -	\$ -	\$ -		
Weaver Street Firehouse Headquarters	Ext	1	1	0.1380	0.1380	LED 138w Fixture	No Retrofit	4,380	0.13	0.13	-	574	574	-	\$ -	\$ -	\$ -		
Weaver Street Firehouse Headquarters	Ext	2	2	0.2050	0.2050	MH 175w	No Retrofit	4,380	0.39	0.39	-	1,706	1,706	-	\$ -	\$ -	\$ -		
Weaver Street Firehouse Headquarters	Ext	6	6	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line	4,380	0.15	0.03	0.11	649	150	499	\$ 29	\$ 32	\$ 61		
		211	211					6,815	17	12	6	65,331	43,696	21,735	\$ 1,261	\$ 1,680	\$ 2,941		
																Controls Savings	\$	291	
																Grand Total Savings	\$	3,232	



# Appendix - Lighting As-Builts

Site Name	Building Name	Floor	Pre-Retrofit Qty	Post-Retrofit Qty	Pre-Retrofit kW	Post-Retrofit kW	Pre-Retrofit Description	Post-Retrofit Description	Total Hours	Total Pre kW	Total Post kW	Total Saved kW	Total kWh Pre-Retrofit	Total kWh Post-Retrofit	Total kWh Saved	Total kWh Dollars Saved	Total kWh Dollars Saved	Total kWh Dollars Saved
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	2	2	0.1120	0.0419	2x4, 4-Lamp TB	Elect. LP Bal. & (2) 4' TBs, Refl.	2,386	0.21	0.08	0.13	508	190	318	\$ 19	\$ 37	\$ 56
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	3	3	0.0592	0.0276	2x2, 2-Lamp U TB	Elect. LP Bal. & (2) 2' TBs, Refl.	2,386	0.17	0.08	0.09	403	188	215	\$ 13	\$ 25	\$ 38
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	3	3	0.1120	0.0490	2x4, 4-Lamp TB	Elect. NP Bal. & (2) 4' TBs, Refl.	2,386	0.32	0.14	0.18	762	333	428	\$ 25	\$ 50	\$ 76
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	2	2	0.1120	0.0419	2x4, 4-Lamp TB	Elect. LP Bal. & (2) 4' TBs, Refl.	2,386	0.21	0.08	0.13	508	190	318	\$ 19	\$ 37	\$ 56
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	2	2	0.1120	0.0490	2x4, 4-Lamp TB	Elect. NP Bal. & (2) 4' TBs, Refl.	2,386	0.21	0.09	0.12	508	222	286	\$ 17	\$ 34	\$ 50
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	2	2	0.1120	0.0490	2x4, 4-Lamp TB	Elect. NP Bal. & (2) 4' TBs, Refl.	2,386	0.21	0.09	0.12	508	222	286	\$ 17	\$ 34	\$ 50
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	2	2	0.0450	0.0220	1x4, 1-Lamp TB	Elect. LP Bal. & (1) 4' TB	693	0.09	0.04	0.04	59	29	30	\$ 2	\$ 12	\$ 14
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	SW	4	4	0.0320	0.0220	1x4, 1-Lamp TB	Elect. LP Bal. & (1) 4' TB	8,760	0.12	0.08	0.04	1,065	732	333	\$ 20	\$ 11	\$ 30
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	SW	3	3	0.0320	0.0220	1x4, 1-Lamp TB	Elect. LP Bal. & (1) 4' TB	8,760	0.09	0.06	0.03	799	549	250	\$ 15	\$ 8	\$ 23
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	2	2	0.0290	0.0290	CF-PL 26w	No Retrofit	4,243	0.05	0.05	-	210	210	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	3	3	0.0592	0.0276	2x2, 2-Lamp U TB	Elect. LP Bal. & (2) 2' TBs, Refl.	2,800	0.17	0.08	0.09	473	220	252	\$ 15	\$ 25	\$ 40
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	1	1	0.0605	0.0419	1x4, 2-Lamp TB	Elect. LP Bal. & (2) 4' TBs, Refl.	2,800	0.06	0.04	0.02	161	111	49	\$ 3	\$ 5	\$ 8
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	3	3	0.0592	0.0276	2x2, 2-Lamp U TB	Elect. LP Bal. & (2) 2' TBs, Refl.	1,329	0.17	0.08	0.09	224	105	120	\$ 7	\$ 25	\$ 32
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	2	2	0.0605	0.0419	1x4, 2-Lamp TB	Elect. LP Bal. & (2) 4' TBs, Refl.	1,329	0.11	0.08	0.04	153	106	47	\$ 3	\$ 10	\$ 13
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	1	1	0.0260	0.0260	CF-PL 26w	No Retrofit	2,386	0.02	0.02	-	59	59	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	4	4	0.0450	0.0450	2x4, 3-Lamp TB	Elect. NP Bal. & (2) 4' TBs, Refl.	2,386	0.32	0.19	0.14	771	444	326	\$ 19	\$ 38	\$ 58
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	1	1	0.0040	0.0040	Exit Sign - LED	No Retrofit	8,760	0.00	0.00	-	33	33	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	12	12	0.0850	0.0419	2x4, 3-Lamp TB	Elect. LP Bal. & (2) 4' TBs, Refl.	2,386	0.97	0.48	0.49	2,312	1,140	1,172	\$ 69	\$ 138	\$ 207
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	6	6	0.0320	0.0220	1x4, 1-Lamp TB	Elect. LP Bal. & (1) 4' TB	2,386	0.18	0.13	0.06	435	299	136	\$ 8	\$ 16	\$ 24
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	2	2	0.0850	0.0490	2x4, 3-Lamp TB	Elect. NP Bal. & (2) 4' TBs, Refl.	2,386	0.16	0.09	0.07	385	222	163	\$ 10	\$ 19	\$ 29
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	1	1	0.0040	0.0040	Exit Sign - LED	No Retrofit	8,760	0.00	0.00	-	33	33	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	1	1	0.0850	0.0419	2x4, 3-Lamp TB	Elect. LP Bal. & (2) 4' TBs, Refl.	693	0.08	0.04	0.04	56	28	28	\$ 2	\$ 11	\$ 13
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	2	2	0.0450	0.0220	1x4, 1-Lamp TB	Elect. LP Bal. & (1) 4' TB	693	0.09	0.04	0.04	59	29	30	\$ 2	\$ 12	\$ 14
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	1	1	0.0450	0.0220	1x4, 1-Lamp TB	Elect. LP Bal. & (1) 4' TB	693	0.04	0.02	0.02	30	14	15	\$ 1	\$ 6	\$ 7
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	2	2	0.0450	0.0220	1x4, 1-Lamp TB	Elect. LP Bal. & (1) 4' TB	693	0.09	0.04	0.04	59	29	30	\$ 2	\$ 12	\$ 14
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	3	3	0.0850	0.0419	2x4, 3-Lamp TB	Elect. LP Bal. & (2) 4' TBs, Refl.	2,386	0.24	0.12	0.12	578	285	293	\$ 17	\$ 34	\$ 52
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	2	2	0.0850	0.0490	2x4, 3-Lamp TB	Elect. NP Bal. & (2) 4' TBs, Refl.	2,386	0.16	0.09	0.07	385	222	163	\$ 10	\$ 19	\$ 29
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	3	3	0.0850	0.0490	2x4, 3-Lamp TB	Elect. NP Bal. & (2) 4' TBs, Refl.	2,386	0.24	0.14	0.10	578	333	245	\$ 14	\$ 29	\$ 43
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	2	2	0.1120	0.0490	2x4, 4-Lamp TB	Elect. NP Bal. & (2) 4' TBs, Refl.	2,386	0.21	0.09	0.12	508	222	286	\$ 17	\$ 34	\$ 50
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	2	2	0.0592	0.0311	2x2, 2-Lamp U TB	Elect. NP Bal. & (2) 2' TBs, Refl.	2,386	0.11	0.06	0.05	269	141	127	\$ 8	\$ 15	\$ 22
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	3	3	0.1120	0.0490	2x4, 4-Lamp TB	Elect. NP Bal. & (2) 4' TBs, Refl.	2,386	0.32	0.14	0.18	762	333	428	\$ 25	\$ 50	\$ 76
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	6	6	0.0592	0.0311	2x2, 2-Lamp U TB	Elect. NP Bal. & (2) 2' TBs, Refl.	2,386	0.34	0.18	0.16	806	423	382	\$ 23	\$ 45	\$ 67
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	1	1	0.0040	0.0040	Exit Sign - LED	No Retrofit	8,760	0.00	0.00	-	33	33	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	4	4	0.0592	0.0311	2x2, 2-Lamp U TB	Elect. NP Bal. & (2) 2' TBs, Refl.	2,386	0.23	0.12	0.11	537	282	255	\$ 15	\$ 30	\$ 45
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	4	4	0.0592	0.0311	2x2, 2-Lamp U TB	Elect. NP Bal. & (2) 2' TBs, Refl.	2,386	0.23	0.12	0.11	537	282	255	\$ 15	\$ 30	\$ 45
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	3	3	0.0592	0.0311	2x2, 2-Lamp U TB	Elect. NP Bal. & (2) 2' TBs, Refl.	2,386	0.17	0.09	0.08	403	212	191	\$ 11	\$ 22	\$ 34
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	2	2	0.0592	0.0311	2x2, 2-Lamp U TB	Elect. NP Bal. & (2) 2' TBs, Refl.	2,386	0.11	0.06	0.05	269	141	127	\$ 8	\$ 15	\$ 22
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	1	1	0.0592	0.0311	2x2, 2-Lamp U TB	Elect. NP Bal. & (2) 2' TBs, Refl.	2,386	0.06	0.03	0.03	134	71	64	\$ 4	\$ 7	\$ 11
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	2	2	0.0850	0.0490	2x4, 3-Lamp TB	Elect. NP Bal. & (2) 4' TBs, Refl.	2,386	0.16	0.09	0.07	385	222	163	\$ 10	\$ 19	\$ 29
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	2	2	0.0850	0.0490	2x4, 3-Lamp TB	Elect. NP Bal. & (2) 4' TBs, Refl.	2,386	0.16	0.09	0.07	385	222	163	\$ 10	\$ 19	\$ 29
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	4	4	0.0260	0.0060	CF-PL 26w	LED Lamp, 6w A-Line	2,386	0.10	0.02	0.08	236	54	181	\$ 11	\$ 21	\$ 32
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	1	1	0.0850	0.0490	2x4, 3-Lamp TB	Elect. NP Bal. & (2) 4' TBs, Refl.	2,386	0.08	0.05	0.03	193	111	82	\$ 5	\$ 10	\$ 14
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	3	1	1	0.0260	0.0060	CF-PL 26w	LED Lamp, 6w A-Line	693	0.02	0.01	0.02	17	4	13	\$ 1	\$ 5	\$ 6





# Appendix - Lighting As-Builts

Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	3	3	0.0180	0.0180	RL (2) Sw	No Retrofit	8,760	0.05	0.05	-	449	449	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	1	1	0.1500	0.0419	2x4-4-Lamp U TB	Elect LP Bal & (2) 4' TBs, Refl	893	0.14	0.04	0.10	99	28	71	\$ 4	\$ 29	\$ 33
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	2	2	0.0592	0.0311	2x2-2-Lamp U TB	Elect NP Bal & (2) 2' TBs, Refl, H	4,243	0.11	0.06	0.05	478	251	227	\$ 13	\$ 15	\$ 28
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	6	6	0.0180	0.0180	RL (2) Sw	No Retrofit	2,386	0.10	0.10	-	245	245	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	2	2	0.0280	0.0060	CFL 26w	LED Lamp, Sw A-Line	2,386	0.05	0.01	0.04	118	27	91	\$ 5	\$ 11	\$ 16
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	6	6	0.0592	0.0276	2x2-2-Lamp U TB	Elect LP Bal & (2) 2' TBs, Refl	2,386	0.34	0.16	0.18	806	375	430	\$ 25	\$ 51	\$ 76
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	2	2	0.0592	0.0276	2x2-2-Lamp U TB	Elect LP Bal & (2) 2' TBs, Refl	2,386	0.11	0.05	0.06	269	125	143	\$ 8	\$ 17	\$ 25
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	6	6	0.0592	0.0276	2x2-2-Lamp U TB	Elect LP Bal & (2) 2' TBs, Refl	2,386	0.34	0.16	0.18	806	375	430	\$ 25	\$ 51	\$ 76
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	6	6	0.0592	0.0276	2x2-2-Lamp U TB	Elect LP Bal & (2) 2' TBs, Refl	2,386	0.34	0.16	0.18	806	375	430	\$ 25	\$ 51	\$ 76
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	6	6	0.0450	-	1x4-1-Lamp U TB	Disconnect and Remove	2,386	0.26	-	0.26	612	-	612	\$ 36	\$ 72	\$ 108
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	4	4	0.0410	-	1x3-1-Lamp U TB	Disconnect and Remove	2,386	0.16	-	0.16	372	-	372	\$ 22	\$ 44	\$ 66
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	6	6	0.0592	0.0311	2x2-2-Lamp U TB	Elect NP Bal & (2) 2' TBs, Refl	2,386	0.34	0.18	0.16	806	423	382	\$ 23	\$ 45	\$ 67
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	5	5	0.0592	0.0311	2x2-2-Lamp U TB	Elect NP Bal & (2) 2' TBs, Refl	2,386	0.28	0.15	0.13	671	353	318	\$ 19	\$ 37	\$ 56
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	3	3	0.0592	0.0276	2x2-2-Lamp U TB	Elect LP Bal & (2) 2' TBs, Refl	2,800	0.17	0.08	0.09	473	220	252	\$ 15	\$ 25	\$ 40
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	1	1	0.0605	0.0419	1x4-2-Lamp U TB	Elect LP Bal & (2) 4' TBs, Refl	2,800	0.06	0.04	0.02	161	111	49	\$ 3	\$ 5	\$ 8
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	3	3	0.0592	0.0276	2x2-2-Lamp U TB	Elect LP Bal & (2) 2' TBs, Refl	2,800	0.17	0.08	0.09	473	220	252	\$ 15	\$ 25	\$ 40
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	2	2	0.0605	0.0419	1x4-2-Lamp U TB	Elect LP Bal & (2) 4' TBs, Refl	2,800	0.11	0.08	0.04	322	223	99	\$ 6	\$ 10	\$ 16
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	3	3	0.0592	0.0276	2x2-2-Lamp U TB	Elect LP Bal & (2) 2' TBs, Refl	8,760	0.17	0.08	0.09	1,479	669	790	\$ 47	\$ 25	\$ 72
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	1	1	0.0040	0.0040	Exit Sign - LED	No Retrofit	8,760	0.00	0.00	-	33	33	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	1	1	0.0450	0.0220	1x4-1-Lamp U TB	Elect LP Bal & (1) 4' TB	2,386	0.04	0.02	0.02	102	50	52	\$ 3	\$ 6	\$ 9
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	6	6	0.0592	0.0311	2x2-2-Lamp U TB	Elect NP Bal & (2) 2' TBs, Refl	2,406	0.34	0.18	0.16	812	427	385	\$ 23	\$ 45	\$ 68
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	3	3	0.2250	0.2250	(1) 55w	No Retrofit	893	0.64	0.64	-	444	444	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	2	2	0.0280	0.0100	CFL 26w	LED Lamp, 10w A-Line, H	4,243	0.05	0.02	0.03	210	81	129	\$ 8	\$ 9	\$ 16
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	2	2	0.0280	0.0060	CFL 26w	LED Lamp, Sw A-Line	4,243	0.05	0.01	0.04	210	48	161	\$ 10	\$ 11	\$ 20
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	2	2	0.0040	0.0040	Exit Sign - LED	No Retrofit	8,760	0.01	0.01	-	67	67	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	14	14	0.2250	0.2250	(1) 55w	No Retrofit	893	2.99	2.99	-	2,074	2,074	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	2	2	0.0040	0.0040	Exit Sign - LED	No Retrofit	8,760	0.01	0.01	-	67	67	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	3	3	0.0180	0.0180	RL (2) Sw	No Retrofit	2,386	0.05	0.05	-	122	122	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	2	2	0.0450	0.0220	1x4-1-Lamp U TB	Elect LP Bal & (1) 4' TB	893	0.09	0.04	0.04	59	29	30	\$ 2	\$ 12	\$ 14
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	1	1	0.0750	0.0311	2x2-2-Lamp U TB	Elect NP Bal & (2) 2' TBs, Refl	893	0.07	0.03	0.04	49	20	29	\$ 2	\$ 12	\$ 13
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	6	6	0.0750	0.0311	2x2-2-Lamp U TB	Elect NP Bal & (2) 2' TBs, Refl	893	0.43	0.18	0.25	296	123	173	\$ 10	\$ 70	\$ 80
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	7	7	0.0592	0.0276	2x2-2-Lamp U TB	Elect LP Bal & (2) 2' TBs, Refl	2,386	0.39	0.18	0.21	940	438	502	\$ 30	\$ 59	\$ 89
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	1	1	0.0592	0.0311	2x2-2-Lamp U TB	Elect NP Bal & (2) 2' TBs, Refl	8,760	0.06	0.03	0.03	493	259	234	\$ 14	\$ 7	\$ 21
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	3	3	0.0040	0.0040	Exit Sign - LED	No Retrofit	8,760	0.01	0.01	-	100	100	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	4	4	0.0592	0.0311	2x2-2-Lamp U TB	Elect NP Bal & (2) 2' TBs, Refl	2,386	0.23	0.12	0.11	537	282	256	\$ 15	\$ 30	\$ 45
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	1	1	0.1120	0.0419	2x4-4-Lamp U TB	Elect LP Bal & (2) 4' TBs, Refl	893	0.11	0.04	0.07	74	28	46	\$ 3	\$ 19	\$ 21
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	3	3	0.0592	0.0311	2x2-2-Lamp U TB	Elect NP Bal & (2) 2' TBs, Refl	893	0.17	0.09	0.08	117	61	55	\$ 3	\$ 22	\$ 26
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	1	1	0.0592	0.0276	2x2-2-Lamp U TB	Elect LP Bal & (2) 2' TBs, Refl	1,329	0.06	0.03	0.03	75	35	40	\$ 2	\$ 8	\$ 11
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	1	1	0.0592	0.0276	2x2-2-Lamp U TB	Elect LP Bal & (2) 2' TBs, Refl	1,329	0.06	0.03	0.03	75	35	40	\$ 2	\$ 8	\$ 11
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	4	4	0.0592	0.0311	2x2-2-Lamp U TB	Elect NP Bal & (2) 2' TBs, Refl	2,386	0.23	0.12	0.11	537	282	256	\$ 15	\$ 30	\$ 45
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	8	8	0.0592	0.0311	2x2-2-Lamp U TB	Elect NP Bal & (2) 2' TBs, Refl	2,386	0.45	0.24	0.21	1,074	565	510	\$ 30	\$ 60	\$ 90
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	13	13	0.0592	0.0276	2x2-2-Lamp U TB	Elect LP Bal & (2) 2' TBs, Refl	2,386	0.73	0.34	0.39	1,745	813	932	\$ 55	\$ 109	\$ 164
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	1	1	0.0320	0.0320	1x4-1-Lamp U TB	No Retrofit	2,386	0.03	0.03	-	73	73	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	4	4	0.0280	0.0280	1x3-1-Lamp U TB	No Retrofit	2,386	0.10	0.10	-	236	236	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	1	1	0.0040	0.0040	Exit Sign - LED	No Retrofit	8,760	0.00	0.00	-	33	33	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	1	1	0.1000	0.0060	Inc 100w	LED Lamp, Sw A-Line	2,386	0.10	0.01	0.09	227	14	213	\$ 13	\$ 25	\$ 38
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	4	4	0.0180	0.0180	RL (2) Sw	No Retrofit	2,386	0.07	0.07	-	163	163	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	2	2	2	0.0180	0.0180	RL (2) Sw	No Retrofit	8,760	0.03	0.03	-	300	300	-	\$ -	\$ -	\$ -

# Appendix – Lighting As-Built

Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	1	1	0.0580	0.0580	1x8, 2-Lamp TB 4'	No Retrofit	4,243	0.06	0.06	-	234	234	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	3	3	0.0320	0.0320	1x4, 1-Lamp TB	No Retrofit	4,243	0.09	0.09	-	387	387	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	3	3	0.0260	0.0260	1x3, 1-Lamp TB	No Retrofit	4,243	0.07	0.07	-	314	314	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	1	1	0.0040	0.0040	Exit Sign - LED	No Retrofit	8,760	0.00	0.00	-	33	33	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	2	2	0.0592	0.0276	2x2, 2-Lamp UTB	Elect. LP Bal. & (2) 2' TB's, Refl	2,386	0.11	0.05	0.06	269	125	143	\$ 8	\$ 17	\$ 25
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	8	8	0.0592	0.0311	2x2, 2-Lamp UTB	Elect. NP Bal. & (2) 2' TB's, Refl	2,386	0.45	0.24	0.21	1,074	565	510	\$ 30	\$ 60	\$ 90
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	9	9	0.0592	0.0311	2x2, 2-Lamp UTB	Elect. NP Bal. & (2) 2' TB's, Refl	2,386	0.51	0.27	0.24	1,208	635	573	\$ 34	\$ 67	\$ 101
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	6	6	0.0592	0.0311	2x2, 2-Lamp UTB	Elect. NP Bal. & (2) 2' TB's, Refl	2,386	0.34	0.18	0.16	806	423	382	\$ 23	\$ 45	\$ 67
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	1	1	0.0320	0.0320	1x4, 1-Lamp TB	No Retrofit	693	0.03	0.03	-	21	21	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	8	8	0.0180	0.0180	PL (2) 9w	No Retrofit	2,386	0.10	0.10	-	245	245	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	2	2	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line	2,386	0.05	0.01	0.04	118	27	91	\$ 5	\$ 11	\$ 16
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	6	6	0.0592	0.0311	2x2, 2-Lamp UTB	Elect. NP Bal. & (2) 2' TB's, Refl	2,386	0.34	0.18	0.16	806	423	382	\$ 23	\$ 45	\$ 67
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	1	1	0.0180	0.0180	PL (2) 9w	No Retrofit	2,386	0.02	0.02	-	41	41	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	2	2	0.0592	0.0276	2x2, 2-Lamp UTB	Elect. LP Bal. & (2) 2' TB's, Refl	2,386	0.11	0.05	0.06	269	125	143	\$ 8	\$ 17	\$ 25
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	2	2	0.0180	0.0180	PL (2) 9w	No Retrofit	2,386	0.03	0.03	-	82	82	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	6	6	0.0592	0.0311	2x2, 2-Lamp UTB	Elect. NP Bal. & (2) 2' TB's, Refl	2,386	0.34	0.18	0.16	806	423	382	\$ 23	\$ 45	\$ 67
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	6	6	0.0592	0.0311	2x2, 2-Lamp UTB	Elect. NP Bal. & (2) 2' TB's, Refl	2,386	0.34	0.18	0.16	806	423	382	\$ 23	\$ 45	\$ 67
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	3	3	0.0605	-	1x8, 2-Lamp TB 4'	Disconnect and Remove	2,386	0.17	-	0.17	411	-	411	\$ 24	\$ 48	\$ 73
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	1	1	0.0460	-	1x6, 2-Lamp TB	Disconnect and Remove	2,386	0.04	-	0.04	104	-	104	\$ 6	\$ 12	\$ 18
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	2	2	0.0260	-	1x3, 1-Lamp TB	Disconnect and Remove	2,386	0.05	-	0.05	118	-	118	\$ 7	\$ 14	\$ 21
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	6	6	0.0592	0.0311	2x2, 2-Lamp UTB	Elect. NP Bal. & (2) 2' TB's, Refl	2,386	0.34	0.18	0.16	806	423	382	\$ 23	\$ 45	\$ 67
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	3	3	0.0605	-	1x8, 2-Lamp TB 4'	Disconnect and Remove	2,386	0.17	-	0.17	411	-	411	\$ 24	\$ 48	\$ 73
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	1	1	0.0460	-	1x6, 2-Lamp TB	Disconnect and Remove	2,386	0.04	-	0.04	104	-	104	\$ 6	\$ 12	\$ 18
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	2	2	0.0260	-	1x3, 1-Lamp TB	Disconnect and Remove	2,386	0.05	-	0.05	118	-	118	\$ 7	\$ 14	\$ 21
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	6	6	0.0592	0.0311	2x2, 2-Lamp UTB	Elect. NP Bal. & (2) 2' TB's, Refl	2,386	0.34	0.18	0.16	806	423	382	\$ 23	\$ 45	\$ 67
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	1	1	0.0180	0.0180	PL (2) 9w	No Retrofit	2,386	0.02	0.02	-	41	41	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	2	2	0.0592	0.0311	2x2, 2-Lamp UTB	Elect. NP Bal. & (2) 2' TB's, Refl	2,386	0.11	0.06	0.05	269	141	127	\$ 8	\$ 15	\$ 22
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	4	4	0.0592	0.0276	2x2, 2-Lamp UTB	Elect. LP Bal. & (2) 2' TB's, Refl	4,243	0.23	0.10	0.12	955	445	510	\$ 30	\$ 34	\$ 64
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	2	2	0.0450	0.0220	1x4, 1-Lamp TB	Elect. LP Bal. & (1) 4' TB	693	0.09	0.04	0.04	59	30	2	\$ 2	\$ 12	\$ 14
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	1	1	0.0320	0.0220	1x4, 1-Lamp TB	Elect. LP Bal. & (1) 4' TB	2,386	0.03	0.02	0.01	73	50	23	\$ 1	\$ 3	\$ 4
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	1	1	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line, H	2,386	0.02	0.01	0.02	59	14	45	\$ 3	\$ 5	\$ 8
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	4	4	0.0180	0.0180	PL (2) 9w	No Retrofit	2,386	0.07	0.07	-	163	163	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	4	4	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line, H	2,386	0.10	0.02	0.08	236	54	181	\$ 11	\$ 21	\$ 32
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	8	8	0.0592	0.0311	2x2, 2-Lamp UTB	Elect. NP Bal. & (2) 2' TB's, Refl	2,386	0.45	0.24	0.21	1,074	565	510	\$ 30	\$ 60	\$ 90
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	10	10	0.0260	-	1x3, 1-Lamp TB	Disconnect and Remove	2,386	0.25	-	0.25	569	-	569	\$ 35	\$ 69	\$ 104
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	2	2	0.0200	-	1x2, 1-Lamp TB	Disconnect and Remove	2,386	0.04	-	0.04	91	-	91	\$ 5	\$ 11	\$ 16
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	6	6	0.0592	0.0311	2x2, 2-Lamp UTB	Elect. NP Bal. & (2) 2' TB's, Refl	2,386	0.34	0.18	0.16	806	423	382	\$ 23	\$ 45	\$ 67
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	2	2	0.1120	0.0490	2x4, 4-Lamp TB	Elect. NP Bal. & (2) 4' TB's, Refl	2,386	0.21	0.09	0.12	508	222	286	\$ 17	\$ 34	\$ 50
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	1	1	0.0592	0.0311	2x2, 2-Lamp UTB	Elect. NP Bal. & (2) 2' TB's, Refl	2,386	0.06	0.03	0.03	134	71	64	\$ 4	\$ 7	\$ 11
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	3	3	0.1350	0.0060	Inc 135w	LED Lamp, 6w A-Line	2,386	0.38	0.02	0.37	918	41	877	\$ 52	\$ 103	\$ 155
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	1	1	0.0592	0.0276	2x2, 2-Lamp UTB	Elect. LP Bal. & (2) 2' TB's, Refl	2,386	0.06	0.03	0.03	134	63	72	\$ 4	\$ 8	\$ 13
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	8	8	0.0592	0.0311	2x2, 2-Lamp UTB	Elect. NP Bal. & (2) 2' TB's, Refl	2,386	0.45	0.24	0.21	1,074	565	510	\$ 30	\$ 60	\$ 90
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	2	2	0.0320	-	1x4, 1-Lamp TB	Disconnect and Remove	2,386	0.06	-	0.06	145	-	145	\$ 9	\$ 17	\$ 26
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	9	9	0.0260	-	1x3, 1-Lamp TB	Disconnect and Remove	2,386	0.22	-	0.22	530	-	530	\$ 31	\$ 62	\$ 94
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	1	1	0.0200	-	1x2, 1-Lamp TB	Disconnect and Remove	2,386	0.02	-	0.02	45	-	45	\$ 3	\$ 5	\$ 8
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	4	4	0.0592	0.0311	2x2, 2-Lamp UTB	Elect. NP Bal. & (2) 2' TB's, Refl	2,386	0.23	0.12	0.11	537	282	255	\$ 15	\$ 30	\$ 45
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	2	2	0.1120	0.0490	2x4, 4-Lamp TB	Elect. NP Bal. & (2) 4' TB's, Refl	2,386	0.21	0.09	0.12	508	222	286	\$ 17	\$ 34	\$ 50
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	4	4	0.0592	0.0311	2x2, 2-Lamp UTB	Elect. NP Bal. & (2) 2' TB's, Refl	2,386	0.23	0.12	0.11	537	282	255	\$ 15	\$ 30	\$ 45
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	5	5	0.0280	0.0090	CFL 26w	LED Lamp, 6w A-Line	4,243	0.12	0.03	0.10	524	121	403	\$ 24	\$ 27	\$ 50
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	1	1	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line	8,760	0.02	0.01	0.02	216	50	166	\$ 10	\$ 5	\$ 15
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	4	4	0.0320	0.0320	1x4, 1-Lamp TB	No Retrofit	4,243	0.12	0.12	-	516	516	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	4	4	0.0260	0.0260	1x3, 1-Lamp TB	No Retrofit	4,243	0.10	0.10	-	419	419	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	1	1	0.0040	0.0040	Exit Sign - LED	No Retrofit	8,760	0.00	0.00	-	33	33	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	6	6	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line	4,243	0.15	0.03	0.11	629	145	484	\$ 29	\$ 32	\$ 60
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	3	3	0.0592	0.0276	2x2, 2-Lamp UTB	Elect. LP Bal. & (2) 2' TB's, Refl	4,243	0.17	0.08	0.09	716	334	383	\$ 23	\$ 25	\$ 48
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	1	1	0.0180	0.0180	PL (2) 9w	No Retrofit	4,243	0.02	0.02	-	73	73	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	14	14	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line	4,243	0.35	0.08	0.27	1,467	339	1,129	\$ 67	\$ 75	\$ 141
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	2	2	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line	8,760	0.05	0.01	0.04	433	100	333	\$ 20	\$ 11	\$ 30
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	2	2	0.0040	0.0040	Exit Sign - LED	No Retrofit	8,760	0.01	0.01	-	67	67	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	1	1	0.0580	0.0580	1x8, 2-Lamp TB 4'	No Retrofit	4,243	0.06	0.06	-	234	234	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	1	1	0.0580	0.0580	1x8, 2-Lamp TB 4'	No Retrofit	4,243	0.06	0.06	-	234	234	-	\$ -	\$ -	\$ -



# Appendix - Lighting As-Builts

Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	2	2	0.0320	0.0320	1x4, 1-Lamp TB	No Retrofit	4,243	0.06	0.06	-	258	258	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	2	2	0.0260	0.0260	1x3, 1-Lamp TB	No Retrofit	4,243	0.05	0.05	-	210	210	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	1	1	0.0180	0.0180	RL (2) 9w	No Retrofit	4,243	0.02	0.02	-	73	73	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	2	2	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line	4,243	0.05	0.01	0.04	210	48	161	\$ 10	\$ 11	\$ 20		
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	4	4	0.0320	0.0320	1x4, 1-Lamp TB	No Retrofit	4,243	0.12	0.12	-	516	516	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	4	4	0.0260	0.0260	1x4, 1-Lamp TB	No Retrofit	4,243	0.10	0.10	-	419	419	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	7	7	0.0180	0.0180	RL (2) 9w	No Retrofit	4,243	0.12	0.12	-	508	508	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	1	1	0.0180	0.0180	RL (2) 9w	No Retrofit	8,760	0.02	0.02	-	150	150	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	3	3	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line	4,243	0.07	0.02	0.06	314	73	242	\$ 14	\$ 16	\$ 30		
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	1	1	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line	8,760	0.02	0.01	0.02	216	50	166	\$ 10	\$ 5	\$ 15		
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	4	4	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line	4,243	0.10	0.02	0.08	419	97	322	\$ 19	\$ 21	\$ 40		
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	4	4	0.0320	0.0320	1x4, 1-Lamp TB	No Retrofit	4,243	0.12	0.12	-	516	516	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	4	4	0.0260	0.0260	1x3, 1-Lamp TB	No Retrofit	4,243	0.10	0.10	-	419	419	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	4	4	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line	4,243	0.10	0.02	0.08	419	97	322	\$ 19	\$ 21	\$ 40		
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	2	2	2	0.0040	0.0040	LED	No Retrofit	4,243	0.01	0.01	-	32	32	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	3	3	0.0592	0.0276	2x2, 2-Lamp U TB	Elect. LP Bal. & (2) 2 TBs, Refl	4,243	0.17	0.08	0.09	716	334	383	\$ 23	\$ 25	\$ 48		
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	13	13	0.0592	0.0311	2x2, 2-Lamp U TB	Elect. NP Bal. & (2) 2 TBs, Refl	4,243	0.73	0.38	0.35	3,104	1,631	1,472	\$ 87	\$ 97	\$ 184		
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	2	2	0.0450	0.0220	1x4, 1-Lamp U TB	Elect. LP Bal. & (1) 4 TB	2,366	0.09	0.04	0.04	204	100	104	\$ 6	\$ 12	\$ 18		
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	15	15	0.0592	0.0311	2x2, 2-Lamp U TB	Elect. NP Bal. & (2) 2 TBs, Refl	4,243	0.84	0.44	0.40	3,581	1,882	1,699	\$ 100	\$ 112	\$ 212		
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	4	4	0.0592	0.0311	2x2, 2-Lamp U TB	Elect. NP Bal. & (2) 2 TBs, Refl	2,366	0.23	0.12	0.11	537	282	255	\$ 15	\$ 30	\$ 45		
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	4	4	0.0592	0.0311	2x2, 2-Lamp U TB	Elect. NP Bal. & (2) 2 TBs, Refl	2,366	0.23	0.12	0.11	537	282	255	\$ 15	\$ 30	\$ 45		
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	5	5	0.0592	0.0311	2x2, 2-Lamp U TB	Elect. NP Bal. & (2) 2 TBs, Refl	2,366	0.28	0.15	0.13	671	353	318	\$ 19	\$ 37	\$ 56		
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	6	6	0.0180	0.0180	RL (2) 9w	No Retrofit	2,366	0.10	0.10	-	245	245	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	2	2	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line	4,243	0.05	0.01	0.04	210	48	161	\$ 10	\$ 11	\$ 20		
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	1	1	0.1120	0.0419	2x4, 4-Lamp TB	Elect. LP Bal. & (2) 4 TBs, Refl	2,366	0.11	0.04	0.07	254	95	159	\$ 9	\$ 19	\$ 28		
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	8	8	0.0592	0.0311	2x2, 2-Lamp U TB	Elect. NP Bal. & (2) 2 TBs, Refl	2,366	0.45	0.24	0.21	1,074	565	510	\$ 30	\$ 60	\$ 90		
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	4	4	0.0592	0.0311	2x2, 2-Lamp U TB	Elect. NP Bal. & (2) 2 TBs, Refl	2,366	0.23	0.12	0.11	537	282	255	\$ 15	\$ 30	\$ 45		
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	4	4	0.0592	0.0311	2x2, 2-Lamp U TB	Elect. NP Bal. & (2) 2 TBs, Refl	2,366	0.23	0.12	0.11	537	282	255	\$ 15	\$ 30	\$ 45		
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	1	1	0.0260	0.0260	CFL 26w	No Retrofit	2,366	0.02	0.02	-	59	59	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	2	2	0.0592	0.0276	2x2, 2-Lamp U TB	Elect. LP Bal. & (2) 2 TBs, Refl	2,366	0.11	0.05	0.06	269	125	143	\$ 8	\$ 17	\$ 25		
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	8	8	0.0592	0.0311	2x2, 2-Lamp U TB	Elect. NP Bal. & (2) 2 TBs, Refl	693	0.45	0.24	0.21	312	164	148	\$ 9	\$ 60	\$ 69		
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	2	2	0.0260	0.0150	1x2, 1-Lamp U TB	Elect. LP Bal. & (1) 2 TB	4,243	0.05	0.03	0.02	226	121	105	\$ 6	\$ 7	\$ 13		
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	1	1	0.0592	0.0276	2x2, 2-Lamp U TB	Elect. LP Bal. & (2) 4 TBs, Refl	4,243	0.05	0.03	0.03	239	111	128	\$ 8	\$ 8	\$ 16		
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	1	1	0.0260	0.0150	1x2, 1-Lamp U TB	Elect. LP Bal. & (1) 2 TB	2,406	0.03	0.01	0.01	64	34	30	\$ 2	\$ 3	\$ 5		
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	8	8	0.0270	0.0270	1x2, 2-Lamp TS	No Retrofit	2,406	0.21	0.21	-	494	494	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	1	1	0.0040	0.0040	LED	No Retrofit	8,760	0.00	0.00	-	33	33	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	1	1	0.0220	0.0220	CRC 22w TS	No Retrofit	4,243	0.02	0.02	-	89	89	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	2	2	0.0220	0.0220	CRC 22w TS	No Retrofit	4,243	0.04	0.04	-	177	177	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	1	1	0.0040	0.0040	LED	No Retrofit	8,760	0.00	0.00	-	33	33	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	6	6	0.0270	0.0270	1x2, 2-Lamp TS	No Retrofit	2,366	0.21	0.21	-	490	490	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	2	2	0.0260	0.0260	CF PL 26w TB	No Retrofit	2,366	0.05	0.05	-	118	118	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	2	2	0.0605	0.0419	1x4, 2-Lamp TB	Elect. LP Bal. & (2) 4 TBs	2,366	0.11	0.08	0.04	274	190	84	\$ 5	\$ 10	\$ 15		
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	5	5	0.0520	0.0520	CFL (2) 26w	No Retrofit	4,243	0.25	0.25	-	1,048	1,048	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	6	6	0.0270	0.0270	1x2, 2-Lamp TS	No Retrofit	2,366	0.15	0.15	-	367	367	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	1	1	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line	693	0.02	0.01	0.02	17	4	13	\$ 1	\$ 5	\$ 6		
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	8	8	0.0270	0.0270	1x2, 2-Lamp TS	No Retrofit	2,366	0.21	0.21	-	490	490	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	1	1	0.0040	0.0040	LED	No Retrofit	8,760	0.00	0.00	-	33	33	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	4	4	0.0520	0.0520	CFL (2) 26w	No Retrofit	2,366	0.20	0.20	-	471	471	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	1	1	0.0260	0.0260	CF PL 26w TB	No Retrofit	642	0.02	0.02	-	16	16	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	1	1	0.0260	0.0260	CF PL 26w TB	No Retrofit	642	0.02	0.02	-	16	16	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	10	10	0.0270	0.0270	1x2, 2-Lamp TS	No Retrofit	2,406	0.26	0.26	-	617	617	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	6	6	0.0260	0.0260	1x4, 1-Lamp TS	No Retrofit	2,406	0.16	0.16	-	384	384	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	6	6	0.0260	0.0260	1x4, 1-Lamp TS	No Retrofit	2,406	0.16	0.16	-	384	384	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	4	4	0.0280	0.0280	1x4, 1-Lamp TS	No Retrofit	2,406	0.11	0.11	-	256	256	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	1	1	0.0140	0.0140	1x2, 1-Lamp TS	No Retrofit	2,406	0.01	0.01	-	32	32	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	1	1	0.0040	0.0040	LED	No Retrofit	8,760	0.00	0.00	-	33	33	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	1	1	0.0260	0.0260	CF PL 26w TB	No Retrofit	693	0.02	0.02	-	17	17	-	-	-	-	-	-
Mamaroneck NY Municipality IGA	Mamaroneck Town n Center	1	4	4	0.0280	0.0280	1x4, 1-Lamp TS	No Retrofit	2,406	0.11	0.11	-	256	256	-	-	-	-	-	-

# Appendix – Lighting As-Builts

Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	1	1	0.0450	0.0220	1x4, 1-Lamp U TB	Elect. LP Bal. & (1) 4' TBs	693	0.04	0.02	0.02	30	14	15	\$ 1	\$ 6	\$ 7
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	2	2	0.0592	0.0276	2x2, 2-Lamp U TB	Elect. LP Bal. & (2) 2' TBs, Refl	693	0.11	0.05	0.06	78	36	42	\$ 2	\$ 17	\$ 19
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	1	1	0.0450	0.0220	1x4, 1-Lamp U TB	Elect. LP Bal. & (1) 4' TB	693	0.04	0.02	0.02	30	14	15	\$ 1	\$ 6	\$ 7
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	2	2	0.0230	0.0230	CF PL 23w	No Retrofit	4,243	0.04	0.04	-	185	185	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	2	2	0.0592	0.0276	2x2, 2-Lamp U TB	Elect. LP Bal. & (2) 2' TBs, Refl	2,800	0.11	0.05	0.06	315	147	168	\$ 10	\$ 17	\$ 27
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	1	1	0.0605	0.0419	1x4, 2-Lamp TB	Elect. LP Bal. & (2) 4' TBs	2,800	0.06	0.04	0.02	161	111	49	\$ 3	\$ 5	\$ 8
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	1	1	0.0520	0.0520	CFL (2) 26w	No Retrofit	2,800	0.05	0.05	-	138	138	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	2	2	0.0592	0.0276	2x2, 2-Lamp U TB	Elect. LP Bal. & (2) 2' TBs, Refl	2,800	0.11	0.05	0.06	315	147	168	\$ 10	\$ 17	\$ 27
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	1	1	0.0605	0.0419	1x4, 2-Lamp TB	Elect. LP Bal. & (2) 4' TBs	2,800	0.06	0.04	0.02	161	111	49	\$ 3	\$ 5	\$ 8
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	1	1	0.0520	0.0520	CFL (2) 26w	No Retrofit	2,800	0.05	0.05	-	138	138	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	1	1	0.0750	0.0419	1x4, 2-Lamp TB	Elect. LP Bal. & (2) 4' TBs	693	0.07	0.04	0.03	49	28	22	\$ 1	\$ 9	\$ 10
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	6	6	0.0450	0.0220	1x4, 1-Lamp U TB	Elect. LP Bal. & (1) 4' TB	693	0.26	0.13	0.13	178	87	91	\$ 5	\$ 37	\$ 42
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	2	2	0.0450	0.0220	1x4, 1-Lamp U TB	Elect. LP Bal. & (1) 4' TB	693	0.09	0.04	0.04	59	29	30	\$ 2	\$ 12	\$ 14
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	2	2	0.0450	0.0220	1x4, 1-Lamp U TB	Elect. LP Bal. & (1) 4' TB	693	0.09	0.04	0.04	59	29	30	\$ 2	\$ 12	\$ 14
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	1	1	0.1120	0.0419	2x4, 4-Lamp TB	Elect. LP Bal. & (2) 4' TBs, Refl	693	0.11	0.04	0.07	74	28	46	\$ 3	\$ 19	\$ 21
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	1	1	0.0520	0.0520	CFL (2) 26w	No Retrofit	2,800	0.05	0.05	-	138	138	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	16	16	0.1120	0.0419	2x4, 4-Lamp TB	Elect. LP Bal. & (2) 4' TBs, Refl	2,386	1.70	0.64	1.07	4,062	1,520	2,542	\$ 150	\$ 298	\$ 448
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	12	12	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line	4,243	0.30	0.07	0.23	1,258	290	907	\$ 57	\$ 64	\$ 121
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	2	2	0.0040	0.0040	Ext Sign - LED	No Retrofit	8,760	0.01	0.01	-	67	67	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	4	4	0.0320	0.0320	1x4, 1-Lamp TB	No Retrofit	4,243	0.12	0.12	-	516	516	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	4	4	0.0260	0.0260	1x3, 1-Lamp TB	No Retrofit	4,243	0.10	0.10	-	419	419	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	5	5	0.0592	0.0276	2x2, 2-Lamp U TB	Elect. LP Bal. & (2) 2' TBs, Refl	4,243	0.28	0.13	0.15	1,194	556	636	\$ 38	\$ 42	\$ 80
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	1	1	0.0040	0.0040	Ext Sign - LED	No Retrofit	8,760	0.00	0.00	-	33	33	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	2	2	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line	4,243	0.05	0.01	0.04	210	48	161	\$ 10	\$ 11	\$ 20
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	2	2	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line	8,760	0.05	0.01	0.04	433	100	333	\$ 20	\$ 11	\$ 30
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	7	7	0.0520	0.0520	CFL (2) 26w	No Retrofit	4,243	0.35	0.35	-	1,467	1,467	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	1	1	0.0520	0.0520	CFL (2) 26w	No Retrofit	4,243	0.05	0.05	-	210	210	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	1	1	0.0040	0.0040	Ext Sign - LED	No Retrofit	8,760	0.00	0.00	-	33	33	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	1	1	0.0520	0.0520	CFL (2) 26w	No Retrofit	4,243	0.05	0.05	-	210	210	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	4	4	0.0320	0.0320	1x4, 1-Lamp TB	No Retrofit	4,243	0.12	0.12	-	516	516	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	4	4	0.0260	0.0260	1x3, 1-Lamp TB	No Retrofit	4,243	0.10	0.10	-	419	419	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	6	6	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line	4,243	0.15	0.03	0.11	629	145	484	\$ 29	\$ 32	\$ 60
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	8	8	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line	4,243	0.20	0.05	0.15	836	193	645	\$ 38	\$ 43	\$ 81
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	1	2	2	0.0040	0.0040	Ext Sign - LED	No Retrofit	8,760	0.01	0.01	-	67	67	-	\$ -	\$ -	\$ -
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	B	6	6	0.0605	0.0419	1x8, 2-Lamp TB 4'	Elect. LP Bal. & (2) 4' TBs	693	0.34	0.24	0.11	239	166	73	\$ 4	\$ 30	\$ 34
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	PI	7	7	0.0750	0.0311	2x2, 2-Lamp U TB	Elect. NP Bal. & (2) 2' TBs, Refl	2,386	0.50	0.21	0.29	1,190	494	696	\$ 41	\$ 82	\$ 123
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	PI	4	4	0.0750	0.0311	2x2, 2-Lamp U TB	Elect. NP Bal. & (2) 2' TBs, Refl	2,386	0.29	0.12	0.17	680	282	398	\$ 23	\$ 47	\$ 70
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	PI	4	4	0.0750	0.0311	2x2, 2-Lamp U TB	Elect. NP Bal. & (2) 2' TBs, Refl	2,386	0.29	0.12	0.17	680	282	398	\$ 23	\$ 47	\$ 70
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	PI	4	4	0.0592	0.0311	2x2, 2-Lamp U TB	Elect. NP Bal. & (2) 2' TBs, Refl	2,386	0.23	0.12	0.11	537	282	255	\$ 15	\$ 30	\$ 45
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	PI	3	3	0.0592	0.0276	2x2, 2-Lamp U TB	Elect. LP Bal. & (2) 2' TBs, Refl	4,243	0.17	0.06	0.09	716	334	383	\$ 23	\$ 25	\$ 48
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	PI	2	2	0.0750	0.0276	2x2, 2-Lamp U TB	Elect. LP Bal. & (2) 2' TBs, Refl	4,243	0.14	0.05	0.09	605	223	382	\$ 23	\$ 25	\$ 48
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	PI	9	9	0.0592	0.0276	2x2, 2-Lamp U TB	Elect. LP Bal. & (2) 2' TBs, Refl	4,243	0.51	0.24	0.27	2,149	1,001	1,148	\$ 66	\$ 76	\$ 143
Mamaroneck NY Municipality IGA	Mamaroneck Town Center	PI	3	3	0.0040	0.0040	Ext Sign - LED	No Retrofit	8,760	0.01	0.01	-	100	100	-	\$ -	\$ -	\$ -



# Appendix - Lighting As-Builts

Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	1	1	0.0260	0.0080	CFL 26w	LED Lamp, 6w A-Line	693	0.02	0.01	0.02	17	4	13	\$	1	\$	5	\$	6
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	2	2	0.1000	0.0060	inc 100w	LED Lamp, 6w A-Line	693	0.19	0.01	0.18	132	8	124	\$	7	\$	50	\$	67
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	2	2	0.1500	0.0490	2x4, 4-Lamp	Blect NP Bal & (2) 4 T8s, Refl	2,386	0.29	0.09	0.19	680	222	458	\$	27	\$	54	\$	81
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	1	1	0.0750	0.0419	1x4, 2-Lamp	Blect LP Bal & (2) 4 T8s, Refl	2,386	0.07	0.04	0.03	170	95	75	\$	4	\$	9	\$	13
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	7	7	0.0592	0.0311	2x2, 2-Lamp U/T8	Blect NP Bal & (2) 2 T8s, Refl	2,386	0.39	0.21	0.19	940	494	446	\$	26	\$	52	\$	79
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	3	3	0.0750	0.0311	2x2, 2-Lamp U/T8	Blect NP Bal & (2) 2 T8s, Refl	2,386	0.21	0.09	0.13	510	212	298	\$	18	\$	35	\$	53
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	3	3	0.0592	0.0311	2x2, 2-Lamp U/T8	Blect NP Bal & (2) 2 T8s, Refl	2,386	0.17	0.09	0.08	403	212	191	\$	11	\$	22	\$	34
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	2	2	0.1120	0.0419	2x4, 4-Lamp T8	Blect LP Bal & (2) 4 T8s, Refl	2,386	0.21	0.08	0.13	508	190	318	\$	19	\$	37	\$	56
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	2	2	0.0592	0.0276	2x2, 2-Lamp U/T8	Blect LP Bal & (2) 2 T8s, Refl	4,243	0.11	0.05	0.06	478	223	255	\$	15	\$	17	\$	32
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	1	1	0.0040	0.0040	Ex4 Sign-LED	No Retrofit	8,760	0.00	0.00	-	33	33	-	\$	-	\$	-	\$	-
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	2	2	0.0750	0.0419	1x4, 2-Lamp T8	Blect LP Bal & (2) 4 T8s, Refl	693	0.14	0.08	0.06	99	55	44	\$	3	\$	18	\$	20
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	3	3	0.0605	0.0419	2x2, 2-Lamp T8	Blect LP Bal & (2) 4 T8s, Refl	2,386	0.17	0.12	0.05	411	285	126	\$	7	\$	15	\$	22
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	1	1	0.0750	0.0419	1x4, 2-Lamp T8	Blect LP Bal & (2) 4 T8s, Refl	2,386	0.07	0.04	0.03	170	95	75	\$	4	\$	9	\$	13
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	1	1	0.0850	0.0640	1x4, 3-Lamp T8	Blect LP Bal & (3) 4 T8s, Refl	2,386	0.08	0.06	0.02	193	145	48	\$	3	\$	6	\$	8
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	2	2	0.0850	0.0640	1x4, 3-Lamp T8	Blect LP Bal & (3) 4 T8s, Refl	4,243	0.16	0.12	0.04	685	516	169	\$	10	\$	11	\$	21
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	1	1	0.0850	0.0640	1x4, 3-Lamp T8	Blect LP Bal & (3) 4 T8s, Refl	2,386	0.08	0.06	0.02	193	145	48	\$	3	\$	6	\$	8
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	3	3	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line	4,243	0.07	0.02	0.06	314	73	242	\$	14	\$	16	\$	30
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	16	16	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line	2,386	0.40	0.09	0.30	943	218	725	\$	43	\$	85	\$	128
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	1	1	0.0260	0.0060	CFL 26w	LED Lamp, 6w A-Line	8,760	0.02	0.01	0.02	216	50	166	\$	10	\$	5	\$	15
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	1	1	0.0260	0.0260	FL (2) 13w	No Retrofit	2,386	0.02	0.02	-	59	59	-	\$	-	\$	-	\$	-
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	3	3	0.1500	0.0419	2x4, 4-Lamp T8	Blect LP Bal & (2) 4 T8s, Refl	2,386	0.43	0.12	0.31	1,020	265	735	\$	43	\$	86	\$	130
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	1	1	0.1120	0.0419	2x4, 4-Lamp T8	Blect LP Bal & (2) 4 T8s, Refl	2,386	0.11	0.04	0.07	254	95	159	\$	9	\$	19	\$	28
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	1	1	0.0460	0.0460	CFL (2) 23w	No Retrofit	1,329	0.04	0.04	-	58	58	-	\$	-	\$	-	\$	-
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	1	1	0.0460	0.0460	CFL (2) 23w	No Retrofit	4,243	0.04	0.04	-	185	185	-	\$	-	\$	-	\$	-
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	12	12	0.0592	0.0276	2x2, 2-Lamp U/T8	Blect LP Bal & (2) 2 T8s, Refl	4,243	0.68	0.31	0.36	2,665	1,335	1,530	\$	90	\$	101	\$	191
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	3	3	0.0040	0.0040	Ex4 Sign-LED	No Retrofit	8,760	0.01	0.01	-	100	100	-	\$	-	\$	-	\$	-
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	4	4	0.0592	0.0311	2x2, 2-Lamp U/T8	Blect NP Bal & (2) 2 T8s, Refl	2,386	0.23	0.12	0.11	537	282	255	\$	15	\$	30	\$	45
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	3	3	0.0260	0.0260	FL (2) 13w	No Retrofit	2,386	0.07	0.07	-	177	177	-	\$	-	\$	-	\$	-
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	3	3	0.0592	0.0276	2x2, 2-Lamp U/T8	Blect LP Bal & (2) 2 T8s, Refl	2,386	0.17	0.08	0.09	403	188	215	\$	13	\$	25	\$	38
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	5	5	0.0270	0.0270	T5	No Retrofit	2,800	0.13	0.13	-	359	359	-	\$	-	\$	-	\$	-
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	1	1	0.0580	0.0580	2x2, 2-Lamp U/T8	No Retrofit	2,800	0.06	0.06	-	154	154	-	\$	-	\$	-	\$	-
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	3	3	0.0750	0.0276	2x2, 2-Lamp U/T8	Blect LP Bal & (2) 2 T8s, Refl	1,329	0.21	0.08	0.14	284	105	180	\$	11	\$	38	\$	48
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	1	1	0.0260	0.0260	FL (2) 13w	No Retrofit	1,329	0.02	0.02	-	33	33	-	\$	-	\$	-	\$	-
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	2	2	0.0750	0.0311	2x2, 2-Lamp U/T8	Blect NP Bal & (2) 2 T8s, Refl	2,386	0.14	0.06	0.08	340	141	199	\$	12	\$	23	\$	35
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	6	6	0.0692	0.0276	2x2, 2-Lamp U/T8	Blect LP Bal & (2) 2 T8s, Refl	2,386	0.34	0.16	0.16	806	375	430	\$	25	\$	51	\$	76
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	2	2	0.0592	0.0276	2x2, 2-Lamp U/T8	Blect LP Bal & (2) 2 T8s, Refl	1,329	0.11	0.05	0.06	150	70	80	\$	5	\$	17	\$	22
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	1	1	0.0750	0.0276	2x2, 2-Lamp U/T8	Blect LP Bal & (2) 2 T8s, Refl	1,329	0.07	0.03	0.05	95	35	60	\$	4	\$	13	\$	16
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	2	2	0.0750	0.0276	2x2, 2-Lamp U/T8	Blect LP Bal & (2) 2 T8s, Refl	1,329	0.14	0.05	0.09	189	70	120	\$	7	\$	25	\$	32
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	1	1	0.0750	0.0419	1x4, 2-Lamp T8	Blect LP Bal & (2) 4 T8s, Refl	1,329	0.07	0.04	0.03	95	53	42	\$	2	\$	9	\$	11
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	1	1	0.0260	0.0260	FL (2) 13w	No Retrofit	1,104	0.02	0.02	-	27	27	-	\$	-	\$	-	\$	-
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	3	3	0.0750	0.0311	2x2, 2-Lamp U/T8	Blect NP Bal & (2) 2 T8s, Refl	2,386	0.21	0.09	0.13	510	212	298	\$	18	\$	35	\$	53
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	4	4	0.0592	0.0311	2x2, 2-Lamp U/T8	Blect NP Bal & (2) 2 T8s, Refl	2,386	0.23	0.12	0.11	537	282	255	\$	15	\$	30	\$	45
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	2	2	0.1120	0.0419	2x4, 4-Lamp T8	Blect LP Bal & (2) 4 T8s, Refl	2,386	0.21	0.08	0.13	508	190	318	\$	19	\$	37	\$	56
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	2	2	0.1120	0.0419	2x4, 4-Lamp T8	Blect LP Bal & (2) 4 T8s, Refl	2,386	0.21	0.08	0.13	508	190	318	\$	19	\$	37	\$	56
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	1	1	0.0040	0.0040	Ex4 Sign-LED	No Retrofit	8,760	0.00	0.00	-	33	33	-	\$	-	\$	-	\$	-
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	1	1	0.0750	0.0276	2x2, 2-Lamp U/T8	Blect LP Bal & (2) 2 T8s, Refl	1,329	0.07	0.03	0.05	95	35	60	\$	4	\$	13	\$	16
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	PI	1	1	0.0750	0.0276	2x2, 2-Lamp U/T8	Blect LP Bal & (2) 2 T8s, Refl	1,329	0.07	0.03	0.05	95	35	60	\$	4	\$	13	\$	16
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	Ex1	1	1	0.0260	0.0060	CFL 26w LED Sw	LED Lamp, 6w A-Line	4,380	0.02	0.01	0.02	106	25	83	\$	5	\$	5	\$	10
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	Ex1	2	2	0.0050	0.0050	Fixture	No Retrofit	4,380	0.01	0.01	-	42	42	-	\$	-	\$	-	\$	-
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	Ex1	2	2	0.1800	0.1800	MH 150w	No Retrofit	4,380	0.34	0.34	-	1,498	1,498	-	\$	-	\$	-	\$	-
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	Ex1	1	1	0.0260	0.0130	CFL 26w LED Lamp, 13w PAR 30	LED Lamp, 13w PAR 30	4,380	0.02	0.01	0.01	106	54	54	\$	3	\$	3	\$	7
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	Ex1	1	1	0.0520	0.0260	CFL (2) 26w	LED Lamp, (2) 13w PAR 30	4,380	0.05	0.02	0.02	216	108	108	\$	6	\$	7	\$	13
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	Ex1	1	1	0.1800	0.1800	MH 150w	No Retrofit	4,380	0.17	0.17	-	749	749	-	\$	-	\$	-	\$	-
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	Ex1	1	1	0.2830	0.2830	MH 250w	No Retrofit	4,380	0.27	0.27	-	1,178	1,178	-	\$	-	\$	-	\$	-
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	Ex1	1	1	0.1800	0.1800	MH 150w	No Retrofit	4,380	0.17	0.17	-	749	749	-	\$	-	\$	-	\$	-
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	Ex1	1	1	0.1800	0.1800	MH 150w	No Retrofit	4,380	0.17	0.17	-	749	749	-	\$	-	\$	-	\$	-
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	Ex1	1	1	0.1800	0.1800	MH 150w	No Retrofit	4,380	0.17	0.17	-	749	749	-	\$	-	\$	-	\$	-
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	Ex1	2	2	0.1800	0.1800	MH 150w	No Retrofit	4,380	0.34	0.34	-	1,498	1,498	-	\$	-	\$	-	\$	-
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	Ex1	1	1	0.2820	0.2820	HPS (3) 70w	No Retrofit	4,380	0.27	0.27	-	1,173	1,173	-	\$	-	\$	-	\$	-
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	Ex1	1	1	0.1880	0.1880	HPS (2) 70w	No Retrofit	4,380	0.18	0.18	-	782	782	-	\$	-	\$	-	\$	-
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	Ex1	1	1	0.2820	0.2820	HPS (3) 70w	No Retrofit	4,380	0.27	0.27	-	1,173	1,173	-	\$	-	\$	-	\$	-
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	Ex1	1	1	0.3760	0.3760	HPS (4) 70w	No Retrofit	4,380	0.36	0.36	-	1,565	1,565	-	\$	-	\$	-	\$	-
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	Ex1	1	1	0.0600	0.0600	Fixture LED (2) 30w	No Retrofit	4,380	0.06	0.06	-	250	250	-	\$	-	\$	-	\$	-
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	Ex1	1	1	0.0600	0.0600	Fixture LED (2) 30w	No Retrofit	4,380	0.06	0.06	-	250	250	-	\$	-	\$	-	\$	-
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	Ex1	3	3	0.3760	0.3760	HPS (4) 70w	No Retrofit	4,380	1.07	1.07	-	4,694	4,694	-	\$	-	\$	-	\$	-
Mamaroneck NY Municipality, GA	Mamaroneck Town Center	Ex1	1	1	0.0600	0.0600	Fixture LED (2) 30w	No Retrofit	4,380	0.											

## Appendix - Lighting As-Builts

Site Name	Floor	Total Post-Retrofit Load	Post-Retrofit Control Description	Post-Retrofit Control Hours Reduction	Total Hours	Total kWh Pre-Retrofit	Total kWh Post-Retrofit	Total kWh Saved	Total kWh Dollars Saved
Town Center	2	0.3390	Vending/Miser Cold Drink Machine Control	74%	8,760	2,970	772	2,198	\$ 130
Town Center	2	0.0410	Vending/Miser Snack Machine Control	74%	8,760	359	93	266	\$ 16
Town Center	P1	0.3390	Vending/Miser Cold Drink Machine Control	74%	8,760	2,970	772	2,198	\$ 130
Town Center	P1	0.0410	Vending/Miser Snack Machine Control	74%	8,760	359	93	266	\$ 16
<b>TOTALS:</b>						<b>6,658</b>	<b>1,731</b>	<b>4,927</b>	<b>\$ 290.67</b>

Location	Pre-Retrofit Qty	Post-Retrofit Qty	Pre-Retrofit kW	Post-Retrofit kW	Pre-Retrofit Description	Post-Retrofit Description	Total Hours	Total Pre kW	Total Post kW	Total Saved kW	Total kWh Pre-Retrofit	Total kWh Post-Retrofit	Total kWh Saved	Total kWh Dollars Saved	Total kW Dollars Saved	Total Dollars Saved		
Lower Level	34	34	0.1800	0.0620	MH 150w	LED 62w Canopy, OS, BL	8,760	6.12	2.11	4.01	53,611	18,466	35,145	\$ 1,828	\$ 1,181	\$ 3,009		
Upper Level	8	8	0.2100	0.0510	MH 175w	LED Retrofit Kit - Type G	4,270	1.68	0.41	1.27	7,174	1,742	5,431	\$ 282	\$ 375	\$ 657		
Stairs North	2	2	0.0605	0.0419	1x4, 2-Lamp TB	Elect. LP Bal. & (2) 4' TB's, XH	4,270	0.12	0.08	0.04	517	358	159	\$ 8	\$ 11	\$ 19		
Stairs South	2	2	0.0605	0.0419	1x4, 2-Lamp TB	Elect. LP Bal. & (2) 4' TB's	4,270	0.12	0.08	0.04	517	358	159	\$ 8	\$ 11	\$ 19		
Building Front	2	2	0.2100	0.0510	MH 175w	LED Retrofit Kit - Type G	4,270	0.42	0.10	0.32	1,793	436	1,358	\$ 71	\$ 94	\$ 164		
Pole Over Driveway	1	1	0.2100	0.0510	MH 175w	LED Retrofit Kit - Type G	4,270	0.21	0.05	0.16	897	218	679	\$ 35	\$ 47	\$ 82		
Lower Level Electrical Rm	1	1	0.0605	0.0419	1x4, 2-Lamp TB	Elect. LP Bal. & (2) 4' TB's	750	0.06	0.04	0.02	45	31	14	\$ 1	\$ 5	\$ 6		
							<b>60</b>	<b>60</b>	<b>7,263</b>	<b>9</b>	<b>3</b>	<b>6</b>	<b>64,654</b>	<b>21,609</b>	<b>42,945</b>	<b>\$ 2,233</b>	<b>\$ 1,724</b>	<b>\$ 3,957</b>
															Lighting Control Savings	<b>\$ 638</b>		
															<b>Grand Total Savings</b>	<b>\$ 4,596</b>		

Building Name	Location	Control Qty	Total kW Load	Post-Retrofit Control Description	Hour Code	Post-Retrofit Control Hours Reduction	Total Hours	Total kWh Pre-Retrofit	Total kWh Post-Retrofit	Total kWh Saved	Total kWh Dollars Saved
Mamaroneck NY Parking	Lower Level	1	2.1080	Occupancy Sensor, Fixture, BL, IR	8760	60.00%	8,760	18,466	7,386	11,080	\$ 576
Mamaroneck NY Parking	Upper Level	1	0.4080	Fixture Mounted Control Node	4270	50.00%	4,270	1,742	871	871	\$ 45
Mamaroneck NY Parking	Building Front	1	0.1020	Fixture Mounted Control Node	4270	50.00%	4,270	436	218	218	\$ 11
Mamaroneck NY Parking	Pole Over	1	0.0510	Fixture Mounted Control Node	4270	50.00%	4,270	218	109	109	\$ 6
<b>Grand Totals:</b>								<b>29,446</b>	<b>20,862</b>	<b>15,199</b>	<b>\$ 638.42</b>

## **Appendix – Condensing Units As-Builts**

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### **5.3 Street Lighting As-Builts**

Final as-built listing still being prepared at the time of this report delivery.



# Appendix – Condensing Units As-Built

## 5.4 Replace Condensing Units As-Built

Town of Mamaroneck (Town Center)		
ECM 9 - Replace Condensing Units		
ECM DESCRIPTION		
Replace low efficiency condensing units in respective buildings with new high efficiency condensing units with an EER of 12+		
CLARIFICATIONS, DELETIONS		
*Run Hours based on occupancy schedule		
FORMULAE		
WSAVINGS = (WC-Pre-Retrofit - WC-Post-Retrofit) · Q		
WC-Exisitng = $\sum 10560 [ ((TBIN - TOCC) / (TDESIGN - TOCC)) · C · (OCC) + ((TBIN - TUNOCC) / (TDESIGN - TUNOCC)) · C · (UNOCC) ] · (12 / \eta_{Pre-Retrofit})$		
WC-Post-Retrofit = $\sum 10560 [ ((TBIN - TOCC) / (TDESIGN - TOCC)) · C · (OCC) + ((TBIN - TUNOCC) / (TDESIGN - TUNOCC)) · C · (UNOCC) ] · (12 / \eta_{Post-Retrofit})$		
Variable	Units	Description
W <sub>SAVINGS</sub>	kWh	Electrical Savings
WC-Pre-Retrofit	kWh	Pre-Retrofit condensing unit Consumption
WC-Post-Retrofit	kWh	Post-Retrofit condensing unit Consumption
Q	-	Quantity of specific size condensing units
$\sum_{60}^{105}$	-	Summation of all bins from 60°F to 105°F
C	Ton	Tonnage of condensing unit
$\eta_{Pre-Retrofit}$	-	Pre-Retrofit efficiency of condensing unit (EER)
$\eta_{Post-Retrofit}$	-	Post-Retrofit efficiency of condensing unit (EER)
T <sub>DESIGN</sub>	°F	Design Temperature of condensing unit (Usually 92.5°F)
T <sub>Bin</sub>	°F	Bin Weather Temperature
T <sub>OCC</sub>	°F	Temperature of building during occupied hours
T <sub>UNOCC</sub>	°F	Temperature of building during unoccupied hours
t <sub>OCC</sub>	Hrs	Pre-Retrofit occupied Bin Hours in respective temperature bin
t <sub>UNOCC</sub>	Hrs	Pre-Retrofit unoccupied Bin Hours in respective temperature bin

Building	Label	Capacity [Tons]	Base Yr EER	Yr1 EER	Quantity
Mamaroneck Town Center	MTC-CU 5 Ton	5.0	7.0	14	13
Mamaroneck Town Center	MTC-CU 3 Ton	3.0	7.0	14	10
<b>Totals</b>					

**CALCULATIONS**

	Mamaroneck Town Center	Mamaroneck Town Center
Label	MTC-CU 5 Ton	MTC-CU 3 Ton
Condensing Unit Capacity [Tons]	5.0	3.0
Pre-Retrofit EER	7.0	7.0
Post-Retrofit EER	14.0	14.0
Post-Retrofit Occ. Cooling Setpoint [°F]	74.0	74.0
Post-Retrofit Unocc. Cooling Setpoint [°F]	85.0	85.0
Pre-Retrofit Condensing Unit Consumption [kWh]	1,502	901
Post-Retrofit Condensing Unit Consumption [kWh]	751	451
Quantity of Condensing Units	13	10
Electrical Savings	9,764	4,506

**MAMARONECK TOWN CENTER**

Amb. Temp Bin [°F]	Average Temp. [°F]	01-08 Hours	09-16 Hours	17-24 Hours	Total Bin Hours	Occ. Bin Hours	Unocc. Bin Hours	Occ. Load [Tons]	Unocc. Load [Tons]	Occ. Consumption [Ton-Hrs]	Unocc. Consumption [Ton-Hrs]	Pre-Retrofit Total Consumption [kWh]	Post-Retrofit Total Consumption [kWh]	Total Electrical Savings [kWh]
<b>COOLING</b>														
100 to 105	102.5	-	-	-	-	-	-	5.0	5.0	-	-	-	-	-
95 to 100	97.5	-	13	1	14	10	4	5.0	5.0	52	18	120	60	60
90 to 95	92.5	-	19	4	23	16	7	5.0	5.0	78	37	157	99	99
85 to 90	87.5	-	59	17	76	49	27	3.6	3.7	180	44	385	192	192
80 to 85	82.5	9	146	55	210	125	85	2.3	-	288	-	494	247	247
75 to 80	77.5	38	215	93	346	189	157	0.9	-	179	-	306	153	153
70 to 75	72.5	108	254	194	556	244	312	-	-	-	-	-	-	-
65 to 70	67.5	251	244	303	798	268	530	-	-	-	-	-	-	-
60 to 65	62.5	356	228	306	890	266	624	-	-	-	-	-	-	-
<b>Total</b>		762	1,178	973	2,913	1,167	1,746			777	99	1,502	751	751

**MAMARONECK TOWN CENTER**

Amb. Temp Bin [°F]	Average Temp. [°F]	01-08 Hours	09-16 Hours	17-24 Hours	Total Bin Hours	Occ. Bin Hours	Unocc. Bin Hours	Occ. Load [Tons]	Unocc. Load [Tons]	Occ. Consumption [Ton-Hrs]	Unocc. Consumption [Ton-Hrs]	Pre-Retrofit Total Consumption [kWh]	Post-Retrofit Total Consumption [kWh]	Total Electrical Savings [kWh]
<b>COOLING</b>														
100 to 105	102.5	-	-	-	-	-	-	3.0	3.0	-	-	-	-	-
95 to 100	97.5	-	13	1	14	10	4	3.0	3.0	31	11	72	36	36
90 to 95	92.5	-	19	4	23	16	7	3.0	3.0	47	22	118	59	59
85 to 90	87.5	-	59	17	76	49	27	2.2	1.0	108	27	231	115	115
80 to 85	82.5	9	146	55	210	125	85	1.4	-	173	-	296	148	148
75 to 80	77.5	38	215	93	346	189	157	0.6	-	107	-	184	92	92
70 to 75	72.5	108	254	194	556	244	312	-	-	-	-	-	-	-
65 to 70	67.5	251	244	303	798	268	530	-	-	-	-	-	-	-
60 to 65	62.5	356	228	306	890	266	624	-	-	-	-	-	-	-
<b>Total</b>		762	1,178	973	2,913	1,167	1,746			466	60	901	451	451

# Appendix – Option C Meter Details

## 5.5 Option C Meter Details

Town of Mamaroneck Yr. 1 Meter Detail Report												
Baseline: Usage and costs representative of the facility's operations for the baseline period as set Adjusted Baseline: Baseline usage and Cost adjusted to												
SimActual: Current year usage and calculated costs using the applicable contract rate. (Includes: weather												
<b>Meter: Ice Rink - NG 83001</b>												
<b>Baseline</b>												
	Sep 2013	Oct 2013	Nov 2013	Dec 2013	Jan 2013	Feb 2013	Mar 2013	Apr 2013	May 2013	Jun 2013	Jul 2013	Aug 2013
Month Use	700	2,850	3,355	4,167	4,289	4,610	3,904	3,118	2,693	3,187	319	226
YTD Use	700	3,550	6,905	11,072	15,361	19,971	23,875	26,993	29,686	32,873	33,192	33,418
Month \$	\$ 796	\$ 3,716	\$ 3,824	\$ 4,254	\$ 4,996	\$ 4,832	\$ 4,354	\$ 3,718	\$ 3,368	\$ 3,662	\$ 417	\$ 294
YTD \$	\$ 796	\$ 4,512	\$ 8,336	\$ 12,590	\$ 17,586	\$ 22,418	\$ 26,773	\$ 30,490	\$ 33,858	\$ 37,520	\$ 37,937	\$ 38,231
BP Length	30	29	32	30	34	30	29	31	29	30	32	29
HDD	207	412	899	1,251	1,409	1,400	1,104	895	554	297	20	149
CDD	162	12	-	-	-	-	-	-	10	85	415	152
Month Rate	\$ 1.138	\$ 1.304	\$ 1.140	\$ 1.021	\$ 1.165	\$ 1.048	\$ 1.115	\$ 1.192	\$ 1.251	\$ 1.149	\$ 1.308	\$ 1.301
YTD Rate	\$ 1.138	\$ 1.271	\$ 1.207	\$ 1.137	\$ 1.145	\$ 1.123	\$ 1.121	\$ 1.130	\$ 1.141	\$ 1.141	\$ 1.143	\$ 1.144
<b>Adjusted Baseline</b>												
	Sep 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016
Month Use	809	1,968	2,548	3,439	4,281	4,646	3,183	2,948	2,261	1,168	662	497
YTD Use	809	2,777	5,325	8,764	13,046	17,692	20,875	23,823	26,084	27,251	27,913	28,410
Month \$	\$ 576	\$ 1,342	\$ 2,310	\$ 3,298	\$ 3,838	\$ 3,983	\$ 2,919	\$ 2,300	\$ 1,687	\$ 999	\$ 562	\$ 396
YTD \$	\$ 576	\$ 1,918	\$ 4,227	\$ 7,525	\$ 11,363	\$ 15,345	\$ 18,265	\$ 20,565	\$ 22,252	\$ 23,250	\$ 23,813	\$ 24,209
BP Length	32	29	30	32	32	32	29	29	29	32	30	29
HDD	109	505	691	974	1,251	1,371	905	827	601	227	70	21
CDD	250	18	2	-	-	-	2	-	-	128	270	370
Month Rate	\$ 0.712	\$ 0.682	\$ 0.906	\$ 0.959	\$ 0.896	\$ 0.857	\$ 0.917	\$ 0.780	\$ 0.746	\$ 0.855	\$ 0.849	\$ 0.798
YTD Rate	\$ 0.712	\$ 0.691	\$ 0.794	\$ 0.859	\$ 0.871	\$ 0.867	\$ 0.875	\$ 0.863	\$ 0.853	\$ 0.853	\$ 0.853	\$ 0.852
<b>SimActual</b>												
	Sep 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016
Month Use	1,438	1,078	1,571	2,642	3,050	2,732	1,941	1,366	1,118	954	677	955
YTD Use	1,438	2,516	4,087	6,729	9,779	12,511	14,452	15,818	16,936	17,890	18,567	19,522
Month \$	\$ 1,024	\$ 735	\$ 1,424	\$ 2,533	\$ 2,734	\$ 2,342	\$ 1,780	\$ 1,066	\$ 834	\$ 816	\$ 575	\$ 762
YTD \$	\$ 1,024	\$ 1,759	\$ 3,183	\$ 5,716	\$ 8,450	\$ 10,792	\$ 12,572	\$ 13,638	\$ 14,472	\$ 15,288	\$ 15,863	\$ 16,625
BP Length	32	29	30	32	32	32	29	29	29	32	30	29
HDD	109	505	691	974	1,251	1,371	905	827	601	227	70	21
CDD	250	18	2	-	-	-	2	-	-	128	270	370
Month Rate	\$ 0.712	\$ 0.682	\$ 0.906	\$ 0.959	\$ 0.896	\$ 0.857	\$ 0.917	\$ 0.780	\$ 0.746	\$ 0.855	\$ 0.849	\$ 0.798
YTD Rate	\$ 0.712	\$ 0.699	\$ 0.779	\$ 0.849	\$ 0.864	\$ 0.863	\$ 0.870	\$ 0.862	\$ 0.855	\$ 0.855	\$ 0.854	\$ 0.852
<b>SimActual vs. Adjusted Baseline</b>												
	Sep 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016
Month Use	77.7%	-45.2%	-38.3%	-23.2%	-28.8%	-41.2%	-39.0%	-53.7%	-50.6%	-18.3%	2.2%	92.2%
YTD Use	77.7%	-9.4%	-23.2%	-23.2%	-25.0%	-29.3%	-30.8%	-33.6%	-35.1%	-34.4%	-33.5%	-31.3%
Month \$	77.7%	-45.2%	-38.3%	-23.2%	-28.8%	-41.2%	-39.0%	-53.7%	-50.6%	-18.3%	2.2%	92.2%
YTD \$	77.7%	-8.3%	-24.7%	-24.0%	-25.6%	-29.7%	-31.2%	-33.7%	-35.0%	-34.2%	-33.4%	-31.3%
BP Length	-	-	-	-	-	-	-	-	-	-	-	-
HDD	-	-	-	-	-	-	-	-	-	-	-	-
CDD	-	-	-	-	-	-	-	-	-	-	-	-
<b>Use Avoidance</b>												
Month Use	(629)	890	977	797	1,231	1,914	1,242	1,582	1,143	214	(15)	(458)
YTD Use	(629)	261	1,238	2,035	3,267	5,181	6,423	8,005	9,148	9,361	9,346	8,888
<b>Cost Avoidance</b>												
Month Use \$	\$ (448)	\$ 607	\$ 886	\$ 765	\$ 1,104	\$ 1,641	\$ 1,139	\$ 1,234	\$ 853	\$ 183	\$ (13)	\$ (366)
YTD \$	\$ (448)	\$ 159	\$ 1,044	\$ 1,809	\$ 2,913	\$ 4,553	\$ 5,693	\$ 6,927	\$ 7,780	\$ 7,962	\$ 7,950	\$ 7,584



# Appendix – Option C Meter Details

Town of Mamaroneck Yr. 1 Meter Detail Report												
Baseline: Usage and costs representative of the facility's operations for the baseline period as set. Adjusted Baseline: Baseline usage and Cost adjusted to Sim Actual: Current year usage and calculated costs using the applicable contract rate. (Includes weather)												
Meter: Ice Rink-Elc #28300												
<b>Baseline</b>												
	Sep 2013	Oct 2013	Nov 2013	Dec 2013	Jan 2013	Feb 2013	Mar 2013	Apr 2013	May 2013	Jun 2013	Jul 2013	Aug 2013
Month Use	11,920	13,920	16,200	16,080	22,120	19,560	17,880	17,680	12,880	11,800	18,440	13,400
YTD Use	11,920	25,840	42,040	58,120	80,240	99,800	117,680	135,360	148,240	160,040	178,480	191,880
Meter Demand	48	49	42	42	46	43	44	42	46	46	64	55
Month \$	\$ 2,140	\$ 1,887	\$ 1,685	\$ 1,985	\$ 2,225	\$ 1,832	\$ 2,150	\$ 2,017	\$ 1,802	\$ 1,745	\$ 2,753	\$ 2,037
YTD \$	\$ 2,140	\$ 4,027	\$ 5,711	\$ 7,696	\$ 9,921	\$ 11,754	\$ 13,904	\$ 15,921	\$ 17,723	\$ 19,468	\$ 22,222	\$ 24,259
BP Length	30	32	29	31	33	30	29	31	29	30	32	29
HDD	54	170	542	977	1,039	1,100	814	585	274	78	-	4
CDD	72	1	-	-	-	-	-	-	3	26	255	42
Month Rate	\$ 0.180	\$ 0.136	\$ 0.104	\$ 0.123	\$ 0.101	\$ 0.094	\$ 0.120	\$ 0.114	\$ 0.140	\$ 0.148	\$ 0.149	\$ 0.152
YTD Rate	\$ 0.180	\$ 0.156	\$ 0.136	\$ 0.132	\$ 0.124	\$ 0.118	\$ 0.118	\$ 0.118	\$ 0.120	\$ 0.122	\$ 0.125	\$ 0.126
<b>Adjusted Baseline</b>												
	Sep 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016
Month Use	14,913	13,502	14,126	17,716	18,797	20,147	15,794	15,211	13,554	13,484	14,387	16,198
YTD Use	14,913	28,415	42,541	60,257	79,044	99,191	114,985	130,197	143,751	157,234	171,621	187,820
Meter Demand	56	44	44	44	44	44	44	44	44	46	54	61
Month \$	\$ 1,916	\$ 1,611	\$ 1,565	\$ 1,997	\$ 1,926	\$ 2,295	\$ 2,041	\$ 1,750	\$ 1,586	\$ 1,868	\$ 2,246	\$ 2,066
YTD \$	\$ 1,916	\$ 3,528	\$ 5,092	\$ 7,090	\$ 9,015	\$ 11,311	\$ 13,352	\$ 15,102	\$ 16,689	\$ 18,557	\$ 20,803	\$ 22,869
BP Length	32	30	29	33	31	32	29	29	29	32	30	29
HDD	5	236	389	667	919	1,051	617	537	311	32	-	-
CDD	112	5	-	-	-	-	-	-	-	37	125	225
Month Rate	\$ 0.129	\$ 0.119	\$ 0.111	\$ 0.113	\$ 0.103	\$ 0.114	\$ 0.129	\$ 0.115	\$ 0.117	\$ 0.139	\$ 0.156	\$ 0.128
YTD Rate	\$ 0.129	\$ 0.124	\$ 0.120	\$ 0.118	\$ 0.114	\$ 0.114	\$ 0.116	\$ 0.116	\$ 0.116	\$ 0.118	\$ 0.121	\$ 0.122
<b>Sim Actual</b>												
	Sep 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016
Month Use	13,960	13,440	14,320	16,560	15,560	12,200	9,880	9,040	8,800	9,800	12,120	14,720
YTD Use	13,960	27,400	41,720	58,280	73,840	86,040	95,920	104,960	113,760	123,560	135,680	150,400
Meter Demand	36	32	33	36	36	32	33	31	31	34	50	44
Month \$	\$ 1,794	\$ 1,604	\$ 1,586	\$ 1,867	\$ 1,595	\$ 1,390	\$ 1,277	\$ 1,040	\$ 1,030	\$ 1,358	\$ 1,892	\$ 1,877
YTD \$	\$ 1,794	\$ 3,398	\$ 4,984	\$ 6,851	\$ 8,446	\$ 9,836	\$ 11,113	\$ 12,153	\$ 13,183	\$ 14,541	\$ 16,433	\$ 18,310
BP Length	32	30	29	33	31	32	29	29	29	32	30	29
HDD	5	236	389	667	919	1,051	617	537	311	32	-	-
CDD	112	5	-	-	-	-	-	-	-	37	125	225
Month Rate	\$ 0.129	\$ 0.119	\$ 0.111	\$ 0.113	\$ 0.103	\$ 0.114	\$ 0.129	\$ 0.115	\$ 0.117	\$ 0.139	\$ 0.156	\$ 0.128
YTD Rate	\$ 0.129	\$ 0.124	\$ 0.119	\$ 0.118	\$ 0.114	\$ 0.114	\$ 0.116	\$ 0.116	\$ 0.116	\$ 0.118	\$ 0.121	\$ 0.122
<b>Sim Actual vs. Adjusted Baseline</b>												
	Sep 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016
Month Use	-6.4%	-0.5%	1.4%	-6.5%	-17.2%	-39.4%	-37.4%	-40.6%	-35.1%	-27.3%	-15.8%	-9.1%
YTD Use	-6.4%	-3.6%	-1.3%	-3.3%	-6.6%	-13.3%	-16.6%	-19.4%	-20.9%	-21.4%	-20.9%	-19.9%
Meter Demand	-35.5%	-26.5%	-24.2%	-17.3%	-17.3%	-26.5%	-24.2%	-28.8%	-28.8%	-26.1%	-7.7%	-27.5%
YTD Meter Demand	-35.5%	-31.5%	-29.3%	-26.5%	-24.7%	-25.0%	-24.9%	-25.4%	-25.7%	-25.8%	-23.8%	-24.2%
Month \$	-6.4%	-0.5%	1.4%	-6.5%	-17.2%	-39.4%	-37.4%	-40.6%	-35.1%	-27.3%	-15.8%	-9.1%
YTD \$	-6.4%	-3.7%	-2.1%	-3.4%	-6.3%	-13.0%	-16.8%	-19.5%	-21.0%	-21.6%	-21.0%	-19.9%
BP Length	-	-	-	-	-	-	-	-	-	-	-	-
HDD	-	-	-	-	-	-	-	-	-	-	-	-
CDD	-	-	-	-	-	-	-	-	-	-	-	-
<b>Use Avoidance</b>												
Month Use	953	62	(194)	1,156	3,227	7,947	5,914	6,171	4,754	3,684	2,267	1,478
YTD Use	953	1,015	821	1,977	5,204	13,151	19,065	25,237	29,991	33,674	35,941	37,420
<b>Demand Avoidance</b>												
Meter Demand	20	12	11	8	8	12	11	13	13	12	4	17
<b>Cost Avoidance</b>												
Month Use \$	\$ 122	\$ 7	\$ (21)	\$ 130	\$ 331	\$ 905	\$ 764	\$ 710	\$ 556	\$ 510	\$ 354	\$ 189
YTD \$	\$ 122	\$ 130	\$ 108	\$ 239	\$ 569	\$ 1,475	\$ 2,239	\$ 2,949	\$ 3,506	\$ 4,016	\$ 4,370	\$ 4,559



# Appendix – Option C Meter Details

Town of Mamaroneck Yr. 1 Meter Detail Report												
Baseline: Usage and costs representative of the facility's operations for the baseline period as set Adjusted Baseline: Baseline usage and Cost adjusted to SimActual: Current year usage and calculated costs using the applicable contract rate. (Includes: weather)												
Meter: Ice Rink-Ele #3 0000-5												
<b>Baseline</b>												
	Sep 2013	Oct 2013	Nov 2013	Dec 2013	Jan 2013	Feb 2013	Mar 2013	Apr 2013	May 2013	Jun 2013	Jul 2013	Aug 2013
Month Use	1,440	1,880	1,840	2,680	3,120	2,360	2,160	1,960	1,640	1,360	1,480	1,080
YTD Use	1,440	3,320	5,160	7,840	10,960	13,320	15,480	17,440	19,080	20,440	21,920	23,000
Meter Demand	8	14	15	15	15	14	14	13	11	11	10	12
Month \$	\$ 326	\$ 458	\$ 429	\$ 537	\$ 546	\$ 426	\$ 477	\$ 429	\$ 366	\$ 355	\$ 371	\$ 369
YTD \$	\$ 326	\$ 784	\$ 1,213	\$ 1,750	\$ 2,296	\$ 2,722	\$ 3,199	\$ 3,628	\$ 3,994	\$ 4,349	\$ 4,721	\$ 5,089
BP Length	30	32	29	31	33	30	29	31	29	30	32	29
HDD	99	288	658	1,101	1,170	1,220	930	709	383	146	-	25
CDD	162	12	-	-	-	-	-	-	10	85	415	152
Month Rate	\$ 0.226	\$ 0.244	\$ 0.233	\$ 0.200	\$ 0.175	\$ 0.180	\$ 0.221	\$ 0.219	\$ 0.223	\$ 0.261	\$ 0.251	\$ 0.341
YTD Rate	\$ 0.226	\$ 0.236	\$ 0.235	\$ 0.223	\$ 0.210	\$ 0.204	\$ 0.207	\$ 0.208	\$ 0.209	\$ 0.213	\$ 0.215	\$ 0.221
<b>Adjusted Baseline</b>												
	Sep 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016
Month Use	1,382	1,660	1,793	2,291	2,476	2,670	2,045	1,959	1,708	1,454	1,281	1,235
YTD Use	1,382	3,042	4,834	7,125	9,601	12,271	14,316	16,275	17,983	19,437	20,718	21,952
Meter Demand	10	12	12	13	16	18	14	14	11	10	10	10
Month \$	\$ 141	\$ 187	\$ 206	\$ 242	\$ 232	\$ 265	\$ 217	\$ 187	\$ 187	\$ 184	\$ 163	\$ 129
YTD \$	\$ 141	\$ 329	\$ 534	\$ 777	\$ 1,008	\$ 1,274	\$ 1,491	\$ 1,678	\$ 1,865	\$ 2,049	\$ 2,212	\$ 2,341
BP Length	32	30	29	33	31	32	29	29	29	32	30	29
HDD	18	345	503	799	1,043	1,179	731	653	427	83	3	-
CDD	250	18	2	-	-	-	2	-	-	128	270	370
Month Rate	\$ 0.102	\$ 0.113	\$ 0.115	\$ 0.106	\$ 0.094	\$ 0.099	\$ 0.106	\$ 0.096	\$ 0.109	\$ 0.126	\$ 0.127	\$ 0.104
YTD Rate	\$ 0.102	\$ 0.108	\$ 0.111	\$ 0.109	\$ 0.105	\$ 0.104	\$ 0.104	\$ 0.103	\$ 0.104	\$ 0.105	\$ 0.107	\$ 0.107
<b>SimActual</b>												
	Sep 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016
Month Use	25,200	18,040	15,760	18,680	18,240	18,320	14,320	13,520	11,640	12,240	12,320	18,320
YTD Use	25,200	43,240	59,000	77,680	95,920	114,240	128,560	142,080	153,720	165,960	178,280	196,600
Meter Demand	42	40	40	36	36	41	35	36	38	37	36	37
Month \$	\$ 2,576	\$ 2,036	\$ 1,809	\$ 1,975	\$ 1,707	\$ 1,821	\$ 1,519	\$ 1,294	\$ 1,274	\$ 1,548	\$ 1,570	\$ 1,913
YTD \$	\$ 2,576	\$ 4,612	\$ 6,421	\$ 8,396	\$ 10,103	\$ 11,924	\$ 13,443	\$ 14,737	\$ 16,011	\$ 17,559	\$ 19,129	\$ 21,042
BP Length	32	30	29	33	31	32	29	29	29	32	30	29
HDD	18	345	503	799	1,043	1,179	731	653	427	83	3	-
CDD	250	18	2	-	-	-	2	-	-	128	270	370
Month Rate	\$ 0.102	\$ 0.113	\$ 0.115	\$ 0.106	\$ 0.094	\$ 0.099	\$ 0.106	\$ 0.096	\$ 0.109	\$ 0.126	\$ 0.127	\$ 0.104
YTD Rate	\$ 0.102	\$ 0.107	\$ 0.109	\$ 0.108	\$ 0.105	\$ 0.104	\$ 0.105	\$ 0.104	\$ 0.104	\$ 0.106	\$ 0.107	\$ 0.107
<b>SimActual vs. Adjusted Baseline</b>												
	Sep 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016
Month Use	1723.7%	986.8%	779.2%	715.5%	636.7%	586.1%	600.3%	590.2%	581.4%	741.6%	862.1%	1383.8%
YTD Use	1723.7%	1321.6%	1120.5%	990.3%	899.1%	831.0%	798.0%	773.0%	754.8%	753.8%	760.5%	795.6%
Meter Demand	309.8%	221.0%	229.6%	172.7%	125.2%	127.3%	148.2%	161.4%	233.4%	261.0%	251.3%	261.0%
YTD Meter Demand	309.8%	261.1%	250.1%	228.8%	203.0%	186.3%	180.7%	178.3%	183.5%	189.5%	194.0%	198.5%
Month \$	1723.7%	986.8%	779.2%	715.5%	636.7%	586.1%	600.3%	590.2%	581.4%	741.6%	862.1%	1383.8%
YTD \$	1723.7%	1303.6%	1101.7%	981.2%	902.0%	836.2%	801.9%	778.2%	758.5%	757.0%	764.7%	798.8%
BP Length	-	-	-	-	-	-	-	-	-	-	-	-
HDD	-	-	-	-	-	-	-	-	-	-	-	-
CDD	-	-	-	-	-	-	-	-	-	-	-	-
<b>Use Avoidance</b>												
Month Use	(23,818)	(16,380)	(13,967)	(16,389)	(15,764)	(15,650)	(12,275)	(11,561)	(9,932)	(10,786)	(11,039)	(17,085)
YTD Use	(23,818)	(40,198)	(54,166)	(70,555)	(86,319)	(101,969)	(114,244)	(125,805)	(135,737)	(146,523)	(157,562)	(174,648)
<b>Demand Avoidance</b>												
Meter Demand	(32)	(28)	(28)	(23)	(20)	(23)	(21)	(22)	(27)	(27)	(26)	(27)
<b>Cost Avoidance</b>												
Month Use \$	\$ (2,435)	\$ (1,849)	\$ (1,603)	\$ (1,733)	\$ (1,475)	\$ (1,556)	\$ (1,302)	\$ (1,107)	\$ (1,087)	\$ (1,364)	\$ (1,407)	\$ (1,784)
YTD \$	\$ (2,435)	\$ (4,283)	\$ (5,887)	\$ (7,619)	\$ (9,095)	\$ (10,650)	\$ (11,952)	\$ (13,059)	\$ (14,146)	\$ (15,510)	\$ (16,917)	\$ (18,701)



# Appendix – Option C Meter Details

Town of Mamaroneck Yr. 1 Meter Detail Report												
Baseline: Usage and costs representative of the facility's operations for the baseline period as set Adjusted Baseline: Baseline usage and Cost adjusted to SimActual: Current year usage and calculated costs using the applicable contract rate. (Includes: weather)												
<b>Meter: Ice Rink-Ele Main 8200</b>												
<b>Baseline</b>												
	Sep 2013	Oct 2013	Nov 2013	Dec 2013	Jan 2013	Feb 2013	Mar 2013	Apr 2013	May 2013	Jun 2013	Jul 2013	Aug 2013
Month Use	76,160	78,160	83,760	74,320	87,040	72,640	63,040	66,080	64,720	77,120	22,400	12,160
YTD Use	76,160	154,320	238,080	312,400	399,440	472,080	535,120	601,200	665,920	743,040	765,440	777,600
Meter Demand	170	126	122	118	117	116	116	121	123	196	106	36
Month \$	\$ 10,084	\$ 6,557	\$ 6,320	\$ 7,188	\$ 7,112	\$ 5,741	\$ 6,709	\$ 6,635	\$ 6,469	\$ 8,728	\$ 4,230	\$ 2,760
YTD \$	\$ 10,084	\$ 16,641	\$ 22,961	\$ 30,148	\$ 37,261	\$ 43,002	\$ 49,711	\$ 56,345	\$ 62,814	\$ 71,542	\$ 75,772	\$ 78,533
BP Length	30	32	29	31	33	30	29	31	29	30	32	29
HDD	314	606	948	1,411	1,500	1,520	1,220	1,019	670	413	77	258
CDD	162	12	-	-	-	-	-	-	10	85	415	152
Month Rate	\$ 0.132	\$ 0.084	\$ 0.075	\$ 0.097	\$ 0.082	\$ 0.079	\$ 0.106	\$ 0.100	\$ 0.100	\$ 0.113	\$ 0.189	\$ 0.227
YTD Rate	\$ 0.132	\$ 0.108	\$ 0.096	\$ 0.097	\$ 0.093	\$ 0.091	\$ 0.093	\$ 0.094	\$ 0.094	\$ 0.096	\$ 0.099	\$ 0.101
<b>Adjusted Baseline</b>												
	Sep 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016
Month Use	81,045	73,275	83,760	79,595	81,765	76,988	62,996	61,817	64,620	80,052	21,000	12,441
YTD Use	81,045	154,320	238,080	317,675	399,440	476,428	539,424	601,241	665,861	745,912	766,912	779,353
Meter Demand	167	126	122	118	117	116	116	121	123	191	106	38
Month \$	\$ 9,225	\$ 9,358	\$ 9,965	\$ 8,645	\$ 7,903	\$ 7,636	\$ 7,205	\$ 6,387	\$ 7,119	\$ 9,556	\$ 3,313	\$ 1,669
YTD \$	\$ 9,225	\$ 18,582	\$ 28,547	\$ 37,192	\$ 45,095	\$ 52,732	\$ 59,936	\$ 66,323	\$ 73,442	\$ 82,998	\$ 86,310	\$ 87,980
BP Length	32	30	29	33	31	32	29	29	29	32	30	29
HDD	209	638	793	1,129	1,353	1,499	1,021	943	717	353	160	69
CDD	250	18	2	-	-	-	2	-	-	128	270	370
Month Rate	\$ 0.114	\$ 0.128	\$ 0.119	\$ 0.109	\$ 0.097	\$ 0.099	\$ 0.114	\$ 0.103	\$ 0.110	\$ 0.119	\$ 0.158	\$ 0.134
YTD Rate	\$ 0.114	\$ 0.120	\$ 0.120	\$ 0.117	\$ 0.113	\$ 0.111	\$ 0.111	\$ 0.110	\$ 0.110	\$ 0.111	\$ 0.113	\$ 0.113
<b>SimActual</b>												
	Sep 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016
Month Use	62,080	44,000	50,240	66,080	64,640	60,560	48,800	45,200	40,320	46,720	29,840	40,880
YTD Use	62,080	106,080	156,320	222,400	287,040	347,600	396,400	441,600	481,920	528,640	558,480	599,360
Meter Demand	129	121	135	136	136	135	138	135	134	128	124	129
Month \$	\$ 7,066	\$ 5,619	\$ 5,977	\$ 7,177	\$ 6,248	\$ 6,007	\$ 5,581	\$ 4,670	\$ 4,442	\$ 5,577	\$ 4,707	\$ 5,485
YTD \$	\$ 7,066	\$ 12,685	\$ 18,662	\$ 25,839	\$ 32,087	\$ 38,094	\$ 43,675	\$ 48,345	\$ 52,787	\$ 58,364	\$ 63,071	\$ 68,556
BP Length	32	30	29	33	31	32	29	29	29	32	30	29
HDD	209	638	793	1,129	1,353	1,499	1,021	943	717	353	160	69
CDD	250	18	2	-	-	-	2	-	-	128	270	370
Month Rate	\$ 0.114	\$ 0.128	\$ 0.119	\$ 0.109	\$ 0.097	\$ 0.099	\$ 0.114	\$ 0.103	\$ 0.110	\$ 0.119	\$ 0.158	\$ 0.134
YTD Rate	\$ 0.114	\$ 0.120	\$ 0.119	\$ 0.116	\$ 0.112	\$ 0.110	\$ 0.110	\$ 0.109	\$ 0.110	\$ 0.110	\$ 0.113	\$ 0.114
<b>SimActual vs. Adjusted Baseline</b>												
	Sep 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016
Month Use	-23.4%	-40.0%	-40.0%	-17.0%	-20.9%	-21.3%	-22.5%	-26.9%	-37.6%	-41.6%	42.1%	228.6%
YTD Use	-23.4%	-31.3%	-34.3%	-30.0%	-28.1%	-27.0%	-26.5%	-26.6%	-27.6%	-29.1%	-27.2%	-23.1%
Meter Demand	-22.7%	-3.7%	11.0%	15.7%	16.4%	16.4%	18.8%	11.8%	8.8%	-32.9%	17.4%	235.9%
YTD Meter Demand	-22.7%	-14.5%	-7.0%	-2.0%	1.3%	3.6%	5.6%	6.4%	6.6%	0.9%	2.1%	8.3%
Month \$	-23.4%	-40.0%	-40.0%	-17.0%	-20.9%	-21.3%	-22.5%	-26.9%	-37.6%	-41.6%	42.1%	228.6%
YTD \$	-23.4%	-31.7%	-34.6%	-30.5%	-28.8%	-27.8%	-27.1%	-27.1%	-28.1%	-29.7%	-26.9%	-22.1%
BP Length	-	-	-	-	-	-	-	-	-	-	-	-
HDD	-	-	-	-	-	-	-	-	-	-	-	-
CDD	-	-	-	-	-	-	-	-	-	-	-	-
<b>Use Avoidance</b>												
Month Use	18,965	29,275	33,520	13,515	17,125	16,428	14,196	16,617	24,300	33,332	(8,840)	(28,439)
YTD Use	18,965	48,240	81,760	95,275	112,400	128,828	143,024	159,641	183,941	217,272	208,432	179,993
<b>Demand Avoidance</b>												
Meter Demand	38	5	(13)	(18)	(19)	(19)	(22)	(14)	(11)	63	(18)	(91)
<b>Cost Avoidance</b>												
Month Use \$	\$ 2,159	\$ 3,739	\$ 3,988	\$ 1,468	\$ 1,655	\$ 1,629	\$ 1,624	\$ 1,717	\$ 2,677	\$ 3,979	\$ (1,394)	\$ (3,816)
YTD \$	\$ 2,159	\$ 5,897	\$ 9,885	\$ 11,353	\$ 13,008	\$ 14,638	\$ 16,261	\$ 17,978	\$ 20,655	\$ 24,634	\$ 23,239	\$ 19,424



# Appendix – Option C Meter Details

Town of Mamaroneck Yr. 1 Meter Detail Report												
Baseline: Usage and costs representative of the facility's operations for the baseline period as set Adjusted Baseline: Baseline usage and Cost adjusted to												
SimActual: Current year usage and calculated costs using the applicable contract rate. (Includes: weather												
<b>Meter: Town Center - Fuel Oil</b>												
<b>Baseline</b>												
	Sep 2013	Oct 2013	Nov 2013	Dec 2013	Jan 2013	Feb 2013	Mar 2013	Apr 2013	May 2013	Jun 2013	Jul 2013	Aug 2013
Month Use	173	409	1,029	1,418	1,524	1,397	1,229	705	321	39	3	2
YTD Use	173	582	1,611	3,029	4,553	5,950	7,179	7,884	8,205	8,244	8,247	8,249
Month \$	\$ 598	\$ 1,413	\$ 3,556	\$ 4,900	\$ 5,266	\$ 4,828	\$ 4,247	\$ 2,436	\$ 1,109	\$ 135	\$ 10	\$ 7
YTD \$	\$ 598	\$ 2,011	\$ 5,567	\$ 10,467	\$ 15,733	\$ 20,561	\$ 24,808	\$ 27,244	\$ 28,353	\$ 28,488	\$ 28,498	\$ 28,505
BP Length	30	31	30	31	31	28	31	30	31	30	31	31
HDD	117	278	698	962	1,034	948	833	478	218	27	2	2
CDD	73	12	-	-	-	-	-	-	41	154	372	185
Month Rate	\$ 3.457	\$ 3.455	\$ 3.456	\$ 3.456	\$ 3.455	\$ 3.456	\$ 3.456	\$ 3.455	\$ 3.455	\$ 3.462	\$ 3.333	\$ 3.500
YTD Rate	\$ 3.457	\$ 3.455	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456
<b>Adjusted Baseline</b>												
	Sep 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016
Month Use	27	536	734	858	1,556	1,313	919	723	336	21	0	0
YTD Use	27	563	1,296	2,155	3,710	5,024	5,942	6,666	7,002	7,023	7,023	7,023
Month \$	\$ 92	\$ 1,853	\$ 2,536	\$ 2,966	\$ 5,377	\$ 4,538	\$ 3,175	\$ 2,500	\$ 1,162	\$ 72	\$ 0	\$ 0
YTD \$	\$ 92	\$ 1,945	\$ 4,480	\$ 7,446	\$ 12,823	\$ 17,362	\$ 20,537	\$ 23,037	\$ 24,199	\$ 24,271	\$ 24,271	\$ 24,271
BP Length	30	31	30	31	31	29	31	30	31	30	31	31
HDD	18	364	498	582	1,055	891	623	491	228	14	-	-
CDD	172	-	2	-	-	-	2	-	62	125	351	343
Month Rate	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456
YTD Rate	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456
<b>SimActual</b>												
	Sep 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016
Month Use	4	76	104	122	222	187	131	103	48	3	-	-
YTD Use	4	80	184	306	528	715	846	949	997	1,000	1,000	1,000
Month \$	\$ 14	\$ 263	\$ 359	\$ 422	\$ 767	\$ 646	\$ 453	\$ 356	\$ 166	\$ 10	\$ -	\$ -
YTD \$	\$ 14	\$ 276	\$ 636	\$ 1,058	\$ 1,825	\$ 2,471	\$ 2,924	\$ 3,280	\$ 3,446	\$ 3,456	\$ 3,456	\$ 3,456
BP Length	30	31	30	31	31	29	31	30	31	30	31	31
HDD	18	364	498	582	1,055	891	623	491	228	14	-	-
CDD	172	-	2	-	-	-	2	-	62	125	351	343
Month Rate	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ -	\$ -
YTD Rate	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456	\$ 3.456
<b>SimActual vs. Adjusted Baseline</b>												
	Sep 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016
Month Use	-85.0%	-85.8%	-85.8%	-85.8%	-85.7%	-85.8%	-85.7%	-85.8%	-85.7%	-85.5%	-100.0%	-100.0%
YTD Use	-85.0%	-85.8%	-85.8%	-85.8%	-85.8%	-85.8%	-85.8%	-85.8%	-85.8%	-85.8%	-85.8%	-85.8%
Month \$	-85.0%	-85.8%	-85.8%	-85.8%	-85.7%	-85.8%	-85.7%	-85.8%	-85.7%	-85.5%	-100.0%	-100.0%
YTD \$	-85.0%	-85.8%	-85.8%	-85.8%	-85.8%	-85.8%	-85.8%	-85.8%	-85.8%	-85.8%	-85.8%	-85.8%
BP Length	-	-	-	-	-	-	-	-	-	-	-	-
HDD	-	-	-	-	-	-	-	-	-	-	-	-
CDD	-	-	-	-	-	-	-	-	-	-	-	-
<b>Use Avoidance</b>												
Month Use	23	460	630	736	1,334	1,126	788	620	288	18	0	0
YTD Use	23	483	1,112	1,849	3,182	4,309	5,096	5,717	6,005	6,023	6,023	6,023
<b>Cost Avoidance</b>												
Month Use \$	\$ 78	\$ 1,590	\$ 2,176	\$ 2,545	\$ 4,610	\$ 3,892	\$ 2,722	\$ 2,144	\$ 996	\$ 61	\$ 0	\$ 0
YTD \$	\$ 78	\$ 1,668	\$ 3,844	\$ 6,389	\$ 10,999	\$ 14,891	\$ 17,613	\$ 19,757	\$ 20,753	\$ 20,815	\$ 20,815	\$ 20,815



# Appendix – Option C Meter Details

Town of Mamaroneck Yr. 1 Meter Detail Report												
Baseline: Usage and costs representative of the facility's operations for the baseline period as seen. Adjusted Baseline: Baseline usage and Cost adjusted to reflect weather. (Includes: weather)												
SimActual: Current year usage and calculated costs using the applicable contract rate. (Includes: weather)												
<b>Meter: Town Ctr - NG 4018</b>												
<b>Baseline</b>												
	Sep 2013	Oct 2013	Nov 2013	Dec 2013	Jan 2013	Feb 2013	Mar 2013	Apr 2013	May 2013	Jun 2013	Jul 2013	Aug 2013
Month Use	8	9	10	13	14	15	11	11	11	10	9	8
YTD Use	8	17	27	40	54	69	80	91	102	112	121	129
Month \$	\$ 40	\$ 41	\$ 45	\$ 47	\$ 52	\$ 50	\$ 44	\$ 46	\$ 44	\$ 42	\$ 44	\$ 39
YTD \$	\$ 40	\$ 80	\$ 125	\$ 172	\$ 225	\$ 274	\$ 319	\$ 365	\$ 409	\$ 451	\$ 495	\$ 534
BP Length	30	29	32	30	34	30	29	31	29	30	32	29
HDD	16	41	419	801	899	950	669	434	151	30	-	-
CDD	162	12	-	-	-	-	-	-	10	85	415	152
Month Rate	\$ 4.990	\$ 4.500	\$ 4.484	\$ 3.615	\$ 3.739	\$ 3.325	\$ 4.005	\$ 4.183	\$ 4.038	\$ 4.199	\$ 4.862	\$ 4.894
YTD Rate	\$ 4.990	\$ 4.731	\$ 4.639	\$ 4.307	\$ 4.159	\$ 3.978	\$ 3.982	\$ 4.006	\$ 4.009	\$ 4.026	\$ 4.089	\$ 4.138
<b>Adjusted Baseline</b>												
	Sep 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016
Month Use	9	9	10	12	13	14	11	10	9	9	9	8
YTD Use	9	18	28	40	54	68	78	89	98	108	116	125
Month \$	\$ 39	\$ -	\$ 40	\$ 50	\$ 56	\$ 11	\$ 9	\$ 8	\$ 9	\$ -	\$ 36	\$ 34
YTD \$	\$ 39	\$ 39	\$ 79	\$ 129	\$ 185	\$ 196	\$ 205	\$ 213	\$ 223	\$ 223	\$ 259	\$ 292
BP Length	32	29	30	32	32	32	29	29	29	32	30	29
HDD	-	128	252	494	771	891	477	397	178	4	-	-
CDD	250	18	2	-	-	-	2	-	-	128	270	370
Month Rate	\$ 4.200	\$ -	\$ 4.000	\$ 4.200	\$ 4.200	\$ 0.805	\$ 0.805	\$ 0.800	\$ 1.015	\$ -	\$ 4.100	\$ 4.000
YTD Rate	\$ 4.200	\$ 2.125	\$ 2.786	\$ 3.202	\$ 3.449	\$ 2.905	\$ 2.613	\$ 2.399	\$ 2.267	\$ 2.070	\$ 2.223	\$ 2.343
<b>SimActual</b>												
	Sep 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016
Month Use	10	-	10	10	10	1,910	1,243	832	205	-	10	10
YTD Use	10	10	20	30	40	1,950	3,193	4,025	4,230	4,230	4,240	4,250
Month \$	\$ 42	\$ -	\$ 40	\$ 42	\$ 42	\$ 1,538	\$ 1,001	\$ 666	\$ 208	\$ -	\$ 41	\$ 40
YTD \$	\$ 42	\$ 42	\$ 82	\$ 124	\$ 166	\$ 1,704	\$ 2,705	\$ 3,371	\$ 3,579	\$ 3,579	\$ 3,620	\$ 3,660
BP Length	32	29	30	32	32	32	29	29	29	32	30	29
HDD	-	128	252	494	771	891	477	397	178	4	-	-
CDD	250	18	2	-	-	-	2	-	-	128	270	370
Month Rate	\$ 4.200	\$ -	\$ 4.000	\$ 4.200	\$ 4.200	\$ 0.805	\$ 0.805	\$ 0.800	\$ 1.015	\$ -	\$ 4.100	\$ 4.000
YTD Rate	\$ 4.200	\$ 4.200	\$ 4.100	\$ 4.133	\$ 4.150	\$ 0.874	\$ 0.847	\$ 0.838	\$ 0.846	\$ 0.846	\$ 0.854	\$ 0.861
<b>SimActual vs. Adjusted Baseline</b>												
	Sep 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016
Month Use	7.3%	-100.0%	-0.3%	-15.7%	-24.8%	13631.7%	11303.7%	7831.1%	2090.3%	-100.0%	14.5%	18.4%
YTD Use	7.3%	-45.7%	-29.7%	-25.6%	-25.4%	2788.2%	3971.9%	4427.2%	4204.7%	3831.1%	3544.5%	3305.9%
Month \$	7.3%	-	-0.3%	-15.7%	-24.8%	13631.7%	11303.6%	7831.1%	2090.3%	-	14.5%	18.4%
YTD \$	7.3%	7.3%	3.5%	-3.9%	-10.2%	768.9%	1220.2%	1480.5%	1506.5%	1506.5%	1299.8%	1151.8%
BP Length	-	-	-	-	-	-	-	-	-	-	-	-
HDD	-	-	-	-	-	-	-	-	-	-	-	-
CDD	-	-	-	-	-	-	-	-	-	-	-	-
<b>Use Avoidance</b>												
Month Use	(1)	9	0	2	3	(1,896)	(1,232)	(822)	(196)	9	(1)	(2)
YTD Use	(1)	8	8	10	14	(1,882)	(3,115)	(3,936)	(4,132)	(4,122)	(4,124)	(4,125)
<b>Cost Avoidance</b>												
Month Use \$	\$ (3)	\$ -	\$ 0	\$ 8	\$ 14	\$ (1,527)	\$ (992)	\$ (658)	\$ (199)	\$ -	\$ (5)	\$ (6)
YTD \$	\$ (3)	\$ (3)	\$ (3)	\$ 5	\$ 19	\$ (1,508)	\$ (2,500)	\$ (3,158)	\$ (3,356)	\$ (3,356)	\$ (3,361)	\$ (3,368)



# Appendix – Option C Meter Details

Town of Mamaroneck Yr. 1 Meter Detail Report												
Baseline: Usage and costs representative of the facility's operations for the baseline period as set Adjusted Baseline: Baseline usage and Cost adjusted to SimActual: Current year usage and calculated costs using the applicable contract rate. (Includes: weather												
Meter: Weaver St Fire NG 8400												
Baseline												
	Sep 2013	Oct 2013	Nov 2013	Dec 2013	Jan 2013	Feb 2013	Mar 2013	Apr 2013	May 2013	Jun 2013	Jul 2013	Aug 2013
Month Use	128	198	450	964	1,021	925	631	254	136	134	137	129
YTD Use	128	326	776	1,740	2,761	3,686	4,317	4,571	4,707	4,841	4,978	5,107
Month \$	\$ 184	\$ 297	\$ 532	\$ 1,147	\$ 1,220	\$ 1,093	\$ 765	\$ 352	\$ 216	\$ 199	\$ 207	\$ 186
YTD \$	\$ 184	\$ 482	\$ 1,014	\$ 2,161	\$ 3,381	\$ 4,474	\$ 5,239	\$ 5,591	\$ 5,807	\$ 6,006	\$ 6,213	\$ 6,399
BP Length	30	32	29	34	30	30	31	29	30	29	32	29
HDD	34	145	481	897	863	843	671	320	110	4	-	-
CDD	101	12	-	-	-	-	-	-	30	146	386	161
Month Rate	\$ 1.441	\$ 1.502	\$ 1.183	\$ 1.190	\$ 1.195	\$ 1.182	\$ 1.213	\$ 1.386	\$ 1.589	\$ 1.484	\$ 1.510	\$ 1.441
YTD Rate	\$ 1.441	\$ 1.478	\$ 1.307	\$ 1.242	\$ 1.224	\$ 1.214	\$ 1.214	\$ 1.223	\$ 1.234	\$ 1.241	\$ 1.248	\$ 1.253
Adjusted Baseline												
	Sep 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016
Month Use	83	259	463	470	942	832	488	402	203	73	75	78
YTD Use	83	342	805	1,275	2,216	3,049	3,537	3,939	4,142	4,215	4,291	4,369
Month \$	\$ 102	\$ 243	\$ 446	\$ 554	\$ 836	\$ 739	\$ 476	\$ 344	\$ 195	\$ 86	\$ 92	\$ 93
YTD \$	\$ 102	\$ 345	\$ 791	\$ 1,344	\$ 2,181	\$ 2,920	\$ 3,396	\$ 3,739	\$ 3,935	\$ 4,020	\$ 4,112	\$ 4,205
BP Length	32	30	33	30	31	31	29	29	32	29	30	31
HDD	3	191	396	411	900	786	433	343	128	-	-	-
CDD	195	8	2	-	-	-	2	-	62	117	338	344
Month Rate	\$ 1.227	\$ 0.938	\$ 0.964	\$ 1.178	\$ 0.888	\$ 0.888	\$ 0.976	\$ 0.855	\$ 0.960	\$ 1.175	\$ 1.218	\$ 1.193
YTD Rate	\$ 1.227	\$ 1.008	\$ 0.983	\$ 1.055	\$ 0.984	\$ 0.958	\$ 0.960	\$ 0.949	\$ 0.950	\$ 0.954	\$ 0.958	\$ 0.963
SimActual												
	Sep 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016
Month Use	88	194	439	471	1,232	997	490	365	201	114	110	109
YTD Use	88	282	721	1,192	2,424	3,421	3,911	4,276	4,477	4,591	4,701	4,810
Month \$	\$ 108	\$ 182	\$ 423	\$ 555	\$ 1,094	\$ 885	\$ 478	\$ 312	\$ 193	\$ 134	\$ 134	\$ 130
YTD \$	\$ 108	\$ 290	\$ 713	\$ 1,268	\$ 2,362	\$ 3,247	\$ 3,725	\$ 4,037	\$ 4,230	\$ 4,364	\$ 4,498	\$ 4,628
BP Length	32	30	33	30	31	31	29	29	32	29	30	31
HDD	3	191	396	411	900	786	433	343	128	-	-	-
CDD	195	8	2	-	-	-	2	-	62	117	338	344
Month Rate	\$ 1.227	\$ 0.938	\$ 0.964	\$ 1.178	\$ 0.888	\$ 0.888	\$ 0.976	\$ 0.855	\$ 0.960	\$ 1.175	\$ 1.218	\$ 1.193
YTD Rate	\$ 1.227	\$ 1.028	\$ 0.989	\$ 1.064	\$ 0.974	\$ 0.949	\$ 0.952	\$ 0.944	\$ 0.945	\$ 0.951	\$ 0.957	\$ 0.962
SimActual vs. Adjusted Baseline												
	Sep 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016
Month Use	6.1%	-25.0%	-5.2%	0.2%	30.8%	19.8%	0.4%	-9.2%	-1.2%	56.2%	45.7%	39.7%
YTD Use	6.1%	-17.5%	-10.4%	-6.5%	9.4%	12.2%	10.6%	8.6%	8.1%	8.9%	9.6%	10.1%
Month \$	6.1%	-25.0%	-5.2%	0.2%	30.8%	19.8%	0.4%	-9.2%	-1.2%	56.2%	45.7%	39.7%
YTD \$	6.1%	-15.8%	-9.8%	-5.7%	8.3%	11.2%	9.7%	8.0%	7.5%	8.5%	9.4%	10.0%
BP Length	-	-	-	-	-	-	-	-	-	-	-	-
HDD	-	-	-	-	-	-	-	-	-	-	-	-
CDD	-	-	-	-	-	-	-	-	-	-	-	-
Use Avoidance												
Month Use	(5)	65	24	(1)	(290)	(165)	(2)	37	2	(41)	(35)	(31)
YTD Use	(5)	60	84	83	(208)	(372)	(374)	(337)	(335)	(376)	(410)	(441)
Cost Avoidance												
Month Use \$	\$ (6)	\$ 61	\$ 23	\$ (1)	\$ (258)	\$ (146)	\$ (2)	\$ 32	\$ 2	\$ (48)	\$ (42)	\$ (37)
YTD \$	\$ (6)	\$ 55	\$ 78	\$ 76	\$ (181)	\$ (327)	\$ (329)	\$ (298)	\$ (295)	\$ (344)	\$ (386)	\$ (423)

# Appendix – EMS Scheduling/Setpoints

## 5.6 EMS Scheduling/Setpoints

<b>Town Center - Year 1 EMS Scheduling / Setpoints</b>										
Town Center	Year 1			Year 1	Year 1	Contractual	Heating Occupied	Heating UnOccupied	Cooling Occupied	Cooling UnOccupied
Time Program	Time Schedule	Days	# of Days	Hrs / Day	Hrs / Week	Hours / Week	Setpoints	Setpoints	Setpoints	Setpoints
General Schedule	5:30AM - 4PM	Mon-Fri	5	10.5	52.5	59	70	60	74	85
Court Clerk	5:30AM - 10PM	Mon	1	16.5	16.5					
Court Clerk	6AM - 4:30PM	Tue - Fri	4	10.5	42					
Court Clerk			5		58.5	59				
Court Room	4:30PM - 10PM	Mon	1	5.5	5.5		70	60	74	85
Court Room	4:30PM - 5:30PM	Tues	1	1	1		70	60	74	85
Court Room	6PM - 10PM	Wed	1	4	4		70	60	74	85
Court Room			3		10.5	59			74	85
Conf. Rm C	7AM - 10:30PM	Mon, Wed	2	15.5	31		70	60	74	85
Conf. Rm C	7AM - 3PM	Tue, Fri	2	8	16		70	60	74	85
Conf. Rm C	7AM - 7PM	Thur	1	12	12		70	60	74	85
			5		59	59				
Conf. Rm D	7AM - 10:30PM	Mon, Wed	2	15.5	31		70	60	74	85
Conf. Rm D	7AM - 3PM	Tue, Fri	2	8	16		70	60	74	85
Conf. Rm D	7AM - 7PM	Thur	1	12	12		70	60	74	85
			5		59	59				
Admin. Office	5:30AM - 4:30PM	Mon	1	11	11		70	60	74	85
Admin. Office	6AM - 4:30PM	Tue - Fri	4	10.5	42		70	60	74	85
					53	59				



## Appendix – EMS Scheduling/Setpoints

Fire Dept HQ's - EMS Scheduling / Setpoints								Heating	Heating	Cooling	Cooling
Weaver St Fire Dept HQ's	T-Stat	Year 1			Year 1	Year 1	Contractual	Occupied	UnOccupied	Occupied	UnOccupied
Location	Location	Time Schedule	Days	# of Days	Hrs / Day	Hrs / Week	Hours / Week	Setpoints	Setpoints	Setpoints	Setpoints
Fire Dept HQ's	Basement Kitchen	12PM - 9PM	Mon - Fri	5	9	45	45	70	64	74	74
		9AM - 5PM	Sat / Sun	2	8	16	16				
						61	61				
Basement Club Room	Basement Club Room	12PM - 9PM	Mon - Fri	5	9	45	45	70	64	74	74
		9AM - 5PM	Sat / Sun	2	8	16	16				
						61	61				
1st Floor Foyer	1st Floor Foyer	12PM - 9PM	Mon - Fri	5	9	45	45	70	64	74	74
		9AM - 5PM	Sat / Sun	2	8	16	16				
						61	61				
1st Floor Day Room	1st Floor Day Room	12PM - 9PM	Mon - Fri	5	9	45	45	68	65	74	74
		9AM - 5PM	Sat / Sun	2	8	16	16				
						61	61				
2nd Floor Chief Office	2nd Floor Chief Office	12PM - 9PM	Mon - Fri	5	9	45	45	68	68	74	74
		9AM - 5PM	Sat / Sun	2	8	16	16				
						61	61				
2nd Floor Conf. Room	2nd Floor Conf. Room	12PM - 9PM	Mon - Fri	5	9	45	45	65	65	74	74
		9AM - 5PM	Sat / Sun	2	8	16	16				
						61	61				
2nd Floor Training Aud. West	2nd Floor Training Aud. West	12PM - 9PM	Mon - Fri	5	9	45	45	68	65	74	74
		9AM - 5PM	Sat / Sun	2	8	16	16				
						61	61				
2nd Floor Training Aud. East	2nd Floor Training Aud. East	12PM - 9PM	Mon - Fri	5	9	45	45	68	65	74	74
		9AM - 5PM	Sat / Sun	2	8	16	16				
						61	61				
2nd Floor Gym Area	2nd Floor Gym Area	24 hrs/day	Mon - Sun	7	24	168	168	65	65	74	74

## Appendix – EMS Scheduling/Setpoints

Ice Rink - EMS Scheduling / Setpoints												
Ice Rink	Time	Year 1			Year 1	Year 1	Contractual	Heating	Heating	Cooling	Cooling	
Location	Program	Time Schedule	Days	# of Days	Hrs / Day	Hrs / Week	Hours / Week	Occupied Setpoints	UnOccupied Setpoints	Occupied Setpoints	UnOccupied Setpoints	
<b>Winter Mode</b>												
Ice Rink	AHU1	11AM - 7PM	Mon, Tue	2	8	16		72	60	74	85	
		6AM - 3:30PM	Wed	1	9.5	9.5						
		9AM - 3:30PM	Thu	1	6.5	6.5						
		8AM - 3:30PM	Fri	1	7.5	7.5						
		7AM - 7PM	Sat	1	12	12						
		3PM - 6PM	Sun	1	3	3						
					7		54.5	129.5				
AHU2	8:30AM - 10:30AM	7PM - 9PM	Mon	1	2	2		72	60	74	85	
		9AM - 11AM	Mon	1	2	2						
		9AM - 11AM	Tues	1	2	2						
		9AM - 9PM	Wed, Thu, Fri	3	12	36						
		11AM - 6PM	Sat	1	7	7						
		3PM - 9PM	Sun	1	6	6						
					8		55.0	129.5				
<b>Summer Mode</b>												
Ice Rink	AHU1	11AM - 7PM	Mon, Tue	2	8	16				74	85	
		6AM - 3:30PM	Wed	1	9.5	9.5						
		9AM - 3:30PM	Thu	1	6.5	6.5						
		8AM - 3:30PM	Fri	1	7.5	7.5						
		7AM - 7PM	Sat	1	12	12						
		3PM - 6PM	Sun	1	3	3						
					7		54.5	65.0				
AHU2	8:30AM - 10:30AM	7PM - 9PM	Mon	1	2	2				74	85	
		9AM - 11AM	Mon	1	2	2						
		9AM - 11AM	Tues	1	2	2						
		9AM - 9PM	Wed, Thu, Fri	3	12	36						
		11AM - 6PM	Sat	1	7	7						
		3PM - 9PM	Sun	1	6	6						
					8		55.0	65.0				

### 5.7 Glossary

<i>actual cost</i>	Actual energy cost taken directly from utility bill.
<i>actual savings</i>	Savings derived through the Metrix™ program; baseline less actual costs. Positive actual savings indicate utility costs have been reduced after adjusting for weather and other variables in dollars.
<i>balance point</i>	(HtgDD), the outdoor temperature below which space heating is required or (ClgDD), the outdoor temperature above which space cooling is required.
<i>baseline</i>	The adjusted, tuned pre-retrofit bills (usually 1 year) used to compare to post-installation usage in order to calculate savings.
<i>baseline cost</i>	Cost calculated for the baseline using current rates.
<i>billed dollars</i>	Amount billed from utility company.
<i>bill matching</i>	Adjustment made by Metrix™ to account for differing number of days in the billing period before calculating cost avoidance.
<i>cost avoidance</i>	The difference between the baseline cost and the actual or SimActual cost in dollars.
<i>degree-day</i>	Unit representing one degree of difference between the balance point selected and the average temperature during one day.
<i>EER</i>	Energy Efficiency Ratio of cooling equipment defined as the cooling effect in BTU's divided by the power use in watts
<i>guarantee period</i>	Time period specified in contract for which Honeywell will guarantee energy savings.
<i>guarantee year</i>	Number identifying for which year the review is performed based on the number of years the guarantee is in effect.
<i>guaranteed savings</i>	Those savings Honeywell promises the customer through the use of maintenance programs, retrofits, upgrades and energy management systems.
<i>HVAC</i>	Industry standard abbreviation for Heating, Ventilating and Air Conditioning.
<i>HtgDD/ClgDD</i>	HtgDD = Heating degree-days ClgDD = Cooling degree-days
<i>kW</i>	Kilowatt - a unit of electrical power, equal to 1000 watts.

## Appendix – Glossary

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<i>kWh</i>	Kilowatt hours - a unit of electrical energy or work, equal to that done by one kilowatt acting for one hour.
<i>modification</i>	An allowance for changes in the facility which affect utility usage that occur while tracking the performance of a meter. Modifications correct both the actual and baseline usage and cost for meters.
<i>pre-installation</i>	Time period (start month and stop month, typically one year's time) that is used as a benchmark for comparison which consists of all energy bills applicable to the retrofit.
$R^2$	A measure of how well the independent variable in a regression can explain changes in the dependent variable. An $R^2 = "1.0"$ indicates a perfect correlation.
<i>rate tariff</i>	Actual amount the utility company charges per unit of energy or demand; used by Metrix™ to calculate utility costs for the SimActual & Baseline scenarios.
<i>reference year</i>	The actual usage for designated baseline period.
<i>review period</i>	Time period for which savings are reported.
<i>runtime adjustment</i>	Adjustment made for those hours equipment has run beyond the operating hours specified in the contract.
<i>simactual</i>	The total cost for the billing period as calculated by Metrix™.
<i>weather adjustment</i>	Adjustment made by Metrix™ for weather variations using degree days.

# Report Delivery Receipt

Honeywell has presented the Cost Avoidance Review for Town of Mamaroneck, Contract No. 40143657. This report details energy savings results for Year 1 and indicates cost avoidance of \$258,226 for the year. The cumulative energy cost avoidance through the end of Year 1 is \$258,226, as compared to the cumulative energy guarantee per the contract of \$290,407.

This receipt provides a permanent record of the review and status of acceptance of this report. The signatures herein are required prior to continuing on to the next phase of the review process. If the results are not agreed upon, CUSTOMER has forty-five (45) days from the delivery date of this report to reply in writing to Honeywell International Inc., Energy Analysis, 5006 103<sup>rd</sup> Street, Lubbock, TX 79424; otherwise, the cost avoidance results will be deemed accepted.

I, \_\_\_\_\_, have reviewed the contents of this review with the authorized representative(s) of Honeywell International Inc. on \_\_\_\_\_. All information contained herein is clear in meaning to me and as such as a representative of CUSTOMER, I agree to take the following action with respect to this review:

- ACCEPT THE REVIEW AS PRESENTED AND REQUEST A CHECK FOR \$32,181 FOR YEAR 1

Mail check to: \_\_\_\_\_

- ACCEPT THE REVIEW AS PRESENTED AND REQUEST SERVICES AND/OR MAINTENANCE CREDITS EQUAL TO \$32,181

Service address: \_\_\_\_\_

- DO NOT ACCEPT THE REVIEW AND REQUEST THE FOLLOWING ACTION(S) BE TAKEN AS INDICATED BELOW:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Received by:

\_\_\_\_\_  
Name (please print)

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Presented by:

\_\_\_\_\_  
Name (please print)

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date



