



**High Performance
Lighting Improvement Project
Prepared for**

**Town of Bethlehem
Highway Department**

New Hampshire

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**Carl Edin
May 18, 2021**





May 18, 2021

David Van Houten
Bethlehem Energy Commission
Town of Bethlehem Highway Department
95 Prospect Street
Bethlehem, NH 03574

Re: 2021 High Performance Lighting Improvement Project

Dear David,

Enclosed you will find our turnkey energy saving lighting proposal. By implementing these cost savings measures, Town of Bethlehem Highway Department will achieve the following benefits:

- Reduced operating cost
- Reduced owning cost by removing inefficient HID technology along with standard CFL & T8 technology
- Utilization of high efficiency LED technology
- Standardization of lighting components
- Improved light quality and quantity
- Eversource Incentive
- Excellent payback/ROI

We look forward to working with you to reach your goals of lighting improvements and energy conservation. After reviewing, please contact me at (207) 767-1313 or (207) 400-4767 to answer any questions.

Sincerely,

Carl Edin
Project Developer





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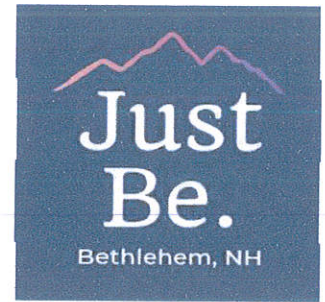
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Benefits of a Turnkey Lighting Upgrade

- Complete cost analysis: room by room survey of existing system compared to a new proposed system, providing kW and kWh savings projections
- Product specification: high efficiency equipment being specified to reduce energy and maintenance cost
- Turnkey Installation/Project Management:
 - Providing detailed information of work to be completed
 - *Overseeing of Installation with sub-contractors*
 - Proper disposal of all waste-(hazardous and non-hazardous) with certificates of recycling provided
 - Weekly updates-communication with customer on progress of project completion
- Customer benefits:
 - With the exception of scheduling, Town of Bethlehem is able to focus on other pressing matters.
 - Cost savings will be achieved in a much quicker time frame

Warranty information

Ballast	5 years
Lamps	3-5 years
LED Fixtures	5-10 years
Labor	90 days
Labor Workmanship	1 year

EMC's Assurance

As a "turnkey" Energy Service Company, (ESCO) EMC will design and project manage the installation of proven energy saving technologies as well as provide periodic follow up to assure complete customer satisfaction.





Environmental Impact – Going Green May 2021

The **6,891 kWh** saved annually by this project equates to the following positive environmental impacts:

- **2 households** is the average number of houses that can now be powered from this project. The average U.S. household consumes 11,280 kWh annually.
- **475 fewer gallons of oil** need to be imported, reducing our dependence on foreign oil.
- **4 tons of CO₂**
Carbon Dioxide is considered a greenhouse gas and is a major contributor to global warming.
- **83 lbs. of SO₂**
Sulfur Dioxide- some major health effects associated with this pollutant are: asthma, respiratory illness and aggravation of existing cardiovascular disease.
- **42 lbs. of Nox**
Nitrogen Oxides are considered contributors to acid rain and ground level ozone (or smog).
- **3 lbs. of visible particulate**



Supporting Information

Room by Room Savings Analysis



Line	Room	EMC CM Code	Count	Hours/Week	Hours/Year	Cur kW	Cur kW	Cur kWh	Prop kW	Prop kW	Prop kWh	kWh Savings
001	JR - Entry	EM14-TB/ED14-10-L	1	30/52	1560	0.03	30.00	46.80	0.01	10.00	15.60	31.20
002	JR - PO1	EM14-TB/ED14-10-L	1	30/52	1560	0.03	30.00	46.80	0.01	10.00	15.60	31.20
003	JR - Main Garage Bays	M14-8F-TB/ED14-20-B/GT	32	30/52	1560	3.58	112.00	5591.04	0.64	20.00	998.40	4592.64
004	JR - RR 1	EM14-TB/ED14-10-L	1	30/52	1560	0.03	30.00	46.80	0.01	10.00	15.60	31.20
005	JR - PO2	EM14-TB/ED14-10-L	2	30/52	1560	0.06	30.00	93.60	0.02	10.00	20.00	62.40
006	JR - Compressor Rm	M14-8F-TB/ED14-20-B/GT	1	30/52	1560	0.11	112.00	174.72	0.02	20.00	31.20	143.52
007	JR - Oil Rm	M14-8F-TB/ED14-20-B/GT	2	30/52	1560	0.22	112.00	349.44	0.04	20.00	62.40	287.04
008	JR - Tool Rm	M14-8F-TB/ED14-20-B/GT	2	30/52	1560	0.22	112.00	349.44	0.04	20.00	62.40	287.04
009	JR - Kitchen	EM14-TB/ED14-10-L	1	30/52	1560	0.03	30.00	46.80	0.01	10.00	15.60	31.20
010	JR - Back Garage Bays	M14-8F-TB/ED14-20-B/GT	6	30/52	1560	0.67	112.00	1048.32	0.12	20.00	187.20	861.12
011	JR - Back Garage Bays	S14-8F-TB/ED14-10-L	1	30/52	1560	0.11	112.00	174.72	0.04	40.00	62.40	112.32
012	EXT - Back	WP12CF-E/WR1ED15-PE-NF	1	30/52	1560	0.04	44.00	68.64	0.02	15.00	23.40	45.24
013	EXT - Back	WP70S-NR/ED30-NF	2	30/52	1560	0.18	90.00	280.80	0.06	30.00	99.60	187.20
014	EXT - Front	WP70S-NR/ED30-NF	2	30/52	1560	0.18	90.00	280.80	0.06	30.00	99.60	187.20
			55			5.51		8598.72	1.10			6890.52
									4.42			



Financial Investment

Cost-Savings Summary





Prepared by Carl Edlin

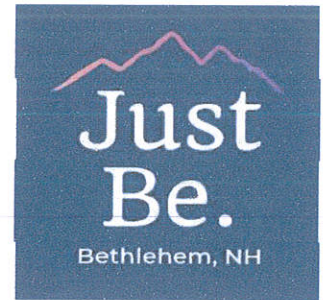
May 18, 2021

Town of Bethlehem Highway Department
Cost-Savings Summary



Area	Savings kW	Savings kWh	Energy Savings	Maint Savings	Total Savings	Project Cost	Eversource Incentive	Net Project Cost	Payback	ROI
Please refer to Room by Room										
	4.42	6,891	\$ 1,509.13	\$ 350.00	\$ 1,859.13	\$ 8,376.00	\$ 4,188.00	\$ 4,188.00	2.25	44.4%
Notes:										
1. Estimated blended rate is \$.219/kWh										





Project Process Recap

- ✓ EMC to complete site survey
- ✓ EMC to generate cost-savings proposal
- ✓ EMC to attain electric bills
- Town of Bethlehem to sign EMC & Eversource Terms and Conditions
- EMC to construct project
- EMC to coordinate post-utility walkthrough

