

Proposal to the Village of Suffern

LED Street Light Conversion

May 25th, 2021

Primary Contact:

Steve Harriman Director, Client Initiatives 201 West Street, Annapolis MD 21401 (905) 321-6655 sharriman@realtermenergy.com



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May 25th, 2021

Michael A. Genito Treasurer Village of Suffern 61 Washington Avenue Suffern, NY 10901

Dear Mr. Genito,

RealTerm Energy is pleased to propose its LED conversion services to the Village of Suffern. Our experienced team of lighting professionals employs customized and innovative solutions utilizing the highest quality luminaires to provide you with increased system performance, safe and reliable lighting, and maximized energy savings. The economics of this project are compelling, as substantiated by the **80%** overall operating cost savings on your streetlight expenditures in the first year.

Our turnkey service offering includes:

- Initial GIS/GPS inventory assessment of your existing streetlight network
- Photometric designs to optimize energy efficiency, minimize costs, & protect public safety.
- Comprehensive Investment Grade Audit (IGA)
- Competitive selection and procurement to ensure best value pricing, products and services.
- Installation of new LED fixtures and responsible recycling of old fixtures
- Transfer of all inventory files, data, and warranties
- Review of project financing options, and
- Customized community outreach services

The next step if you agree to move forward, is to conduct a detailed Investment Grade Audit (IGA) that includes extensive field investigations, data collection and verification, infrastructure analysis, comprehensive lighting designs, and detailed engineering calculations to project accurate and reliable energy and maintenance savings.

We manage all our conversion projects in a transparent fashion. During each phase we will keep the Village of Suffern informed of all progress facilitated by regular meetings and continually accessible reports.

The RealTerm Energy team appreciates this opportunity to present our proposal. We look forward to the prospect of working with the Village of Suffern.

Sincerely,

Angelos Vlasopoulos, Chief Executive Officer avlasopoulos@realtermenergy.com



1. COMPANY PROFILE & QUALIFICATIONS

RealTerm Energy Overview

After more than 7 years of experience in the LED streetlighting business, RealTerm Energy has designed and managed over 300 projects for municipalities across North America involving over 50 utilities and multiple different subcontractors. We have to date surveyed, designed and installed over 350,000 streetlights, including over 50,000 smart controls.

Realterm Energy has been recognized by the World Bank as one of the best service providers in LED streetlight conversions in the World.

Our group of over 40 full-time back office and field staff members is dedicated exclusively to designing and executing high-quality and cost-effective LED streetlight conversions for municipalities and utilities.

RealTerm Energy's solid expertise with similar conversions enables us to provide the scope of services you are seeking. Our combined teams are equipped with the resources they need, and the on-theground experience, to complete your project on time

and on budget.



" RealTerm Energy met or exceeded all our criteria. They were timely in responding to issues, helpful in guiding us through the entire process and very receptive and responsive to concerns on our part.

They even removed some streets (from the project scope of work) that weren't public roadways, which we only discovered during their GIS audit. RTE offered great product evaluation services and informed advice on which product was best for us. "

Steve Sadwick Assistant Town Manager Town of Tewksbury, Massachusetts

Extensive In-House Expertise

Realterm (Parent Company)

Founded in 1991, Realterm is a privately held international on-airport real estate operator and leader in infrastructure and logistics strategies, with installations in North America, Europe, and Asia. Since its inception, Realterm has grown steadily, currently managing over \$5+ billion in assets.

RealTerm Energy, established in 2013, is the division of Realterm that was created to deliver best-inclass technological, managerial, and financial solutions for efficient energy-related projects to municipalities and public authorities.



World Bank Recognition

In addition, we are particularly proud to have stood out, on a global scale from similar service providers, as noted by the World Bank Group in 2016. RealTerm Energy's "remarkable" partnership in the joint-procurement model developed with LAS and the Association of Municipalities of Ontario has been recognized by the World Bank as being among the most efficient and successful delivery models in the world. The World Bank Group estimates that 20% of global electricity is consumed by lighting and it projects that widespread adoption of LED lighting can reduce that to 7%.



Proud to be recognized by the World Bank.

RealTerm Energy was honored to be chosen by the World Bank to help advance its global initiative of reducing electricity consumption. Post extensive research of various programs and their providers around the globe, the World Bank selected RealTerm Energy due to it being a leader in this field and its highly successful track record. At the outset of 2021, our organization has upgraded over 300 cities and towns to LED across North America, having installed 350,000 luminaires and over 50,000 smart lighting controls.

On the world stage, RTE was invited to speak, on two separate occasions, to World Bank delegates on best practices for a successful LED municipal streetlight conversion. The first, in Washington, D.C., related to Process, Management and Control, and the second, held in Lima, Peru, was related to project finance. RealTerm Energy continues to be called upon as an industry forerunner and provides consulting services for various countries around the globe.

Department of Energy

RealTerm Energy strives to go beyond energy efficiency. As a responsible and forward-thinking company, we are proud to announce that RealTerm has been approved by the DOE to be one of their qualified ESCOs. This allows RealTerm Energy to compete for energy savings performance contracts (ESPCs) with federal agencies, thereby making further progress in reducing energy and operating costs and meeting federal sustainability goals. We can reallocate financing currently being spent on an inefficient and antiquated lighting system and use the savings to transform it into a Smart LED network.





1.1. Project Experience Turnkey Conversions

RealTerm Energy has extensive experience implementing LED streetlight conversion projects across North America, including in 10 US states and 3 Canadian provinces. This experience has allowed us to refine and perfect virtually every aspect of our service offering, ensuring the quality and value for each Municipality. The table below highlights some of RealTerm Energy's notable ongoing and completed LED conversion projects now totaling more than 100 M\$.





US Client	Fixture Count	Canadian Client	Fixture Count
San Diego Gas & Electric, CA	30,000	City of Brampton, ON	40,000
City of Brockton, MA	8,761	City of Guelph, ON	13,500
City of Pittsfield, MA	5,856	City of Oshawa, ON	12,408
City of Haverhill, MA	4,611	City of Greater Sudbury, ON	11,032
City of Biddeford, ME	2,325	City of Barrie, ON	10,622
Town of Tewksbury, MA	1,711	City of Kelowna, BC	10,563
City of South Portland, ME	1,597	City of London, ON	10,000
City of Newark, NY	1,500	City of Niagara Falls, ON	8,394
Town of Windham, ME	1,320	City of Pickering, ON	7,265
City of Auburn, ME	1,253	City of Peterborough, ON	7,000
Town of Watertown, CT	1,160	City of Victoria, BC	6,458
Town of Seymour, CT	1,133	County of Norfolk, ON	4,172
Village of Great Neck, NY	832	City of Timmins, ON	3,984
Town of York, ME	821	City of Innisfil, ON	3,308
Town of Rockland, ME	704	City of Orillia, ON	3,245
City of Presque Isle, ME	700	County of Haldimand, ON	2,882
Town of Rumford, ME	648	City of Quinte West, ON	2,787
Town of Falmouth, ME	597	City of Aurora, ON	2,692
City of Caribou, ME	525	City of Collingwood, ON	2,334
Town of Paris, ME	355	City of Kawartha Lakes, ON	2,300
City of Lubbock, TX	301	Town of Wasaga Beach, ON	2,112
City of Lapeer, MI	111	District of Summerland, BC	1,320



1.2. Project Experience in New York

Municipality	Fixtures #
Village of Newark	1,476
Village of Great Neck	832
Village of Nyack	420
Village of Florida	261
Village of East Williston	253
Village of Warwick	240
Village of Piermont	190
Village of Sodus	175
Town of Caroga	160

1.3. Reference

Project Name:	Client Contact:
Village of Great Neck, NY	Joe Gill Treasurer
Streetlight Conversion Project	Village of Great Neck (Former) New York 516-478-6224 jgill@villageofhempsteadny.gov
Desite of Designations	

Project Description:

RealTerm Energy (RTE) conducted a GIS mapping and data collection of the Village's streetlight assets, along with a photometric design plan for all cobrahead and decorative fixtures. RTE also installed the cobrahead and decorative fixtures, as well as the adaptive controls and smart city applications.

Mr. Gill is now the Treasurer of the Village of Hempstead, NY

Start / End Date:	September 2017 / May 2018
Project Value US\$:	\$ 627,000
No. of Fixtures:	832

2. GENERAL SCOPE OF WORK & PROJECT COST ESIMATE

Option 1: Photocells

Fixture Quantity	Estimated Total
Quantity of Cobraheads	507
Quantity of Decoratives/Floods	49
Total Quantity of Fixtures	556
Project Cost	Estimated Total
LED Lighting Upgrade Project Cost	\$208,989
Incentive	\$21,799
Acquisition Cost	\$317,428
Net Project Cost	\$504,618
Project Payback	4.9 Years

Option 2: Smart Controls

Fixture Quantity	Estimated Total
Quantity of Cobraheads	507
Quantity of Decoratives/Floods	49
Total Quantity of Fixtures	556
Project Cost	Estimated Total
LED Lighting Upgrade Project Cost (with Smart Controls)	\$263,641
Incentive	\$21,799
Acquisition Cost	\$317,428
Net Project Cost	\$559,270
Project Payback	5.4 Years



Before and After Streetlight Inventory

COBRAHEAD FIXTURES								
HID Fixture type	HID System Wattage	HID Qty	LED Fixture type	LED System Wattage	LED Qty	Energy Savings		
52W Open Bottom Incandescent	52	2	18W_3000K LED Replacement 2230 approx. lumens	18	2	65%		
70W Sodium Vapor	108	144	25W_3000K LED Replacement 3100 approx. lumens	25	144	77%		
100W Mercury Vapor	127	117	35W_3000K LED Replacement 3370 approx. lumens	35	117	72%		
100W Sodium Vapor	142	50	35W_3000K LED Replacement 3370 approx. lumens	35	50	75%		
150W Sodium Vapor	199	14	60W_3000K LED Replacement 7398 approx. lumens	60	14	70%		
175W Mercury Vapor	211	10	60W_3000K LED Replacement 7398 approx. lumens	60	10	72%		
250W Mercury Vapor	296	8	81W_3000K LED Replacement 10630 approx. lumens	81	8	73%		
250W Sodium Vapor	311	51	81W_3000K LED Replacement 10630 approx. lumens	81	51	74%		
400W Mercury Vapor	459	8	135W_3000K LED Replacement 16230 approx. lumens	135	8	71%		
400W Sodium Vapor	488	103	135W_3000K LED Replacement 16230 approx. lumens	135	103	72%		
Total (Cobras)		507			507	73%		
		FLO	OOD & DECORATIVE FIXTURES					
HID Fixture type	HID System Wattage	HID Qty	LED Fixture type	LED System Wattage	LED Qty	Energy Savings		
70W Sodium Vapor Post Top	108	1	33W_3000K LED Coach Post Top 3050 approx. lumens	33	1	69%		
100W Mercury Vapor Post Top	127	43	39W_3000K LED Coach Post Top 3870 approx. lumens	39	43	69%		
150W Sodium Vapor Post Top	199	5	46W_3000K LED Coach Post Top 4440 approx. lumens	46	5	77%		
Total (Decos)		49			49	70%		
Total (Cobras+Decos)		556			556	73%		

Operating Cost Analysis

Parameter (Annual)	Baseline (Current)	Post LED Upgrade	Savings	Savings (%)
Number of Fixtures	556	556		
Annual Electricity Consumption (kWh)	497,084	133,763	363,322	73%
Annual Utility Costs	\$119,831	\$15,333	\$104,498	87%
Annual Maintenance Cost	\$0	\$8,340	(\$8,340)	N/A
Total Street Lights Expenditures	\$119,831	\$23,673	\$96,158	80%
Average Annual Cost per Fixture	\$216	\$43	\$173	80%





Financial Analysis – Option 1 (Photocells)

Below is a sample financing scenario based on the Tax-Exempt Lease Purchase (TELP) financing structure and current market rates. The analysis shown is for the shortest term possible, while still representing a cash flow positive outcome versus the current streetlight operating cost. The following page depicts a comparable analysis that includes smart controls within the project cost estimate. Alternative project and financing scenarios may be prepared upon request.

Year	1	2		4	5		Total
Current Streetlight Costs (Energy & Maintenance)	\$119,831	\$123,426	\$127,129	\$130,942	\$134,871	\$138,917	\$775,115
Total Current Operating Cost (A)	\$119,831	\$123,426	\$127,129	\$130,942	\$134,871	\$138,917	<u>\$775,115</u>
Post Upgrade Energy Cost	\$15,333	\$15,793	\$16,267	\$16,755	\$17,258	\$17,775	\$99,181
Post Upgrade Maintenance Cost	\$8,340	\$8,507	\$8,677	\$8,850	\$9,027	\$9,208	\$52,610
Total Post Upgrade Operating Cost	\$23,673	\$24,300	\$24,944	\$25,605	\$26,285	\$26,983	<u>\$151,791</u>
Loan Repayment	\$91,002	\$91,002	\$91,002	\$91,002	\$91,002	\$91,002	\$546,009
Total Post Upgrade Cost (B)	\$114,675	\$115,302	\$115,945	\$116,607	\$117,287	\$117,985	\$697,801
Cash Flow (A-B)	\$5,156	\$8,124	\$11,183	\$14,335	\$17,584	\$20,932	\$77,315
Cumulative Cash Flow	\$5,156	\$13,280	\$24,463	\$38,799	\$56,383	\$77,315	

Financial Analysis (6-Year Amortization) - Village of Suffern - Option 1 (Photocells)

* Assumes 3% yearly energy cost inflation and 2% yearly maintenance cost inflation.

Amortization Tables

Notes:

Indicative Tax-Exempt Rate: Amount Financed:		2.30% \$504,618		
Term, Years:		6		
Annual Payment:		\$91,002		
	r			
	Annual			
Year	Payment	Interest	Principal	Balance
				\$504,618
YEAR 1	\$91,002	\$11,606	\$79,395	\$425,223
YEAR 2	\$91,002	\$9,780	\$81,221	\$344,001
YEAR 3	\$91,002	\$7,912	\$83,090	\$260,912
YEAR 4	\$91,002	\$6,001	\$85,001	\$175,911
YEAR 5	\$91,002	\$4,046	\$86,956	\$88,956
YEAR 6	\$91,002	\$4,046	\$86,956	\$0
	TOTALS	\$41,391	\$504,618	

Financial Analysis – Option 2 (Smart Controls)

Financial Analysis (7-Year Amortization) - Village of Suffern - Option 2 (Smart Controls)

Year	1	2	3	4	5	6	7	Total
Current Streetlight Costs (Energy & Maintenance)	\$119,831	\$123,426	\$127,129	\$130,942	\$134,871	\$138,917	\$143,084	\$918,200
Total Current Operating Cost (A)	<u>\$119,831</u>	<u>\$123,426</u>	<u>\$127,129</u>	<u>\$130,942</u>	<u>\$134,871</u>	<u>\$138,917</u>	<u>\$143,084</u>	<u>\$918,200</u>
Post Upgrade Energy Cost	\$15,333	\$15,793	\$16,267	\$16,755	\$17,258	\$17,775	\$18,309	\$117,490
Post Upgrade Maintenance Cost	\$8,340	\$8,507	\$8,677	\$8,850	\$9,027	\$9,208	\$9,392	\$62,002
Total Post Upgrade Operating Cost	<u>\$23,673</u>	<u>\$24,300</u>	<u>\$24,944</u>	<u>\$25,605</u>	<u>\$26,285</u>	<u>\$26,983</u>	<u>\$27,701</u>	<u>\$179,492</u>
Loan Repayment	\$87,413	\$87,413	\$87,413	\$87,413	\$87,413	\$87,413	\$87,413	\$611,892
Total Post Upgrade Cost (B)	\$111,086	\$111,713	\$112,357	\$113,019	\$113,698	\$114,397	\$115,114	\$791,384
Cash Flow (A-B)	\$8,745	\$11,713	\$14,772	\$17,924	\$21,172	\$24,520	\$27,970	\$126,816
Cumulative Cash Flow	\$8,745	\$20,457	\$35,229	\$53,153	\$74,325	\$98,845	\$126,816	

<u>Notes:</u>

* Assumes 3% yearly energy cost inflation and 2% yearly maintenance cost inflation.

Amortization Tables

Indicative Tax-Exempt Rate:		2.30%		
Amount Financed:		\$559,270		
Term, Years:		7		
Annual Payment:		\$87,413		
		,		
	Annual			
Year	Payment	Interest	Principal	Balance
				\$559,270
YEAR 1	\$87,413	\$12,863	\$74,550	\$484,720
YEAR 2	\$87,413	\$11,149	\$76,265	\$408,455
YEAR 3	\$87,413	\$9,394	\$78,019	\$330,436
YEAR 4	\$87,413	\$7,600	\$79,813	\$250,623
YEAR 5	\$87,413	\$5,764	\$81,649	\$168,975
YEAR 6	\$87,413	\$3,886	\$83,527	\$85,448
YEAR 7	\$87,413	\$1,965	\$85,448	\$0
	TOTALS	\$52,622	\$559,270	



Calculation Assumptions

- Project cost is subject to change based on Audit, Photometric Design, and Feasibility Study (IGA) results including but not limited to Manufacturer and Electrical Contractor selection.
- Total project cost does not include: modification of fixture mounting, relocation of fixture, the replacement of the fixtures near high tension located in the restricted zone, upgrades to supporting infrastructure (besides fuse kits supply & install), any potential connection or disconnect fees by the utility and any applicable tax.
- LED Technology Specified: Smart ready LED Fixtures: 7-PIN, Dimmable Drivers. Luminaire and Control Warranty: 10 years.
- Energy rate based on Orange & Rockland's tariffs and rates. Post-upgrade LED maintenance based on \$15.00/fixture/year for post-upgrade LED system.
- Energy Escalation rate (annual): 3% and O&M Savings Escalation rate (annual): 2%
- Estimated incentive calculated as per Orange & Rockland's prescriptive rates for LED Cobrahead conversion and is subject to utility approval and availability of funding.
- Sample financing interest rate is based on market (indicative) rates at the time of proposal preparation and is included for analysis purpose only.