RESOLUTION 2019-03

A RESOLUTION APPROVING THE UPGRADE OF THE STREET LIGHTING PROGRAM TO LED IN THE VILLAGE OF SHERMAN

WHEREAS, the Village of Sherman current street lighting program is costly to operate and maintain and new alternative energy programs are available for saving energy costs to the Village;

WHEREAS, Village Administrative Staff have reviewed alternative energy programs available and recommend upgrading Village Street Lights to LED that will drastically reduce energy costs to the Village;

WHEREAS, Village Administrative Staff presented a plan to replace existing and outdated street lights with LED lights for a cost of approximately $15,086 with a payback of 2.1 years due to energy cost savings and reduced maintenance repairs; (attached)

THEREFORE, BE IT RESOLVED the Village of Sherman Board of Trustees authorize the President to execute the program and staff to carry out the program.

PASSED this 21st Day of May, 2019 at Sherman, Sangamon County, Illinois.

VILLAGE OF SHERMAN, IL CORPORATE SEAL 1959

VILLAGE OF SHERMAN

By: Trevor J. Clatfelter
Its: Village President

Attest:

Michael Stratton,
Its Acting Village Clerk

	YES	NO	ABSENT	PRESENT
GRAY	✓			
HAHN	✓			
LONG	✓			
ROCKFORD	✓			
SCHULTZ	✓			
TIMM	✓			
CLATFELTER				
TOTALS:	6	0	0	0

CONSERVE

springfield electric energy solutions

Building Name

VILLAGE OF SHERMAN

Proposal Name

VILLAGE OF SHERMAN LED UPGRADE

Monday, February 25, 2019

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As with all technology in today's working world, lighting and energy savings are a paramount opportunity for everyone to reduce their existing costs. Revenue generation is always a challenge for every business for numerous reasons, so every time that the daily operating expenses can be managed and reduced there is direct benefit to the NET bottom line.

We acknowledge and appreciate that you understand this and that you have turned to us to assist and guide you through the various decisions that this process will involve.

Erik Williams
Energy Solutions Specialist
700 North Ninth Street
Springfield, IL 62702
Phone: 2177477202
Email: ewilliams@springfieldelectric.com

Executive Summary

Project Overview

Cost of Project	
Project Cost ($)	18,134
Incentives ($)	(3,048)
Net Cost of Project ($)	**15,086**
Annual Operating Savings	
Energy Savings ($)[1,2]	5,562
Maintenance Savings ($)[3]	2,459
Total Annual Operating Savings ($)	**8,021**
Operating Savings Over 10 Years	
Energy Savings ($)[1,2]	55,626
Maintenance Savings ($)	24,590
Total Operating Savings Over 10 Years ($)	**80,216**
Payback Period (years)	2.1
Net Present Value ($)[4]	65,130
Internal Rate of Return (%)	54.05

1. *Energy cost ($) = 0.0800/kWh; Annual energy cost escalation (%) = 3.00*
2. *Energy savings are averaged over 10 year analysis period*
3. *Maintenance costs are averaged over 10 year analysis period*

Financial Summary

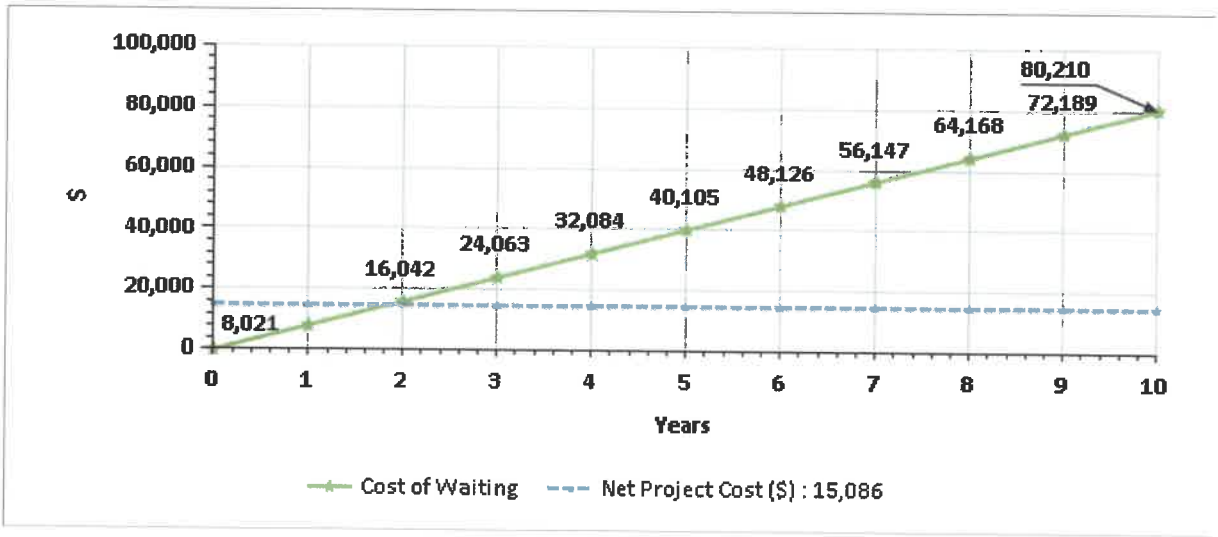
Total Project Cost ($)	Net Project Cost ($)	10 Yr Operating Savings ($)[1,2]	Payback Period (yrs)	NPV ($)[3]	IRR (%)
18,134	15,086	80,216	2.1	65,130	54.05

1. *Energy cost ($) = 0.0800/kWh; Annual energy cost escalation (%) = 3.00*
2. *Operating Savings equals the energy cost savings plus the maintenance savings averaged over the analysis period*

Cost of Waiting

Cost of Waiting

Monthly ($)	Yearly ($)	10 Years ($)
668	8,021	80,210



Energy Usages and Costs

Annual Energy Usage

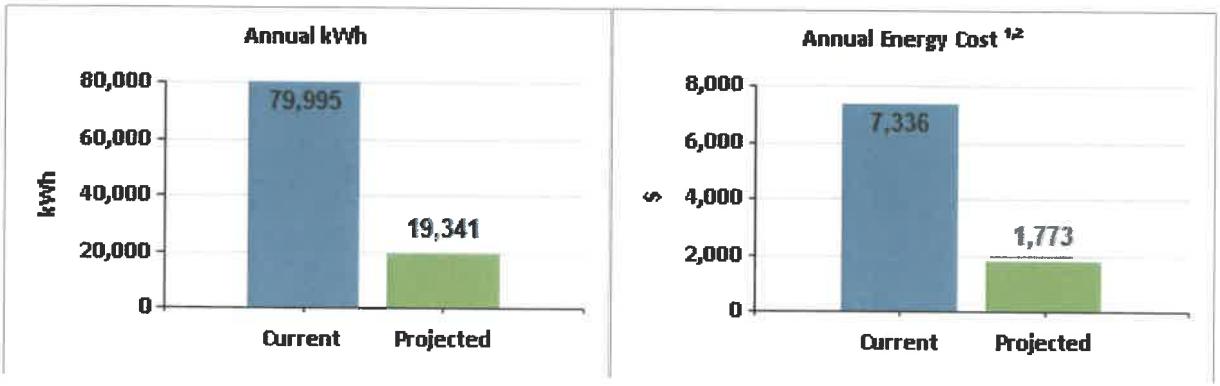
Current Usage (kWh)	Projected Usage (kWh)	Reduction (%)	Current Cost ($) [1,2]	Projected Cost ($) [1,2]	Savings ($)	Savings (%)
79,995	19,341	76	7,336	1,773	5,562	76

1. *Energy cost ($) = 0.0800/kWh; Annual energy cost escalation (%) = 3.00*
2. *Energy costs are averaged over 10 year analysis period*

Annual Energy Usage Reduction

Current Usage (kWh)	Projected Usage (kWh)	Reduction (kWh)	Reduction (%)
79,995	19,341	60,654	76

Energy Comparison



1. *Energy Cost ($) = 0.0800/kWh; Annual energy cost escalation (%) = 3.00*
2. *Energy costs are averaged over 10 year analysis period*

Watts Summary

Existing Watts[1]	Proposed Watts[1]	Reduced Watts	Reduction (%)
18,314	4,428	13,886	76

1. The watts calculations in this table take into account existing fixtures that are being replaced, upgraded, and/or have new lighting controls being proposed for them

Operational Overview

Operational Savings Summary

Operational Area	Current Annual ($)	Projected Annual ($)	Reduction (%)	Current 10 Year ($)	Projected 10 Year ($)	Reduction (%)
Energy [1,2]	7,336	1,773	76	73,364	17,738	76
Maintenance [3]	2,459	0	100	24,590	0	100
Total	**9,795**	**1,773**	**82**	**97,954**	**17,738**	**82**

1. *Energy cost ($) = 0.0800/kWh; Annual energy cost escalation (%) = 3.00*
2. *Energy costs are averaged over 10 year analysis period*
3. *Maintenance costs are averaged over 10 year analysis period*

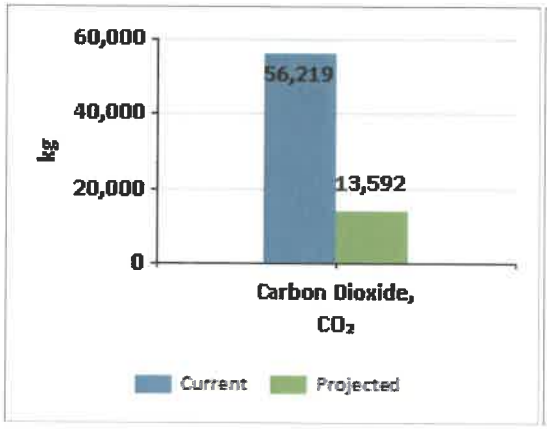
Environmental Impact

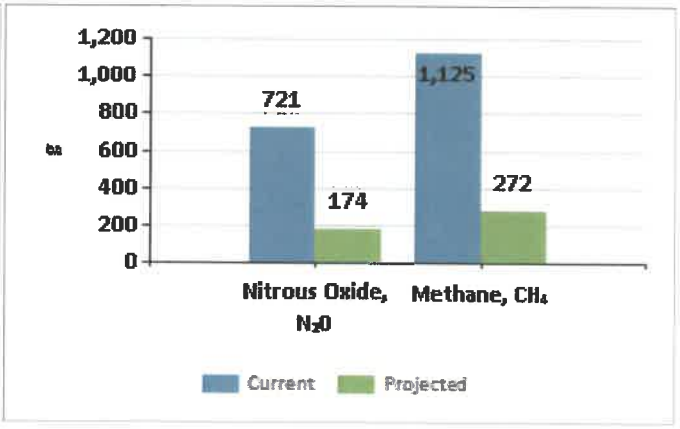
Greenhouse Gas Analysis

Greenhouse Gas Comparisons[1]

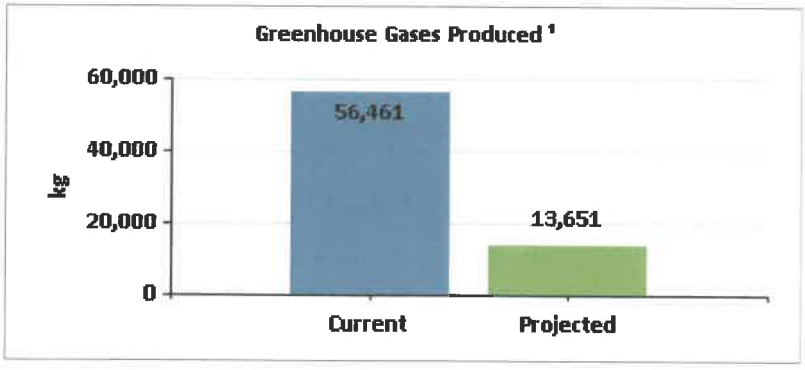
Greenhouse Gas	Current[1]	Projected[1]	Avoided	Environmental Effect
Carbon Dioxide, CO_2 (kg)	56,219	13,592	42,627	Greenhouse Gas, Global Warming
Nitrous Oxide, N_20 (g)	721	174	547	Greenhouse Gas, Global Warming
Methane, CH_4 (g)	1,125	272	853	Greenhouse Gas, Global Warming
Nitrogen Oxides, NOx (g)	49,184	11,892	37,292	Smog, Acid rain, Global Warming
Sulfur Oxides, SOx (g)	106,377	25,720	80,657	Acid rain

1. Average emission rates per kWh are based on estimates from eGrid 2012





Greenhouse Gas Comparables



Comparable Metrics

Barrels of oil consumed: 100

Urban forests (acre): 35

Fewer cars on the road: 9

Gasoline consumed (gallon): 4817

1. Average emission rates per kWh are based on estimates from eGrid 2012

Upgrade Analysis

Fixture Replacement by Space

Area	Space	Existing Fixture	Qty	Proposed Fixture	Qty	Scheduled Hours
150W HPS NF	MAIN	FLOOD HPS 150	18	LED ROADWAY FIXTURE	18	4,368
250W HPS NF	MAIN	FLOOD HPS 250	6	LED ROADWAY FIXTURE	6	4,368
Total			**24**		**24**	

Component Upgrade by Space

Area	Space	Existing Fixture	Qty	Proposed Upgrade	Qty	Scheduled Hours
150W HPS DD LAMPS	MAIN	FLOOD HPS 150	70	Lamps: 1 LED LAMP	70	4,368
		Total Fixtures:	**70**	**Total Lamps:**	**70**	

Bill of Materials

Products

Fixtures

Part Number	Short Description	Qty	Cost ($)	Extended ($)
ATBO 20BLEDE10MVOLT	LED ROADWAY FIXTURE	18	481.25	8,662.50
ATBO 30BLEDE10MVOLT	LED ROADWAY FIXTURE	6	583.33	3,499.98
Total				**12,162.48**

Lamps

Part Number	Short Description	Qty	Cost ($)	Extended ($)
KT-LED36HID-EX39-850D	LED LAMP	70	85.31	5,971.70
Total				**5,971.70**

Appendix

Incentives

Part Number Description	Incentive Description	Amount ($)	Est. Receipt Date
	150W HPS DD LAMPS	1,750.00	Immediate
	150W HPS NF	842.40	6 Months
	250W HPS NF	456.00	6 Months
Total		**3,048.40**	

LABOR NOT INCLUDED.

Disclaimer

The figures and calculations used in this analysis are for project estimations only and not a guarantee of total project cost for an entire area or facility. The fixture counts could vary +/-5%; operating hours will fluctuate with production/operational demand; total applied rebate values are the sole discretion of the issuing body and its specific requirements; final installation costs will be determined by existing equipment conditions and any additional hardware and resulting time spent to complete project. Any supplied labor figures are for analysis calculations only. Final labor costs are negotiated and handled by the end-users electrical contractor.