



Michael G. Lewis
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MEMORANDUM

TO: Gary Barczak, Chair, Board of Public Works
Vincent Vitale, First District
Cathleen M. Probst, Second District
Thomas G. Lajsic, Fourth District
Rosalie Reinke, Fifth District

FROM: Peter C. Daniels P.E., Principal Engineer
Peter W. Fantle, Green Initiative Coordinator

DATE: November 15, 2016

RE: **Communication from Principal Engineer and Green Initiative Coordinator regarding LED Light Retrofit at Fire Department Buildings**

The West Allis Common Council adopted the City of West Allis Green Initiative on June 16, 2015 (R-2015-0139) to encourage City Departments, personnel and citizens of West Allis to think long-term and broadly about environmental issues including, but not limited to, air and water quality, pollution prevention, natural restoration, solid waste reduction/recycling, energy, and transportation. Further, the Mayor and Common Council are interested in ways to reduce costs and improve environmental sustainability.

In an effort towards this goal, the Fire Department conducted a Focus on Energy consultation earlier this year. LED lighting is approximately 90% more efficient than standard halogen light bulbs. In addition, LED bulbs last 25 times longer. The price of LED lighting has also dropped considerably in recent years which allows for cost effective conversions. Conversion to LED lights will reduce utility costs with a short return on investment while going "GREEN".

The Focus on Energy representative recommended conversion to a LED lights system in all four Fire Department buildings in order to increase energy efficiency and reduce utility bills. The cost of the project is estimated at \$85,600 after a \$16,000 Focus on Energy incentive is received. The City has hired a consultant, Donohue & Associates (R-2016-0238), to prepare specifications for this project. Donohue & Associates is estimating a **5.66 year payback from reduced utility bills** if this project moves forward. (See attached payback analysis)

According to the City of West Allis Green Initiative the funding for any Green Initiative project was to be limited to only activities that have a two year or less financial payback. The Engineering Department and Green Initiative Coordinator are still recommending approval of this project though in spite of the 5.66 year payback analysis. There is a very aggressive schedule required to get the 20% discount from Focus on Energy, which is due by December 16, 2016. We expect the lights to be paid for from the **Reserve for Green Initiatives** account. The installation must be completed by February 1, 2017 to get the discount.



DEVELOPED BY: Donohue & Associates
 CONTACT: Mike Stohl
 DATE: 11/08/16
 PROJECT: West Allis Fire Dept.
 PROJECT #: 13021

RETROFIT ALL FIXTURES WITH NEW LED LIGHTING

Lighting System Data	Existing System	Proposed System
Quantity of Fixtures	800	800
Lighting System	VARIES	LED
Fixture Wattage - Lamp, Module or Lamp/Ballast, Module/Driver Combination	20	10
Lamp/Module Life, Rated Hours	10,000	100,000
Per Lamp/Module Cost	\$5	\$35
Per Lamp/Module Re-lamping Cost	\$5	\$35
Occupancy Rate (Percentage of time off)	0%	50%

System Operating Data & Costs	Average kWh Cost—>	\$0.09
Operating Hours per Year (Existing vs modified proposed with occupancy)	8,736	4,368
Total Wattage / Total System	16,000	8,000
Total Kilowatts / Total System	16	8
Total Kilowatt Hours / Total System	139,776	34,944
Annual Energy Costs	\$12,580	\$3,145
Annual Lamp/Module Maintenance Costs (Based on Life Cycle in Years)	\$8,736	\$3,058
Annual Operating Costs	\$21,315.84	\$6,202.56

Project Implementation Costs		
Fixture Sell Price		\$100
Fixture Installation Sell Price		\$25
Recycling & Disposal Sell Price		\$2
Total Project Sell Price (Invoice Amount to Customer)		\$101,600
Rebate (Prescriptive - per unit price)	20.00 Per Fixture Amount	\$16,000.00
Total Project Cost after Rebates		\$85,600.00

Project Payback Analysis	Life Cycle Calculation Years—>	15
Annual Energy Savings from Project		\$9,435
Simple Payback in Years		5.66