



# Update on Village Streetlight Upgrades

Board of Managers Regular Meeting  
December 10, 2012

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# Background and Timeline of Board/Committee Actions

- Over the course of three (3) years, the Village Board, Public Works Committee and staff have been working to improve street lighting along Village rights-of-way. There have been numerous updates provided to the community and opportunities for public comment including:
  - Six (6) – Public Works Committee (PWC) meetings.
  - Five (5) – meetings of the Board of Managers where the PWC, staff made presentations to the Board on the status of improving Village street lighting.
  - Seven (7) – articles included in the *Crier* updating Village residents and requesting comments on dark spots.
  - Four (4) – Surveys of Village streetlights and dark spot locations by the Village Police Department and a photometric survey firm.
- The Village's tree contractor has also recently cleared tree branches away from existing streetlights in an effort to increase light dispersion.
- Only fifteen (15) resident comments have been received reporting dark spots as a direct result of the above efforts.
- The Village currently has a total of 287 streetlights installed on PEPCO power poles using high pressure sodium (HPS) bulbs.

# Survey Results

- As a result of the four (4) streetlight surveys conducted, three (3) common issues were observed:
  - Overall spacing between lights is too great;
  - Light output/color of many lights is lower than acceptable; and
  - Adequate light dispersion can be affected by the Village's and private tree canopy.

# Existing Dark Spots

- A total of ten (10) additional dark spot locations remain based on the surveys. The locations and recommended fixes are as follows:

## **New Lights on Existing Poles:**

- In front of 6 Quincy Street
- Between 10 and 24 Quincy Street

## **New Lights on New Poles:**

- Between 127 and 129 Grafton Street
- Between 4111 and 4113 Oliver Street
- East Melrose Street between 16 East Melrose Street and Brookville Road

## **Increase Streetlight Wattage:**

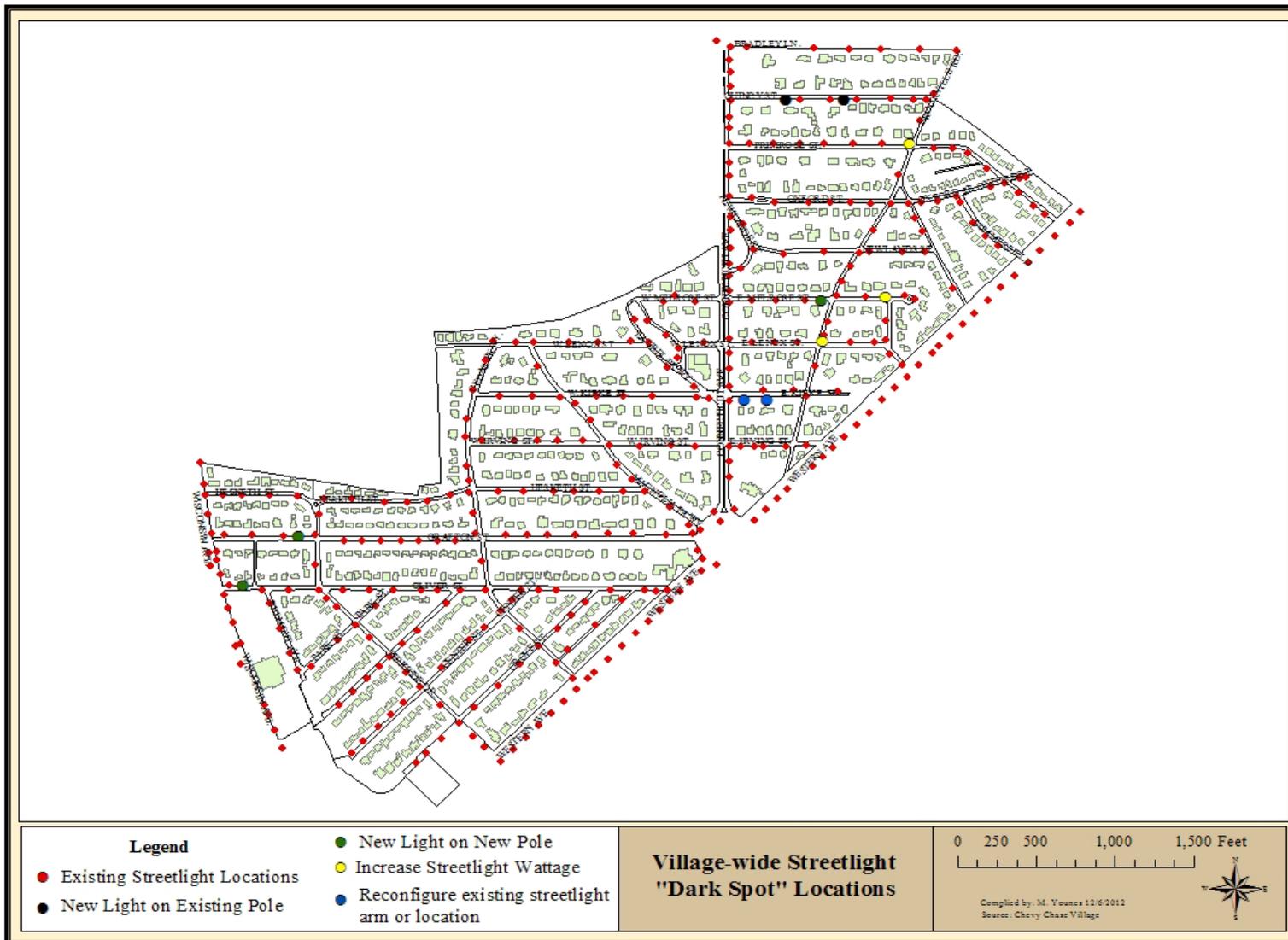
- Primrose Street between 28 Primrose Street and Brookville Road
- Intersection of Nevada Avenue and East Melrose Street
- Intersection of East Lenox Street and Brookville Road

## **Reconfigure an existing streetlight's arm or location:**

- East Kirke Street between Connecticut Avenue and Brookville Road: *2 lights need to be re-oriented.* Consideration has been made to adding an additional streetlight in this location; however, due to technical issues such as not having an empty power pole available, this is not feasible.

- In addition to the above locations, it has recently been brought to the Village office's attention that the south side of West Lenox Street (north side of the Village Hall/Post office) is very dark. The Village staff is assessing other options for illuminating this area a part of the lighting plan for the rest of the Village Hall and will provide a subsequent report to the Board on this matter.

# Map of Existing Dark Spots



# Status Update on PEPCO LED Streetlights

- Since March 2010, PEPCO has been exploring the possibility of using light-emitting diode (LED) technology for street lighting.
- LED lights are far more energy efficient than other types of lighting and provide true white light.
- LED lights differ from traditional lights in that the latter is naturally refractive because the light emitted from the filament disperses in all directions.
- Light from LEDs is directional because the light comes from a direct light source called a diode and must be manually reflected and then refracted.

# Status Update on PEPCO LED Streetlights

- In order to study the effectiveness, reliability, light dispersion, and aesthetics of LED street lighting, PEPCO had set up pilot programs. One of the pilot areas was in the Town of Somerset along Dorset Avenue (between Little Falls Parkway and Surrey Street).
- Early study reliability and maintenance concerns have been addressed by the industry.
- All of the concerns centered around how repairs would be made if individual diodes stopped working. In early models of the lights, the actual LED components were sealed in the fixture and there was no way to replace individual diodes without taking the entire fixture apart.
- Now, fixtures allow for individual diodes to be replaced by simply removing the refractive glass shield and replacing the diodes like you would a traditional light bulb.

# Status Update on PEPCO LED Streetlights

- Just recently the Maryland Public Service Commission has granted PEPCO a tariff for the use of LED streetlights at the request of a petition filed by Montgomery County and the City of Gaithersburg.
- The tariff allows PEPCO to offer LED street lighting to its rate payers.
- Now that a LED streetlight tariff, PEPCO is in the process of reviewing manufacturer pricing for the different types of LED fixtures that would be offered by PEPCO.
- PEPCO anticipates selecting manufacturers by the end of calendar year 2012.
- PEPCO should finalize fixture pricing and be able to take orders by the end of the first quarter of 2013 (April 2013).

# Pictures of LED Streetlights

Image No. 1



Image No. 2



Traditional Cobra Heads

Image No. 3



Teardrop Style

# Picture of LED Streetlight Installed



LED streetlight installed on Dorset Avenue in the Town of Somerset

# Picture of Internal LEDs within Streetlights



Traditional Cobra-Head



Teardrop Style

# Options for Board Consideration

- With the availability of LED streetlights approximately four (4) months away I have outlined three (3) options for the Board's consideration.
- Regardless of the option selected, there will still be a need for periodic maintenance and pruning of tree branches around Village streetlights.
- It is worth noting that regardless of which solution is chosen, there may still be places where Village rights-of-way may appear dark due to the width of the street or right-of-way, canopy from trees located on private property, or other factors.
- Secondary lighting from residents homes is important to fill these gaps.

# Options for Board Consideration –

## *Option 1*

1. Proceed with additional streetlight installations (by PEPCO) using currently available high pressure sodium (HPS) bulbs for the ten remaining dark spot locations. Now that PEPCO has standardized installation rates, total installation costs would be \$9,055 for the ten added lights.

When LED streetlights are available begin the process to convert the Village's high pressure sodium (HPS) streetlights to LED according to the Village Capital Improvements Plan (CIP) which currently budgets for replacements to begin in FY16 (July 2015 – June 2016) and be phased through FY19.

# Options for Board Consideration – *Option 2*

2. Proceed with option 1; however, during the FY14 budget cycle adjust the CIP to move forward the Village-wide streetlight replacements to begin in FY14 (rather than FY16).

# Options for Board Consideration –

## *Option 3*

3. Temporarily suspend additional streetlight improvements until LED streetlights are available toward the end of the first quarter 2013 (April 2013). Once available, install LED streetlights in the remaining dark spots or along a couple sample blocks using a mix of the cobra-head and teardrop styled fixtures as “test” cases for the overall Village replacement program. Prior to installing the new LED lights, staff will photograph the dark spots as they exist today. Staff will then take comparison photos after the LED lights are in place to evaluate the lumen output (brightness) and how the light is dispersed by the new fixtures.

After the new lights are installed, we will conduct a survey of Village residents via mailer to solicit feedback, since past efforts to passively through solicit feedback the Crier and website, have yielded sparse results.

After resident feedback and the staff’s evaluations are received and reviewed, the estimated cost of installation along with a final recommendation will be submitted to the Board.

# Estimated Cost to Upgrade all Streetlights

- Based on current standardized installation rates from PEPCO, which I have increased by a factor of 2 (worst case scenario) to estimate the cost of the new LED streetlight fixtures, the conversion of all Village streetlights to LEDs would **cost an estimated \$307,090.**
- Currently, the CIP reflects an estimated cost of \$800,000 phased over 4 years; however, true cost estimates had previously been unavailable since the technology was still under PEPCO review.
- If PEPCO's installation pricing proves to be reasonable, replacing all Village streetlights with LEDs in a single fiscal year would be feasible.

# Ongoing Maintenance of Streetlights

- The Village currently pays PEPCO on a monthly basis for the maintenance of our streetlights, which is \$1,739.22 or an average of \$6.06 per light. The cost is a combination of three (3) charges per light:
  1. A fixed charge;
  2. An overhead & maintenance charge: used to cover PEPCO's labor and material cost of replacing bulbs and minor wiring or component fixes; and
  3. An optional replacement charge: this charge would cover any situation where the actual fixture or arm required complete replacement. This charge is optional but if the Village opted-out and a streetlight needed to be replaced, because it was knocked down in a storm or was broken beyond repair, PEPCO would bill the Village for the equipment cost.
- The Village can opt to forgo the optional replacement charge at any time, but can only opt-in to the optional replacement charge at the time the new fixtures is installed. Below is a breakdown of how the charges compare to what the Village is currently paying for maintenance.

# Current Maintenance Costs

Table 1: Utility Grade HPS Streetlight (Cobra-Head): *(Actual Maintenance Costs)*

Wattage of Fixture	Fixed Charge	O&M Charge	Optional Replacement Charge	Cost per light	Monthly Maintenance Cost
70 watts	\$3.99	\$1.70	Included in O&M Charge	\$5.69	
100 watts	\$4.47	\$1.70	Included in O&M Charge	\$6.17	
150 watts	\$4.64	\$1.70	Included in O&M Charge	\$6.34	
<b>Average Cost w/optional replacement charge</b>				<b>\$6.06</b>	<b>\$1,739.22</b>

# Estimated Maintenance Costs w/ LEDs

Table 2: Utility Grade LED Streetlight (Cobra-Head): *(For Reference Only)*

Wattage of Fixture	Fixed Charge	O&M Charge	Optional Replacement Charge	Cost per light	Monthly Maintenance Cost
70 watts	\$0.35	\$0.72	\$4.82	\$5.89	
100 watts	\$0.35	\$0.72	\$5.21	\$6.28	
150 watts	\$0.35	\$0.72	\$5.76	\$6.83	
<b>Average Cost w/optional replacement charge</b>				<b>\$6.33</b>	<b>\$1,816.71</b>
<b>Cost w/o optional replacement charge</b>				<b>\$1.07</b>	<b>\$307.09</b>

Table 3: Decorative Grade LED Streetlight (Teardrop): *(For Reference Only)*

Wattage of Fixture	Fixed Charge	O&M Charge	Optional Replacement Charge	Cost per light	Monthly Maintenance Cost
70 watts	\$0.35	\$0.72	\$7.28	\$8.35	
100 watts	\$0.35	\$0.72	\$7.35	\$8.42	
150 watts	\$0.35	\$0.72	\$8.03	\$9.10	
<b>Average Cost w/optional replacement charge</b>				<b>\$8.62</b>	<b>\$2,473.94</b>
<b>Cost w/o optional replacement charge</b>				<b>\$1.07</b>	<b>\$307.09</b>

# Estimated Maintenance Costs w/LEDs

- At this time, the figures in tables no. 2 and 3 are for reference only to outline the potential monthly maintenance costs. Final maintenance costs will be determined once exact fixtures and wattages are chosen for Village streets.
- Once fixtures pricing is finalized by PEPCO, a more informed discussion can be held to determine if the Village should opt-in for the optional replacement charge, as there is the potential for significant cost savings.

# Staff Recommendation

- Based on the analysis, public comment and conversations with PEPCO, I recommend that the Village proceed with option number 3. I have also spoken with Chief Fitzgerald and he supports this recommendation as well.
- Chief Fitzgerald and I feel strongly that it would not be cost effective to install additional high pressure sodium (HPS) streetlights when a more efficient, better illuminating and true white light solution will be available in only four (4) months.
- By waiting to install the new LED lights in several configurations (styles and wattages) in the remaining dark spots or sample blocks, residents would be able to physically observe how these new lights will look on Village streets rather than trying to determine a best case solution from another photometric survey/analysis.

# Board Action

- At this time there is no action required if the Board wishes to proceed based on the staff's recommendation.
- If the Board wishes to proceed with option #1, staff requests authorization to engage PEPCO and proceed with the installation/modification of the ten (10) remaining dark spots. At an estimated cost of \$9,055.