

Street Light Evaluation and Improvements December 2009



**PREPARED BY PRECISION SYSTEMS, INC.
AND THE PUBLIC SERVICES COMMITTEE**

Original Goals and Steps



- **Goals:**

- The goal of the Town is to ensure a street light system that:
 - ✦ Meets industry standards
 - ✦ Is energy and cost efficient
 - ✦ Provides for the security and safety of Town residents
 - ✦ Incorporates the principals of the Dark Sky Association in reducing trespass light
 - ✦ Respects the historic nature of the community
 - ✦ Operated and maintained with a manageable program.

- **Steps:**

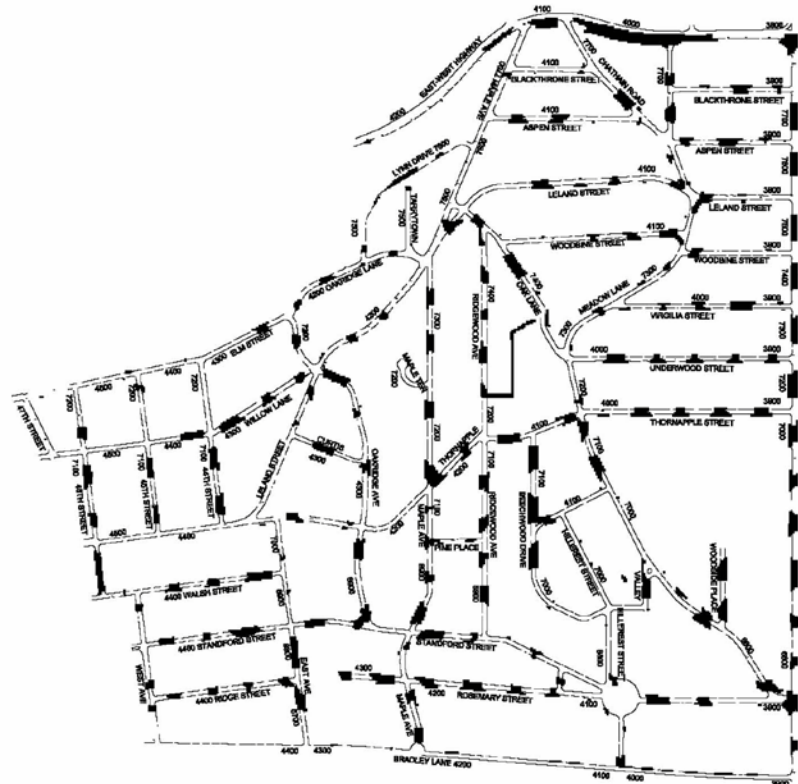
- **Current Lighting**
 - ✦ Survey of existing street lights
 - ✦ Photometric analysis
 - ✦ Lights inventory -- Data Base established
 - ✦ Examine PEPCO/Clear Currents energy and maintenance bills
 - ✦ Assess lighting needs – Programmed analysis
- **Develop Street Lights Report**
 - ✦ Survey national lighting trends
 - ✦ Develop options
 - ✦ Develop draft report – present to PSC and Council
 - ✦ Complete final report

Steps Accomplished



- **Current Lighting**
 - **Survey existing street lights**
 - ✦ Every street light is detailed in a Street Lights database, e.g., PEPCO number, nearest house address, etc.
 - **Assess lighting needs**
 - ✦ Collected input from residents
 - ✦ Specified lighting standards to be used: AASHTO (American Association of State Highway and Transportation Officials) and industry lighting standards
 - ✦ Completed computer analysis – using survey data -- of Town's street light coverage, map to be discussed
 - **Analysis -- Photometric analysis**
 - ✦ Completed nighttime photometric analysis: PSI street light survey data – plots brightness, delineating dark areas, map to be discussed
 - ✦ Completed light meter readings at each intersection, at selected street lights: addresses variable factors, e.g., tree coverage
 - **Examined existing PEPCO energy/watts and maintenance costs – used for preliminary pricing**
- **Develop Street Lights Report – Steps to Date**
 - **Nation wide survey of lighting trends – completed survey, materials to be in final report**
 - **Developed options**
 - ✦ Drafted six options, including preliminary costs
 - **PSC Presentations – 3 presentations completed**

Map of dark spots



* Trees not taken into account

Analysis



- PEPCO and TOCC improvements – correct/identify fixture issues, tree trimming
- Review Map: dark spots, mean virtually 0 foot candles
- AASHTO (American Association of State Highway and Transportation Officials) Standards – not met

Required interior: average .4 ft. candles; TOCC interior: average .19; brightest 1.2; min is 0

Required border streets: average .7 ft. candles; TOCC border streets: average .25; brightest 2.4; min is 0

- Options Summary – Results are “close” to final

Options 1A & 1B: Stay with existing infrastructure; 1A PEPCO retains ownership; 1B TOCC purchases from PEPCO -- requires capital investment, small projected maintenance savings

Options 2A & 2B: TOCC **brightness** to AASHTO, 50% increase; Use HPS lighting; 2A --PEPCO retains ownership; 2B – TOCC purchases from PEPCO

Options 3A & 3B: TOCC **brightness** to AASHTO, 50% increase; Use induction lighting – white light, “quality” improvement, environmental improvement; 3A -- PEPCO retains ownership – not financially viable; 3B – TOCC purchases from PEPCO

PSI -- Estimated/Preliminary Costs

	1A	1B	2A	2B	3A	3B
	PEPCO Ownership	TOCC Ownership	PEPCO Ownership	TOCC Ownership	PEPCO Ownership	TOCC Ownership
	-- HPS	-- HPS	-- AASHTO Standards -- HPS	-- AASHTO Standards -- HPS	-- AASHTO Standards -- INDUCTION *	-- AASHTO Standards -- INDUCTION *
1) <u>Infrastructure</u>						
Total Poles	307	307	464	464	464	464
Total Luminaires	307	307	464	464	464	464
2) <u>Recurring Annual Costs</u>						
Electricity	\$14,880	\$14,880	\$22,048	\$22,048	\$21,142	\$21,142
Maintenance	\$20,625	\$19,050	\$30,907	\$17,496	\$23,281	\$17,196
Contractor Management – Not PSI				Minimal		Minimal
3) <u>Non-recurring Costs</u>						
Purchase Price		\$135,080		\$135,080		\$135,080
Negotiation Costs – Not PSI				\$20,000		\$20,000
Additional Lighting Implementation			\$267,150	\$135,270	\$1,684,350	\$601,500

Remaining Steps



- **Brightness and Aesthetics Discussion, Decision**
- **Incremental Improvements Discussion, Decision**
- **Remaining Steps of Project**

Study Transitional Option – Between Existing and AASHTO

Rework costs, summarize results

LED Details: PSI -- rate structure; life expectancy issues; equivalent costs

Review, demonstrate fixtures

Complete Draft Report – Lighting Committee, PSC and Council review

Comments to Draft Report

Present Report to PSC

Present to Council – summarized report

Presentation to TOCC Residents