

North Hampton Energy Committee

Street Lighting Audit

Findings and Recommendations

Research

- ◉ Contacted PSNH for Inventory
- ◉ Discussed Rates and Options
- ◉ Purpose and Placement
- ◉ Other Municipalities Approach to Lighting
- ◉ Audit Towns Existing Street Lights
- ◉ Mapped All Street Lights in Town Using a Handheld GPS Unit

Street Light Primer

- ◉ PSNH Rates EOL / OL
- ◉ Town Currently Has The Lowest Rate
- ◉ Using Most Efficient High Pressure Sodium Lamps
- ◉ Inventoried Based on Street / Pole
- ◉ Luminaires have photocells which control on/off cycle based on light

Telephone Pole Identification



Top number is street identifier.

Walnut Ave = 17

Bottom number is pole number. Numbered sequentially.

- Some poles have multiple numbers
- Use the PSNH identifier
- Some poles don't have any numbers

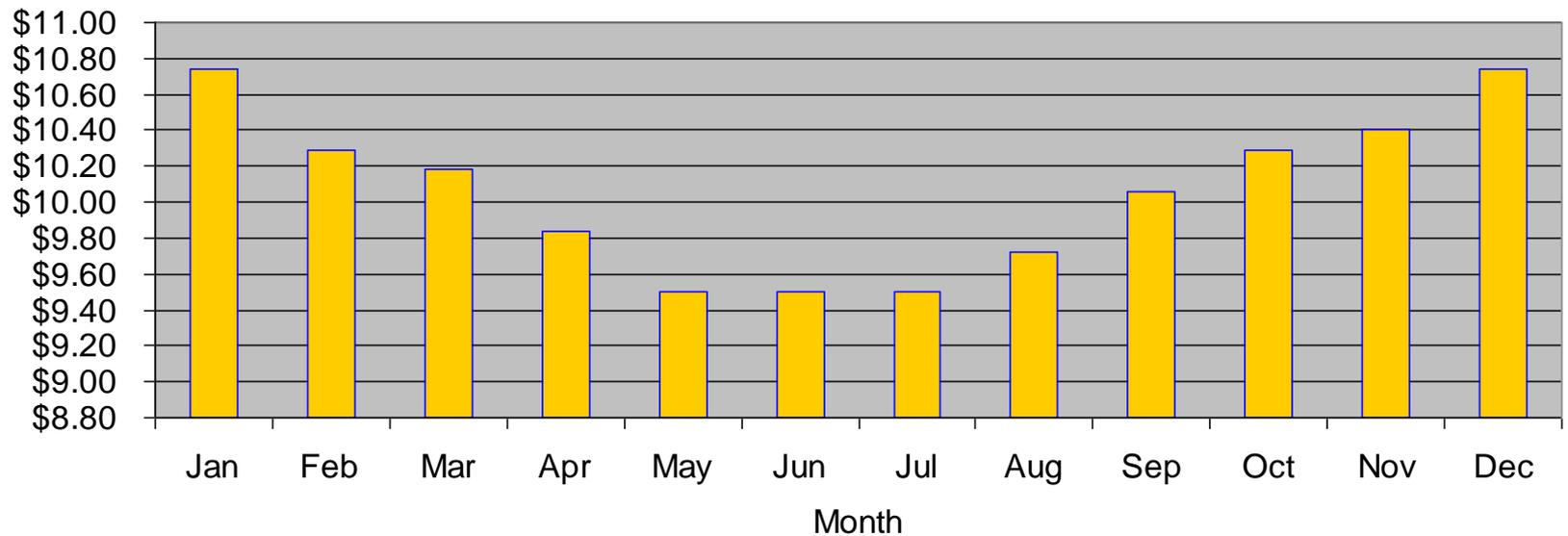
Current Status

- ◉ 155 Street Lights in Town
- ◉ Annual Cost \$19,278
- ◉ Town Pays Fixed Amount per Luminaire to PSNH
- ◉ Price determined by type of luminaire and Watts of fixture
- ◉ Take home message More Watts More Money

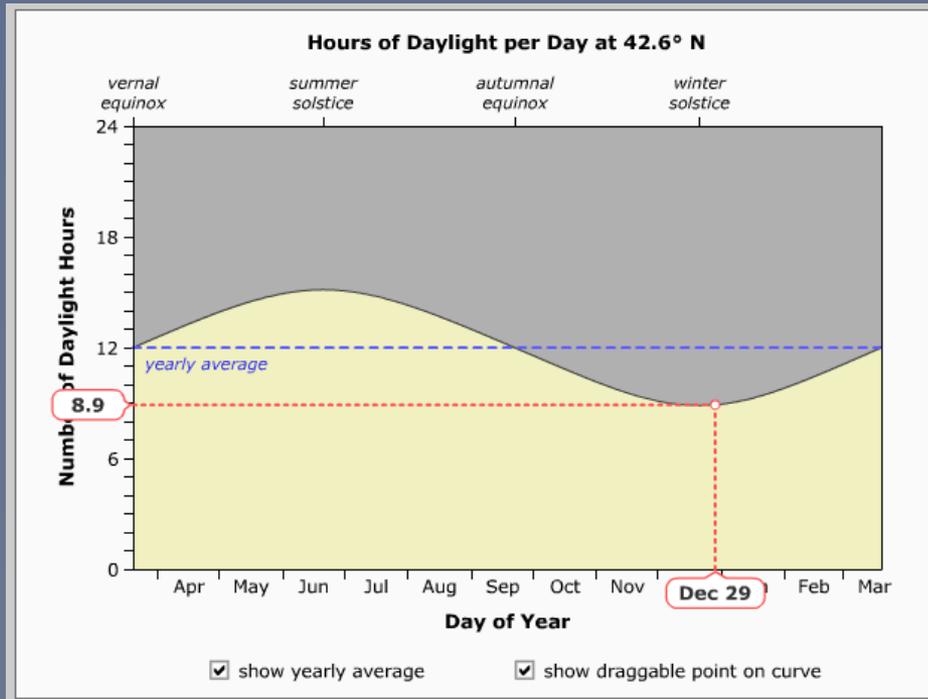
Total Annual Cost

\$120.76

Cost Per Month for HPS 50W



Residential Cost 50 Watt Bulb



- 0.15494 \$ / kWh
- 4380 Hours
- 0.050 KWatt
- \$34 / Year

Street Light Placement

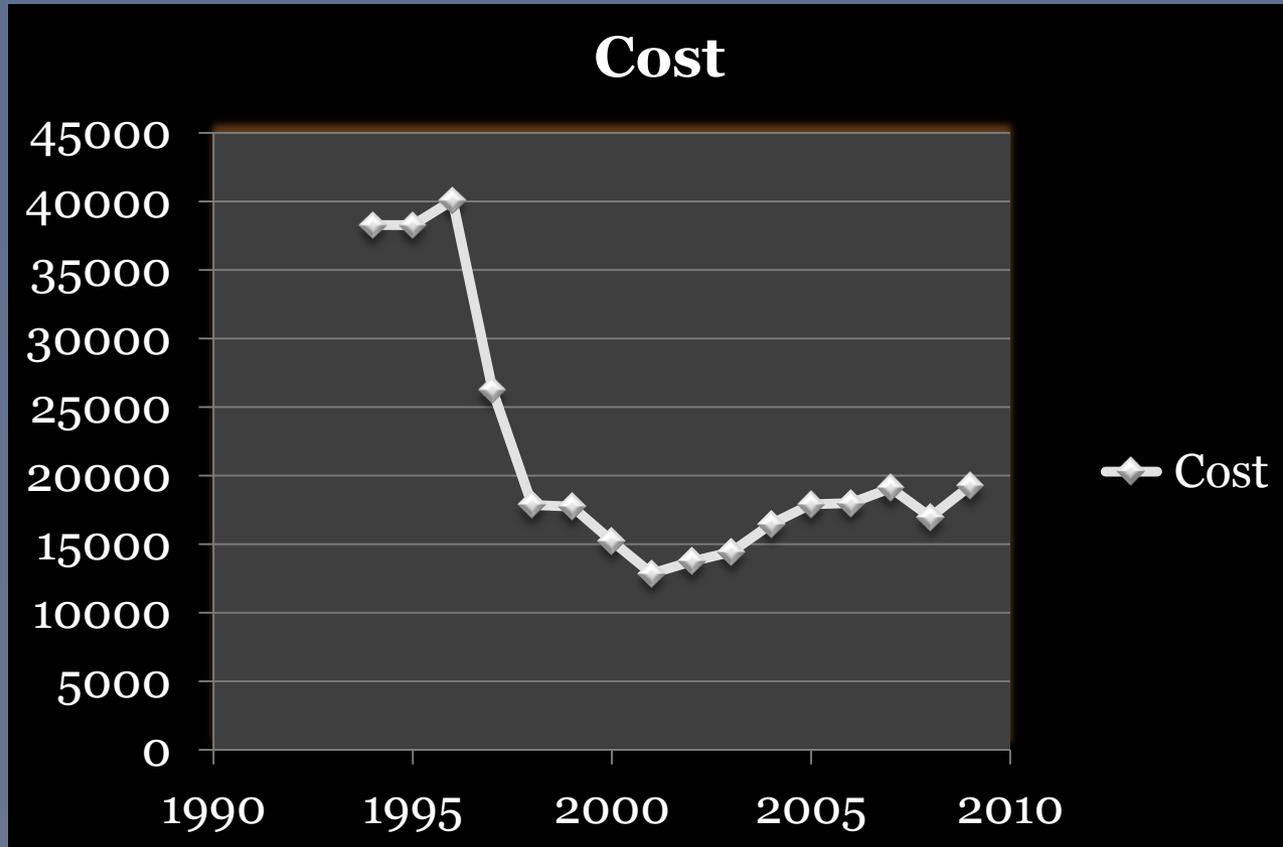
- ◉ Major Intersections
- ◉ Curves in Roads
- ◉ Pedestrian Traffic and Walkways

Public Safety is the one and only reason to place a street light

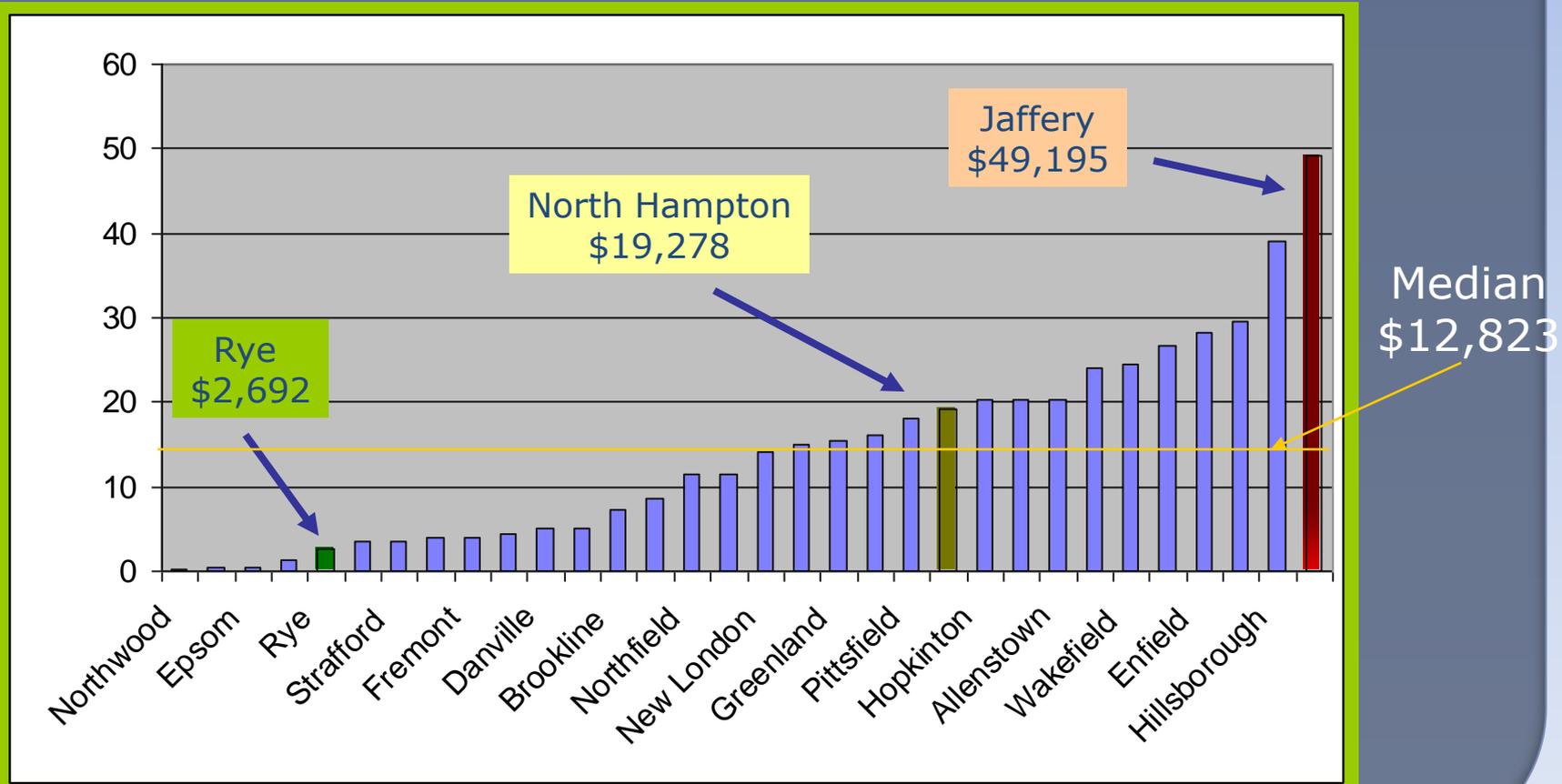
Case Study : Energy Savings One Town Made 1996 to Present

- Town Removed a Number of Street Lights
- Converted from OL to EOL rate
- Street Light Cost in 1996 = \$40,084
- Went Down to a Low of \$12,858 in 2001
- Current Cost in 2009 = \$19,278
- Current EOL Annual Savings = \$20,636
- Taxpayer Savings Since 1996 = \$295,184 +

North Hampton, NH



Annual Street Lighting Costs NH Towns With Populations Between 4-6 Thousand



Comparison

| | Rye | North Hampton |
|--------------------------|----------|---------------|
| Population | 5151 | 4472 |
| Square Miles | 12.6 | 13.9 |
| Annual Street Light Cost | \$2,691* | \$19,278 |

*Data From Annual Report Town of Rye 2008

<http://www.nh.gov/oep/programs/DataCenter/Population/documents/ranking.xls>

<http://www.nh.gov/nhes/elmi/htmlprofiles/northhampton.html>

<http://www.nh.gov/nhes/elmi/htmlprofiles/rye.html>

Three Significant Findings

| SIZE CODE | STREET NAME | INSTALLATION DATE | POLE NUMBER | REPLACEMENT DATE | EXISTING RATE |
|-----------|---------------|-------------------|-------------|------------------|---------------|
| 047 | ALDEN AVE | 122297 | 39/6 | 041906 | EOL |
| 047 | APPLEDORE AVE | 110497 | 49/2 | 041906 | EOL |
| 047 | APPLEDORE AVE | 110497 | 49/4A | 041906 | EOL |
| 047 | APPLEDORE AVE | 110497 | 49/8 | 041906 | EOL |
| 047 | ATLANTIC AVE | 120497 | 2/ 34 | 041906 | EOL |
| 047 | ATLANTIC AVE | 120497 | 2/ 37A | 041906 | EOL |
| 153 | ATLANTIC AVE | 090197 | 2/ 39 | 041906 | EOL |
| 153 | ATLANTIC AVE | 090197 | 2/ 42 | 041906 | EOL |
| 047 | ATLANTIC AVE | 120497 | 2/ 46 | 041906 | EOL |
| 151 | ATLANTIC AVE | 070106 | 2/ 62 | 041906 | EOL |
| 047 | ATLANTIC AVE | 120497 | 2/ 79 | 041906 | EOL |
| 047 | ATLANTIC AVE | 120497 | 2/ 98 | 041906 | EOL |
| 151 | ATLANTIC AVE | 070106 | 2/102 | 041906 | EOL |
| 151 | ATLANTIC AVE | 070106 | 2/139 | 041906 | EOL |
| 047 | ATLANTIC AVE | 020106 | 2/147 | | EOL |
| 047 | ATLANTIC AVE | 121897 | 2/171 | 041906 | EOL |
| 047 | BIRCH RD | 122297 | 23/12 | 041906 | EOL |
| 047 | BIRCH RD | 122297 | 23/14 | 041906 | EOL |
| 047 | BOULTERS COVE | 121897 | 49/2B | 041906 | EOL |
| 047 | BOULTERS COVE | 121897 | 49/2C | 041906 | EOL |
| 047 | BRADLEY LN | 123097 | 22/21-F | 041906 | EOL |
| 047 | BRADLEY LN | 123097 | 22/21-H | 041906 | EOL |
| 047 | CEDAR RD | 123097 | 27/13 | 041906 | EOL |
| 047 | CEDAR RD | 123097 | 27/17 | 041906 | EOL |
| 047 | CHAPEL RD | 101597 | 6/10 | 041906 | EOL |
| 047 | CHAPEL RD | 121797 | 6/26 | 041906 | EOL |
| 047 | CHAPEL RD | 121797 | 6/34 | 041906 | EOL |
| 047 | CHERRY RD | 112497 | 14/6 | 041906 | EOL |
| 047 | ELM RD | 122297 | 24/3 | 041906 | EOL |
| 141 | EXETER RD | 031097 | 19/ 1 | 041906 | OL |
| 047 | EXETER RD | 112697 | 19/29 | 041906 | EOL |
| 151 | EXETER RD | 070106 | 19/43 | 041906 | EOL |
| 047 | EXETER RD | 112697 | 19/49 | 041906 | EOL |
| 047 | EXETER RD | 112697 | 19/60 | 041906 | EOL |
| 151 | EXETER RD | 070106 | 19/65 | 041906 | EOL |
| 151 | EXETER RD | 070106 | 19/68 | 041906 | EOL |
| 047 | GLENDALE RD | 122297 | 39/2 | 041906 | EOL |

Cedar Road – There is no street light present – PSNH investigating, will rebate amount owed (\$10.06/month)

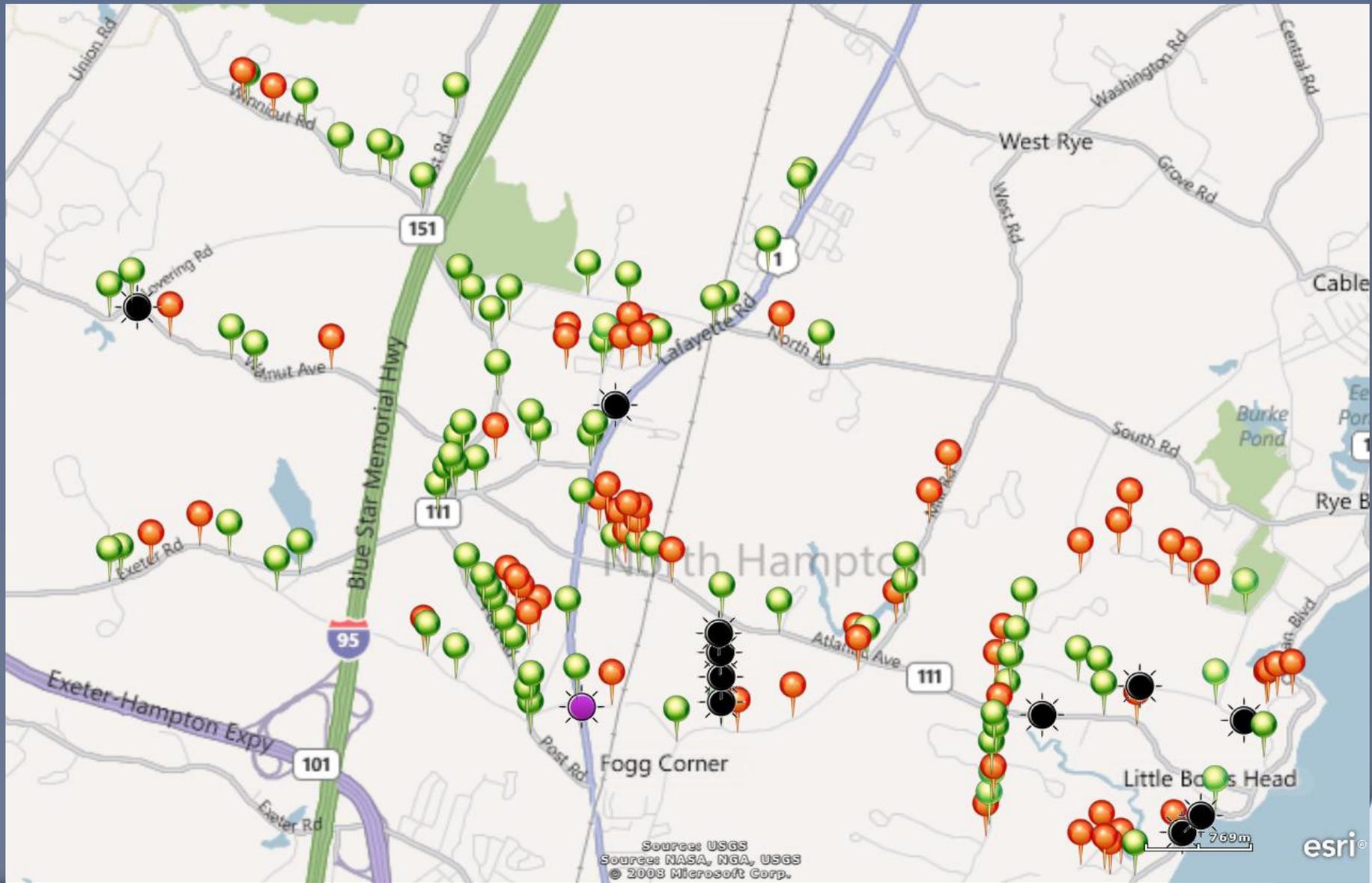
Woodland Road – Same -

Exeter Road / Post Road
Charged OL rate instead of EOL rate since 3/10/1997

\$9.00/ month x 173 months

\$1557

Street Light Inventory



Map Legend



Green = No Change



Red = Remove

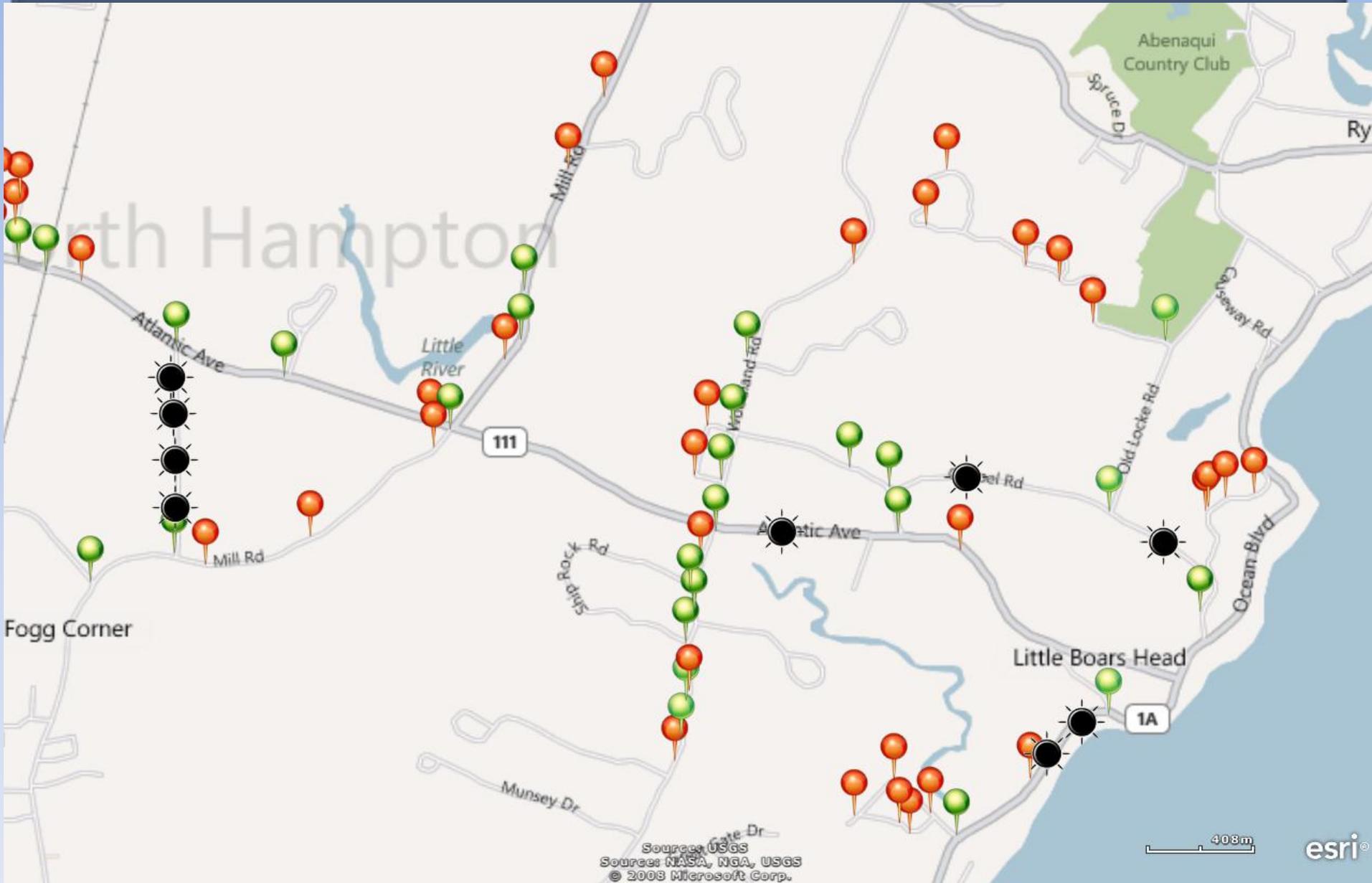


Purple = Does Not Exist

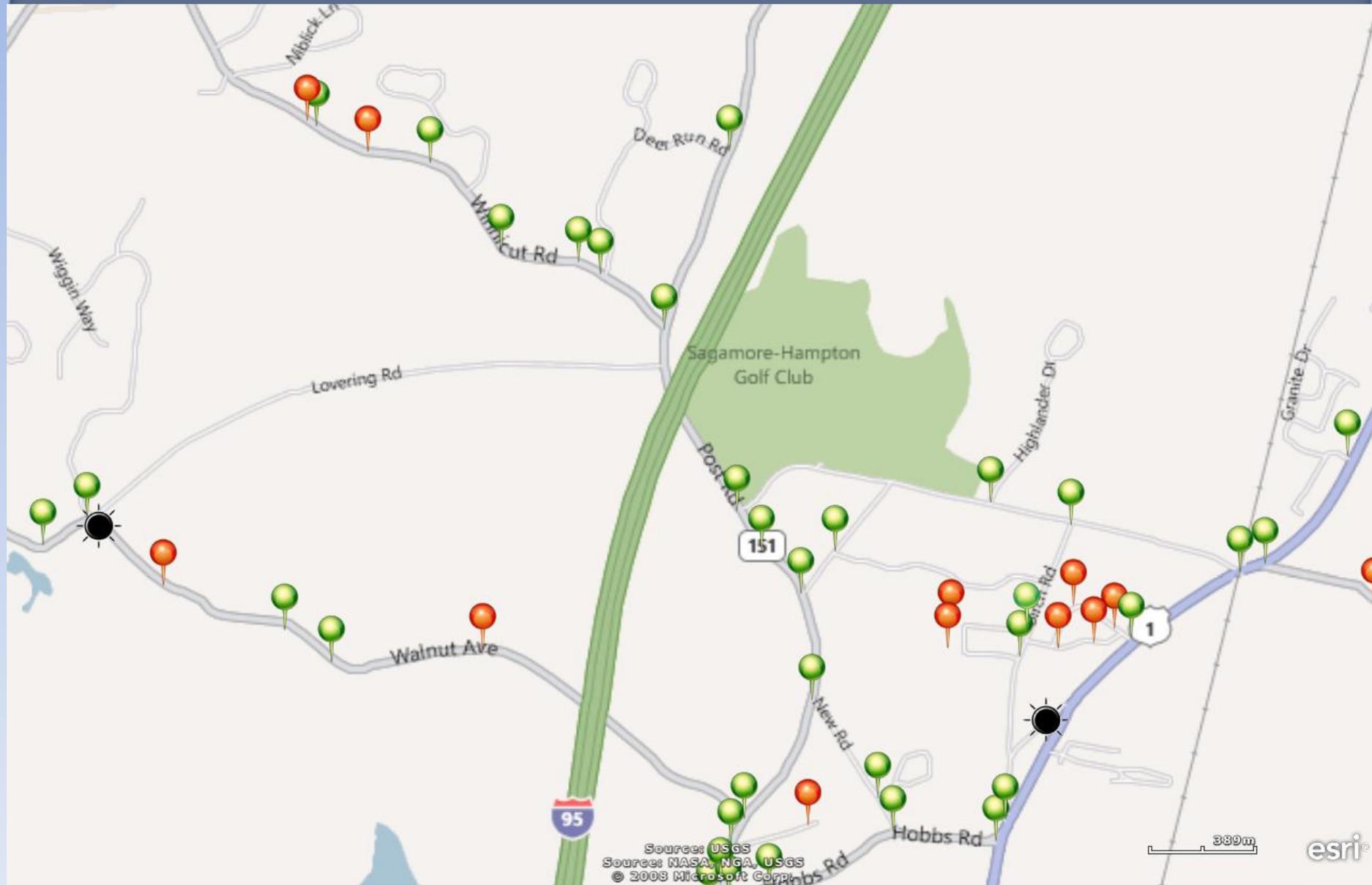


Black = Priority Removal

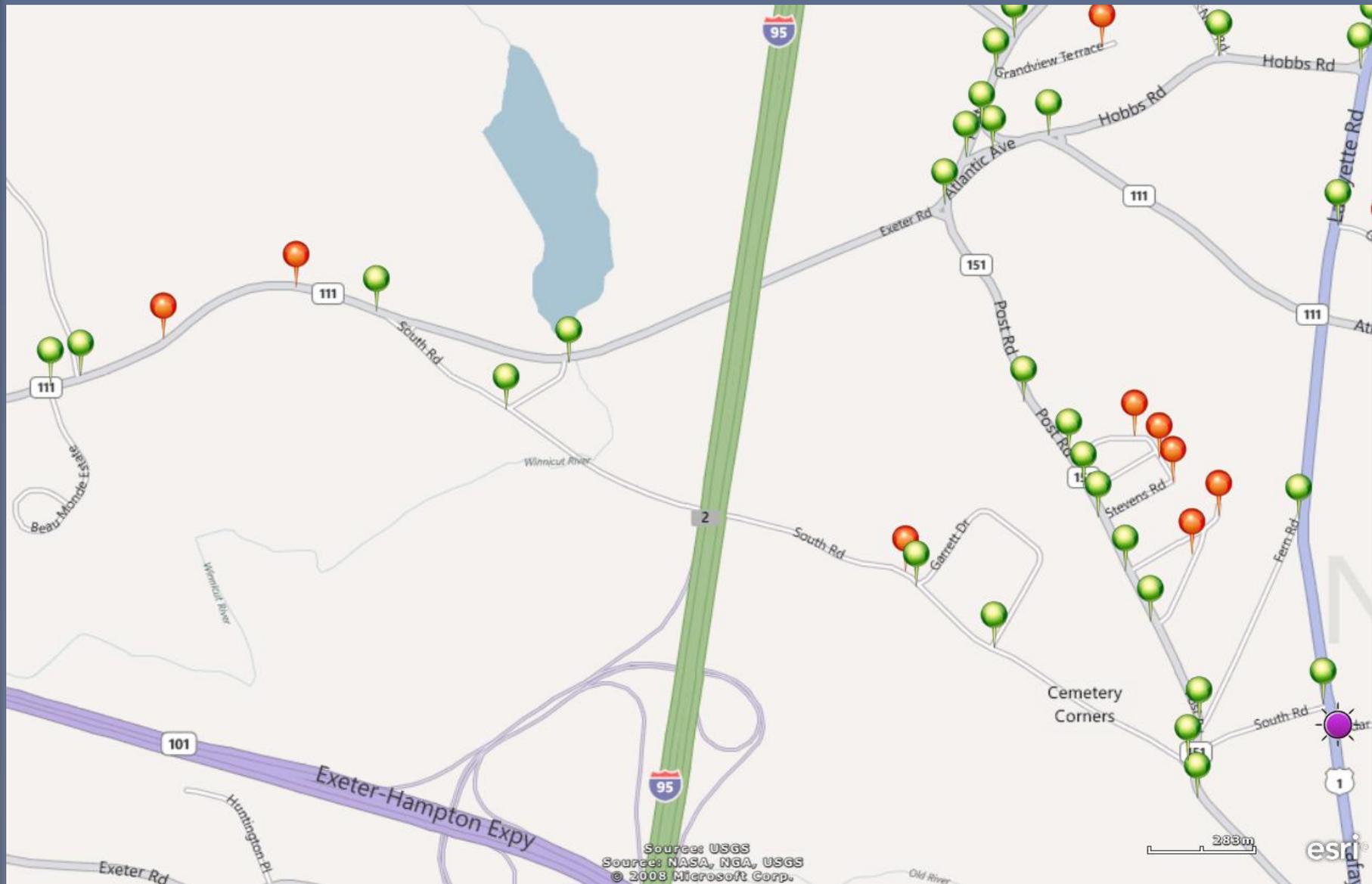
EAST



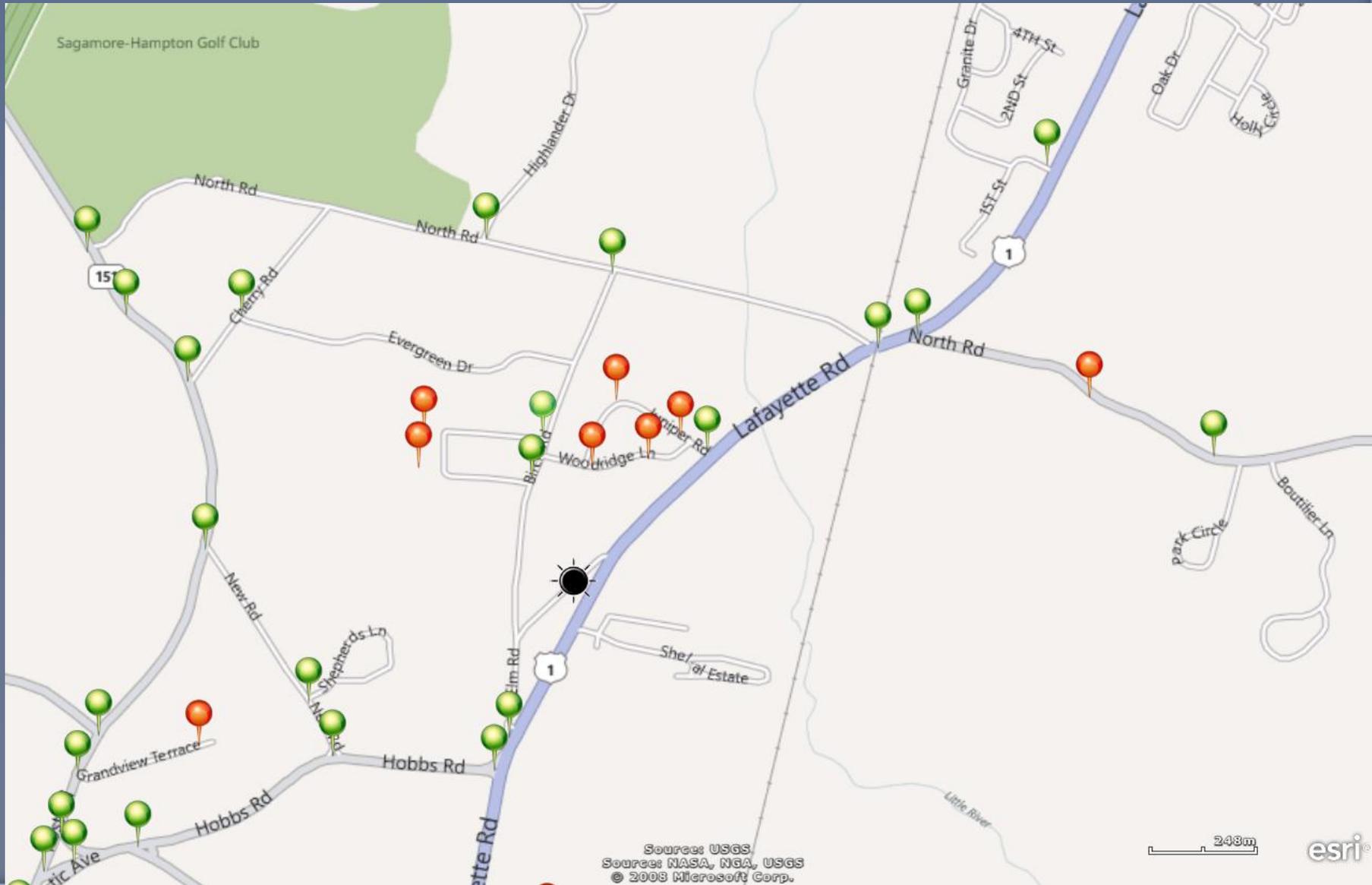
North West



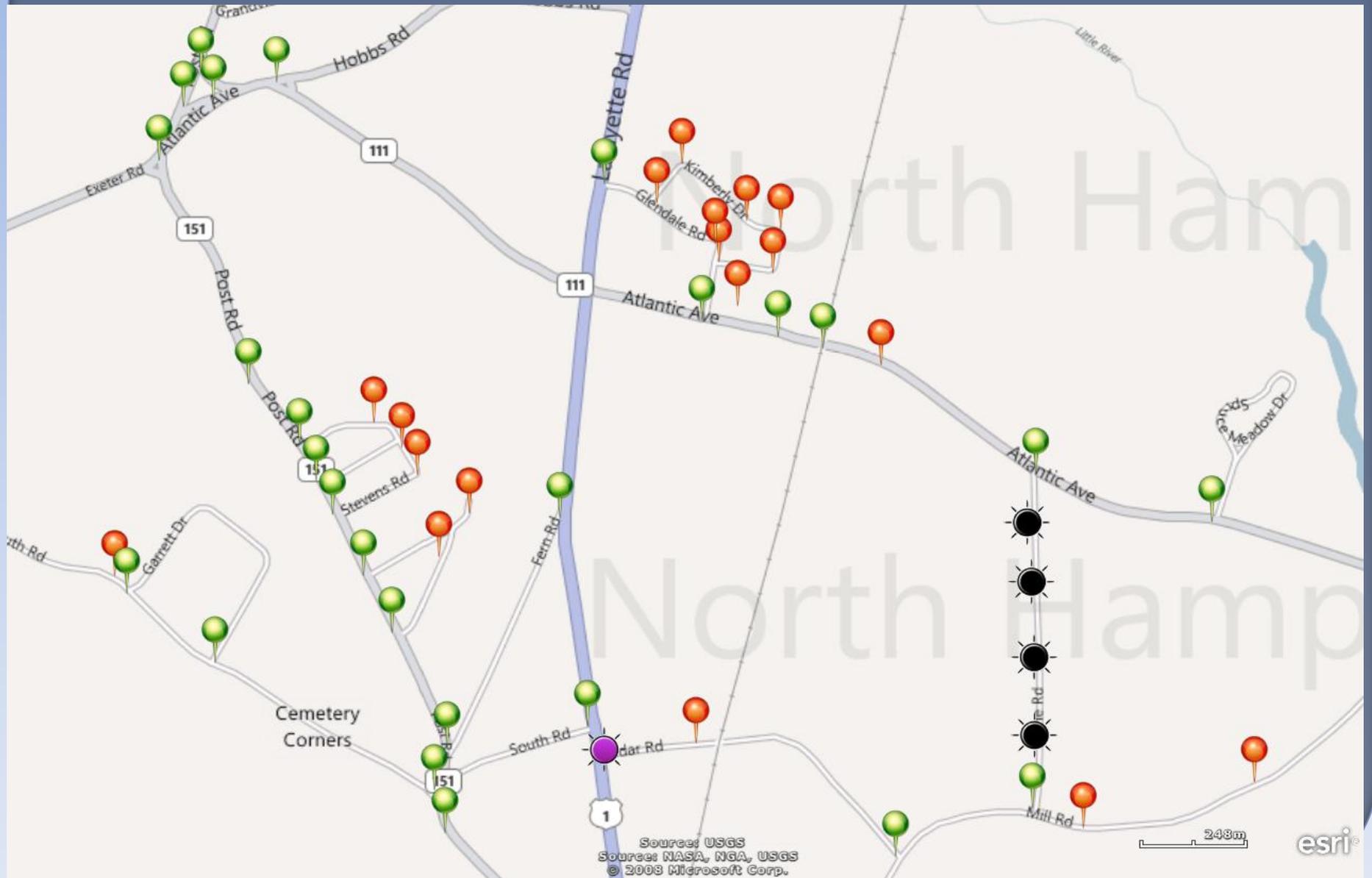
South West



North Central



Central



NorthHampton_StreetLights

- 39-6 Alden
- 49-2 Appledore
- 49-4A Appledore
- 49-8 Appledore
- 2-34 Atlantic
- 2-37A Atlantic
- 2-39 Atlantic
- 2-42 Atlantic
- 2-46 Atlantic
- 2-62 Atlantic
- 2-79 Atlantic
- 2-98 Atlantic
- 2-102 Atlantic
- 2-139 Atlantic
- 2-147 Atlantic
- 2-171 Atlantic
- 49-2B Boulters Cove
- 49-2C Boulters Cove
- 21-22F Bradley
- 21-22H Bradley
- 23-12 Birch
- 23-14 Birch
- 27-13 Cedar
- 27-17 Cedar
- 6-10 Chapel
- 6-26 Chapel
- 6-34 Chapel
- 14-6 Cherry
- 24-3 Elm
- 19-1 Exeter
- 19-29 Exeter
- 19-43 Exeter
- 19-49 Exeter
- 19-60 Exeter
- 19-65 Exeter
- 19-68 Exeter
- 30-5 Grandview
- 39-2 Glendale
- 39-5 Glendale

- 46-2 Hampshire
- 46-4 Hampshire
- 52-1 Highlander
- 43-4 Hillside
- 21-22 Hobbs
- 21-5 Hobbs
- 21-31 Hobbs
- 41-1 Juniper
- 41-4 Juniper
- 46-5 Kimberly
- 47-2 Kimberly
- 1-13 Lafayette
- 1-14 Lafayette
- 1-23 Lafayette
- 1-36 Lafayette
- 1-39 Lafayette
- 1-48 Lafayette
- 1-67A Lafayette
- 1-79 Lafayette
- 1-98 Lafayette
- 1-110 Lafayette
- 5-15 Maple
- 5-20 Maple
- 5-26 Maple
- 32-5 Meadowfox
- 10-9 Mill
- 10-11 Mill
- 10-16 Mill
- 10-28 Mill
- 10-36 Mill
- 11-13 Mill
- 11-22 Mill
- 11-24 Mill
- 11-28Y Mill
- 2-102B Mill
- 25-8 New Road
- 26-14 North
- 26-8 North

- 15-25 North
- 3-1 Ocean Blv
- 3-12 Ocean Blv
- 3-16 Ocean Blv
- 3-23D Ocean Blv
- 3-23A Ocean Blv
- 22-21 Old Locke Rd
- 12-4 Pine
- 12-10 Pine
- 12-14 Pine
- 12-18 Pine
- 22-21B Pond Path
- 22-21C Pond Path
- 22-21D Pond Path
- 13-13 Post
- 13-15 Post
- 13-18 Post
- 13-25 Post
- 13-29 Post
- 13-33 Post
- 13-35 Post
- 13-38 Post
- 13-43 Post
- 13-60B Post
- 13-62 Post
- 13-69 Post
- 13-65 Post
- 13-72 Post
- 13-86 Post
- 13-96 Post
- 13-102 Post
- 13-107 Post
- 13-128 Post
- 13-148 Post
- 9-34B River Road
- 9-39B River Road
- 19-28C South
- 20-20 South
- 20-15A South

- 20-19 South
- 36-4 Stevens
- 36-6 Stevens
- 33-4 Sylvan
- 18-5 Walnut
- 17-32 Walnut
- 17-47 Walnut
- 17-52 Walnut
- 17-69 Walnut
- 17-76 Walnut
- 17-77 Walnut
- 4-15 Willow
- 7-4A Willow
- 7-5 Willow
- 7-7A Willow
- 7-7D Willow
- 16-8 Winnicut
- 16-10 Winnicut
- 16-18 Winnicut
- 16-28 Winnicut
- 16-36 Winnicut
- 16-41 Winnicut
- 16-43 Winnicut
- 35-4 Woodknoll
- 40-4 Woodknoll
- 9-3 Woodland
- 9-5 Woodland
- 9-8 Woodland
- 9-19 Woodland
- 9-34 Woodland
- 9-39 Woodland
- 9-46 Woodland
- 9-57 Woodland
- 9-9 Woodland
- 9-12A Woodland
- 9-14 Woodland
- 9-16A Woodland
- 42-3 Woodridge
- 42-6 Woodridge

Cost For Removal

- Generally \$150 – 175 per light
- Town Would Provide Traffic Control
- Annual Savings \$121+ per light
- Pay back of removal cost = 1.3 years per light

Example: Removal of 10 lights

Cost of removal = \$1600

10 year savings = \$10,500

Midnight Shut Off Rate

- ◉ EOL Midnight Rate \$105.44 Annually
- ◉ EOL Rate \$120.76
- ◉ \$15.32 Annual Savings (12.7%)
- ◉ Could coordinate with re-lamping, would require the purchase of new photosensors.
- ◉ Pay back cost would be significant.

Summary

- ◉ 71 Lights tagged as candidates
- ◉ $71 \times \$121 = \8591 yearly savings
- ◉ Suggest Police Chief Page Review List of Removals for Safety Concerns
- ◉ Tag lights with red ribbon to identify
- ◉ Allow public comment / Adopt a light