

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

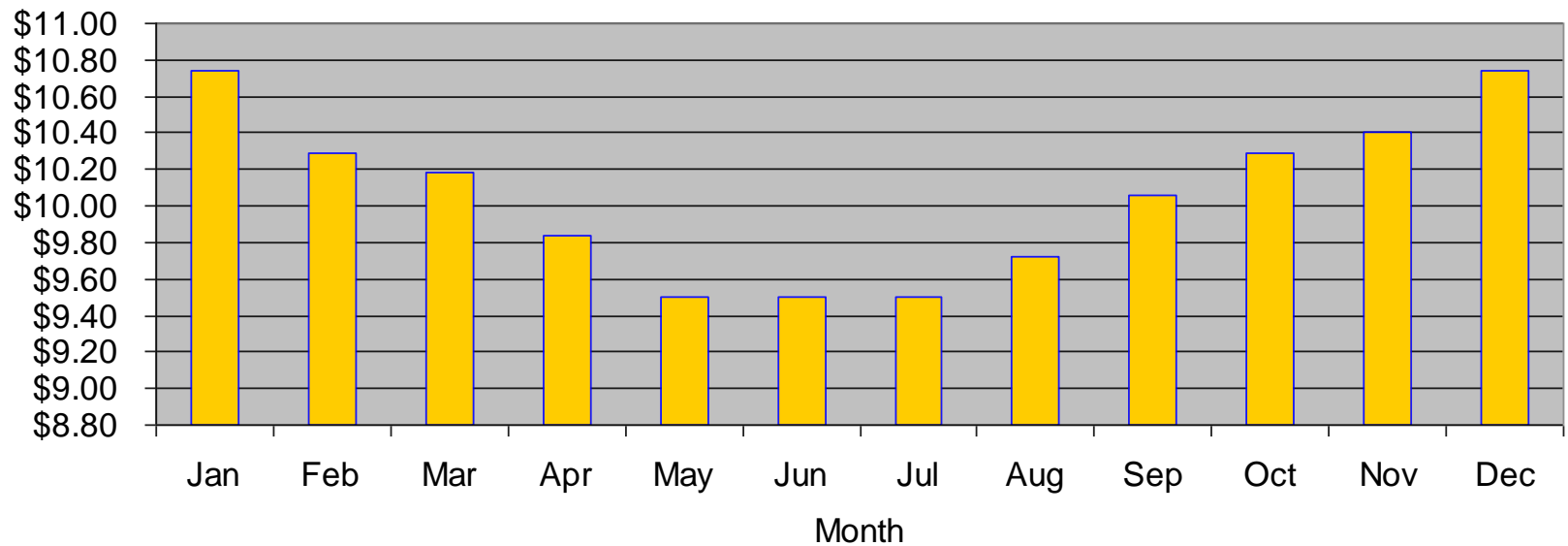
Current Status

- ◉ 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

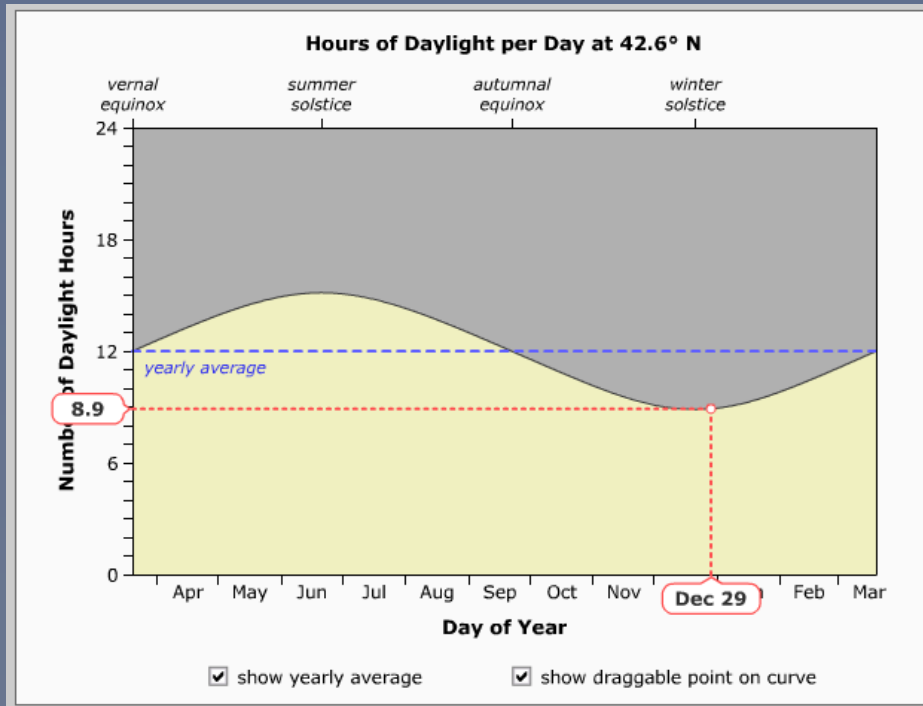
Total Annual Cost

\$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

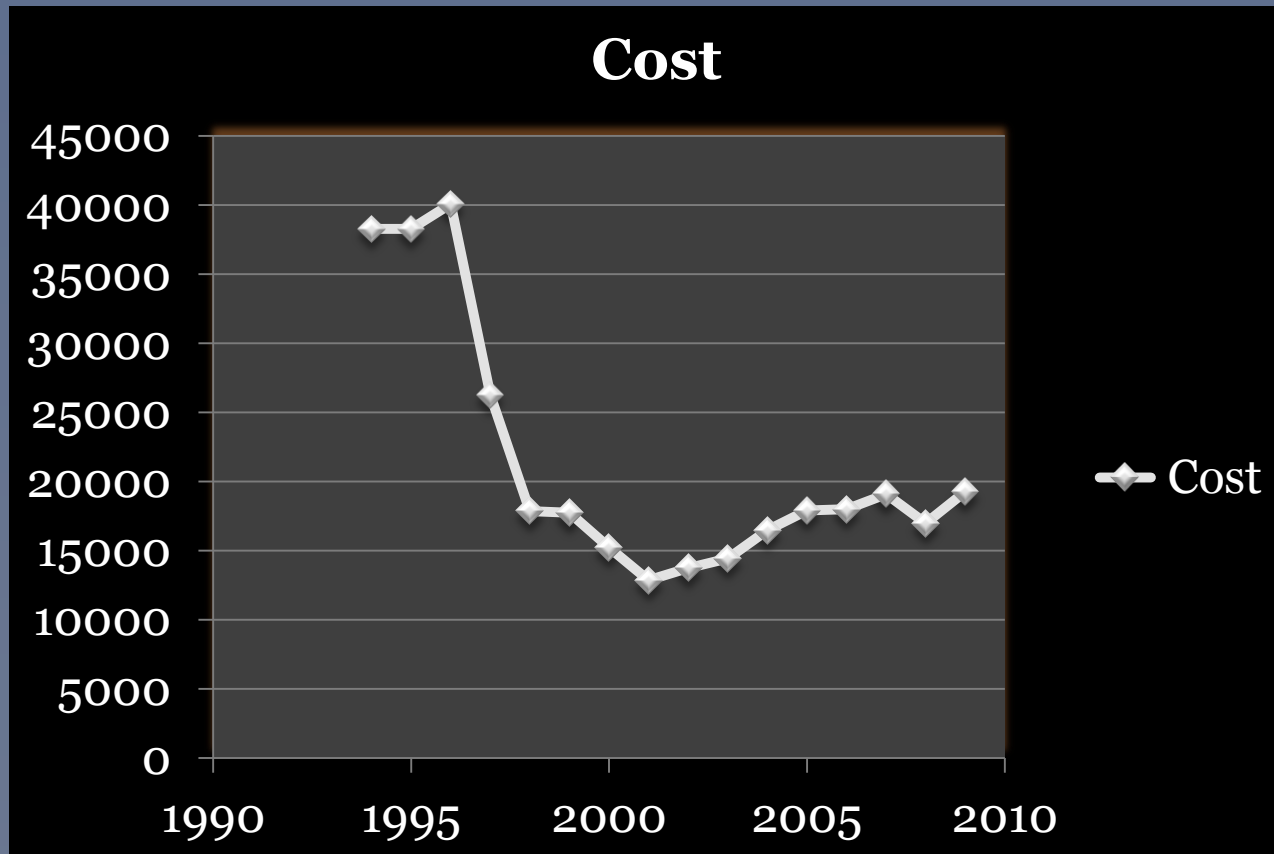
- ◉ Major Intersections
- ◉ Curves in Roads
- ◉ Pedestrian Traffic and Walkways

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

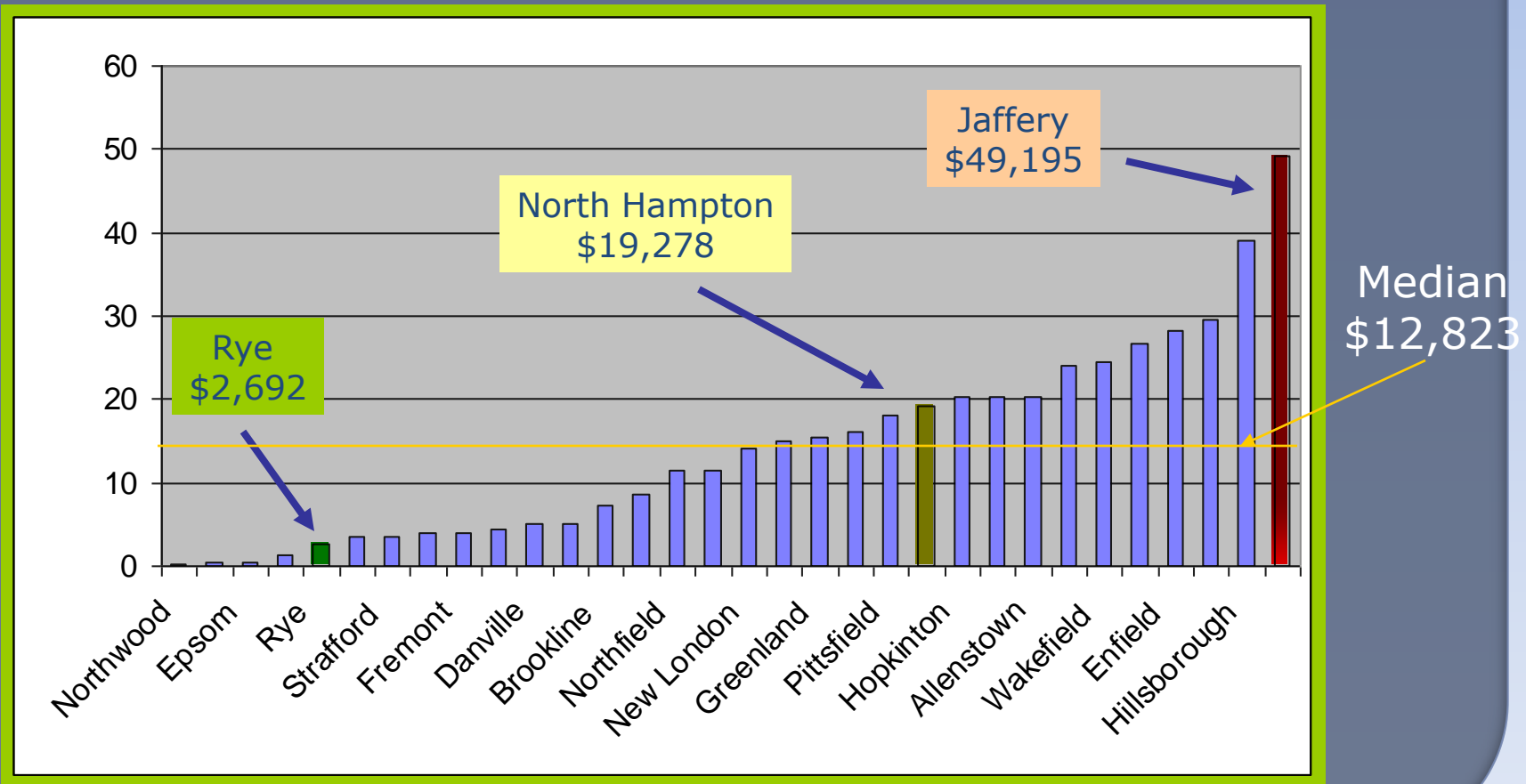
Case Study : Energy Savings One Town Made 1996 to Present

- 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

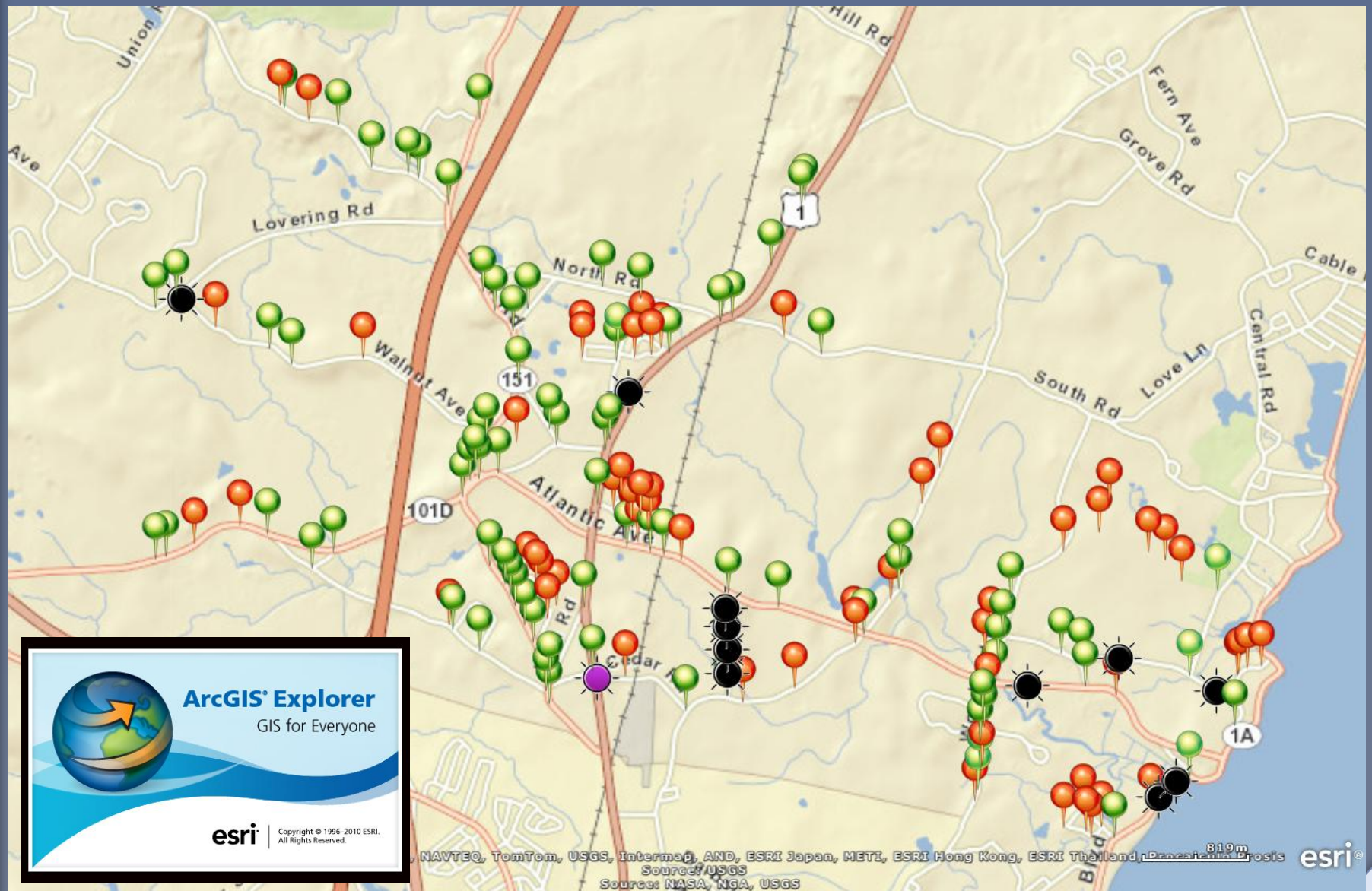
Cedar Road – There is no street light present – PSNH investigating, will rebate amount owed (\$10.06/month)

Woodland Road – Same -

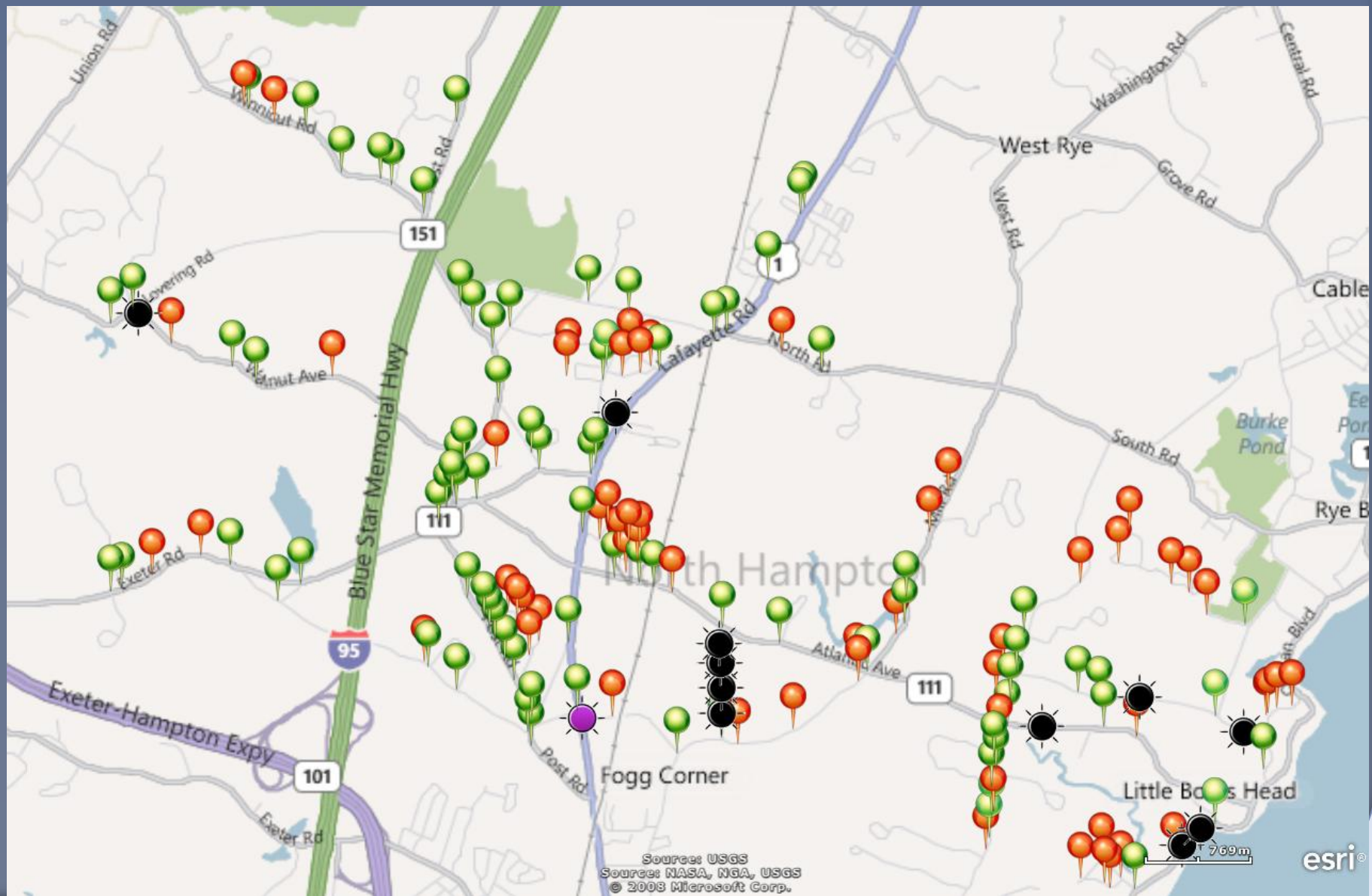
Exeter Road / Post Road
Charged OL rate instead of EOL rate since 3/10/1997
\$9.00/ month x 173 months

\$1557

North Hampton Street Light GPS data imported into ArcGIS Software



Street Light Inventory



Map Legend



Green = No Change



Red = Remove

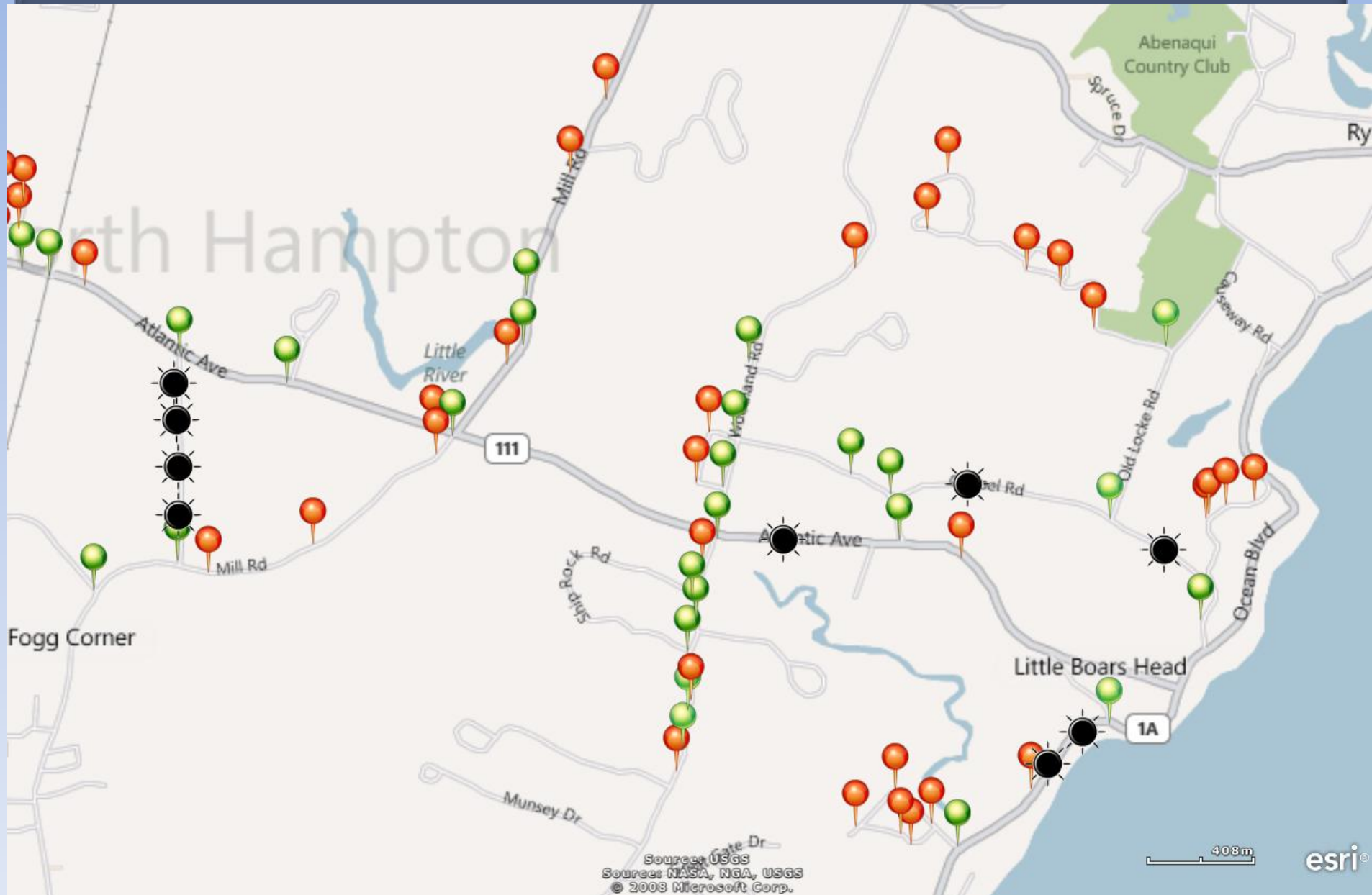


Purple = Does Not Exist

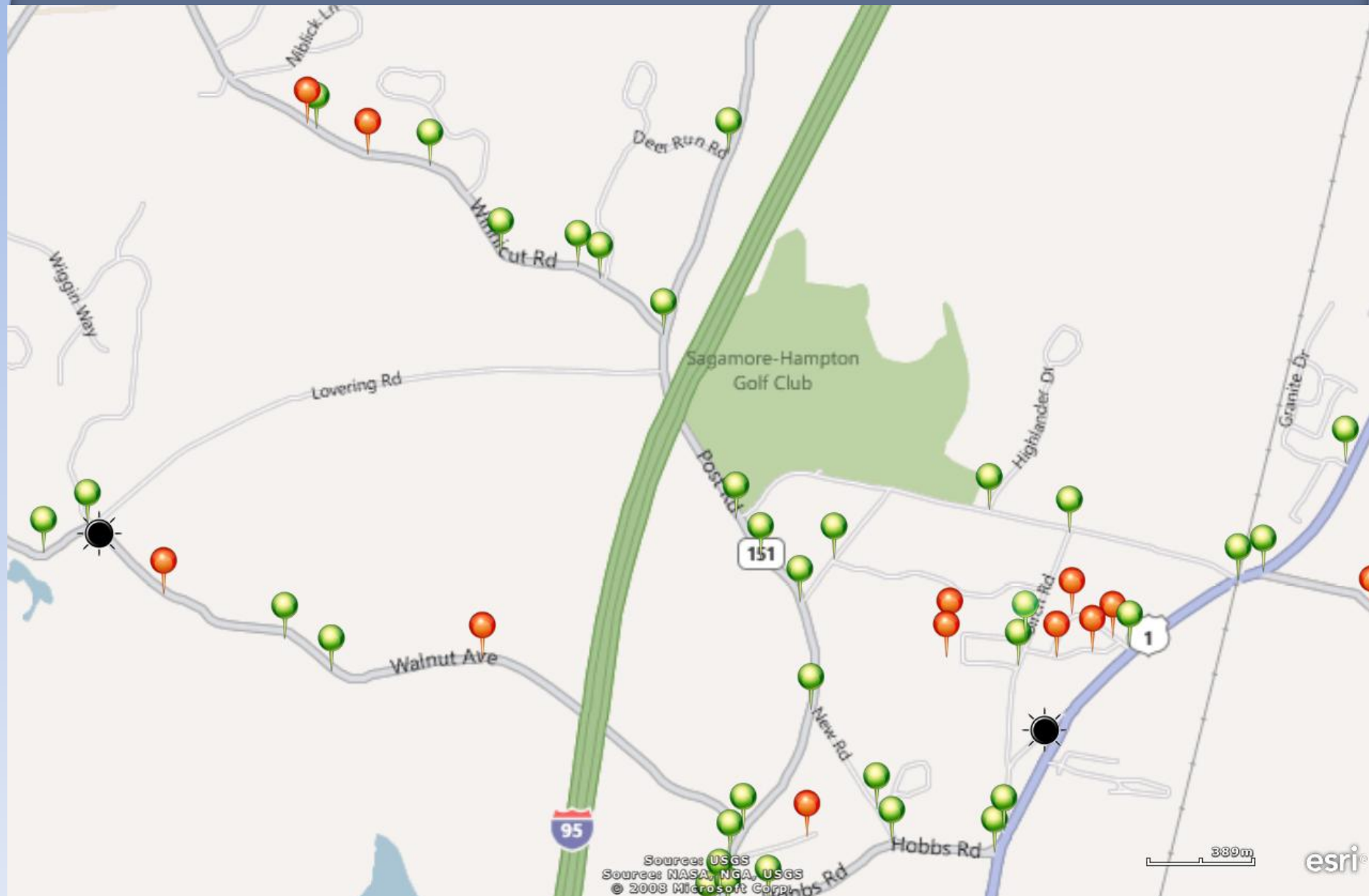


Black = Priority Removal

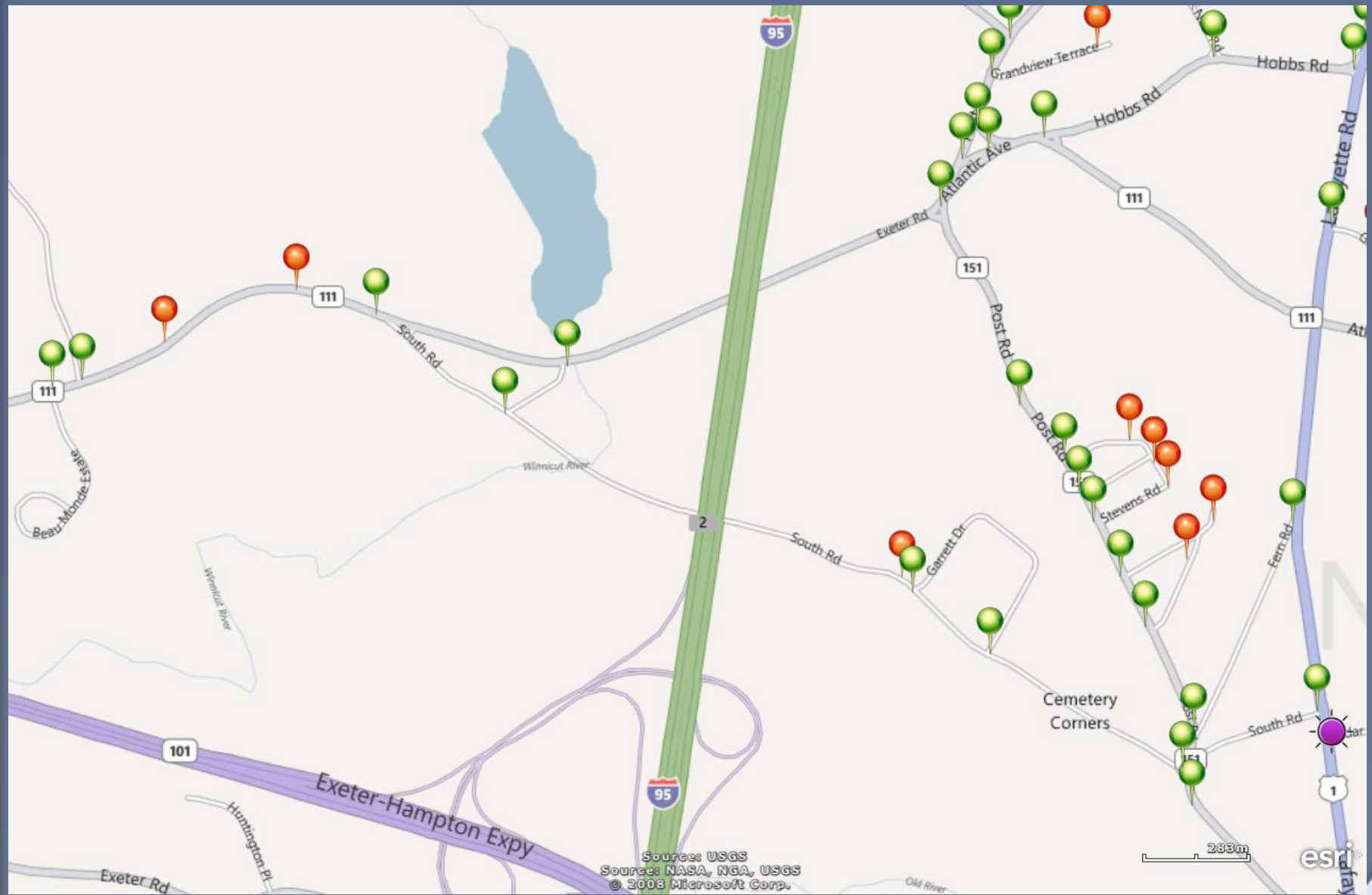
EAST



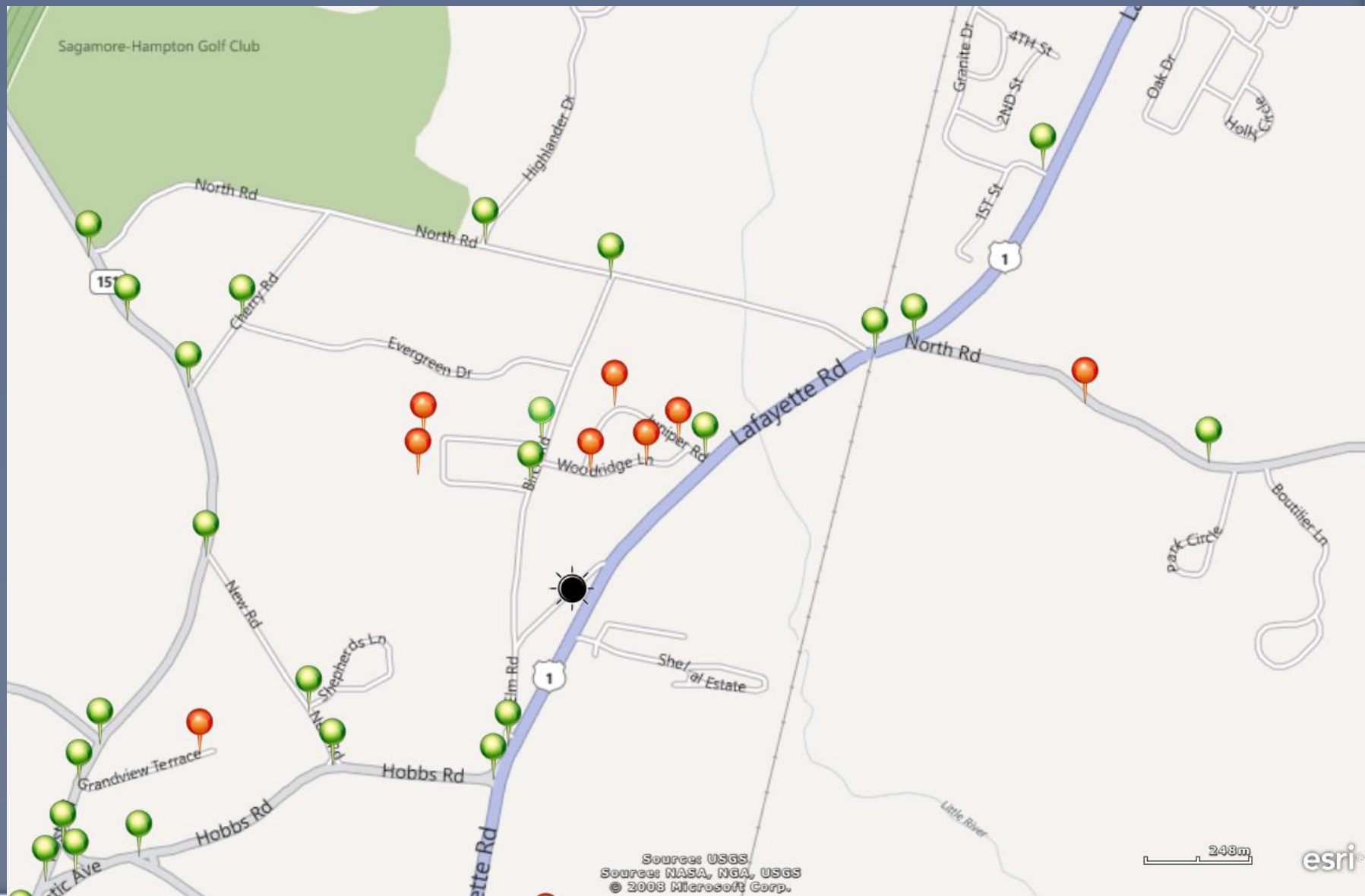
North West



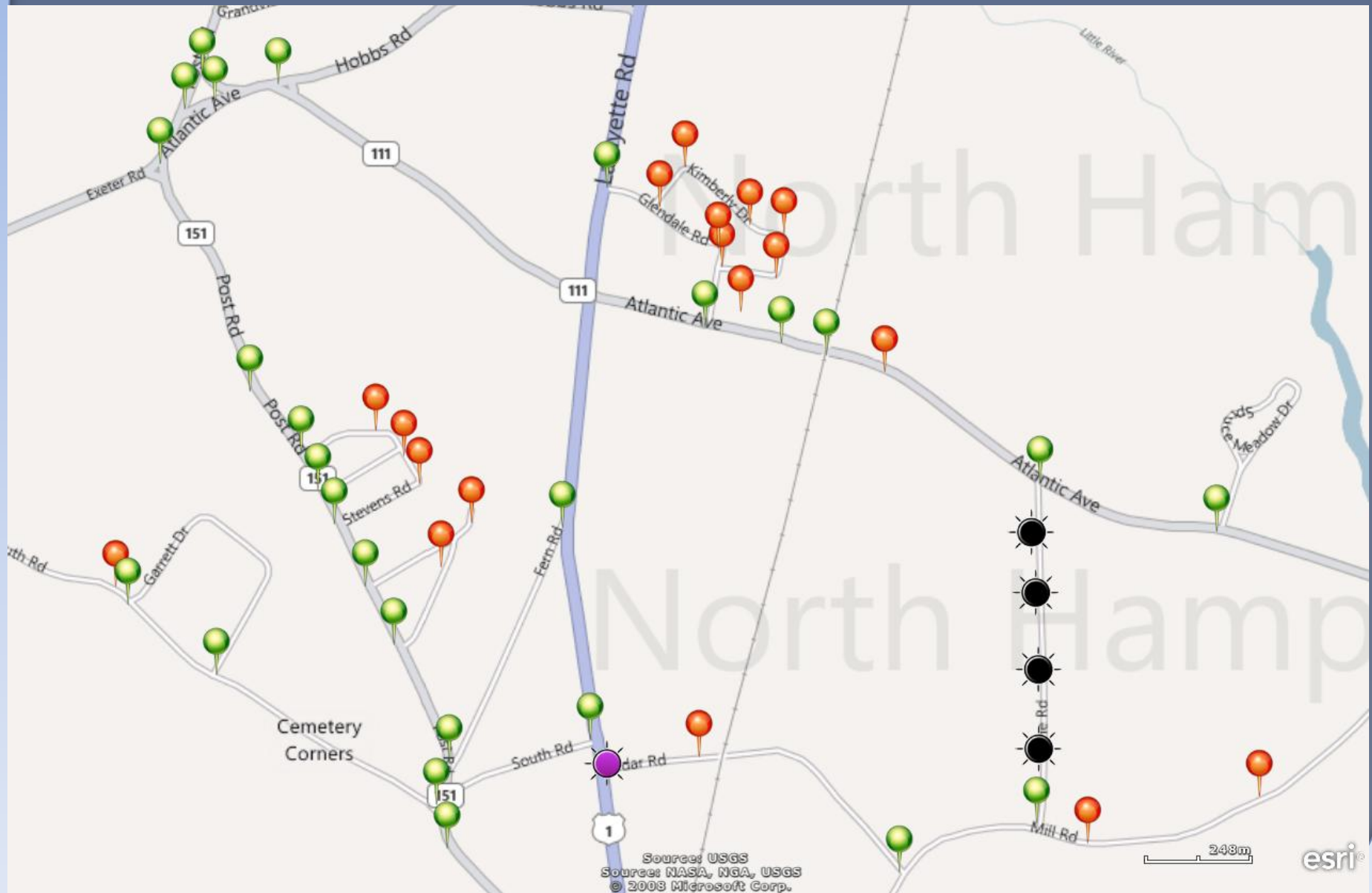
South West



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 Boulders Cove
- ☒ 49-2C Boulders 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