



LIGHTING ORDINANCE IMPACT STUDY

Village of Barrington Hills

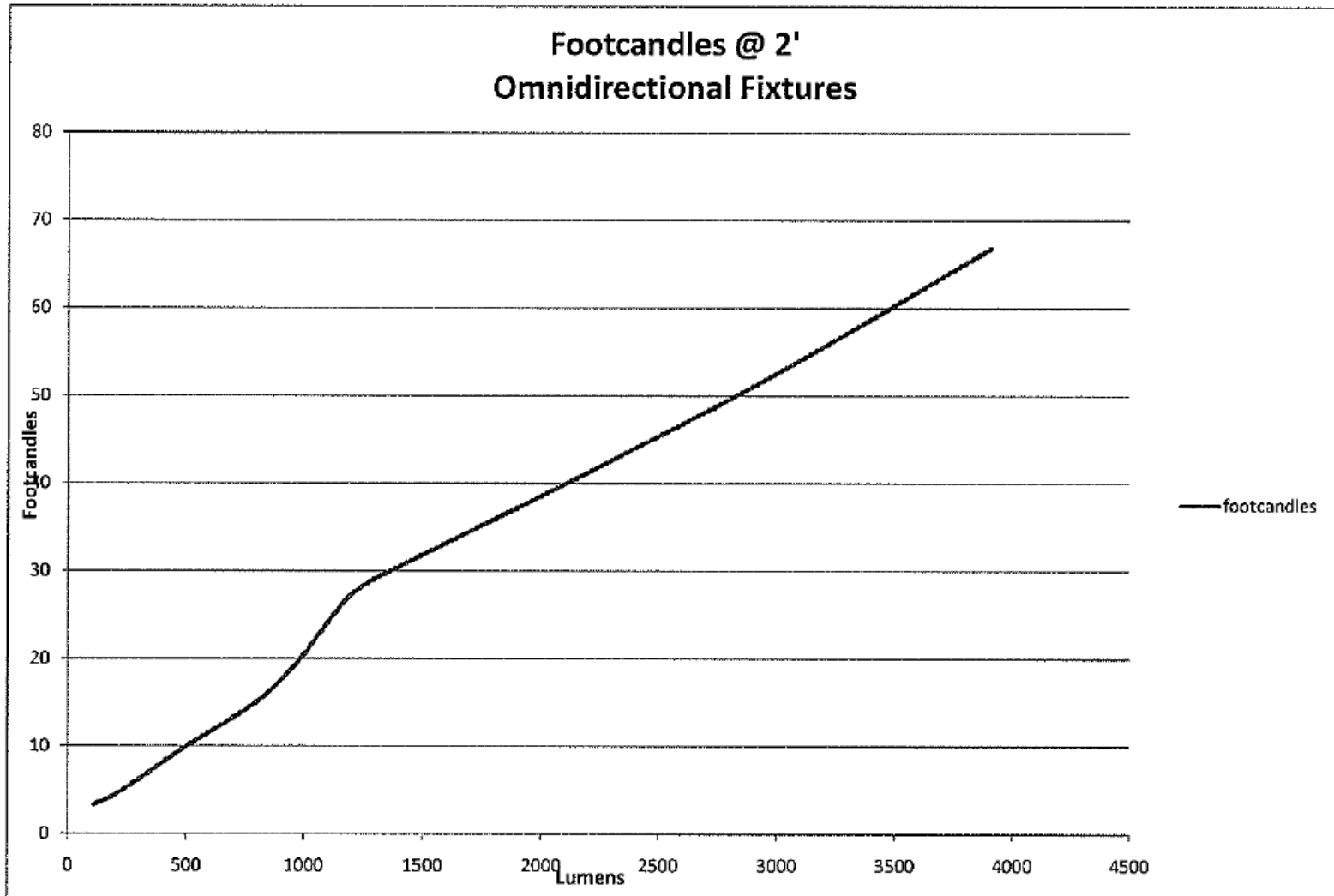
Objectives

- Evaluate the exterior lighting of up to 10 residences for compliance with the proposed lighting ordinance
- Highlight areas of compliance and non-compliance
- Estimate the cost impact of retrofitting existing lighting systems to reach compliance

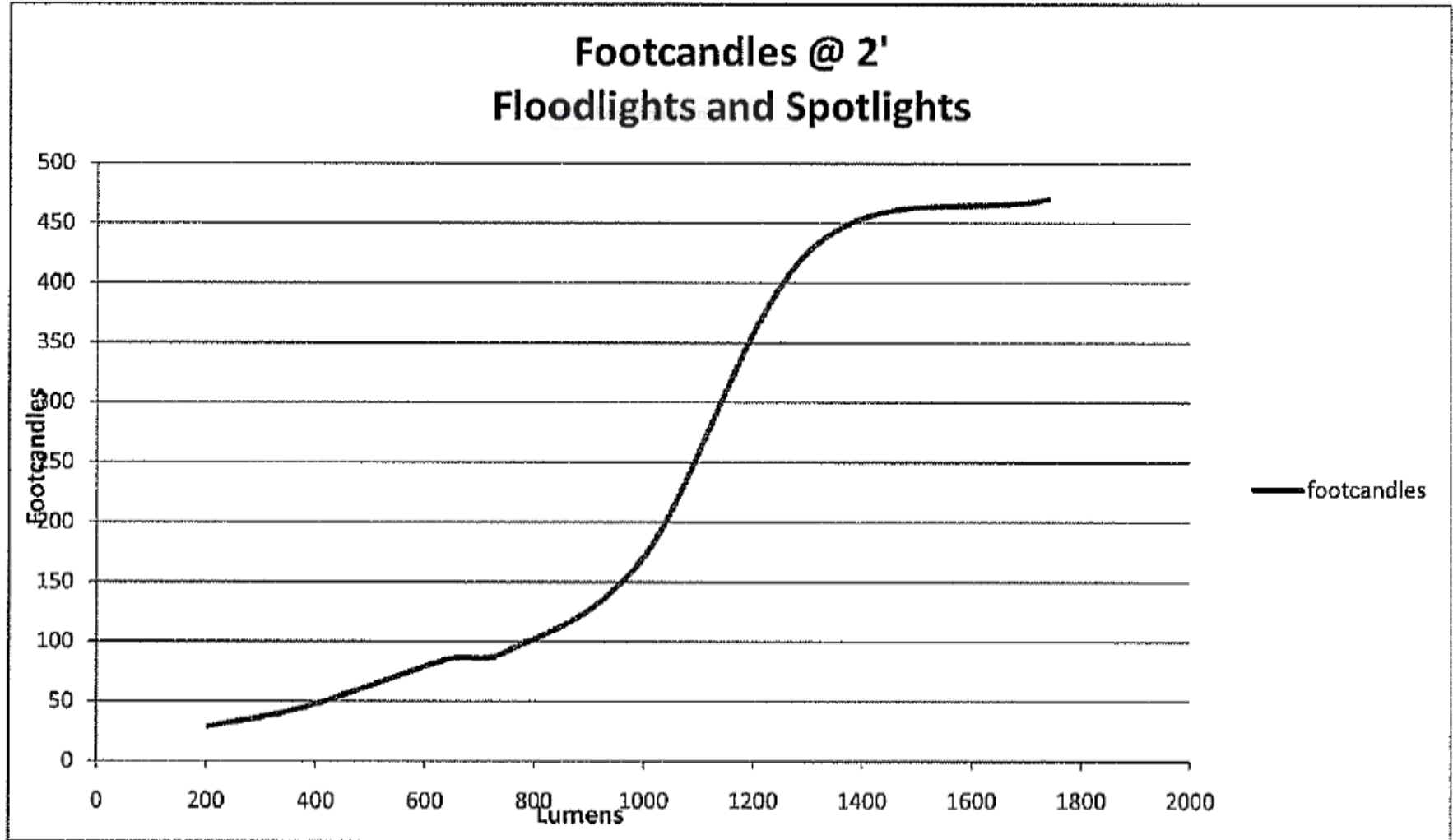
Process

- Proposed Ordinance is based on Lumens
 - ▣ Easy for design, just add the rated lumens on the installed fixtures
 - ▣ To evaluate existing systems, must determine method for estimating lumens based on footcandle readings
- GHA Measured footcandle readings for a wide variety of light fixtures in a controlled environment; used data to estimate lumen output of fixtures measured at residences

Footcandles to Lumens: OmniDirectional



Footcandles to Lumens: Flood/Spot



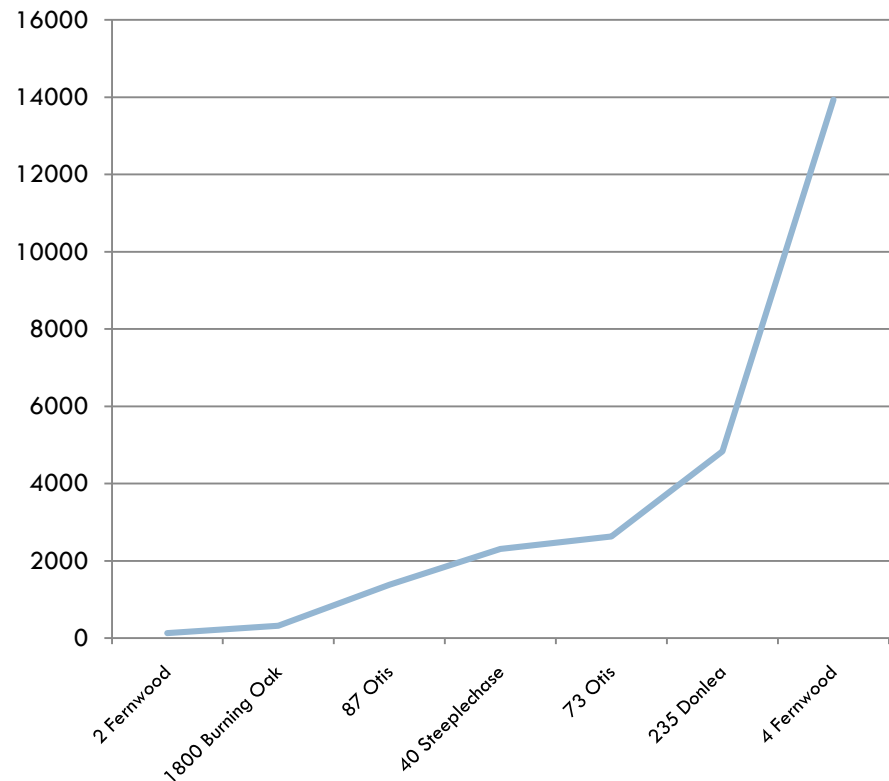
Evaluation Summary

- 7 Evaluations Completed
 - 40 Steeplechase
 - 2 Fernwood
 - 4 Fernwood
 - 1800 Burning Oak Trail
 - 235 Donlea
 - 73 Otis
 - 87 Otis
- 1 of 7 Residences Fully Compliant
- Primary Areas of Non-Compliance
 - Unshielded Lumens per Acre
 - Unshielded Landscape Lumens
 - Driveway Fixture Lumens

Unshielded Lumens per Acre

- Proposed Ordinance allows for 1,000 unshielded lumens per acre (LPA)
- 5 of the 7 residences exceeded 1,000 LPA
- Range was from 126 LPA to 14,000 LPA
- 5 of the 7 residences had less than 3,000 LPA

Unshielded Lumens Per Acre



Unshielded Landscape Lumens

- Proposed Ordinance allows for 600 unshielded lumens for a single landscape fixture
- 5 of 7 residences have unshielded landscaping fixtures that exceeded 600 lumens
- Only 2 residences have unshielded landscaping fixtures that exceed 1,000 lumens
- Primarily floodlights
- Most could be replaced with lower output bulbs without replacing fixtures



Driveway Fixture Lumens

- Proposed Ordinance allows for 200 unshielded lumens for a single driveway/walkway fixture
- 4 of 7 residences have driveway fixtures that exceed 200 lumens
- Most could be replaced by decorative bulbs with lower output without replacing fixtures



Other Proposed Ordinance Sections

- Security Lighting
 - ▣ Confusion whether the proposed ordinance exempts security lighting from the Unshielded Lumens Per Acre calculation (these evaluations excluded security lighting)
- Fixtures Attached to Vegetation
 - ▣ 2 of 7 residences have fixtures attached to trees
- Prohibited Fixtures
 - ▣ 2 of 7 residences have prohibited fixtures (Metal Halide and Mercury Vapor)
- Doorways
 - ▣ 2 residences were deemed out of compliance with the doorway section due to fully shielded overhead can lights.

Cost Impact Summary

- 1800 Burning Oak: \$75; 2 floodlight bulbs for overhead can lights at front door
- 2 Fernwood: \$0; fully compliant
- 235 Donlea: \$Thousands; Majority of landscaping uplights would have to be removed
- 73 Otis: \$1,500 + removal of 33 landscaping uplights; new driveway, house and landscaping bulbs
- 87 Otis: \$330; Replace 3 landscaping, 1 driveway and 10 doorway/garage light bulbs
- 40 Steeplechase: \$510 + removal of 2 landscaping uplights and 1 tree mounted fixture; replace 11 landscaping, and 4 driveway bulbs
- 4 Fernwood: \$770 + removal of 6 tree mounted lights, 1 Metal Halide uplight and 6 landscaping uplights; replace 33 driveway/doorway/house and 4 patio bulbs