

REQUEST FOR PROPOSALS



PARKING LOT LIGHTING MODERNIZATION ANALYSIS AND REPLACEMENT MASTER PLAN

**City of Urbana, Illinois
Public Works Department
706 S. Glover
Urbana, IL 61802
(217) 384-2355**

**Issued February 7, 2011
RFP due March 7, 2011**

**PARKING LOT LIGHTING MODERNIZATION ANALYSIS AND REPLACEMENT
REQUEST FOR PROPOSALS**

I. GENERAL INFORMATION

A. Community Profile

The City of Urbana is a progressive, growing community with a population of 40,550 located in East Central Illinois and is home to the University of Illinois. The City offers a unique mixture of a small, Midwestern town with the amenities typically associated with large, urban cities. Information about the community is available at our website at www.urbanainillinois.us .

B. Background

Due to aging infrastructure, enlarged parking lot areas and expanded usage modernization of the lighting for the downtown parking lots is needed in order to provide adequate safety and security in the downtown nighttime environment.

Per the recommendation of the 2008 Downtown Parking Study, Section 4.15, Safety and Security, the Urbana City Council has directed city staff to secure professional services to develop a parking lot lighting modernization master plan for the City owned parking lots in downtown Urbana. As part of this effort, the City of Urbana is issuing this Request for Proposal to secure these services.

C. Project Goal

For the designated lots, the goal of this project is to determine whether or not, and if so, what improvements are needed at each location. This will be accomplished by conducting an existing condition survey, developing the appropriate photometric criteria, determining what lighting improvements are needed, developing cost estimates for each lot and preparing a report describing the findings of the study. The purpose for the report will be to enable the City to budget for the future improvements and to guide the engineering design of the construction projects.

II. SUBMITTAL REQUIREMENTS

A. Introduction

All respondents must include a cover letter introducing the firm and identifying the staff person (or persons) who would function as the project leader should the firm be selected. The letter should also describe the qualifications of the project team assigned to complete this study, including the background and experience of the firm and team participants.

**PARKING LOT LIGHTING MODERNIZATION ANALYSIS AND REPLACEMENT
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B. Scope of Services

The following City-owned parking lots are included in the project: 1, 2, 5, 9, 10A-North, 10A-South, 10B, 10E-North, 10E-South, 10F, 10X, 11, 16, 17, 21, 22, 23, 24, 25, The Tepper Lot, and The Parking Deck. (See Attached Maps)

The following scope of services is included as a guide for the proposer. It is intended to identify the minimum service level expected from the successful firm and as such should be modified and augmented, based upon the experience of the firm, as necessary to accomplish the goal of the study.

1. Existing condition survey of each separate lot, including:
 - a. Lighting equipment inventory (See Attached Maps)
 - b. Equipment condition evaluation
 - c. Electrical service evaluation
 - d. Branch circuit wiring capacity and condition evaluation
 - e. Evaluation of lighting controls
2. Existing nighttime photometric survey/evaluation of each separate lot, including:
 - a. Photometric field survey
 - b. Photometric evaluation of surrounding areas for contrast/uniformity planning
3. Determine photometric standards for illumination levels, uniformities, source type, adjacent property contrast and uniformity, etc., for each of the locations in the study per IESNA/Dark Sky Standards for Enhanced Security, and City Zoning Ordinance on Lighting (Attached), including:
 - a. Parking areas
 - b. Driveways
 - c. Alleys
 - d. Walkways
 - e. Police and fire parking areas and entrance drives
 - f. Parking deck areas
4. Determination if improvements are needed at each location
5. Determine equipment types to be used at various locations (ex. functional or decorative)
6. Determination if any existing equipment is adequate for reuse (either in place, or relocated)

**PARKING LOT LIGHTING MODERNIZATION ANALYSIS AND REPLACEMENT
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7. Description of improvements needed at each lot, including control criteria
8. Develop cost estimates that include engineering and construction costs.
9. Compile study report, which includes: background and purpose of study, tabulation of survey results, photometric evaluations, tabulation of photometric requirements (to direct design phase decisions), lot-by-lot description of improvements to be made, and opinions of probable project costs.

Tasks:

Anticipated tasks include:

1. Field survey work
2. Photometric analysis
3. Planning the improvements
4. Preparation of simplified drawings of each lot for general schematic information only (no design drawings). The City will provide base sheets for the preparation of these drawings.
5. Preparation of the study report
6. Meetings as follows:
 - a. Study kickoff meeting
 - b. Two study progress meetings
 - c. One City Council meeting
7. Submittals as follows:
 - a. Survey data submittal for review and comment
 - b. Photometric standards submittal for City approval
 - c. 90% report submittal for review and comment
 - d. 90% opinions of probable cost submittal for review and comment
 - e. 100 % submittal - final

C. References

The proposal will include a minimum of three references of similar work, complete with names and contact information. Also include, if possible, samples of the final report delivered to those references.

III. SELECTION PROCESS

The City will select a consultant utilizing a Quality Based Selection (QBS) process. Critical factors in that selection will include responsiveness of the proposal to this RFP, description of approach to the services, relevant project experience, qualifications of the responding firms and principal assigned staff, readiness to undertake the required services, ability to

**PARKING LOT LIGHTING MODERNIZATION ANALYSIS AND REPLACEMENT
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execute an acceptable written contract, and client references. The City reserves the right to reject any or all proposals, and to request written clarification of proposals and supporting materials.

Interviews may be conducted with one or more responsible entities that have submitted proposals in order to clarify certain elements, if such information cannot be satisfactorily obtained over the telephone or via e-mail.

The City of Urbana will require that each respondent provide certain statistical data concerning employee composition on race, color, job description and compensation. This information will be reviewed by the City Human Relations Commission to determine compliance with the City's Equal Employment Opportunity ordinance. The required forms are included as part of the RFP and must be completed and returned with the proposal.

IV. GENERAL REQUIREMENTS

1. The consultant's firm, including principals, project managers, and key personnel, shall have relevant experience with similar work and shall be competent to perform the services required under this Request for Proposals.
2. The work contemplated is professional in nature. It is understood that the consultant, acting as an individual, corporation, or other legal entity, is of professional status, and is licensed, as appropriate, to perform in the State of Illinois, and shall be governed by the professional ethics of said professions in its relationship to the City of Urbana.
3. It is understood that all reports, information, or data prepared or assembled by the consultant shall be confidential in nature and shall not be made available to any individual or organization, except the City of Urbana, without the prior written approval of the City of Urbana.
4. The consultant shall be financially solvent. The City reserves the right to request information to determine solvency.
5. The consultant shall be responsible for complying with local, state, and federal codes, legislation procedures, and regulations affecting work in their professional area.

PARKING LOT LIGHTING MODERNIZATION ANALYSIS AND REPLACEMENT
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IV. SUBMISSION OF RFPs

Eight copies of the submission are due to the address below by close of business (4:30 pm) **March 7, 2011**.

William R. Gray, Director of Public Works
City of Urbana
706 South Glover Avenue
Urbana, Illinois 61802

Any questions regarding this RFP can be forwarded to Gale L. Jamison, at (217)384-2343 or by e-mail at gjamison@urbanaininois.us.

Parking Lot Maps



CITY OF URBANA PARKING LOT LIGHTING	
LOT NO. 01	123 W. Water Street
APPROX. SQ. FT. 16,060	NO. OF SPACES: 45
LIGHTING TYPE: Metal Halide	
# OF LIGHTHEADS: 6	WATTAGE: 100



Prepared by:
 City of Urbana
 Engineering Division
 Date: 08.26.09
 Prepared by: PLS
 Checked by: WRG





CITY OF URBANA PARKING LOT LIGHTING	
LOT NO. 02	117 W. Water Street
APPROX. SQ. FT. 7,100	NO. OF SPACES: 21
LIGHTING TYPE: Mercury Vapor	
# OF LIGHTHEADS: 3	WATTAGE: 250



Prepared by:
 City of Urbana
 Engineering Division
 Date: 08.26.09
 Prepared by: PLS
 Checked by: WRG



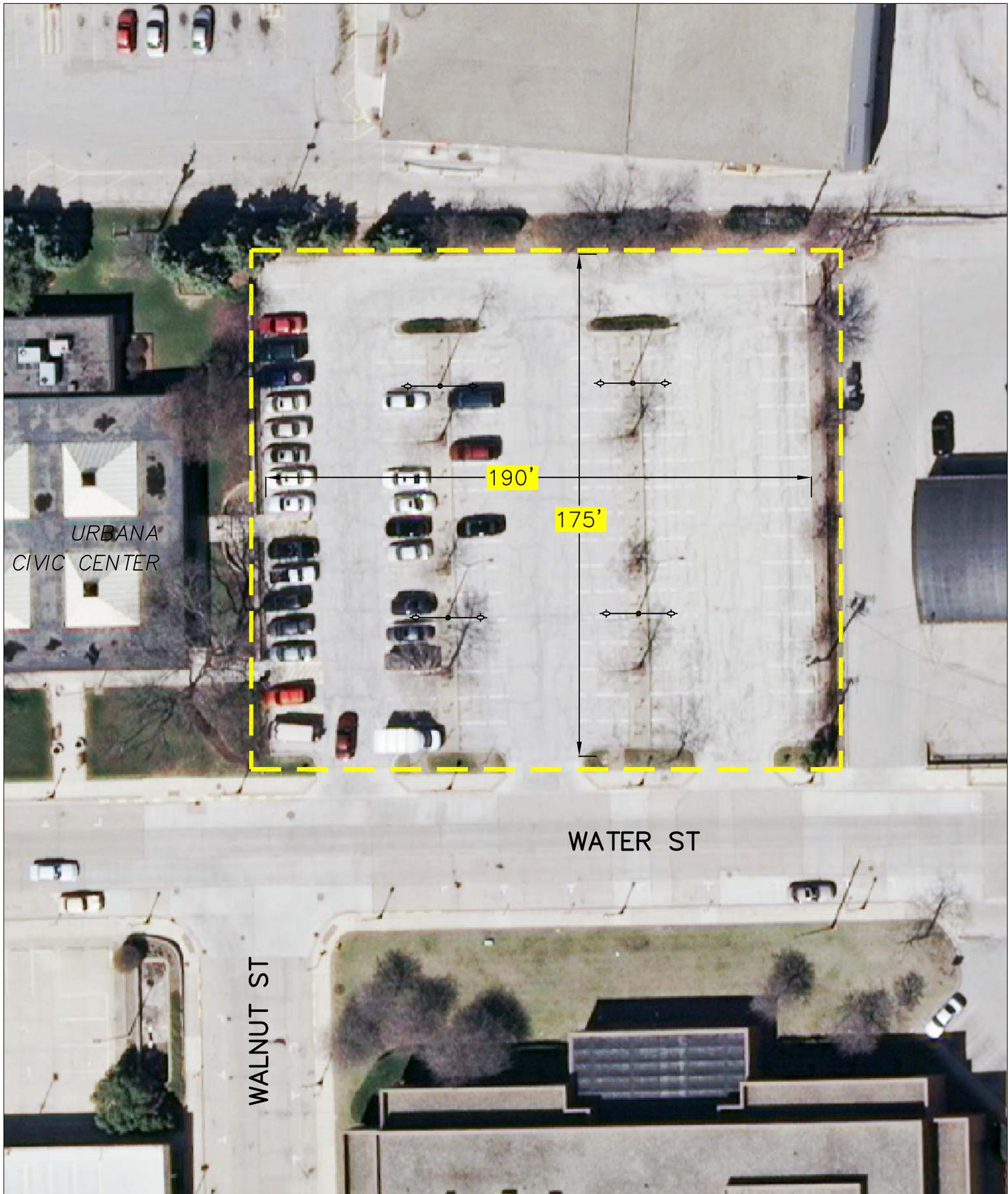


CITY OF URBANA PARKING LOT LIGHTING	
LOT NO. 05	104 E. Water Street
APPROX. SQ. FT. 12,795	NO. OF SPACES: 35
LIGHTING TYPE: High Pressure Sodium	
# OF LIGHTHEADS: 4	WATTAGE: 200



Prepared by:
 City of Urbana
 Engineering Division
 Date: 08.26.09
 Prepared by: PLS
 Checked by: WRG





CITY OF URBANA PARKING LOT LIGHTING	
LOT NO. 09	202 E. Water Street
APPROX. SQ. FT. 33,250	NO. OF SPACES: 100
LIGHTING TYPE: High Pressure Sodium	
# OF LIGHTHEADS: 8	WATTAGE: 200



Prepared by:
 City of Urbana
 Engineering Division
 Date: 08.26.09
 Prepared by: PLS
 Checked by: WRG



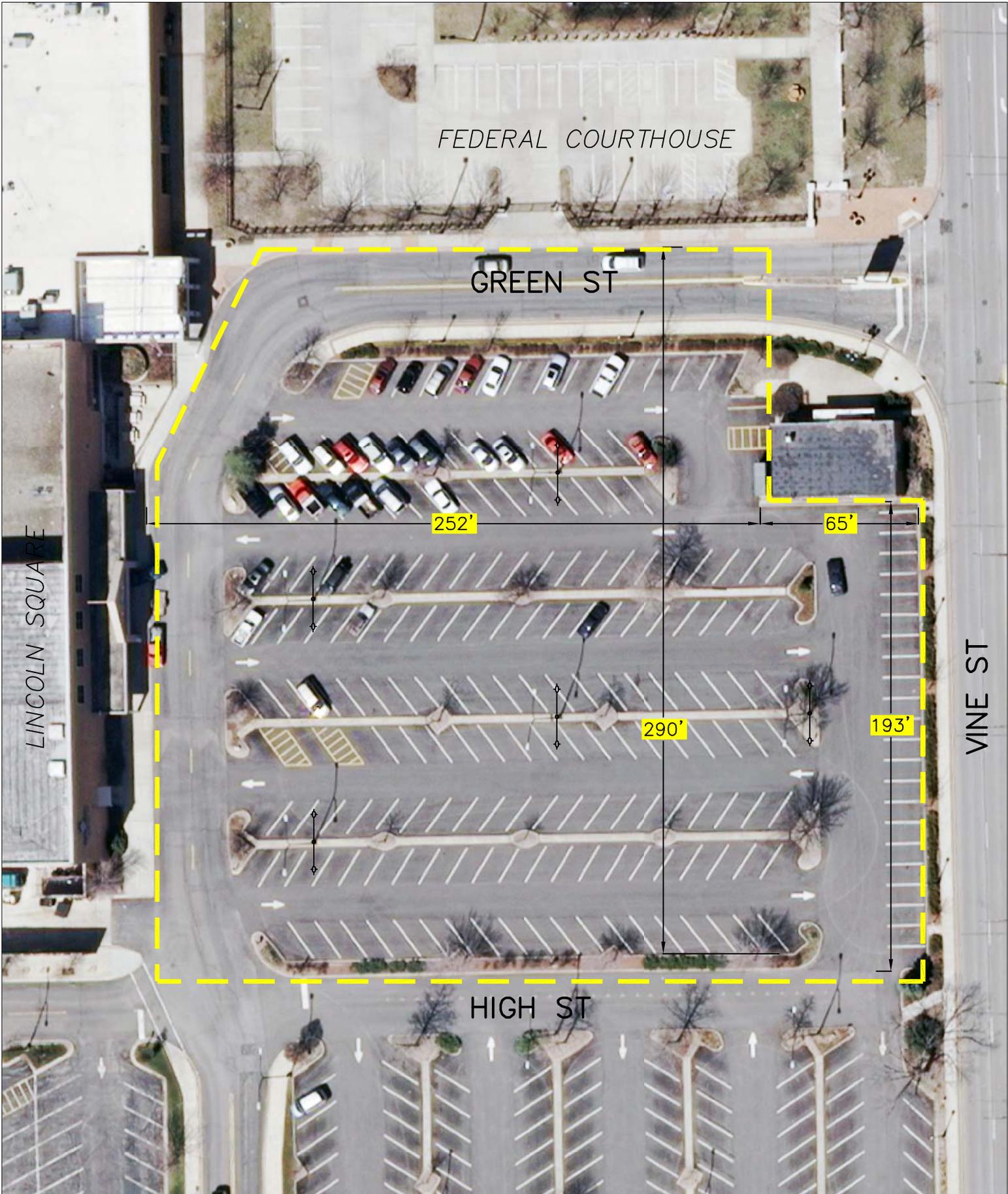


CITY OF URBANA PARKING LOT LIGHTING	
LOT NO. 10-A North	117 E. Elm Street
APPROX. SQ. FT. 10,545	NO. OF SPACES: 16
LIGHTING TYPE: Metal Halide	
# OF LIGHTHEADS: 2	WATTAGE: 400



Prepared by:
 City of Urbana
 Engineering Division
 Date: 08.26.09
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FEDERAL COURTHOUSE

GREEN ST

252'

65'

290'

193'

HIGH ST

LINCOLN SQUARE

VINE ST

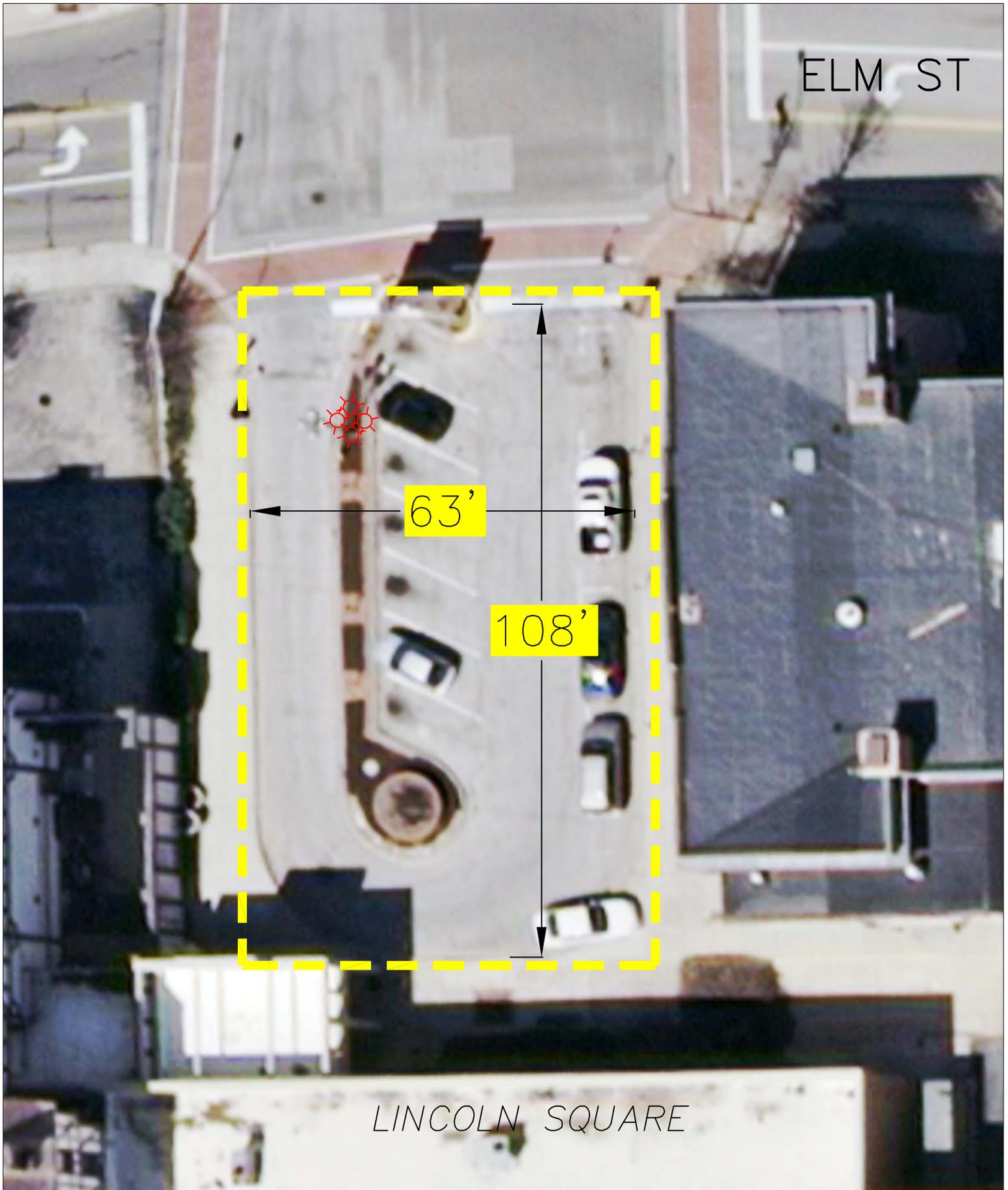
CITY OF URBANA PARKING LOT LIGHTING

LOT NO. 10-A South	201 E. Green Street
APPROX. SQ. FT. 85,625	NO. OF SPACES: 209
LIGHTING TYPE: Metal Halide	
# OF LIGHTHEADS: 10	WATTAGE: 400



Prepared by:
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ELM ST

63'

108'

LINCOLN SQUARE

CITY OF URBANA PARKING LOT LIGHTING	
LOT NO. 10-B	Right-Of-Way
APPROX. SQ. FT. 6,804	NO. OF SPACES: 11
LIGHTING TYPE: Metal Halide (L-72)	
# OF LIGHTHEADS: 4	WATTAGE: 50



Prepared by:
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RACE ST

LINCOLN SQUARE

HIGH ST

BROADWAY AV

CITY OF URBANA PARKING LOT LIGHTING

LOT NO. 10-E North	102 W. High Street
APPROX. SQ. FT. 34,015	NO. OF SPACES: 42
LIGHTING TYPE: Metal Halide	
# OF LIGHTHEADS: 4	WATTAGE: 400

Prepared by:
 City of Urbana
 Engineering Division
 Date: 08.26.09
 Prepared by: PLS
 Checked by: WRG

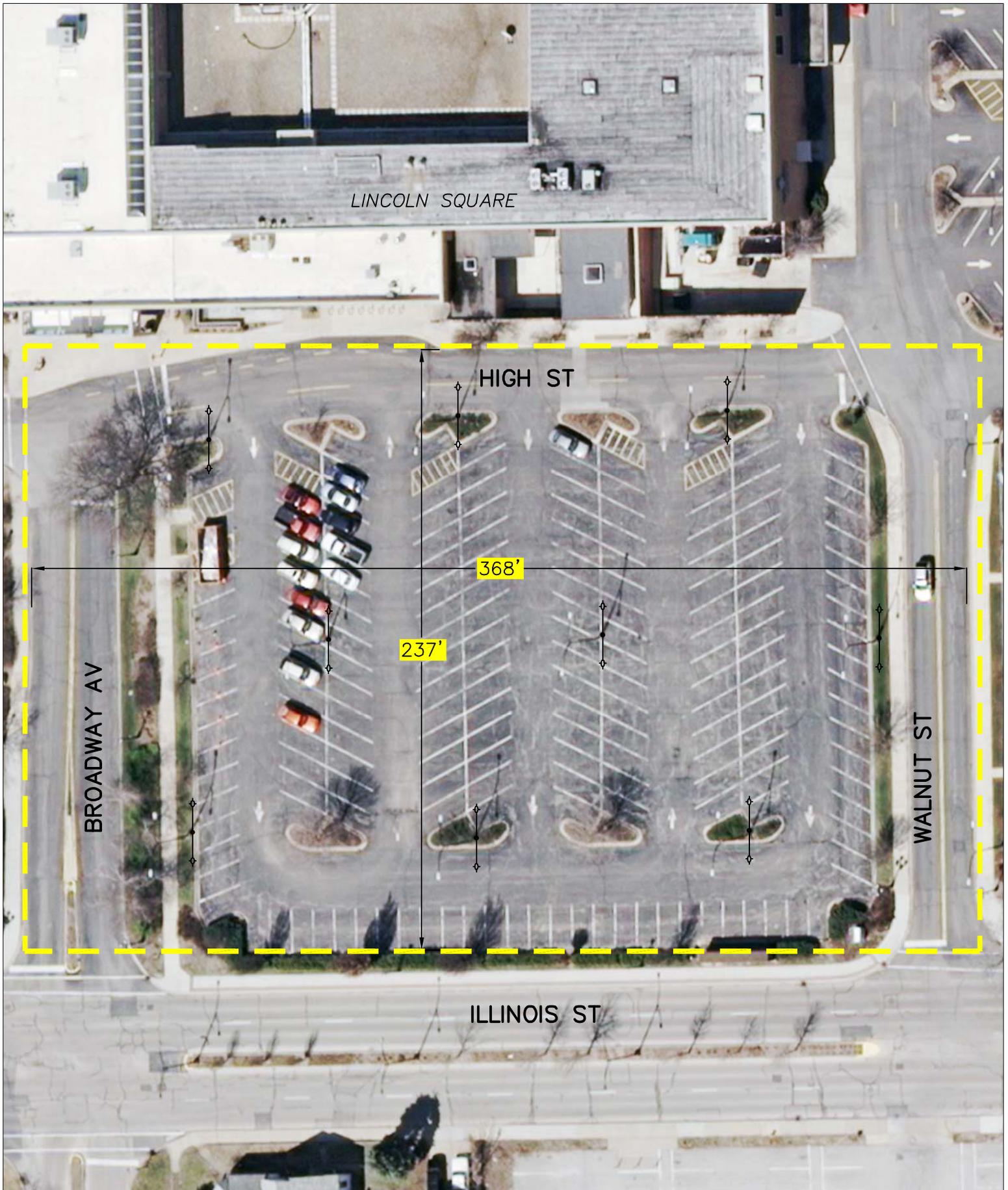




CITY OF URBANA PARKING LOT LIGHTING	
LOT NO. 10-E South	101 W. High Street
APPROX. SQ. FT. 56,512	NO. OF SPACES: 172
LIGHTING TYPE: Metal Halide	
# OF LIGHTHEADS: 10	WATTAGE: 400

Prepared by:
 City of Urbana
 Engineering Division
 Date: 08.26.09
 Prepared by: PLS
 Checked by: WRG

CITY OF URBANA



LINCOLN SQUARE

HIGH ST

368'

237'

BROADWAY AV

WALNUT ST

ILLINOIS ST

CITY OF URBANA PARKING LOT LIGHTING

LOT NO. 10-F	105 E. High Street
APPROX. SQ. FT. 87,216	NO. OF SPACES: 189
LIGHTING TYPE: Metal Halide	
# OF LIGHTHEADS: 18	WATTAGE: 400



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CITY OF URBANA PARKING LOT LIGHTING	
LOT NO. 10-X	201 E. Green Street
APPROX. SQ. FT. 62,331	NO. OF SPACES: 184
LIGHTING TYPE: Metal Halide	
# OF LIGHTHEADS: 16	WATTAGE: 400



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 Checked by: WRG





BONEYARD

170'

62'

MAIN ST

SPRINGFIELD AV

CITY OF URBANA PARKING LOT LIGHTING	
LOT NO. 11	226 W. Main Street
APPROX. SQ. FT. 10,540	NO. OF SPACES: 27
LIGHTING TYPE: High Pressure Sodium	
# OF LIGHTHEADS: 1	WATTAGE: 250



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CEDAR ST

GREEN ST

CUNNINGHAM
TOWNSHIP
SUPERVISOR

117'

61'

48'

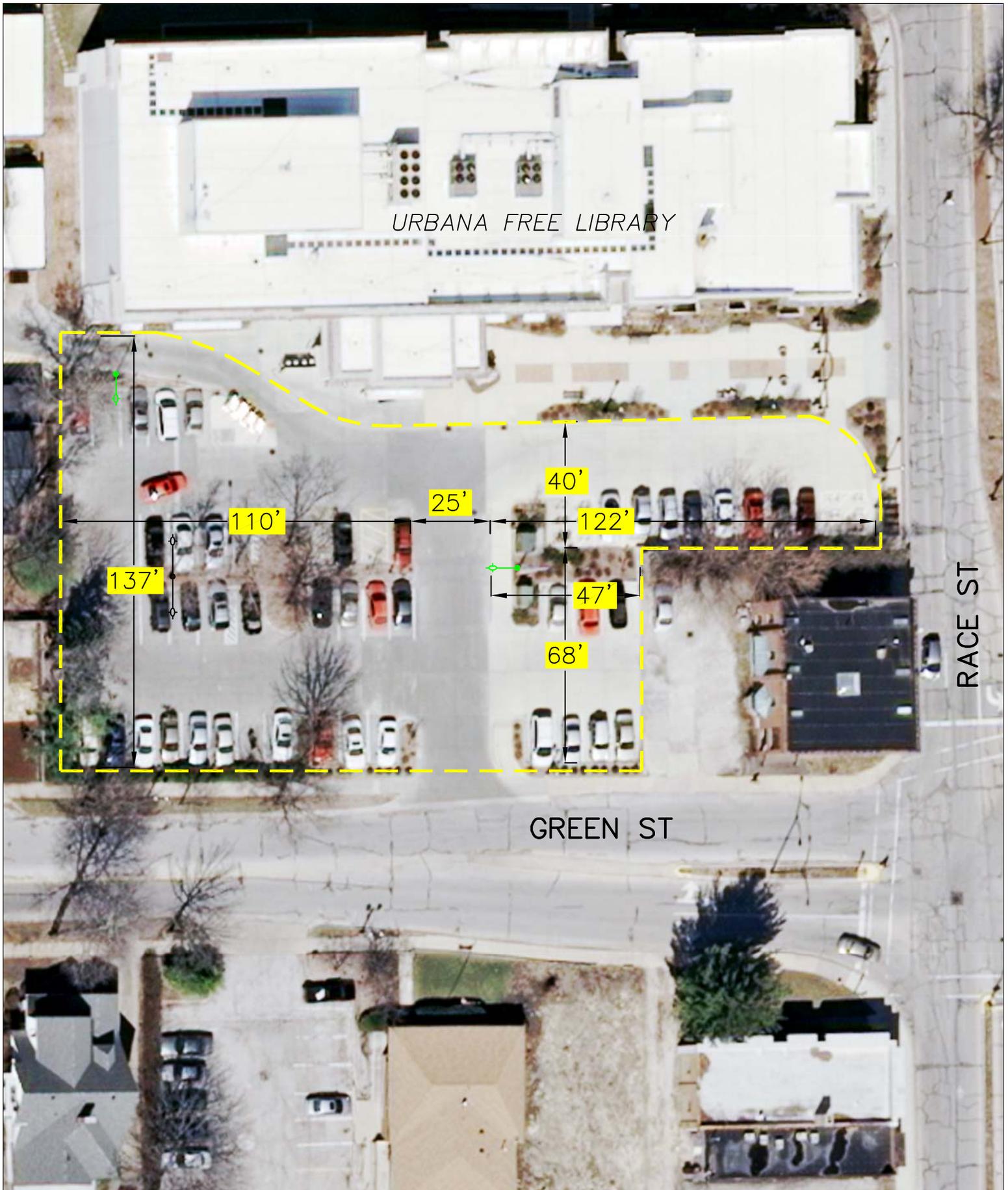
30'

CITY OF URBANA PARKING LOT LIGHTING	
LOT NO. 16	207 W. Green Street
APPROX. SQ. FT. 8,577	NO. OF SPACES: 26
LIGHTING TYPE: None	
# OF LIGHTHEADS: 0	WATTAGE: 0



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CITY OF URBANA PARKING LOT LIGHTING	
LOT NO. 17	208 W. Green Street
APPROX. SQ. FT. 25,846	NO. OF SPACES: 47
LIGHTING TYPE: Metal Halide	
# OF LIGHTHEADS: 4	WATTAGE: 150

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CITY OF URBANA PARKING LOT LIGHTING	
LOT NO. 21	304 E. Green Street
APPROX. SQ. FT. 13,653	NO. OF SPACES: 41
LIGHTING TYPE: High Pressure Sodium	
# OF LIGHTHEADS: 2	WATTAGE: 200



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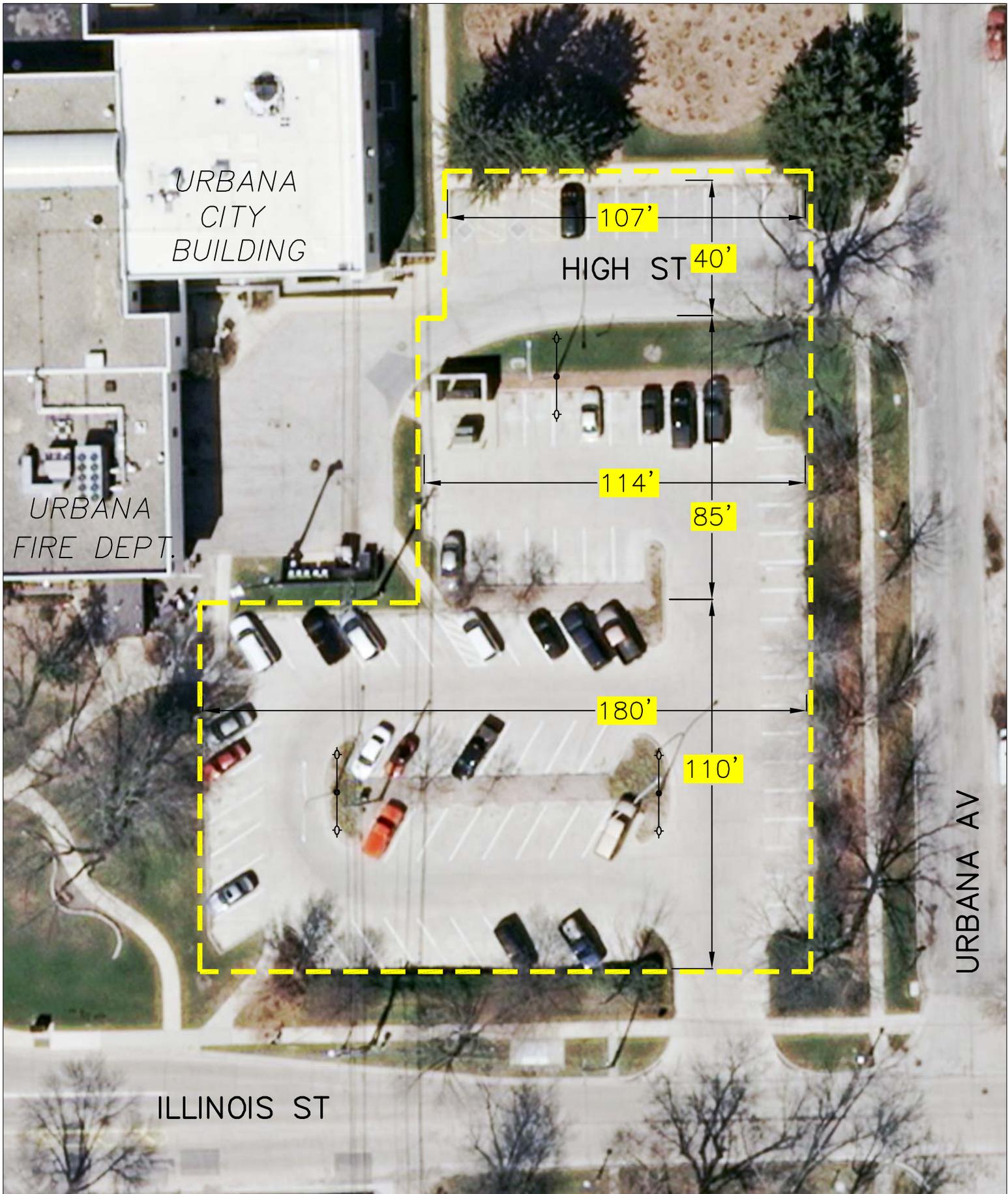




CITY OF URBANA PARKING LOT LIGHTING	
LOT NO. 22	307 E. Green Street
APPROX. SQ. FT. 29,015	NO. OF SPACES: 71
LIGHTING TYPE: High Pressure Sodium	
# OF LIGHTHEADS: 5	WATTAGE: 200

Prepared by:
 City of Urbana
 Engineering Division
 Date: 08.26.09
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 Checked by: WRG





CITY OF URBANA PARKING LOT LIGHTING	
LOT NO. 23	308 E. Illinois Street
APPROX. SQ. FT. 33,770	NO. OF SPACES: 76
LIGHTING TYPE: Hig Pressure Sodium	
# OF LIGHTHEADS: 6	WATTAGE: 100

Prepared by:
 City of Urbana
 Engineering Division
 Date: 08.26.09
 Prepared by: PLS
 Checked by: WRG



CITY OF URBANA PARKING LOT LIGHTING	
LOT NO. 24	203 E. Illinois Street
APPROX. SQ. FT. 63,750	NO. OF SPACES: 140
LIGHTING TYPE: High Pressure Sodium	
# OF LIGHTHEADS: 7	WATTAGE: 100

Prepared by:
 City of Urbana
 Engineering Division
 Date: 08.26.09
 Prepared by: PLS
 Checked by: WRG





CITY OF URBANA PARKING LOT LIGHTING	
LOT NO. 25	305 N. Race Street
APPROX. SQ. FT. 42,900	NO. OF SPACES: 135
LIGHTING TYPE: High Pressure Sodium	
# OF LIGHTHEADS: 8	WATTAGE: 400



Prepared by:
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 Engineering Division
 Date: 08.26.09
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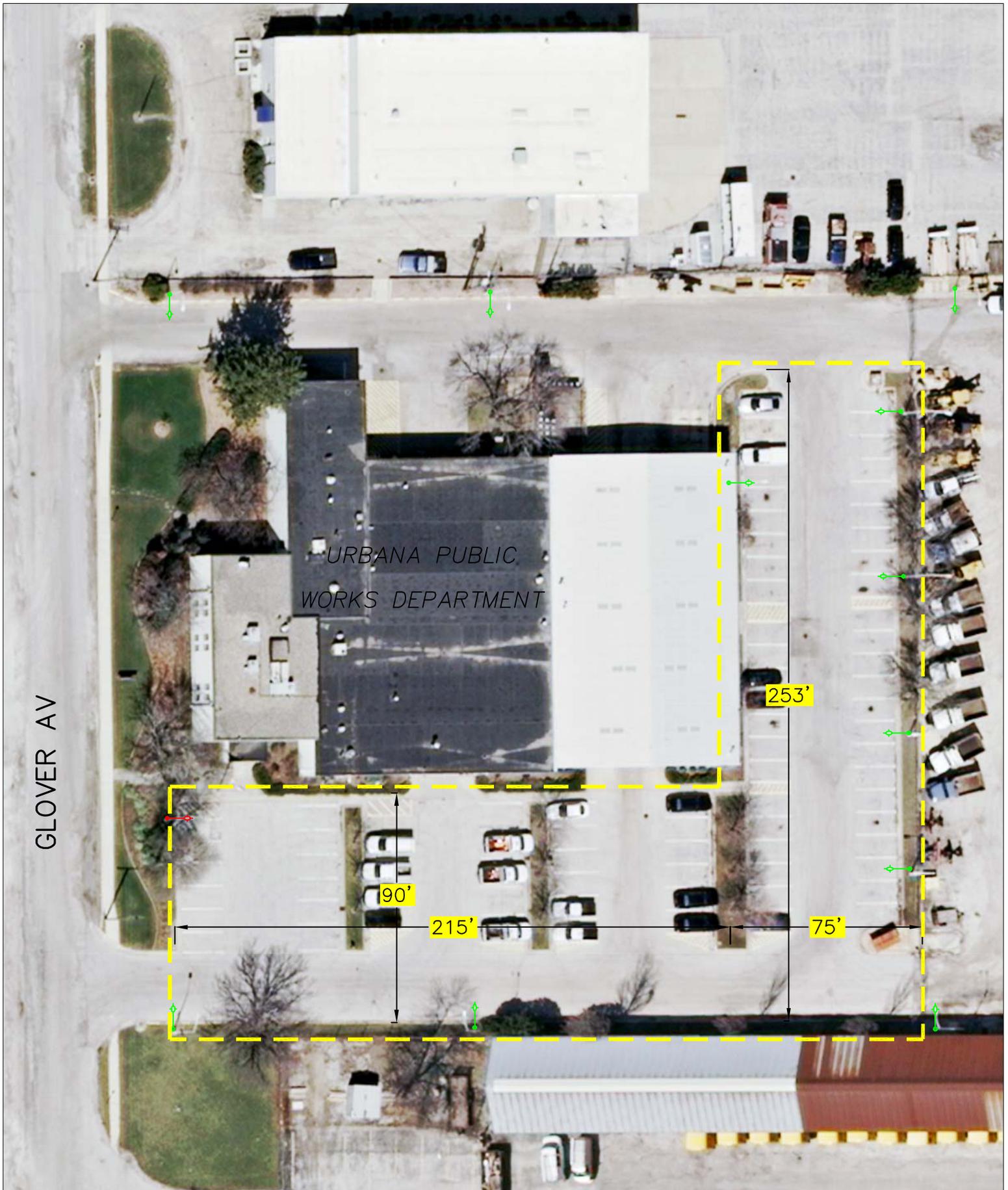


CITY OF URBANA PARKING LOT LIGHTING	
LOT NO. Marro	212 W. Green Street
APPROX. SQ. FT. 2,100	NO. OF SPACES: 7
LIGHTING TYPE: None	
# OF LIGHTHEADS: 0	WATTAGE: 0



Prepared by:
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 Engineering Division
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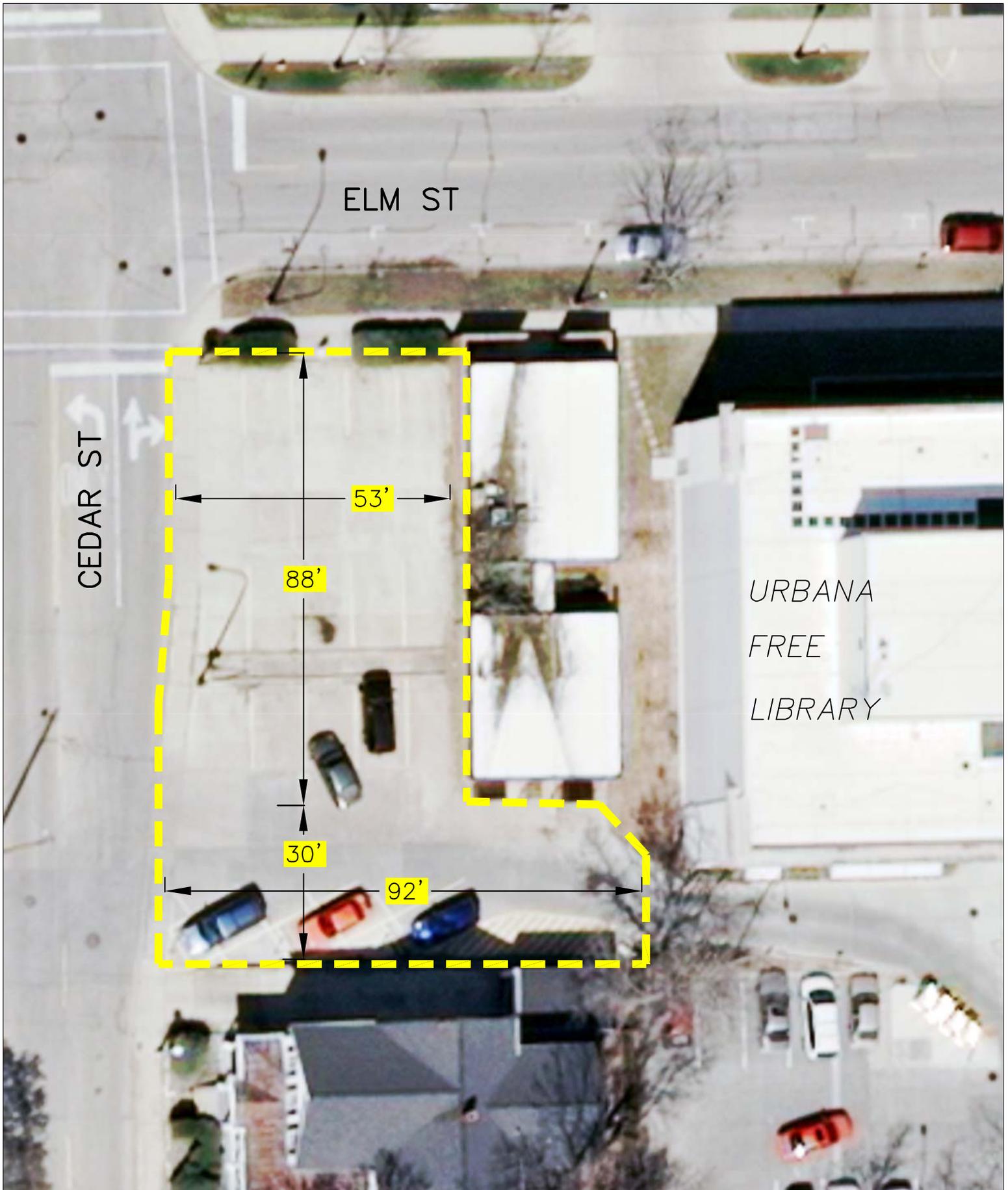


CITY OF URBANA PARKING LOT LIGHTING	
LOT NO. Urbana Public Works	706 S. Glover Avenue
APPROX. SQ. FT. 38,325	NO. OF SPACES: 81
LIGHTING TYPE: Mercury Vapor/Metal Halide	
# OF LIGHTHEADS: 11/1	WATTAGE: 250/250



Prepared by:
 City of Urbana
 Engineering Division
 Date: 08.26.09
 Prepared by: PLS
 Checked by: WRG





ELM ST

CEDAR ST

53'

88'

30'

92'

URBANA
FREE
LIBRARY

CITY OF URBANA PARKING LOT LIGHTING

LOT NO. Tepper	204 S. Cedar Street
APPROX. SQ. FT. 7,424	NO. OF SPACES: 18
LIGHTING TYPE: None	
# OF LIGHTHEADS: 0	WATTAGE: 0

Prepared by:
City of Urbana
Engineering Division
Date: 08.26.09
Prepared by: PLS
Checked by: WRG





CITY OF URBANA PARKING LOT LIGHTING	
LOT NO. Parking Deck (upper deck)	111 W. Main Street
APPROX. SQ. FT. 37,275	NO. OF SPACES: 114
LIGHTING TYPE: High Pressure Sodium	
# OF LIGHTHEADS: 14	WATTAGE: 250

Prepared by:
 City of Urbana
 Engineering Division
 Date: 02.07.11
 Prepared by: PLS
 Checked by: WRG




**Section VI-8. Outdoor Lighting Requirements
Urbana Lighting Ordinance
Adopted April 20, 2009**

Section VI-8. Outdoor Lighting Requirements

A. Purpose

The purpose of this section is to establish regulations and controls which promote the goals, objectives, and policies of the City of Urbana Comprehensive Plan. These controls aim to provide modern lighting standards for private property that protect against light trespass and nuisances, promote efficient use of light and energy conservation, and provide for a safe and secure lighting environment appropriate for the context of the areas to be lit.

B. Definitions

Candela: A measure of luminous intensity, or power emitted by a light source in a particular direction.

Cutoff Light Fixture: A fixture installed such that the luminous flux at 90 degrees above nadir is less than 5 percent of rated lumens, and less than 20 percent of rated lumens at 80 degrees above nadir.

Fixture (or Luminaire): A device which directs, diffuses, or modifies the light given out by the illuminating source in such a manner as to make its use more economical, effective and safe to the eye. The fixture includes the assembly that holds the lamp in a lighting system, including elements such as the reflector, refractor, housing, and shielding, ballasts in fluorescent and HID (High Intensity Discharge) units, and stems and canopies where used.

Floodlight: a light fixture or lamp which projects light in a wide beam, typically 100 degrees or more.

Footcandle (fc): A unit of measure of luminous flux, the illumination which is produced by a one-candela point source on a surface which is exactly one-foot distant from the point source. All measurements of footcandles shall be in the horizontal plane at ground level unless otherwise specified.

Full Cutoff Light Fixture: A fixture, as installed, designed or shielded in such a manner that all light rays emitted by the fixture, either directly from the lamp(s) or indirectly from the fixture, are projected below a horizontal plane running through the lowest point on the fixture where light is emitted. The luminous flux emitted in the band between 80 degrees and 90 degrees above nadir in all directions is no more than 10 percent of the total luminous flux for the luminaire. A luminaire that meets the Illumination Engineering Society of North America (IESNA) full-cutoff definition shall be considered full cutoff for the purposes of this Ordinance.

Glare: The sensation produced by luminances within the visual field that are sufficiently greater than the luminance to which the eyes are adapted, which causes annoyance, discomfort or loss in visual performance and visibility. Often the result of a direct line of sight to the filament or cathode in a light fixture.

IESNA Standards: Lighting guidelines provided by the IESNA, Illuminating Engineering Society of North America. These standards are found in IESNA guidebooks such as RP-33-99, *Lighting for Exterior Environments* and RP-20-98, *Lighting for Parking Facilities*.

Initial Light Levels: The amount of light produced on a site upon installation of a new lamp. As lamps age, they become less efficient and produce less light. Initial light levels represent the brightest portion of a lamp's life cycle.

Lamp: An artificial source of visible illumination.

Light Pollution: term used to describe light trespass, over-illumination, glare, clutter and/or skyglow from an artificial light source

Light Trespass: light projected onto a property from a fixture not located on that property.

Lumen: quantity of incident luminous flux which will, when uniformly distributed over a surface having an area of one square foot, produce an illumination of one footcandle on every point of the surface. Typical luminous flux values for incandescent bulbs are 100 watts: 1,550 lumens, 75 watts: 1,080 lumens, 60 watts: 780 lumens, and 40 watts: 450 lumens. Note: When luminous flux impinges nonuniformly on a surface, then a lumen is the quantity of luminous flux which will, on a one-square foot surface, produce an average illumination of one footcandle

Luminance: a photometric measure of the luminous intensity per unit area of light travelling in a given direction.

Luminous Flux: The power emitted from a source of electromagnetic radiation, such as a lamp, in the form of visible light. Luminous flux is measured in lumens (lux) or footcandles (fc) and is typically specified by the manufacturer for a given lamp or luminaire.

Nadir: The direction pointing directly downward from the light source of the luminaire.

Spill Zone: The area immediately outside of an area intended to be lit, onto which low levels of excess light may spill.

Spotlight: A light fixture or bulb which projects light in a narrow beam, typically 45 degrees or less.

Uniformity Ratio: A measure of the dispersion of light on an area. For the purposes of this Ordinance, the ratio is measured as maximum light level to minimum light level. Lower uniformity ratios help eliminate places to hide, give better depth perception, and a greater feeling of security to individuals in the area

C. Applicability

1. It shall be unlawful for any person, firm, or institution to install or operate any outdoor light fixture on private property which does not comply with the requirements of this Ordinance. Lighting fixtures on single and two-family residential properties shall not be subject to the requirements of Section IX-8.E.
2. The Zoning Administrator, in consultation with the Building Official, may alter or waive certain requirements of this Section in order to alleviate site security concerns or other practical difficulties. In such cases an alternative lighting plan shall be provided demonstrating that lighting conforms to current IESNA standards.
3. Lighting fixtures installed prior to July 1, 2009 and any of the following types of lighting shall be exempt from the requirements of this Ordinance, except that fixtures found by the Zoning Administrator to be a nuisance or cause excessive glare creating a public hazard can be ordered to be removed or altered at any time.
 - a. All temporary lighting needed by the police, fire, public works, or other public agencies or emergency services.
 - b. Vehicular luminaires.
 - c. All hazard warning luminaires required by law.
 - d. Properly permitted recreational and outdoor event lighting during times that the lighted area is actually in use and for a period of one hour before the event and one half hour after. Nonetheless, recreational and outdoor event lighting shall be installed in a way that minimizes light trespassing onto adjacent property.
 - e. Temporary lighting, such as holiday or special event lighting.
 - f. City street lights, traffic lights, and other lighting required for public safety.
 - g. Other exceptions as required by law.

D. General Requirements

The following shall apply to all properties in the City of Urbana, except as noted in Section VI-8.C:

1. Limits on Glare. Outdoor lighting shall not create a glare that hinders sight to the extent that it is hazardous for motorists, bicyclists, or pedestrians. Lighting shall be aimed or shielded so as not to cause a nuisance to the public or nearby properties.
2. Façade and Landscape Lighting.
 - a. Floodlights directed at buildings shall be shielded such that light emitted falls upon the building façade. The initial average exterior building façade luminance shall not exceed five foot candles on the illuminated surface. Floodlights used for facade lighting may be no farther from the building than one-third of the building height. The mounting height of such floodlights shall not exceed the building height.
 - b. The lamp of landscape luminaires shall be shielded such that it is not directly visible from any adjacent properties.

E. Additional Requirements

The following shall apply to all properties except for single-family and duplex uses and as noted in Section VI-8.C:

1. Lighting Plan Submission Requirements. A lighting plan shall be submitted to and approved by the Urbana Building Safety Division prior to installation or replacement of a lighting system. Lighting plans shall not be required for the installation or replacement of less than three fixtures or less than 20 percent of the existing fixtures. Lighting plans shall be submitted for review as a part of the building permit process and shall include the following information:
 - a. A site photometric plan indicating initial footcandle levels in a ten-foot by ten-foot point spacing at grade to a distance of 20 feet beyond the lot lines.
 - b. Specifications for all luminaires, poles, luminaire mounting arms, and lighting control products.
 - c. Lighting specifications including footcandle initial averages, and maximum-to-minimum uniformity ratio for the areas to be lit, excluding the spill zone, in conformance with the requirements of paragraph VI-8.E.4.
 - d. The location, mounting height, lamp intensity for all exterior luminaires.

- e. An after-hours security lighting plan indicating reduced light levels as specified in VI-8.E.4.
2. Luminaires. In order to prevent unreasonable light pollution, any luminaire and all wall-mounted luminaires used for outdoor area light shall use a non-adjustable, full-cutoff fixture, or a fixture with an IESNA Uplight rating of U1 or less, positioned in a way that the cutoff effect is maximized.
3. Lighting Context. Outdoor lighting design must take into account existing light sources that impact the site as well as the presence of sensitive land uses that may be impacted by the lighting.
 - a. In order to prevent over-lighting, proposed new outdoor lighting shall consider existing light affecting the site.
 - b. Outdoor lighting shall have fixtures that shield residential areas from direct light.
4. Light Levels, Luminaire Mounting Position, and Timing.
 - a. In order to help eliminate places to hide, give better depth perception, and a greater sense of security to individuals in the area, lighting levels shall not exceed an initial maximum to minimum uniformity ratio of 20:1 for the areas to be illuminated. Areas to be illuminated may be different for after-hours security lighting as required in this section.
 - b. Average initial light levels at ground level shall not exceed one footcandle in residential zoning districts and 2.5 footcandles in all other districts.
 - c. Light levels created by proposed new outdoor lighting shall not exceed 0.2 footcandles as measured at a point six feet beyond the property line or farther, except that light levels shall not exceed 0.1 footcandles as measured at a point six feet beyond the property line or farther where the adjacent property is zoned R-1, R-2, or R-3.
 - d. Canopy lighting. All lighting under a canopy shall be cutoff or recessed, and no luminaires shall extend below the horizontal plane of the canopy. Light levels under the canopy shall not exceed an initial average of 15 footcandles at grade.
 - e. Display areas. Areas dedicated to the display of merchandise may have an initial average light level no greater than ten footcandles while the business on the site is open to the public, and shall have an initial average light level no greater than five footcandles thereafter.
 - f. Building entrance areas and access drives shall have an average light level no greater than ten footcandles.

- g. All exterior lighting on non-residential properties shall be controlled by a photo sensor, occupancy sensor, or time switch which shall:
 - i) automatically reduce exterior lighting when sufficient daylight is available, and
 - ii) automatically extinguish subject lights no more than one hour following the close of business on subject property, excluding lighting for security purposes. Security lighting shall not exceed 33 percent of the total light output (in lumens) from all outdoor lighting located on the zoning lot. Individual luminaires shall not emit more light for security lighting purposes.