

Date Received		Application for Outdoor Lighting Permit		Permit Number
Type of Lighting Permit:		<input type="checkbox"/> Permanent	<input type="checkbox"/> Temporary	
Site Address (including suite #)		City, State, Zip		
Property Owner		Phone	Email	
Mailing Address		City, State, Zip		
Applicant(s) or Contractor(s) (if different from property owner)		Phone	Email	
Mailing Address		City, State, Zip		
Parcel Numbers(s)		Parcel Zoning		

See Division 10-50.70 (Outdoor Lighting Standards) of the Zoning Code for City outdoor lighting standards.

Please contact the Planner of the Day if you have questions about this application. See <https://www.flagstaff.az.gov/150/Current-Planning> for more information.

SITE INFORMATION <i>(See City of Flagstaff Lighting Zones on p. 3 of this application for more information).</i>	
Lighting Zone (1, 2, or 3) _____	Site size in acres (provide to two decimal points, such as 10.25) _____
PURPOSE OF PROPOSED ILLUMINATION <i>(See section 10-50.70.050.B: Lighting Classes for more information).</i>	
Class 1 (White Light): Yes _____ No _____ <i>Used where you need to see color, such as building entrances, signs, outdoor eating and sales areas, workshops, recreation/sports fields.</i>	
Class 2 (General Illumination): Yes _____ No _____ <i>Used for pedestrian walkways, driveways, roadways, parking lots, equipment yards, and general outdoor security.</i>	
Class 3 (Decorative): Yes _____ No _____ <i>Examples include achitectural illumination, flag and monument lighting, landscape lighting.</i>	
<u>Your application must include all required components listed on p. 5. We do not accept incomplete applications. Please do not submit pages 5-8 (these are instructional/example pages).</u>	
_____ (Initials) I hereby certify that the information set forth on this form is complete and accurate and do hereby agree to comply with all applicable codes of the City of Flagstaff and the State of Arizona and with any conditions attached hereto, and request that all pertinent City personnel access my property at any time deemed necessary to inspect work being done relating to this permit.	

Applicant Signature:		Date:
For City Use		
Received By:		Fee Receipt #:
Approval: <input type="checkbox"/> Yes <input type="checkbox"/> No	Staff Initial:	Date Approved:

LUMEN CALCULATIONS TABLE: BEFORE LIGHTING MODIFICATIONS

THIS TABLE ONLY APPLIES EXISTING DEVELOPMENT. INSTRUCTIONS: Provide the required information in the table below (or in a separate table that matches the table below) for all outdoor lighting currently on-site. Do not include any new lighting or modifications to existing lighting (you will provide that information in the *Lumen Calculations Table: After Lighting Modifications* on the next page). Do not include streetlights in public rights-of-way. Some of the columns will auto-calculate, others you will need to fill out yourself. NEW DEVELOPMENT PROJECTS: SKIP TO TABLE ON NEXT PAGE.

1	2	3	4	5	6	7	8	9	10
Lamp Type ¹	Number of Fixtures	Shielding ²	Lighting Class (1,2,3) ³	Lumens Per Lamp	No. of lamps per fixture ⁴	Lumens per Fixture	Number of Recessed Fixtures ⁵	Lumen Reduction for Recessed Fixtures ⁶	Lumens Total ⁷

Total existing lumens (all types) _____
 Existing Class 1 and Class 3 lumens⁸ (if applicable) _____
 Existing LED and NSALELED lumens⁹ (if applicable) _____
 Existing partially-shielded lumens¹⁰ (if applicable) _____
 Existing unshielded lumens¹¹ (if applicable) _____

¹**Lamp Type.** See footnote 1 on page 3 of this application for more information on abbreviations for lamp types.
²**Shielding.** Use the following abbreviations: FS for fully-shielded; PS for partially-shielded; US for unshielded.
³**Lighting Class.** See footnote 3 on page 3 of this application for more information on lighting class.
⁴**No. of Lamps per Fixture.** Put 1 for LEDs or NSALELEDs that are integrated as part of the fixture, and skip to Column 7.
⁵**Number of Recessed Fixtures.** Applies only to fully-shielded fixtures at least 5-ft. (horizontally) from the nearest roof/canopy edge.
⁶**Lumen Reduction for Recessed Fixtures.** Do the following calculation for fixtures recessed 5 - 9.99 feet.: (Column 7 x Column 8) x 0.75. Do the following calculation for fixtures recessed 10 or more feet: (Column 7 x Column 8) x 0.90.
⁷**Lumens Total.** Do the following calculation: Column 2 x Column 7. For recessed fixtures only: (Column 2 x Column 7) – Column 9. See the *Example Permit* on p. 7 of this application for more information.
⁸**Class 1 and Class 3 Lighting.** See footnote 9 on page 3 of this application for more information on Class 1 and Class 3 lighting.
⁹**Existing LED and NSALELED lumens:** Add the total lumens for all LED and narrow-spectrum amber LED (NSALELED) lights on-site.
¹⁰**Existing partially-shielded lumens:** Add the total lumens for all partially-shielded lights on-site.
¹¹**Existing unshielded lumens:** Add the total lumens for all unshielded lights on-site.

LUMEN CALCULATIONS TABLE: AFTER LIGHTING MODIFICATIONS

Provide the required information in the table below (or in a separate table that matches the table below) for each outdoor lamp and fixture combination that will be on site after the outdoor lighting is updated. Do not include streetlights in public rights-of-way. Some columns will auto-calculate, others you will need to fill out yourself.

1	2	3	4	5	6	7	8	9	10	11	12
Lighting Plan Symbol	Number of Fixtures	Lamp Type ¹	Shielding ²	Lighting Class (1,2,3) ³	Watts per Lamp	Lumens Per Lamp	No. of lamps per fixture ⁴	Lumens per Fixture	Number of Recessed Fixtures ⁵	Lumen Reduction for Recessed Fixtures ⁶	Lumens Total ⁷

Total proposed lumens _____ Maximum permitted total lumens⁸ _____
 Total proposed Class 1 and Class 3 lumens⁹ _____ Max. permitted Class 1 and Class 3 lumens¹⁰ _____
 Total proposed partially-shielded lumens _____ Maximum permitted partially-shielded lumens¹¹ _____
 Total proposed non-LED and non-NSALED lumens¹² _____ Total proposed LED and NSALED lumens¹³ _____

¹**Lamp Type.** Use the following abbreviations for lamp types:
CFL for compact fluorescent **IN** for incandescent **LED** for light-emitting diode (white or warm white)
FL for fluorescent **LPS** for low pressure sodium **NSALED** for narrow-spectrum amber LED
HPS for high pressure sodium **MH** for metal halide

²**Shielding.** Use the following abbreviations: **FS** for fully-shielded; **PS** for partially-shielded. *Unshielded fixtures are not permitted.*

³**Lighting Class.** *Class 1 (White Light)* is used to see color at building entrances, signs, outdoor eating and sales areas, workshops, recreation/sports fields, etc. *Class 2 (General Illumination)* is used for pedestrian walkways, driveways, roadways, parking lots, equipment yards, and general outdoor security. Low-pressure sodium (LPS) and narrow-spectrum amber LED (NSALED) lamps are used for Class 2 lighting. *Class 3 (Decorative)* includes architectural illumination, flag and monument lighting, landscape lighting.

⁴**No. of Lamps per Fixture.** Put 1 for LEDs or NSALEDs that are integrated as part of the fixture.

⁵**Number of Recessed Fixtures.** Applies only to fully-shielded fixtures at least 5-ft. (horizontally) from the nearest roof/canopy edge.

⁶**Lumen Reduction for Recessed Fixtures.** Do the following calculation for fixtures recessed 5-9.99 feet.: (Column 9 x Column 10) x 0.75. Do the following calculation for fixtures recessed 10 or more feet: (Column 9 x Column 10) x 0.90.

⁷**Lumens Total.** Do the following calculation: Column 2 x Column 9. For recessed fixtures only: (Column 2 x Column 9) – Column 11. See the *Example Permit* on p. 7 of this application for more information.

⁸**Maximum permitted total lumens.** Input the results of the *Maximum Permitted Lumens Worksheet* on p. 3 of this application.

⁹**Class 1 and Class 3 Lighting.** Includes CFL, FL, HPS, IN, and MH lamps listed in footnote 1 above. Class 1 and Class 3 lighting does not include Low-Pressure Sodium (LPS) or non-Narrow-Spectrum Amber LED (NSALED) lamps (these lamps are Class 2 lighting).

¹⁰**Maximum permitted Class 1 and Class 3 Lighting** cannot exceed 10% of the total permitted lumens for the site.

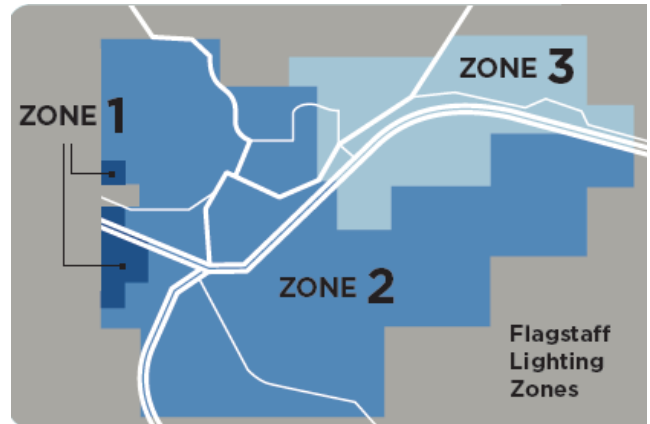
¹¹**Maximum partially-shielded lumens** cannot exceed the following in each zone. Zone 1: 0 lumens (partially-shielded lights are not permitted in Zone 1); Zone 2: 11% of total permitted lumens; Zone 3: 5.5% of total permitted lumens.

¹²**Total proposed non-LED and non-NSALED lumens:** Add the total lumens of all fixtures that *are not* LED or NSALED lights.

¹³**Total proposed LED and NSALED lumens:** Add the total lumens of all fixtures that *are* LED or NSALED lights.

MAXIMUM PERMITTED LUMENS WORKSHEET

1. Identify the Lighting Zone where your project is located. Refer to the Lighting Zone Map below or in Section 10-90.40.020 of the Zoning Code, or search by address in the GIS Mapping Portal <https://map-flagstaff.opendata.arcgis.com/> (go to the Flagstaff Zoning map).
2. Do the calculations for Step 1 below (multiply the maximum lumens permitted in your site's Lighting Zone by the net acres of your site). This is the maximum permitted lumens for your site if you are using no LED or NSALED lights on your site. Move to Step 2 if you are using LED or NSALED lights. See footnote 1 under the Lumen Calculations Table on p. 2 for more information lamp types.
3. Do the calculations for Step 2 below if you are using only LED or NSALED lights on your site. This is the maximum permitted lumens if you are using only LED or NSALED lights.
4. Do the calculations for Step 3 below if you are using LED, NSALED, and other types of lights. See the *Example Permit* on p. 7 of this application for more information.



Maximum Permitted TOTAL Lumens

Zone 1: 25,000 lumens/acre **Zone 2:** 50,000 lumens/acre **Zone 3:** 100,000 lumens/acre

- **Step 1:** Maximum permitted lumens/acre for your Zone _____ x _____ site acres = _____ **maximum permitted lumens for the entire site (if using no LED or NSALED lights)**
 - **Step 2:** Input results from Step 1 above _____ ÷ 1.43 = _____ **maximum permitted lumens for the entire site (if using only LED and/or NSALED lights)**
 - **Step 3:** Input results from Step 1 above _____ - proposed non-LED/non-NSALED lumens _____ = _____ ÷ 1.43 = _____ + desired non-LED lumens _____ = _____ **maximum permitted lumens for the entire site (if using both LED/NSALED and other types of lights)**
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ATTACH LIGHTING PLAN AND MANUFACTURER'S CUTSHEETS

ON THE BACK OF THIS PAGE

APPLICATION SUBMITTAL REQUIREMENTS

1. \$130 non-refundable fee due when submitting the permit application.
2. Complete p. 1 of this application.

One (1) copy of each of the following, on 8.5 x 11 or 11 x 17 sheets only. If the site is very large, you may use a bigger sheet for the lighting plan only.

1. Complete *Lumen Calculations Table: Before Lighting Modifications* (APPLIES ONLY TO EXISTING DEVELOPMENTS).
 - a. Lumen output per fixture is available on the manufacturer's cutsheets for the fixture.
 - b. If manufacturer's cutsheets are not available, estimate the lumen output by looking up the lamp type, make, and model number. Choose the highest estimate (most conservative) if there is a lumen output range.
2. Complete *Lumen Calculations Table: After Lighting Modifications*.
3. Complete *Maximum Permitted Lumens Worksheet*.
4. Complete outdoor *Lighting Plan* using corresponding symbols from the *Lumen Calculations Table*, clearly showing the location of all existing and proposed lighting (refer to example plan on p. 8 of this application).
5. The manufacturers' cutsheet for each fixture (or a picture of an existing fixture, if the cutsheet is unavailable).

ADDITIONAL INSTRUCTIONS: LIGHTING PLAN

1. Print an up-to-date aerial photo or draw a plan of the entire site. This document is known as the *Lighting Plan*.
 - a. Show the entire parcel and all property lines.
 - b. *Skip to Step 3 (below) if you plan to update all lighting (remove all existing lighting).*
2. Mark on the *Lighting Plan* the location of outdoor light fixtures that will remain on-site after the Outdoor Lighting Application is approved and the outdoor lighting on the site is updated. Include all light fixtures on the site—even those that are turned off or are inoperable.
 - a. If you do not want lights that are turned off or inoperable to count toward your maximum proposed lumens, you will need to remove them from the site.
3. For all lighting that will be on site after the permit is approved (includes new and existing lighting, if applicable):
 - a. Assign a different symbol (A,B,C or 1,2,3, etc.) to each unique lamp/fixture combination. The symbol on the lighting plan must correspond to the symbol on the *Lumen Calculations Table* on p. 3 of this application.
4. Identify any lights located five (5) or more feet (horizontally) from a roof eave or other type of canopy edge.
 - a. If so, measure the distance between the fixture and the edge of the roof, and record the distance on the lighting plan.
 - b. Include measuring tape in the picture if needed to clarify the distance between the edge of the fixture and the edge of the roof/canopy.

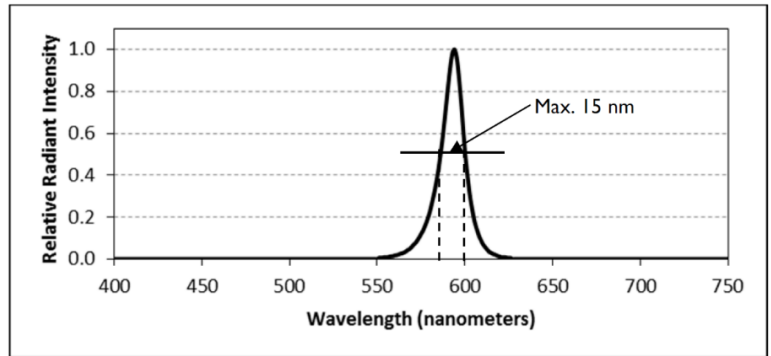
ADDITIONAL INSTRUCTIONS: MANUFACTURER'S CUTSHEETS

5. Include the manufacturer's cutsheet for each lamp/luminaire combination proposed in the permit application (each Lighting Plan symbol).
 - a. Label each cutsheet with Lighting Plan Symbol that it corresponds to.
 - b. If the cutsheet shows multiple options and/or models, clearly indicate which option you plan to install.
 - c. Make sure the cutsheet shows lumen output at installation, a picture of the fixture, model number, lamp type, and manufacturer.
 - d. For all Class 2 lights (low-pressure sodium or narrow-spectrum amber LEDs), the cutsheet should state the peak wavelength and include a graph that shows the wavelengths of light produced by the fixture (it should look like the graph on the top of p. 6).
6. Include a picture of each fixture type if cutsheets are unavailable. Label the lamp make and model number.

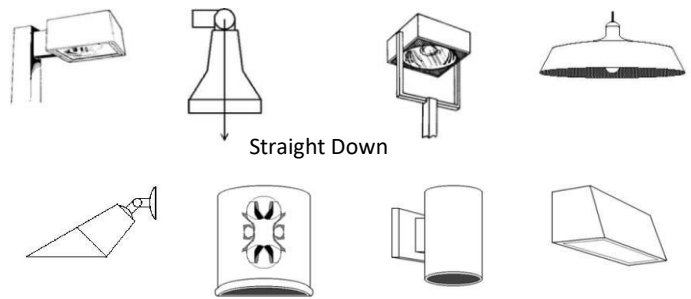
IMPORTANT INFORMATION ABOUT OUTDOOR LIGHTING REQUIREMENTS

Narrow-Spectrum Amber LEDs or Low-pressure sodium (LPS) (preferred lighting sources)

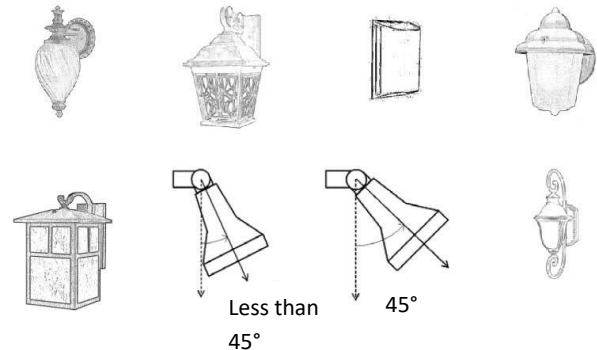
NSALEDs have a spectrum like that shown in the graph to the right, and with a peak wavelength between 585 and 595 nanometers and a full width at 50 percent power no greater than 15 nanometers. They are used for Class 2 lighting. See *Division 10-50.70.050: Requirements – All Lighting Zones* for more information.



Fully-Shielded Light Fixtures: All light emitted by the fixture must be projected below the bottom of the fixture. If the lamp or tube, any reflective surface, or lens cover is visible when viewed from above, directly from the side, or from any angle around the fixture or tube, the fixture or tube is not fully-shielded.



Partially-Shielded Light Fixtures: Most light is projected below the bottom of the fixture. Light emitted sideways or upwards arises only from incidental decorative elements or strongly colored or diffusing materials such as “honey” or colored glass or plastic. Fixtures using spot or flood lamps are considered partially shielded if the lamps are aimed no higher than 45 degrees above straight down (half-way between straight down and straight to the side).



No unshielded fixtures are permitted.

Fixtures eligible for a 75% reduction in total lumen output:

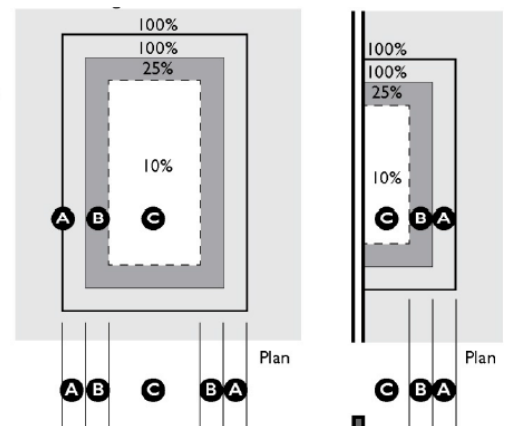
Applies to fully shielded light fixtures located within open parking garages, under canopies, building overhangs, or roof eaves, where *all parts of the light fixture are located between 5-9.99 ft. from the nearest outdoor opening, canopy, or overhang edge* (label B on the diagram to the right).

- Canopy Edge
- A ≤5' from Canopy Edge
- B 5'-10' from Canopy Edge
- C >10' from Canopy Edge

Fixtures eligible for a 90% reduction in total lumens output: Applies to fully shielded light fixtures located within open parking garages, under canopies, building overhangs, or roof eaves, where *all parts of the light fixture are located between 10 or more ft. from the nearest outdoor opening, canopy, or overhang edge* (label C on the diagram to the right).

Free-standing Canopy

Detached Canopy



EXAMPLE OUTDOOR LIGHTING PERMIT

This example is for a 2.50-acre site in Lighting Zone 2. It includes a recessed fixture, so the lumen reduction is calculated in the Lumen Calculations Table. It also proposes LED, NSALED, and non-LED lights. Fixture A has two lamps per fixture.

EXAMPLE LUMEN CALCULATIONS TABLE

1	2	3	4	5	6	7	8	9	10	11	12
Lighting Plan Symbol	Number of fixtures	Lamp Type	Shielding	Lighting Class (1,2,3)	Watts per Lamp	Lumens Per Lamp	No. of lamps per fixture	Lumens per Fixture	Number of Recessed Fixtures	Lumen Reduction for Recessed Fixtures	Lumens Total
A	2	LPS	FS	2	90	13,500	2	27,000	0	0	54,000
B	5	LED	PS	1	12	1,000	1	1,000	0	0	5,000
C	3	NSALED	FS	2	21	NA ¹	1	3,467	0	0	10,401
C	1	NSALED	FS	2	21	NA	1	3,467	1 ²	-2,600	867

Total proposed lumens 70,268

Maximum permitted total lumens 103,650

Total proposed Class 1 and Class 3 lumens 5,000

Max. permitted 1 and Class 3 lumens³ 10,365

Total proposed partially-shielded lumens 5,000

Maximum permitted partially-shielded lumens⁴ 11,402

Total proposed non-LED and non-NSALED lumens⁵ 54,000

Total proposed LED and NSALED lumens 16,268

EXAMPLE MAXIMUM PERMITTED LUMENS WORKSHEET

Zone 1: 25,000 lumens/acre **Zone 2:** 50,000 lumens/acre **Zone 3:** 100,000 lumens/acre

• **Step 1:** Maximum permitted lumens/acre 50,000 x 2.50 site acres = 125,000

maximum permitted lumens for the entire site (if using no LED or NSALED lights)

• **Step 2:** Input results from Step 1 above 125,000 ÷ 1.43 = 87,413 maximum permitted

lumens for the entire site (if using only LED and/or NSALED lights)

• **Step 3:** Input results from Step 1 above 125,000 - proposed non-LED/non-NSALED lumens 54,000

= 71,000 ÷ 1.43 = 49,650 + desired non-LED lumens 54,000 = 103,650

maximum permitted lumens for the entire site (if using both LED/NSALED and other types of lights)

¹ Lumens Per Lamp. Per footnote 3 on p. 2 of this application, put NA for LEDs integrated into the fixture and skip to Column 9.

² Number of Recessed Fixtures. This fixture is 5-9.99 ft. away from the nearest roof or canopy edge. The other C fixtures are not eligible for a lumen reduction because they are located closer than 5-ft. to the nearest roof or canopy edge.

³ Class 1 and Class 3 lighting cannot exceed 10% of maximum permitted total lumens (103,650 x .10 = 10,365 lumens).

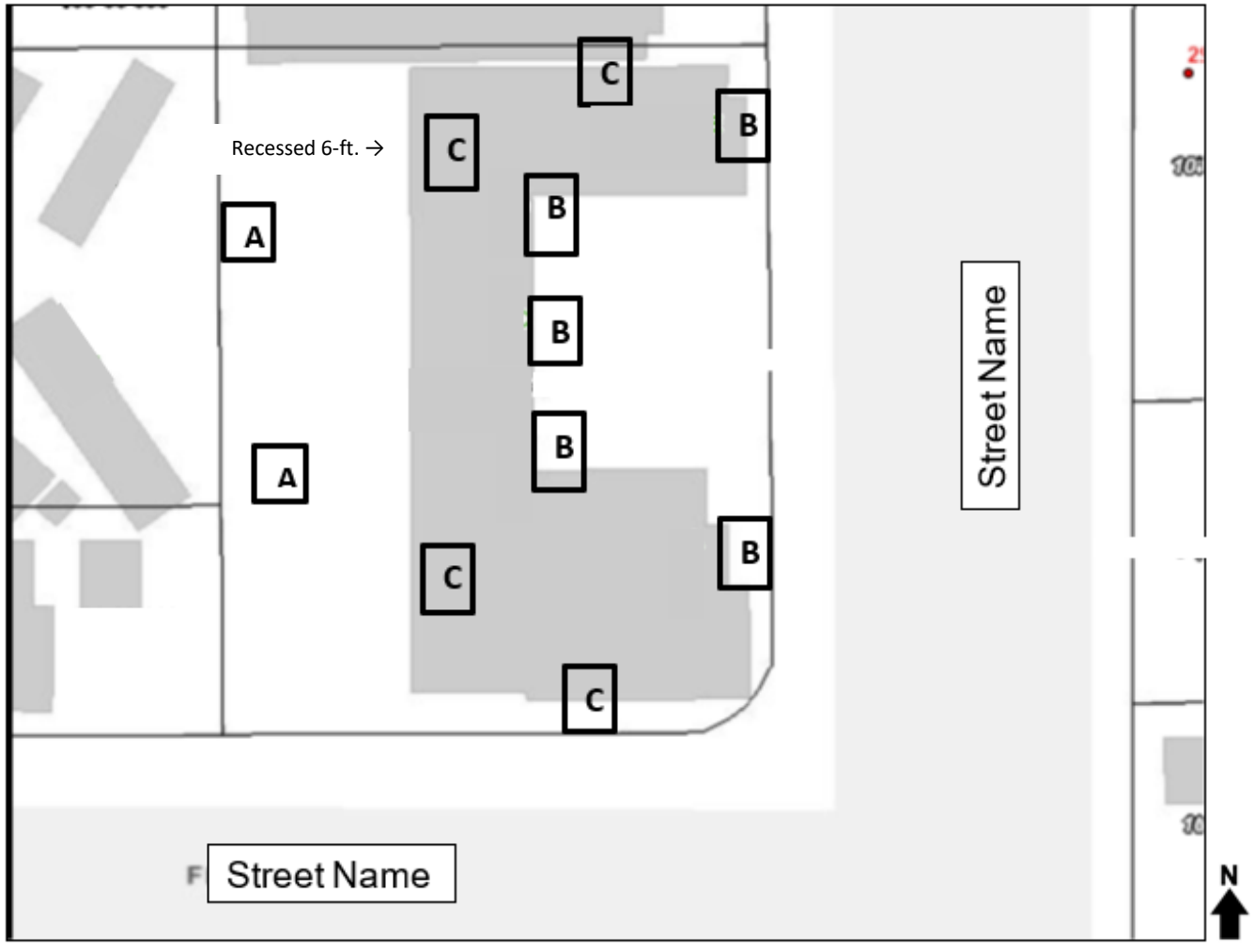
⁴ Partially-shielded lumens in Lighting Zone 2 cannot exceed 11% of max. permitted total lumens (103,650 x .11 = 11,402 lumens).

⁵ Total proposed non-LED and non-NSALED lumens. Lighting Plan Symbol A (LPS lamp type) is the only non-LED lamp in this case.

EXAMPLE OUTDOOR LIGHTING PLAN

Lighting Fixtures Count:

- A = 2 fixtures
- B = 5 fixtures
- C = 4 fixtures (one is recessed 5-9.99 ft.)



ATTACH MANUFACTURER'S CUTSHEETS ON THE NEXT PAGE