Amending Default Outdoor Lighting Zones by Local Jurisdictions Having Authority (AHJ)

An important part of the Standards is to base the outdoor lighting power that is allowed on how bright the surrounding conditions are. The Standards contain lighting power allowances` for newly installed equipment and specific alterations that are dependent on which Lighting Zone the project is located in.

The technical basis for the differences in outdoor lighting zones described by the Illuminating Engineering Society of North America (IESNA), is that the eyes adapt to darker surrounding conditions, and less light is needed to properly see; when the surrounding conditions get brighter, more light is needed to see. The least power is allowed in Lighting Zone 1 and increasingly more power is allowed in Lighting Zones 2, 3, and 4. Providing greater power than is needed potentially leads to debilitating glare, to an increasing spiral of brightness as over-bright projects become the surrounding conditions for future projects causing future projects to unnecessarily require greater power, and to wasting of energy.

The Energy Commission defines the boundaries of Lighting Zones based on U.S. Census Bureau boundaries for urban and rural areas as well as the legal boundaries of wilderness and park areas (see Standards Table 10-114-A). By default, government designated parks, recreation areas and wildlife preserves are Lighting Zone 1; rural areas are Lighting Zone 2; and urban areas are Lighting Zone 3. Lighting Zone 4 is a special use district that may be created by a local government.

Adjustments to Default Outdoor Lighting Zones

A local AHJ may officially adopt changes to the default Outdoor Lighting Zone designation of an area by following a public process that allows for formal public notification, review, and comment about the proposed change. For example, the AHJ may determine areas where Outdoor Lighting Zone 4 is applicable and may increase or decrease the Outdoor Lighting Zones for areas that are in State Default Outdoor Lighting Zones 1, 2 and 3, as specified in Table 10-114-A of the Standards.

An AHJ who adopts changes to the State Default Outdoor Lighting Zones shall notify the Commission by providing the following materials to the Executive Director:

1. Documentation establishing that the party submitting the notification to the Energy Commission is the local Authority Having Jurisdiction (AHJ).
2. A detailed specification of the boundaries of the adopted Outdoor Lighting Zones, consisting of the county name, the city name if any, the zip code(s) of the redesignated areas, and a description of the physical boundaries within each zip code.
3. A description of the public process that was conducted in adopting the Outdoor

Lighting Zone changes, including the dates and publication used for the formal public notification, an explanation of the process conducted to allow review and comment, and a copy of the adopted resolution made by the AHJ.

4. An explanation of how the adopted Outdoor Lighting Zone changes are consistent with the specifications of Section 10-114.

The Commission has the authority to not allow Outdoor Lighting Zone changes which the Commission finds to be inconsistent with the specifications of Section 10-114 of the Standards.

Standards Table 10-114-A Lighting Zone Characteristics and Rules for Amendments by Local Jurisdictions

Zone	Ambient Illumination	State wide Default Location	Moving Up to Higher Zones	Moving Down to Lower Zones
LZ1	Dark	Government designated parks, recreation areas, and wildlife preserves. Those that are wholly contained within a higher lighting zone may be considered by the local government as part of that lighting zone.	A government designated park, recreation area, wildlife preserve, or portions thereof, can be designated as LZ2 or LZ3 if they are contained within such a zone.	Not applicable.
LZ2	Low	Rural areas, as defined by the 2000 U.S. Census.	Special districts within a default LZ2 zone may be designated as LZ3 or LZ4 by a local jurisdiction. Examples include special commercial districts or areas with special security considerations located within a rural area.	Special districts and government designated parks within a default LZ2 zone maybe designated as LZ1 by the local jurisdiction for lower illumination standards, without any size limits.
LZ3	Medium	Urban areas, as defined by the 2000 U.S. Census.	Special districts within a default LZ3 may be designated as a LZ4 by local jurisdiction for high intensity nighttime use, such as entertainment or commercial districts or areas with special security considerations requiring very high light levels.	Special districts and government designated parks within a default LZ3 zone may be designated as LZ1 or LZ2 by the local jurisdiction, without any size limits.
LZ4	High	None.	Not applicable.	Not applicable.

Options for Parks, Recreation Areas and Wildlife Preserves

The default for government designated parks, recreation areas, and wildlife preserves is Lighting Zone 1. The local AHJ over the property will know if the property is a government designated park, recreation area, or wildlife preserve. However, when a park, recreation area, wildlife preserve, or portions thereof, are surrounded by urban areas (as defined by the U.S. Census Bureau), such areas may be designated as Lighting Zone 3 by adoption of the local jurisdiction. Similarly, a Lighting Zone 2 designation can be adopted if the area is surrounded by rural areas (as defined by the U.S. Census Bureau).

Options for Rural Areas

The default for rural areas, as defined by the U.S. Census Bureau, is Lighting Zone 2. However, local AHJ may designate certain areas as either Lighting Zone 3 or Lighting Zone 4 if the local AHJ determines that ambient lighting levels are higher than typical for a rural area. Examples of areas that might be designated Lighting Zone 3 are special commercial districts or areas with special security considerations.

Local AHJs may also designate default Lighting Zone 2 areas as Lighting Zone 1, which would establish lower lighting power for outdoor areas with lower surrounding brightness. An example of an area that might be changed to Lighting Zone 1 would include an underdeveloped area within a default Lighting Zone 2 area.

The default for urban areas, as defined by the U.S. Census Bureau, is Lighting Zone 3. Local AHJs may designate areas to Lighting Zone 4 for high intensity nighttime use, such as entertainment or commercial districts or areas with special security considerations requiring very high light levels.

Local AHJs may also designate areas as Lighting Zone 2 or even Lighting Zone 1 if they deem that this is appropriate.

How to Determine the Lighting Zone for an Outdoor Lighting Project

Permit applicants may determine the Lighting Zone for a particular property through the following steps:

1. Check with the local AHJ responsible for permitting of the property. The local AHJ will know if the property is a government designated park, recreation area, or wildlife preserve, and therefore in default Lighting Zone 1. The local AHJ also may know if the property is contained within the physical boundaries of a Lighting Zone for which a locally-adopted change has been made. However, verify through step 3 that a locally-adopted change has been submitted to the Energy Commission.
2. Look at the U.S. Census website to determine if the property is within a rural (statewide default Lighting Zone 2) or urban (statewide default Lighting Zone 3) census tract.
3. Check the Energy Commission's website to determine if the property is contained within the physical boundaries of a Lighting Zone that has been changed through a local jurisdiction adoption process.

How to Use the U.S. 2010 Census map to help determine the default Lighting Zone

Go to the US Census page, American FactFinder:

http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml

The U.S. Census website provides a handy way to determine if a property is in a rural (statewide default Lighting Zone 2) or urban (statewide default Lighting Zone 3) census tract.

To determine if the property is in either a rural or urban census tract, proceed to do the following:

4. Click on the “Geographies” box in the left hand column. This will expand the box with 4 tabs at the top.

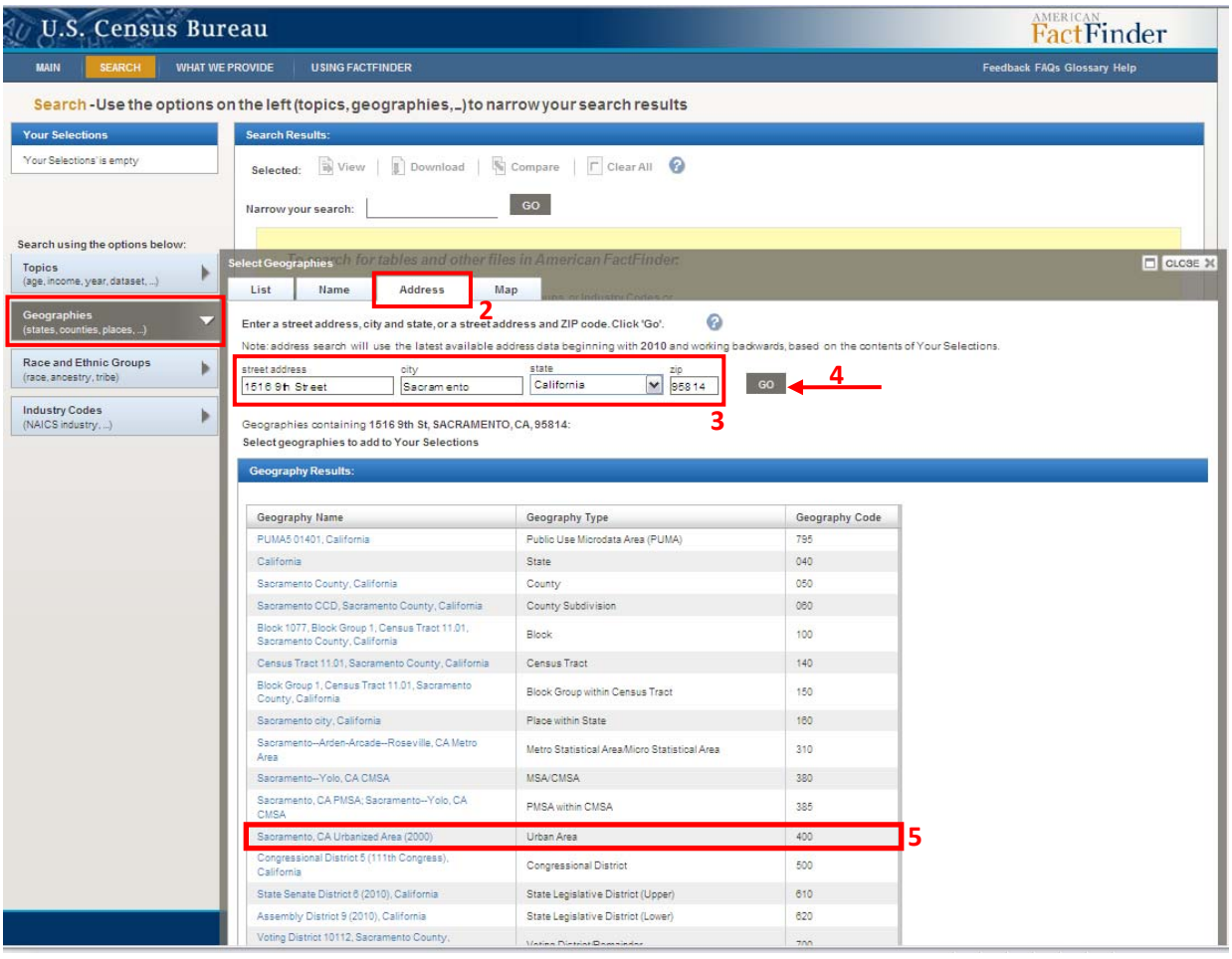
1. Click on the “Address” tab at the top of the expanded box.

2. Type in the address of the property.

3. Select the “Go” button to begin the search.

5. A “Geography Results” box will shortly appear. If the results list a “Geography Type” of Urban Area (Geography Code 400), then the property is located in an urban census tract, which is Lighting Zone 3.

If the Geography Type does **NOT** have Urban Area listed in the results list, then the property is located in a rural census tract, which is Lighting Zone 2.



Check with the local building department to see if the area designated as rural or urban on the US Census Map is a government designated park, recreation area, or wildlife preserve. If the area is designated as such, it shall be classified as Outdoor Lighting Zone 1.

The Energy Commission maintains a web-based list of local adjustments to the default Lighting Zones. Jurisdictions are required to notify the Energy Commission of the change in designation, with a detailed specification that includes the following information:

- The boundaries of the adopted Lighting Zones, consisting of the county name, the city name if any, the zip code(s) of the re-designated areas, and a description of the physical boundaries within each zip code.
- A description of the public process that was conducted in adopting the Lighting Zone changes.
- An explanation of how the adopted Lighting Zone changes are consistent with the specifications in the Standards.

Examples for Defining Physical Boundaries

Using Metes and bounds is a good method to use for defining the physical boundaries of an adopted Lighting Zone.

Metes and bounds is a system that uses physical features of the local geography, along with directions and distances, to define and describe the boundaries of a parcel of land. The boundaries are described in a running prose style, working around the parcel of the land in sequence, from a point of beginning, returning back to the same point. The term “metes” refers to a boundary defined by the measurement of each straight run, specified by a distance between the terminal points, and an orientation or direction. The term “bounds” refers to a more general boundary descriptions, such as along a certain watercourse or public road way.

Following are examples of using metes and bounds to define the physical boundaries of an adopted Lighting Zone:

- Properties with frontage on Mazi Memorial Expressway, between Hana Avenue and Elizabeth Street to a depth of 50 ft from each frontage property line.
- The area 500 ft east of Interstate 5, from 500 ft north of Gary Ave to 250 ft south of West William Way.
- The area of the Sara Bike Trail starting at Chris Avenue and going east to Eurlyne Park, the width of a path which is from the edge of the South Fork of the Payam River on one side, to 100 ft beyond the paved bike trail, or to private property lines, whichever is shorter, on the other side.
- The area that is bounded by the Nelson River on the West, Hudler Lane on the south, Jon Road on the east, and the boundary of Beverly County on the north.

Note: The physical boundaries of a changed Lighting Zone are not required to coincide with the physical boundaries of a census tract.