

Outdoor Lighting Zones - General Information

The Energy Commission adopted changes to Title 24, Parts 1 and 6, Building Energy Efficiency Standards (Standards), on November 5, 2003. These new Standards become effective on October 1, 2005. Included in the changes to the Standards are new requirements for outdoor lighting. The requirements vary according to which "Lighting Zone" the equipment is in. 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. Existing outdoor lighting systems are not required to meet these lighting power allowances. However, alterations that increase the connected load, or replace more than 50% of the existing luminaires, for each outdoor lighting application that is regulated by the Standards, must meet the lighting power allowances for newly installed equipment.

An important part of the Standards is to base the lighting power that is allowed on how bright the surrounding conditions are. 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 adopted by a local government.

**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.

Lighting Zone Adjustments by Local Jurisdiction

The Energy Commission sets statewide default Lighting Zones. However, local jurisdictions (usually a city or county) may change the zones to accommodate local conditions. Local governments may designate a portion of Lighting Zones 2 or 3 as Lighting Zone 4. The local jurisdiction also may designate a portion of Lighting Zone 3 to Lighting Zone 2 or even Lighting Zone 1. When a local jurisdiction adopts changes to the Lighting Zone boundaries, it must follow a public process that allows for formal public notification, review, and comment about the proposed change. The local jurisdiction also must provide the Energy Commission with detailed information about the new Lighting Zone boundaries and submit a justification that the new Lighting Zones are consistent with the specifications in §10-114 of the Standards.

The Energy Commission has the authority to disallow Lighting Zone changes if it finds the changes to be inconsistent with the specifications of Standards Table 10-114-A or §10-114.

Following is a summary of the provisions of §10-114.

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 jurisdiction having authority 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 jurisdictions having building permit authority may designate certain areas as either Lighting Zone 3 or Lighting Zone 4 if the local jurisdiction 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 jurisdictions also may 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 undeveloped areas within a default Lighting Zone 2 area.

Options for Urban Areas

The default for urban areas, as defined by the U.S. Census Bureau, is Lighting Zone 3. Local jurisdictions may designate areas as 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 jurisdictions also may 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 jurisdiction having authority over permitting of the property. The local jurisdiction will know if the property is a government designated park, recreation area, or wildlife preserve, and therefore in default Lighting Zone 1. The local jurisdiction 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. 2000 Census map to determine the default Lighting Zone (LZ)

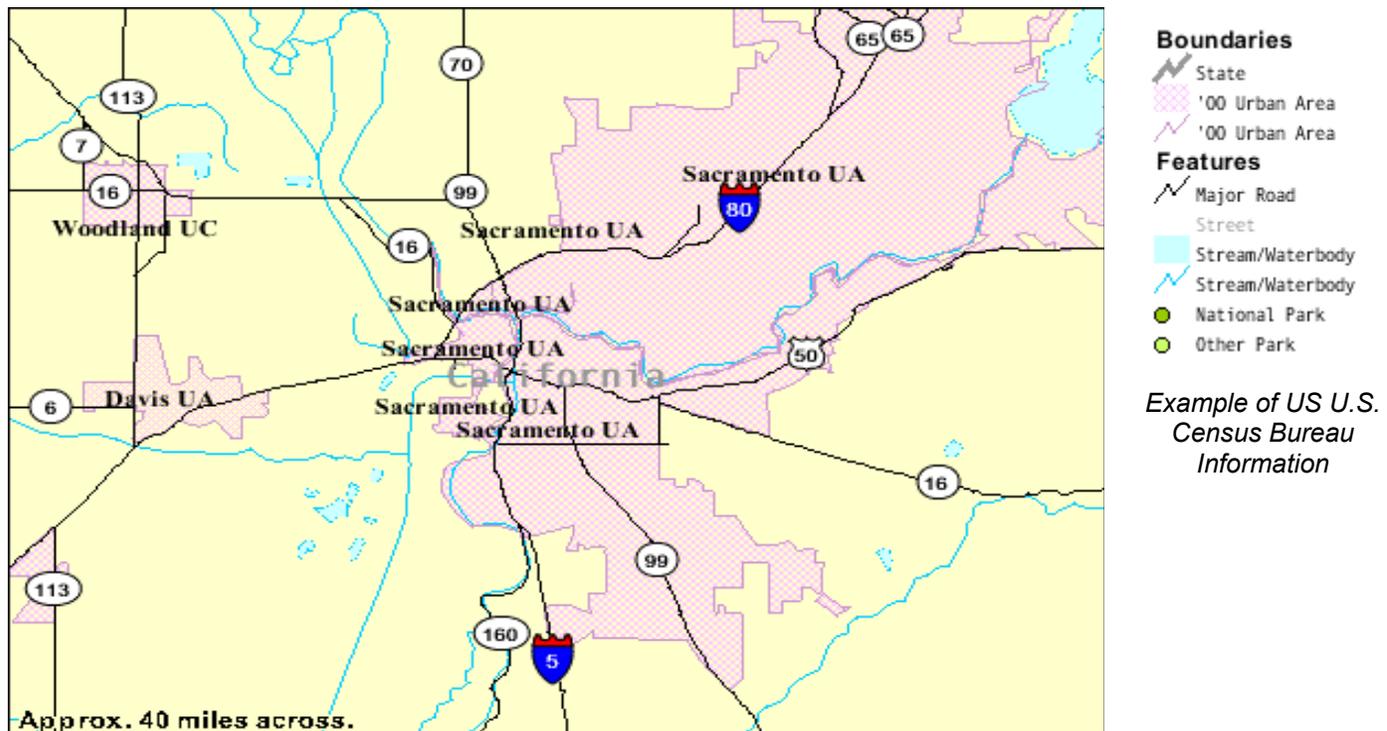
[Go to US Census page, year 2000 geographic map](#)

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.

There is more information on the 2000 U.S. Census map than is needed to determine the default Lighting Zone. Removing some of that information by changing the Legend may make it easier to determine if the property is in either a rural or urban census tract. The following changes to the **Legend** may be helpful:

1. Click on the "Legend" link at left side of page.
 - Under "Boundaries" tab, DESELECT (remove the checks from the check boxes) everything but "2000 Urban Areas"
 - Under "Features" tab, SELECT (check the check boxes) for "National Park" and "Other Park." If you use these features, recognize that the map may not show correctly all government designated parks, and may not show recreation areas and wildlife preserves.
 - Click on "Update" to see the map with the new Legend settings and save the new Legend settings.

Information on the 2000 U.S. Census	California State-wide Default Location	Default California Outdoor Lighting Zone (LZ)
Areas not shown as Urban or government designated park	Rural areas, as defined by the 2000 U.S. Census.	LZ 2
Areas shown as Urban	Urban areas, as defined by the 2000 U.S. Census.	LZ 3



How to reposition the map to find a specific address or zip code.

At the bottom of the U.S. U.S. Census Bureau webpage, you can type in specific zip code or address information for a specific property to reposition the map to that location.

To view the information about a particular zip code, only that zip code needs to be entered into the data entry box, then click on "Go"

To view information about a particular address, fill in all of the information fields about that address, then click on "Go".