Slide 1

Good Evening. Thank you for inviting the Department of Regional Planning to present on Dark Skies and Outdoor Lighting Standards and how it may apply to the community of La Crescenta-Montrose.

First, we will explain the County's Rural Outdoor Lighting District ordinance, also known as Dark Skies, that was adopted in 2012.

Then we will explain how this ordinance may or may not apply to La Crescenta-Montrose.

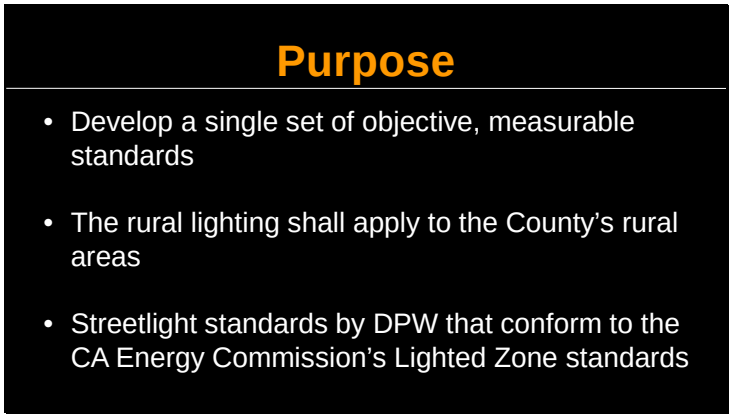
Last, we will offer some recommendations how La Crescenta-Montrose can adopt some Dark Skies standards in its Community Standards District.

Slide 2

LA County
Rural Outdoor Lighting District

- Purpose
- Dark Skies
- Project Components

Slide 3



The purpose of the Rural Outdoor Lighting District is to develop a single set of objective, measurable standards for outdoor lighting that would be applicable within a "rural lighting" zoning overlay.

The rural lighting district applies to the County's rural unincorporated areas, including those in Antelope Valley, the Santa Clarita Valley, Santa Monica Mountains, and South Diamond Bar, and any areas that are within the National Forest Boundary

Street light standards to be administrated by the Department of Public Works in accordance with California Energy Commission's 2008 Building Efficiency Standards for outdoor lighting in rural areas.

By the way, the representatives from the Department of Public Works are here and are available to answer any questions. (or whatever you want to say).

Slide 4

I know the concept of Dark Skies is not foreign to many of you, but I thought I would briefly explain some of the concepts for preserving dark skies:

The concept of Dark Skies is to combat:

- light pollution that is depicted in a “sky glow” over a city and in excessive light that impacts neighbors.
- impacts to human health, such as nighttime sleeping when outdoor lights creep into bedroom windows and affect humans’ circadian rhythms.
- impacts to wildlife, as excessive light can confuse animals’ circadian rhythms between night and daytime.
- risk on safety, such as light glare through drivers’ windshields and glare that can actually “hide” criminal elements: there is such a thing as too much light with respect to public safety, and we’ll demonstrate that tonight.

Slide 5

First point: Too much light creates Light Pollution.

Under Dark Skies, the goal is to minimize light pollution. Here is a typical private-property example of where there could be too much glare: car dealerships. They depend on a lot of lighting to illuminate their inventory. The fixtures they use can contribute to light pollution, and in this case glare. This dealership uses non-shielded light fixtures where lighting is directed 360-degrees in all directions. There are ways to cut down on light glare while keeping inventory illuminated.

Slide 6

Here is a car dealership that has updated all of its light fixtures to by fully shielding them where all lighting is directed downwards to the ground. Notice that no lighting rises above the top of the lightposts. This result preserves the nighttime sky above the dealership, while keeping the property illuminated.

Slide 7

Second point: Excessive lighting impacts Human Health

Excessive light at night negatively impacts many areas of human and wildlife health including causing disability glare.

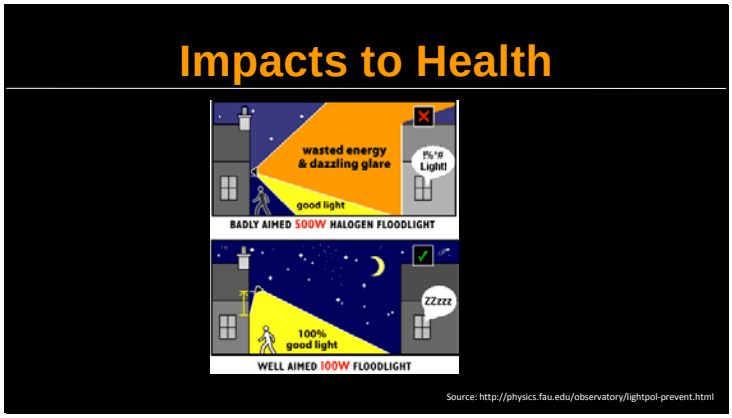
Excessive night light disturbs both human's and animals' 24 –hour day/night (or circadian) cycle. Data shows disruption of these rhythms can result in insomnia, depression and cardiovascular disease in humans. Animals may be confused between nighttime and daytime, and they may be vulnerable if they require cover of darkness to hunt prey or to hide from predators.

This slide shows an area with glaring night lights, which emits in all directions. Even though it is topped with a flat shield at the top, it does not prevent horizontal lighting, and it lights up the surrounding air as well as on the ground.

Slide 8

This slide shows fully shielded lighting that cast downward towards the ground, that reduces hazards and creates a safe, more pleasant environment. There is less glare all around, and the area above remains a bit darker. The street is still well-illuminated.

Slide 9



This illustration shows how fully shielded lighting cast downward towards the ground reduces hazards and creates a safe, more pleasant environment. There is less glare all around, and the area above remains a bit darker.

Slide 10

Third point: There's the Public Safety

Can you see a guy in this picture??

Brighter light does not equate to improved safety.

Bright, glaring lights that illuminate nighttime events or locations can actually decrease the security of the entire site.

Excessively bright lighting creates a sharp contrast between light and darkness, making the area outside the light nearly impossible to see.

A safer environment is made by shielding lighting, increasing visibility and decreasing distractions, such as glare.

This slide shows how overly bright lights can mask intruders

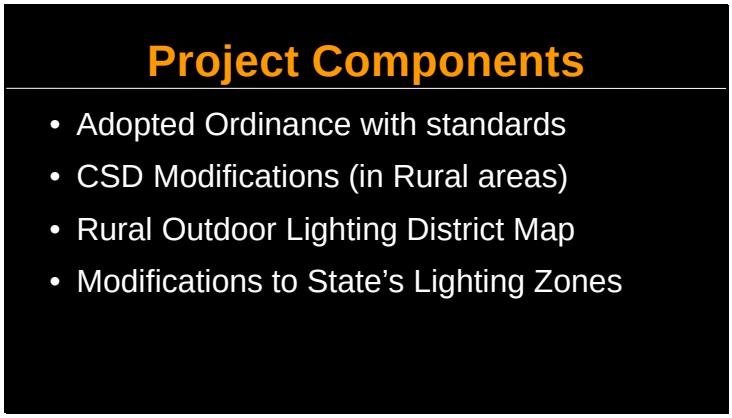
Slide 11

Now, can you see a guy in this picture??

This slide shows that with the light shielded the intruder or even pedestrian is easily seen

Notice that the lighting is directed towards the wall of the building and on the ground, rather than outwards or horizontally away from the building like in the previous slide.

Slide 12



Project Components

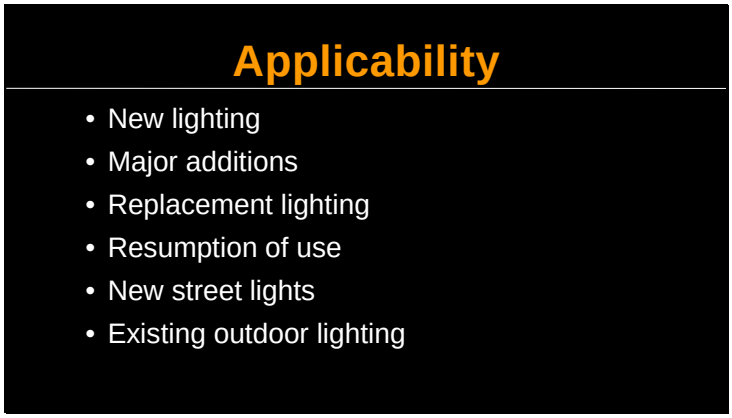
The ROLD ordinance contains several components:

•Adopted Ordinance that includes Modifications to Community Standards Districts in Rural areas

•Rural Outdoor Lighting District Map and

•Modifications to the State's lighting zones

Slide 13



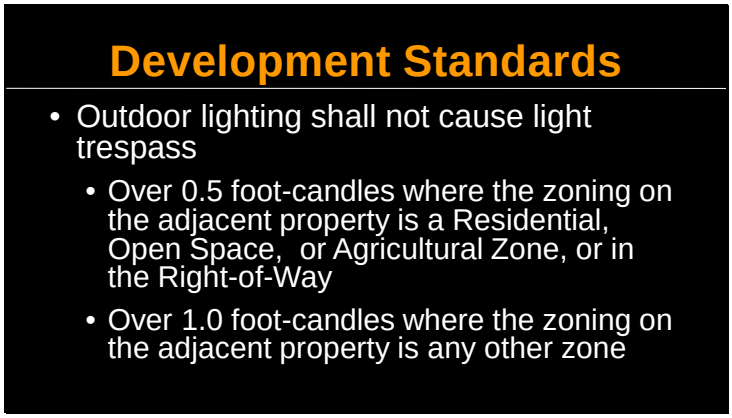
The ROLD ordinance applies to:

- Outdoor lighting for new land uses, structures, buildings and developments
- Major additions – defined as addition of 25 percent or more, in terms of additions to dwelling units, gross floor area, seating area, and parking spaces.
- Replacement lighting.
- Resumption of use after adornment – if a property with nonconforming lighting is abandoned for at least 6 months, then all lighting must be brought into compliance
- New street lights
- Existing outdoor lighting

Outdoor lighting located on properties in a residential or agricultural zone shall be removed or made to comply with this ordinance within 6 months of the effective date of the ordinance if such lighting causes light trespass, and in all other cases, the lighting shall be removed or made to comply with the ordinance within 3 years of the effective date of the ordinance.

Outdoor lighting located on properties in a non-residential or non-agricultural zone shall comply with the ordinance within 6 months after the effective date of the ordinance if such lighting causes light trespass onto a property located in a residential, agriculture, open space zone or a public right-of-way.

Slide 14



The major standard within Dark Skies is to eliminate light trespass – which is light falling across a property line onto an adjoining property line. The following is considered light trespass:

Over 0.5 foot-candles where the zoning on the adjacent property is a residential, open space, agricultural, or public right-of-way, or

Over 1.0 foot-candles where the zoning on the adjacent property is any other zone.

Light trespass shall be determined by a measurement, taken at ground level at the property line and light trespass shall be measured by a photometer.

Slide 15

The next major standard is the requirement that all outdoor lighting shall be fully shielded, and that maximum height limits are established to avoid light pollution and light trespass.

Unless noted otherwise, the maximum height for outdoor lighting shall be as follows:

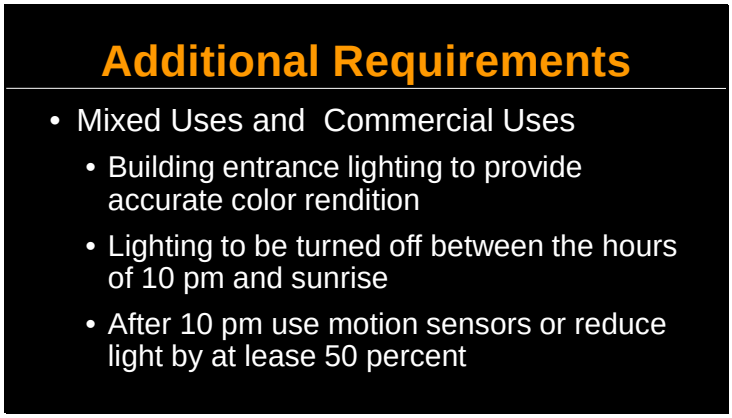
- Residential, agricultural, open space and watershed zones – 20 feet, each outdoor light installed above 15 feet in height shall have a manufacturer's maximum output rating of less than 400 lumens;

- Industrial Zones – 35 feet; and

- 30 feet in any other zone.

- The height of any outdoor lighting fixture used for an outdoor recreational activity area, regardless of the zone, shall be the maximum height necessary to illuminate the activity area, but in no event shall exceed 75 feet in height.

Slide 16



Additional Requirements of Mixed Uses and Commercial Uses

•Building entrance lighting – All building entrances shall install light fixtures that provide accurate color rendition so that persons entering or exiting the establishment can be easily recognized.

•Hours of operation
Outdoor lighting shall be turned off between the hours of 10 p.m. and sunrise.

Where uses operate past 10 p.m. lighting shall either be turned off within one hour after the close of business or lighting can be regulated by the use of motion sensors or reduce the light levels on the property by at least 50 percent.

Slide 17

Requirements for Specific Uses address:

First: Street Lighting for rural areas in the ROLD districts:
Regional Planning worked with Public Works to draft regulations that street lights shall be prohibited except where necessary at urban cross sections with sidewalks, curbs, and gutters, or at intersections and driveways on County roads, where the Director of Public Works finds that street lights will alleviate traffic hazards, improve traffic flow, and/or promote safety and security of pedestrians and vehicles based on DPW's highway safety lighting standards. Where street lights are installed in the district, they shall:

- Be placed at the maximum distance apart, with the minimum lumens allowable pursuant to DPW's highway safety lighting standards;
- Utilize full-cutoff (flat glass lens) luminaries so as to deflect light away from adjacent parcels; and
- Be designed to prevent off-street illumination and glare.

Second: Outdoor Recreational Activity Areas
Lighting of sports facilities are the most commonly mentioned complaints when people discuss nighttime light pollution. We provided regulations for outdoor recreation facilities as in the 5th district there is concern regarding properly lighted riding arenas and in the west area there is concern over sky glow from fields being overly lit.

Where playing fields or other recreational activity areas are to be illuminated, lighting fixtures shall be mounted, aimed, and fully shielded so that their beams fall within the primary playing/activity area and immediate surroundings to prohibit light trespass onto adjacent properties and shall use high-pressure sodium or metal halide lamps as their preferred lighting source;

Third: Signs
Any externally-mounted light fixtures shall be mounted to the top of the sign and shall be oriented downward; and

The lights shall be fully shielded; and

Externally-mounted bulbs or lighting tubes used for these signs shall not be visible from any portion of an adjoining property or public right-of-way unless such bulbs or tubes are filled with neon, argon, krypton, or other self-illuminating substance.

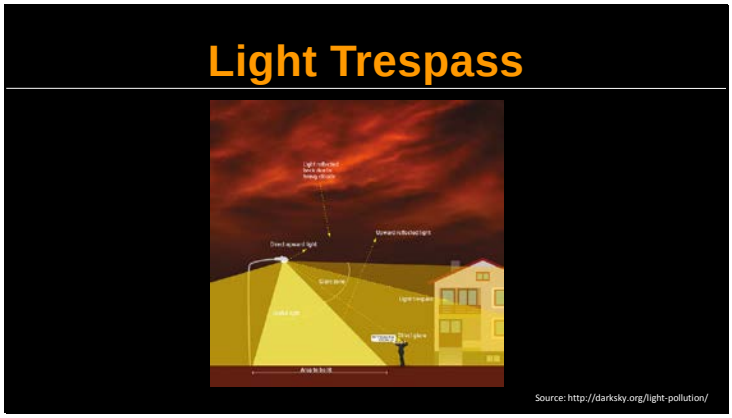
Now, let’s look at some examples.

Slide 18

What is light trespass?

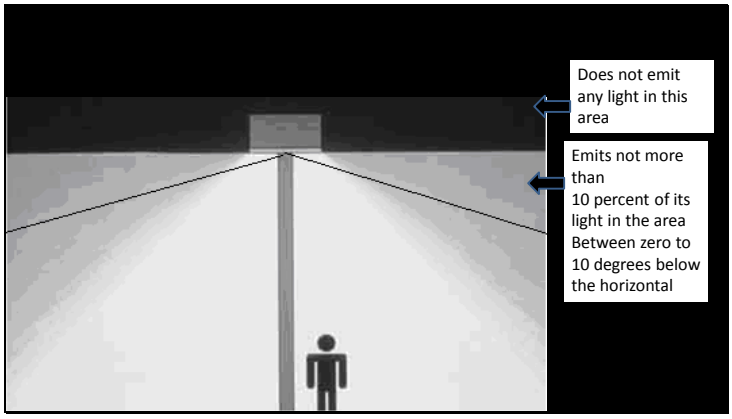
Light trespass is when lighting from a property is cast on the adjacent property where it is not wanted or needed. An example of trespass is a security light that shines directly into a bedroom window of the next door house.

Slide 19



Here’s another illustration of light trespass.

Slide 20

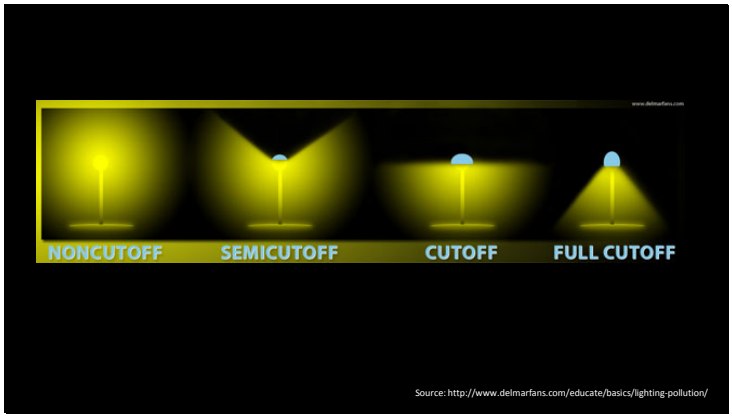


Fully Shielded

This illustration depicts a fully shielded light fixture.

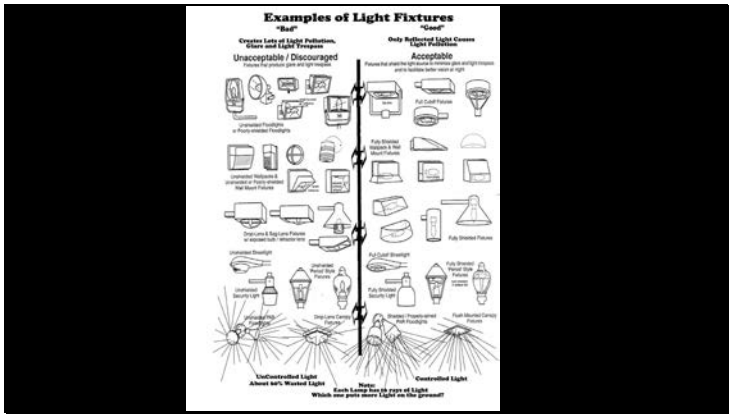
A fully shielded fixture is a light fixture that emits no light in the area above a horizontal plane passing through the lowest point of the fixture and not more than 10 percent of its light in the area between zero and 10 degrees below such horizontal plane.

Slide 21



Here are additional examples of other types of fixtures. We want to avoid non-cutoff and semi-cutoff (two on the left) whenever possible, because they create light trespass. For Dark Skies, we want to use cutoff and full-cutoff lighting (shown in the two on the right).

Slide 22



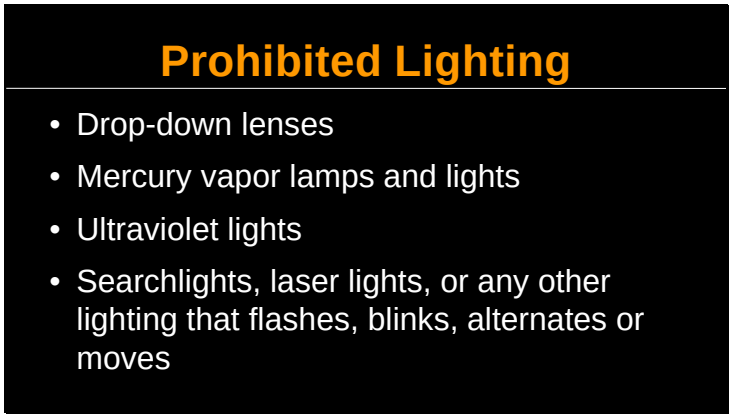
The left side shows the type of lighting that are unacceptable and that promote light trespass, glare, or pollutes the night sky above. The right side shows acceptable lighting that keeps lighting downward towards the ground. The good examples have either a top or a shield at the top or on one side to keep the light pointed downward.

Slide 23

Along the top are a few examples of the bad types of security lighting, that contribute to glare and trespass. These bulbs are not shielded, and angling will not prevent light from going upward or outward.

Along the bottom are a few examples of good types of security lighting, that are shielded from the top and keeps all lighting downward closer to the ground, and will still keep driveways, pathways, and lawns illuminated.

Slide 24



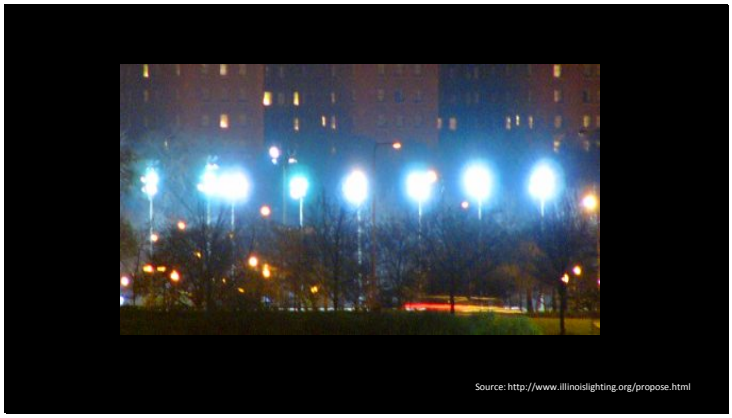
Prohibited Lighting include the following:

•Drop-down lenses,
•Mercury vapor lamps and lights
•Ultraviolet lights, and
•Searchlights, laser lights, or any other lighting that flashes, blinks, alternates or moves

Slide 25

And here are examples of these types of prohibited lighting.

Slide 26



These next slides show the difference between an activity field that is poorly lit and one that is done where the lights are shielded and pointed downwards. See here there is glare all around, and likely trespassing to surrounding areas.

Slide 27

When we replace them with cutoff shields, you will see that the glare has decreased and lighting trespassing is minimized.

Slide 28

Community Standards District Modifications

In the ROLD ordinance, the CSD regulations were amended to remove duplicate or conflicting regulations. The CSDs that were affected were all in the Santa Monica Mountains, northern Santa Clarita Valley, and southern Antelope Valley areas, including: Leona Valley, Acton, Santa Monica Mountains North Area, Castaic, Juniper Hills, Southeast Antelope Valley, Elizabeth Lake and Lake Hughes and San Francisquito Canyon, since all these communities were rural or semi-rural, whether or not they were in a Census urbanized area.

Most outdoor lighting specifications were removed and replaced with a reference that outdoor lighting shall be in compliance with Part 9 of Chapter 22.44 (proposed Ordinance). General regulations were removed, but we left standards that were more stringent or specific to communities.

Slide 29

Rural Outdoor Lighting District Map

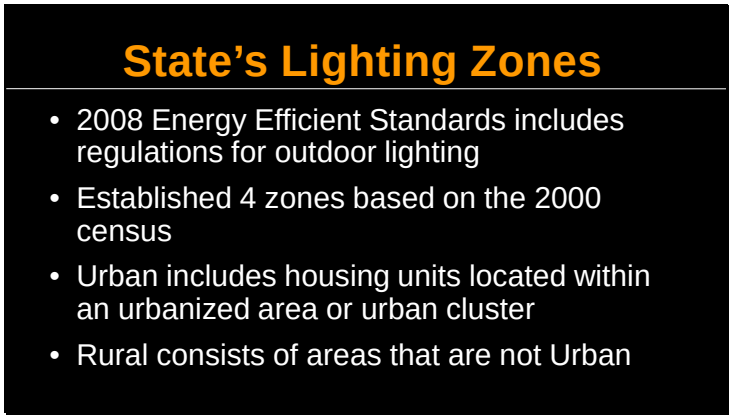
- Antelope Valley, Santa Clarita Valley, Santa Monica Mountains, South Diamond Bar, and Santa Catalina and San Clemente Islands
- Low density environment that does not contain high-intensity land uses and has an absence of the infrastructure generally found in urban and suburban areas

The description of the Rural Outdoor Lighting District is defined by the Rural Map that's included in the ordinance.

As directed by the Board, the rural areas include areas in the Antelope Valley, Santa Clarita Valley and the Santa Monica Mountains. We've also added South Diamond Bar and the Santa Catalina and San Clements Islands to the Rural areas.

Rural is a low density environment that does not contain high-intensity land uses and has an absence of the infrastructure generally found in urban and suburban areas.

Slide 30



State's Lighting Zones

The 2008 California Energy Efficient Standards includes regulations for outdoor lighting. The County Zoning Code doesn't usually refer to these regulations, but architects, designers, as well as Public Works need to have their projects comply with the state regulations.

In 2002 the Energy Commission established outdoor lighting zones based on the 2000 Census. Outdoor lighting allowances vary by lighting zone. The Standards contain four lighting zones.

For the 2000 Census, the Census Bureau classifies "urban" as all territory, population, and housing units located within an urbanized area or an urban cluster, based on density per square mile (1,000 people/sq mi in core block groups and 500 in surrounding blocks).

The Census Bureau's classification of "rural" consists of all territory, population, and housing units located outside Urban Areas or Urban Clusters.

Slide 31

State's Lighting Zones

- LZ1: Dark ambient lighting: public parks, recreation areas, and wildlife preserves
- LZ2: Low ambient lighting: rural areas
- LZ3: Medium ambient lighting: urban areas
- LZ4: High ambient lighting: no default, special designations

Lighting Zone 1, has a dark ambient illumination, and the default location are government parks, recreation areas, and wildlife preserves.

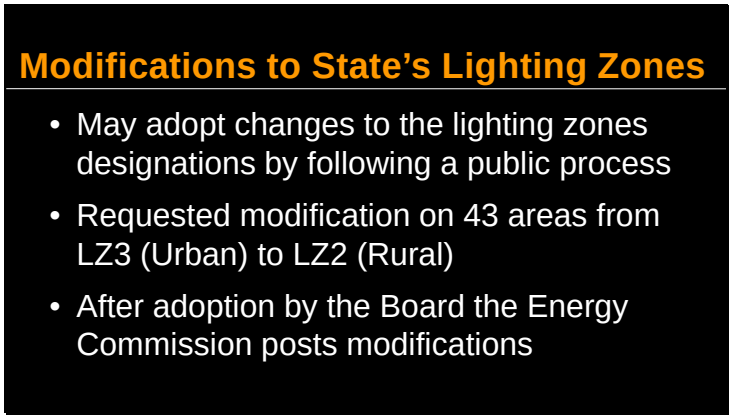
Lighting Zone 2 has a low ambient illumination, and the default location are rural areas, as defined by the Census

Lighting Zone 3 has a medium ambient illumination, and the default location are urban areas, as defined by the Census

Lighting Zone 4 has a high ambient illumination, and doesn't have any default locations on the map

The 2008 Building Efficiency Standards established all Census-designated urban areas LZ3 by default, and areas outside those urban areas LZ2 by default, and any public parkland (i.e. Angeles National Forest) LZ1 by default. LZ4 is rarely used, and only for special reasons on a case by case basis (such as a professional sports stadium).

Slide 32



Modifications to State's Lighting Zones

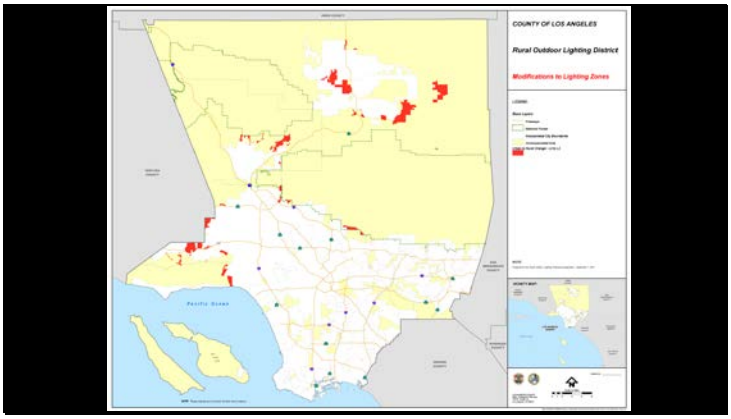
The State allows the local authority to adopt changes to the default Outdoor Lighting Zone designations on an area by following a public process that allows for public notification and review and comment about the proposed change.

Therefore, we requested modifications of the State's Outdoor Lighting Zone designations from LZ3 (Urban) to LZ2 (Rural) in specific areas are a component of this ROLD ordinance.

During the ROLD process, we found that there were 43 areas on the State's Outdoor Lighting Zone map that need modifications. We provided the commission with a chart listing descriptions of the areas. After the Board adopted the ROLD ordinance, we submitted the requests for modifications to the Energy Commission for approval, with an explanation of why we were seeking modifications. The explanation had to align with the policies in the 2008 Building Efficiency Standards.

The commission does not update the lighting map, but posts modifications to the lighting map on a separate link.

Slide 33



During the ROLD process, we downzoned some of the areas marked in red from the default Urban LZ3 zone to Rural LZ2. This process requires a **petition** that must go through **a public hearing process** before it can be submitted to the State. The red area in/near **Altadena** was identified as being within the Angeles National Forest.

Why is this important? The state Energy Commission provides a website so project designers and engineers can determine the amount of outdoor light permitted on a property based on its lighting zone. By placing the address or APN number into the webpage it will tell you if the property is in an urban zone. It will also tell you, based on the square footage of the property, the amount of outside wattage permitted for the lighting zone. Public Works uses the program to verify the wattage submitted is within the allowance for the site. You can enter the number of fixtures of wattage of individual bulbs to give you an overall wattage used.

Slide 34

Now, how does the Outdoor Lighting standards apply to La Crescenta-Montrose? The yellow area here represents the U.S. Census' designation of "Urbanized Area." By default, based on the definitions in the chart, this whole yellow area would be LZ3 which allows for urban lighting. The redlines shows the boundaries of the Community Standards District.

We have a few suggestions on how we can apply Dark Skies to La Crescenta-Montrose, since this community is not "rural" in the same sense as on the other side of the mountains, and not "rural" as defined by the Census

The caveat is, much outreach will need to be conducted to make sure property owners, the La Crescenta-Montrose business community and other stakeholders are aware of and will support the new lighting standards.

Slide 35

The next few slides are suggestions on how more stringent lighting standards than what we have now can be applied to La Crescenta CSD.

In the commercial areas, there are ways to illuminate buildings that do not contribute to glare or “sky glow.” Lighting to illuminate buildings should be from the top down towards the ground, instead of bottom up from the ground.

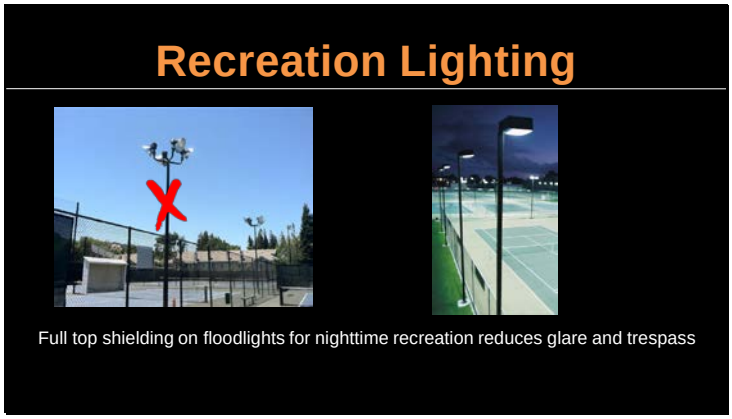
Slide 36

Signage, including billboards, should use a similar approach as in the previous slide, in that lighting should be top down rather than bottom up.

Slide 37

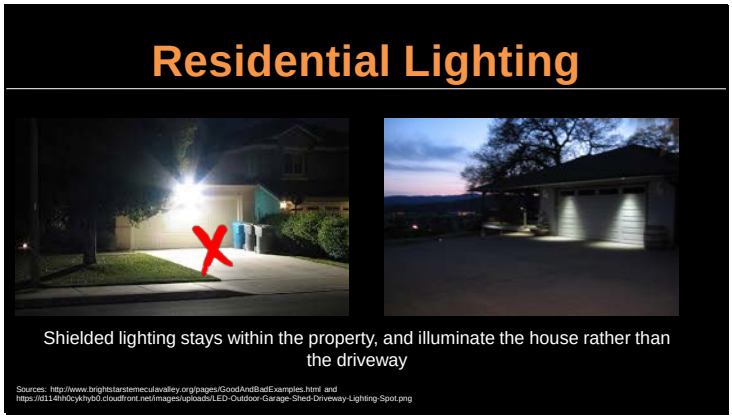
Here is an example of angled lighting in a parking lot - the post on the left is incorrectly angled sideways which cast glare across the entire parking lot and may spill over to the street or adjacent properties depending on how it is angled. The lamp on post on the right is correctly angled downward at 90 degree-angles.

Slide 38



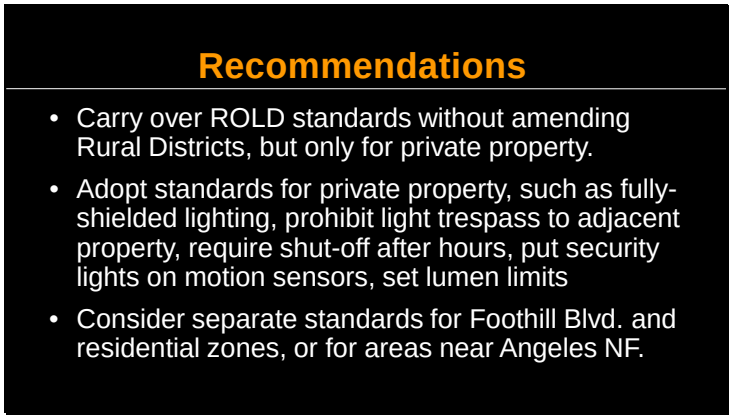
When a recreation use require floodlights for night activity, full cut-off is highly recommended, such as the example on the right. The left is not fully shielded and is angled upward, which can cause glare and trespass.

Slide 39



Properly shielded lighting can help lighten up a home, and helps keep it secure. A floodlight above a garage that is pointed towards the driveway and the street creates glare and trespasses outside the property line, and may not always improve security for the house – when the light is projected away, it keeps the house dark. The lights above the garage on the right is cast downward, and illuminates the garage (or wall) of the house, and does not spill over to adjacent property.

Slide 40



Recommendations for La Crescenta-Montrose CSD:

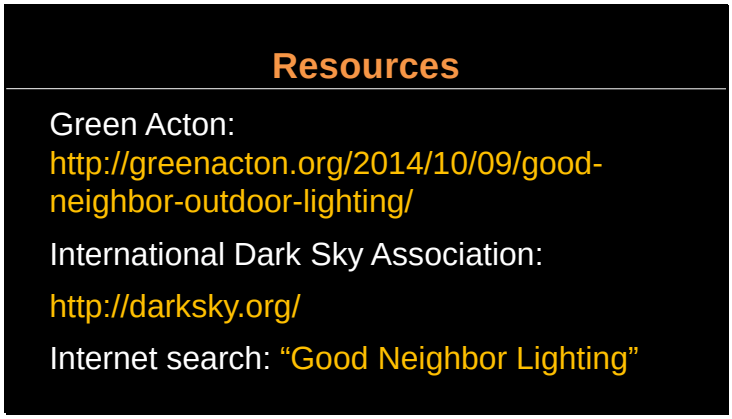
- Simply copy over all of the standards in the ROLD ordinance into the CSD development standards for La Crescenta-Montrose, but exempt all street lighting and certain other lighting sources on government-owned property that are maintained by the Department of Public Works.

- At a minimum, impose requirements such as fully-shielded lighting, prohibit light trespass to neighboring property, require building lights or parking lots be turned off after hours, require all security lighting to be set on motion detection. To further control glare, impose lumen (footcandle) requirement for each zone or land use type.

- Consider separate standards for Foothill Blvd. and for residential zones.

- Or, consider strict lighting standards for areas adjacent to the Angeles National Forest (within ¼ to ½ mile), and less strict standards for all other Residential and Commercial areas.

Slide 41



You can look up additional information on the internet about proper lighting and "good neighbor lighting" that preserves the nighttime sky. "Green Acton," based in Acton which is within a ROLD, and the International Dark Sky Association contain useful information on proper shielded lighting and preserving the night sky in the city.

Q & A, comments