



THE CITY OF SAN DIEGO

## REPORT TO THE PLANNING COMMISSION

**DATE ISSUED:** April 19, 2012 **REPORT NO.** PC-12-033  
**ATTENTION:** Planning Commission, Agenda of April 26, 2012  
**SUBJECT:** AMENDMENTS TO THE OUTDOOR LIGHTING REGULATIONS

### SUMMARY

**Issue(s):** Should the Planning Commission recommend approval to the City Council of Amendments to the Outdoor Lighting Regulations, including approval of a new GIS map layer that identifies applicable California Energy Code lighting zones and areas within 30 miles of the Palomar and Mount Laguna Observatories?

**Staff Recommendation:** That the Planning Commission recommend approval to the City Council of the amendments to the Outdoor Lighting regulations including approval of a new outdoor lighting map layer.

**Environmental Review:** An Environmental Impact Report (EIR No. 96-0333) was prepared, and certified on October 28, 1997 for the original adoption of the Land Development Code. The proposed amendments to the Land Development Code, were reviewed by the Environmental Analysis Section and it was determined that, in accordance with the California Environmental Quality Act (CEQA) Guidelines Section 15162(a): (1) no substantial changes are proposed to the project which would require major revisions of the previous EIR; (2) no substantial changes occur with respect to the circumstances under which the project is undertaken that would require any revisions to the previous EIR; and (3) there is no new information of substantial importance that was not known and could not have been known at the time the previous EIR was certified. Therefore, no subsequent EIR or other environmental document is needed as all of the impacts were adequately addressed and disclosed in EIR No. 96-0333. For a more detailed analysis, refer to the CEQA 15162 Evaluation Memorandum dated April 5, 2012.

**Fiscal Impact Statement:** Costs associated with implementation of these regulations in the future will be covered by project applicants.

**Code Enforcement Impact:** The proposed amendments will improve predictability and consistency in application of the outdoor lighting regulations. City code enforcement operations are not expected to be impacted by the proposed ordinance because violations of the lighting regulations are not typically given enforcement priority by Neighborhood

Code Compliance (NCC). Currently, NCC staff prioritizes cases related to imminent health and safety hazards and environmental protection, serious code violations, or significant violations adversely affecting quality of life. For low enforcement priority cases that do not constitute a health and safety problem or affect the public at large, individuals may choose to seek relief via other options such as mediation or civil action.

**Housing Impact Statement:** The amendments would not impact housing supply.

## **BACKGROUND**

The City's outdoor lighting regulations are intended to minimize light pollution and promote lighting design that provides for public safety and conserves electrical energy. However, the City's existing regulations fail to meet General Plan goals for public safety and energy conservation. Section 142.0740 was last amended in 2008 with influence from dark sky advocates and astronomers vested in continued protection for the region's observatories at Palomar and Mount Laguna. And while continued support for local employment and research in the field of astronomy associated with the Palomar and Mount Laguna observatories is desirable, there is opportunity for the City to adopt a more balanced approach that regulates lighting in the best interest of the public as a whole without sacrificing public safety or environmental goals.

The code currently requires use of monochromatic lighting in parking lots and for security after 11pm, which has resulted in a dark environment for these facilities instead of the intended secure and safe environment for public safety. In addition, the limitation on types of lighting has prevented use of more preferable energy efficient options contrary to state energy requirements, and contrary to City policies that promote reduced energy consumption and reduction of greenhouse gases. The potential for significant cost and energy savings and better quality light for safety is what prompted requests for additional amendments to Section 142.0740.

Meanwhile, because public lighting is exempt from Section 142.0740, the City Council in 2010 was able to approve the replacement of at least 80 percent of the City's street lights with induction lamps (a better quality light than the previous high pressure sodium) for a tremendous \$1.2 million annual energy savings for the City, plus additional savings on maintenance costs. The proposed amendments to Section 142.0740 will accommodate a greater choice of lighting alternatives so that private applicants can achieve comparable energy savings and quality of light to what the City was able to accomplish with its street light replacement project. To offset the allowance for some broad spectrum light after 11pm, flat lenses and new limits on color temperature are proposed to better regulate lighting and minimize potential light pollution.

Staff has conducted extensive public outreach involving multiple stakeholders, City departments, and other governmental agencies. The City worked with key stakeholders including astronomers, various segments of the lighting industry, Clean Tech San Diego, Sustainable Energy Advisory Board, Centre City Advisory Committee, Downtown Partnership, and the Parking Lot Lighting Working Group- a collaborative forum of representatives from the County of San Diego, other local municipalities, local colleges and universities, the Port of San Diego, and San Diego Gas & Electric. In an effort to encourage greater participation in the code amendment process, a request

for input on the draft amendments was distributed via e-mail on January 26, 2012, to the existing database of interested persons maintained by the Planning Division that includes all community planning group members and other interested members of the public. The proposal also was reviewed through the typical code amendment process that involves the Code Monitoring Team, Technical Advisory Committee, and Community Planners Committee. Following are recommendations that were provided:

**Code Monitoring Team (CMT):** On December 14, 2011, CMT reviewed the proposed amendments as an information item. On February 8, 2012, the Code Monitoring Team voted 5-1-1 to recommend approval of the staff recommendation, with direction to staff to follow up with Tucson, Arizona regarding their ordinance that was adopted on February 7, 2012, to understand why they adopted 3500 K CCT for a color temperature standard and what lumens maximum was used for unshielded fixtures.

**Sustainable Energy Advisory Board:** On February 14, 2012, SEAB voted to draft and submit a letter in support of the staff recommendation.

**Community Planners Committee (CPC):** On February 28, 2012, CPC voted 15-1-5 to support the staff recommendation.

**Centre City Development Corporation (CCDC) Board:** On February 29, 2012, the CCDC Board voted 6-0 to approve the Downtown Lighting Plan and its implementation actions, including support for the City’s proposed outdoor lighting ordinance amendments with exceptions for downtown.

**Technical Advisory Committee (TAC):** On March 14, 2012, TAC voted 8-0 to recommend approval of the staff recommendation.

**DISCUSSION**

Private lighting for public safety and security along private walkways, roadways, and parking lots after 11pm is currently limited to low pressure sodium, high pressure sodium or light with fewer than 4,050 lumens. The proposed amendments (Attachment 1) will allow for use of some broad spectrum lighting alternatives with better color rendition (for safety), energy savings that benefits consumers, and reduction in light pollution below what is allowable under the existing regulations. The outdoor lighting ordinance will augment the state Energy Code and Green Building Code, and as amended will better address light pollution as summarized below:

| <b><u>REQUIREMENT</u></b>             | <b><u>PURPOSE</u></b>  | <b><u>COMMENT</u></b> |
|---------------------------------------|--|-----------------------|
| <b>Shields</b>                        | Limits light emission above the horizontal plane; exceptions included  | Existing requirement  |
| <b>Flat lenses (Full cut-off)</b>     | Limits illumination to 0% up-light by fully shielding light; exceptions included   | New requirement       |
| <b>Color temperature (Kelvin CCT)</b> | Limits blue light that can interfere with observatories and is believed to interfere with circadian sleep rhythms (see discussion below) | New requirement       |

| <b>REQUIREMENT</b>                            | <b>PURPOSE</b>  | <b>COMMENT</b>       |
|---|---|----------------------|
| <b>Required shut off 11pm to 6am.</b>         | To help preserve dark night sky   | Existing requirement |
| <b>Exemptions from 11pm shutoff</b>           | To better provide for public safety and comply with applicable laws   |                      |
| • <b>Fully operational uses</b>               | To ensure safe operation of commercial and industrial businesses that are permitted to operate past 11pm (see discussion below) | Modified exemption   |
| • <b>Parking lots and security lighting</b>   | To better provide for public safety (see discussion below)  | Modified exemption   |
| • <b>Recreational activities</b>              | To ensure safety of participants and spectators for recreational uses that are permitted past 11pm                              | Existing exemption   |
| • <b>Signs for businesses open after 11pm</b> | For public safety and compliance with federal and state protections for signage   | Existing exemption   |
| • <b>ATMs</b>                                 | For public safety in compliance with the State Financial Code   | Existing exemption   |
| • <b>Downtown</b>                             | To support commercial activity downtown for consistency with Centre City community plan and the Downtown Lighting Plan policy   | New exemption        |
| • <b>United States flag</b>                   | To allow for patriotic display of the flag of the United States of America in accordance with nationally recognized customs     | New exemption        |
| <b>Sensitive biological areas</b>             | To direct light away from sensitive biological areas  | Existing requirement |

Various lighting designers, consultants, distributors, astronomers, and members of the public have provided comments on the ordinance, and the proposed limit on color temperature appears to be the main source of disagreement. There is general agreement that a new color temperature limit should be included to limit the more extreme blue light sources in order to address astronomers concerns about light of a certain wavelength (color) that can't be filtered out for their research, and concerns raised by some academia about potential harmful affects of blue light on circadian sleep rhythms. However, disagreement remains as to what the maximum kelvin (K) color correlated temperature (CCT) limit should be.

The observatories first raised the issue of color temperature when the City proposed replacement of its street lights and at the time requested that the City institute a maximum of 3000K CCT. However, such a low threshold would eliminate most of the desirable lighting alternatives counter to the City's goals for public safety and energy efficiency, which is why the City selected 4000K CCT for the majority of its street lights. Staff considered a potential compromise of 3500K for the new ordinance because it was recently adopted by Tucson, Arizona in deference to the multiple observatories located there. However, the limited choices available at 3500K would require a sacrifice of light quality and energy efficiency in the near term and would not meet the City of San Diego's goals for public safety and energy efficiency. In particular, LED fixtures in this color range have not been proven to be reliable or energy efficient. (Tucson representatives believe adoption of 3500K will cause the lighting industry to react and expand on the number of products available to meet their local requirement, but choices remain limited.)

The proposed color temperature of nominal 4000K (+/- 300 to account for manufacturing differences) would limit all outdoor lighting to light with an appearance of warm yellow or

bright white. While some members of the lighting industry felt this would be too restrictive, staff selected the proposed standard because it is readily available in multiple lighting types (i.e. induction lamps and LED fixtures) with brighter, more even illumination for public safety and energy efficiency, and is consistent with what was approved for the City's street lights. The 4000K standard is also consistent with the type of parking lot and street lighting currently being installed by other public agencies and municipalities. For example, San Diego State University (SDSU) and the University of California San Diego (UCSD) both recently installed new energy efficient lights for multiple surface parking lots on campus with an associated 4300K CCT maximum that are yielding significant energy savings per their respective Energy Managers. Similarly, the City of Los Angeles adopted a color temperature limit of nominal 4000 K for their street light replacement; and the City of San Jose (which has a downtown within 26 miles of Lick Observatory) is also in the process of replacing its street lights with 4000 K light fixtures. (See Attachment 2 for a comparison of San Diego to other jurisdictions near observatories.)

Staff is recommending that any lighting allowed after 11pm within 30 miles of the observatories be limited to less than 4,050 lumens or a maximum of 2500 K CCT. The proposed color temperature requirement will continue to protect the observatories because it is comparable in color distribution to what is currently allowed within the 30 mile radius, and requires commercial and industrial uses that are fully operational past 11pm to also comply. The proposed limit will also allow for removal of specific code references to low and high pressure sodium so that the code can more readily adapt to future technological advances in outdoor lighting. Approximately 16,865 parcels in the City's jurisdiction are located within 30 miles of Palomar within the communities of San Pasqual, Rancho Bernardo, Carmel Mountain Ranch, portions of Black Mountain Ranch, and an undeveloped portion of Rancho Encantada. There is only 1 remote parcel (Morena Reservoir/Dam) within 30 miles of Mount Laguna, and the parcel is City owned. (See Attachment 3 for maps that identify the 30 mile radius.)

Outdoor lighting downtown within the Centre City, Marina, and Gaslamp Quarter planned districts is proposed to be exempt from the flat lens requirement, color temperature limit, and 11pm curfew because the City's main night time activity and entertainment areas are located downtown and require greater flexibility and attention to lighting design. Development downtown is already subject to planned district ordinance regulations and project level design review for conformance with plan policies related to the lighting of buildings and enhancement of the downtown skyline as applicable to the development context. Therefore, lighting downtown will be adequately addressed consistent with Centre City Development Corporation's recommendation that the citywide lighting ordinance include exceptions for downtown (February 22, 2012), and with CCDC's action (February 29, 2012) to adopt a Downtown Lighting Plan that comprehensively addresses unique characteristics of downtown development and includes recommendations for lighting design based on neighborhood context. The adopted Downtown Lighting Plan can be viewed at: <http://www.ccdc.com/programs/downtown-lighting-master-plan/overview.html>

Some dark sky advocates have expressed opposition to the proposed ordinance exceptions for downtown. However, the exceptions are necessary to meet adopted goals and policies. As noted in Attachment 2, the City of San Jose is a comparable jurisdiction that also exempts its

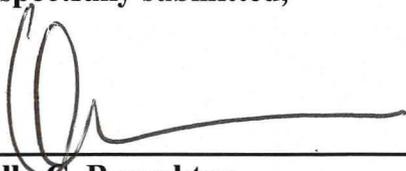
downtown core from citywide outdoor lighting regulations, and in their case the San Jose downtown is located only 26 miles from Lick observatory compared to City of San Diego's downtown, which is located at least 45 miles from Mount Laguna, and 79 miles from Palomar.

To supplement the proposed outdoor lighting regulations, staff is recommending adoption of a new local lighting zone map (Attachment 3) that will facilitate implementation of state and local requirements by identifying lighting zones regulated by the California Energy Code and the relative observatory proximity on a new electronic GIS map layer. Currently, implementation of the state Energy Code requires time intensive research of census maps with each new project to determine which lighting zone applies. As depicted in Attachment 3, the majority of the City is located in lighting zone 3, which allows for medium ambient lighting. The less populated areas of San Pasqual, Tijuana River Valley, Rancho Encantada, Black Mountain Ranch, Del Mar Mesa, Subarea II, and Los Penasquitos Preserve are in lighting zone 2, which allows for low ambient lighting (about 50 percent less than the amount of watts allowed in zone 3). Once adopted, the City will notify the California Energy Commission of the lighting zone map in accordance with state requirements for notification, and findings will be submitted to the California Energy Commission and California Building Standards Commission to identify the City's need for more restrictive local light pollution reduction requirements in order to preserve the quality of life for its residents and to meet other General Plan goals for public safety and greater energy conservation.

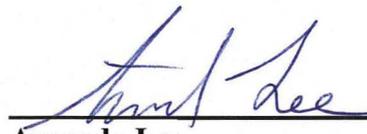
**Conclusion:**

The proposed amendments are consistent with the City's ongoing street light replacement project and will help meet City goals for public safety and energy conservation. Staff recommends that the Planning Commission recommend approval to the City Council of the proposed outdoor lighting amendments and new outdoor lighting map layer, which will facilitate approval and use of higher quality, energy efficient outdoor lighting.

**Respectfully submitted,**



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**Senior Planner, Land Development Code**  
**Development Services Department**

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Attachments:

1. Draft Code Language
2. Comparison to other Jurisdictions
3. Map of Lighting Zones/Observatory Radius

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**§142.0740 Outdoor Lighting Regulations**

(a) Purpose and Intent

- (1) Outdoor lighting fixtures shall be installed in a manner that minimizes negative impacts from light pollution including light trespass, glare, and urban sky glow in order to preserve enjoyment of the night sky and minimize conflict caused by unnecessary illumination.
- (2) Regulation of outdoor lighting is also intended to promote lighting design that provides for public safety and conserves electrical energy. Outdoor lighting is regulated by the State of California's Building Energy Efficient Standards of Title 24 of the California Code of Regulations, parts 1 and 6 [Title 24]. No light fixtures shall exceed the light emission requirements of Section 142.0740 unless the light emission requirements of Section 142.0740 do not comply with Title 24's energy efficient standards.
- (3) Outdoor lighting fixtures shall be installed and operated in compliance with the following regulations, where applicable by law:
  - (A) California Energy Code, California Code of Regulations, Title 24, Part 6;
  - (B) Green Building Regulations (Chapter 14, Article 10); and
  - (C) Electrical Regulations (Chapter 14, Article 6).

- (b) Outdoor lighting fixtures that are used to illuminate a premises, architectural feature or landscape feature on private property shall be directed, shielded, or located in such a manner that the light source is not visible offsite, to minimize light emission above the horizontal plane and so that light does not fall onto surrounding properties or create glare hazards within public rights-of-way.

(b) Applicability

All new outdoor lighting fixtures, including the replacement of previously conforming outdoor lighting fixtures, shall comply with Section 142.0740. Maintenance, repair, and replacement of parts within a previously conforming outdoor lighting fixture shall be exempt if the new parts are of generally the same type and size as those that comprise the existing outdoor lighting fixture.

- (c) General regulations that apply to all outdoor lighting:

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- (1) Outdoor lighting shall comply with the applicable California Energy Code lighting power requirement for the lighting zones identified on Map xxx filed in the office of the City Clerk.
- (2) Shields and flat lenses shall be required to control and direct the light below an imaginary horizontal plane passing through the lowest point of the fixture, except for:
  - (A) Residential entrance lights installed in accordance with the California Building Code and Electric Code requirements;
  - (B) Outdoor lighting fixtures less than 4,050 lumens including landscape lighting and decorative lighting;
  - (C) Outdoor lighting to meet Federal Aviation Administration requirements;
  - (D) A designated historical resource;
  - (E) Sports and athletic fields;
  - (F) Outdoor illuminated signs; and
  - (G) Maintenance to outdoor lighting when the following applies:
    - (i) The work does not involve the installation of a new light standard, a new lighting fixture or new wiring;
    - (ii) The work does not result in an increase in electrical load; and
    - (iii) Where applicable, the spacing of existing *previously conforming* light standards is greater than six times the mounting height of the existing outdoor lighting.
- (3) New outdoor lighting fixtures shall minimize light trespass in accordance with the Green Building Regulations where applicable, or otherwise shall direct, shield, and control light to keep it from falling onto surrounding properties. Zero direct-beam illumination shall leave the *premises*.
- (4) Outdoor lighting shall not exceed nominal 4000 Kelvin Color Correlated Temperature (CCT).

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- (5) All outdoor lighting, including search lights, shall be turned off between 11:00 P.M. and 6:00 A.M. except:
- (A) Outdoor lighting may remain lighted for commercial and industrial uses that continue to be fully operational after 11:00 P.M. such as sales, assembly, and repair; and for security purposes or to illuminate walkways, roadways, equipment yards, and parking lots subject to the following:
- (i) Adequate lighting for public safety shall be maintained. Outdoor lighting shall otherwise be reduced after 11:00 P.M. where practicable.
- (ii) Within 30 miles of the Palomar and Mount Laguna observatories, outdoor lighting after 11:00 P.M. shall be limited to a maximum of 4,050 lumens per fixture or a maximum of 2500 Kelvin CCT.
- (B) Outdoor lighting for the following is permitted to remain lighted after 11:00 P.M. and is exempt from the maximum Kelvin CCT and maximum lumen requirements specified in Section 142.0740(c)(4) and (c)(5)(A):
- (i) Outdoor lighting used to illuminate recreational activities that are not in a residential zone may continue after 11:00 P.M. only when equipped with automatic timing devices and shielded to minimize light pollution.
- (ii) Illuminated on-premises signs for businesses that are open to the public after 11:00 P.M. may remain lighted during business operating hours only. Illuminated off-premises advertising display signs shall not be lighted after 11:00 P.M. Signs located both on-and off-premises shall be equipped with automatic timing devices.
- (iii) Outdoor lighting for automated teller machines and associated parking lot facilities and access areas shall be provided during hours of darkness in accordance with the California Financial Code Section 13040-13041.
- (C) Outdoor lighting for illumination of the flag of the United States of America.
- (6) On properties which are adjacent to or contain sensitive biological resources, any exterior lighting shall be limited to low-level lights and shields to minimize the amount of light entering any identified sensitive biological resource areas.
- (7) Prior to installation of an outdoor light fixture, an Electrical Permit shall be obtained when required in accordance with Section 129.0302. When

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an Electrical Permit is required, the *applicant* shall identify the proposed light fixture schedule to the satisfaction of the Building Official including the number of lumens and backlight, up light, glare rating for each fixture to demonstrate compliance with Section 142.0740.

- (c) Outdoor lighting on commercial and industrial properties shall be equipped with automatic timing devices.
- (d) ~~Outdoor lighting fixtures that are existing and were legally installed before October 28, 1985, shall be exempt from Sections 141.0740(a) and (b), unless work is proposed over any period of time to replace 50 percent or more of the existing outdoor light fixtures or to increase the number of outdoor light fixtures by 50 percent or more on the *premises*.~~
- (e) ~~All outdoor lighting, including search lights, shall be turned off between 11:00P.M. and 6:00A.M. except:
 
  - (1) ~~Outdoor lighting in conjunction with commercial and industrial uses that continue to be fully operational after 11:00P.M. such as sales, assembly, and repair may remain lighted after 11:00P.M., provided that all lights are shielded, equipped with automatic timing devices, and utilize only the minimum amount of light necessary to conduct such uses;~~
  - (2) ~~Outdoor lighting used for security purposes or to illuminate walkways, roadways, equipment yards, and parking lots may remain lighted after 11:00P.M. where the lighting meets the following criteria:
 
    - (A) ~~Where located within 30 miles of the Palomar Observatory or Mount Laguna Observatory, lighting fixtures below 4,050 lumens are permitted. Lighting fixtures above 4,050 lumens shall be limited to low pressure sodium or high pressure sodium equipped with full cut-off optics (fixtures with flat lenses that limit lamination to below the horizontal plane of the fixture or 0 percent up light). Where high pressure sodium lighting fixtures are proposed, a photometric study or lighting power density calculation of ground lighting levels shall be required to demonstrate that a 3 footcandle or 0.19 watts per square foot average will not be exceeded.~~
    - (B) ~~Where located 30 miles or more from the Palomar Observatory or Mount Laguna Observatory, lighting fixtures below 4,050 lumens are permitted. Lighting fixtures above 4,050 lumens shall be limited to low pressure sodium or high pressure sodium and equipped with cut-off optics (fixtures that limit illumination to less than 2.5 percent up light).~~~~~~

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- (3) ~~Outdoor lighting used to illuminate recreational activities that are not in a residential zone may continue after 11:00P.M. only when equipped with automatic timing devices and shielded to minimize light pollution; and~~
- (4) ~~Illuminated on-premises signs for businesses that are open to the public after 11:00P.M. may remain lighted during business operating hours only. Illuminated off-premises advertising display signs shall not be lighted after 11:00P.M. Signs located both on- and off-premises shall be equipped with automatic timing devices.~~
- (5) ~~Outdoor lighting for automated teller machines and associated parking lot facilities and access areas shall be provided during hours of darkness in accordance with the California Financial Code Section 13040-13041. Lighting fixtures shall be directed or shielded so that light does not fall onto surrounding properties or create glare hazards within public rights-of-way.~~
- (f) ~~On properties which are adjacent to or contain sensitive biological resources, any exterior lighting shall be limited to low-level lights and shields to minimize the amount of light entering any identified sensitive biological resource areas.~~
- (d) Outdoor lighting within the Centre City Planned District, Gaslamp Quarter Planned District, and Marina Planned District is exempt from the flat lens, color temperature, and curfew requirements identified in Section 142.0740(c)(2), (4), and (5) in order to meet the unique needs of downtown including active night time commercial and entertainment uses, high pedestrian activity, and enhancement of the City's downtown skyline in accordance with the Downtown Community Plan.
- (e) Temporary outdoor lighting (including lighting for temporary uses, special events, and seasonal holiday lighting) is exempt from Section 142.0740(c)(2), (4), and (5) where the lighting does not exceed 60 consecutive days or more than 120 days during any one year period.
- (f) Deviations from Section 142.0740 may be requested with a Process Four Planned Development Permit in accordance with Section 126.0602(b)(1).
- (g) Outdoor lighting on facilities or lands owned, operated, controlled or protected by the United States Government, State of California, County of San Diego, City of San Diego, or other public entity or public agency not subject to City of San Diego ordinances is exempt from the requirements of this division. Voluntary compliance with the intent of Section 142.0740 is encouraged.

#### §1410.0101 Purpose and Scope of the Green Building Regulations

The purpose of the Green Building Regulations is to improve public health, safety and general welfare by enhancing the design and construction of buildings through the use of

**Comment [a3j1]:** A new Chapter 14, Article 10, Division 1 is being adopted by a separate ordinance to adopt the Green Building Standards Code (to be considered by City Council on an upcoming agenda).

The outdoor lighting ordinance will amend Chapter 14, Article 10 to reflect locally adopted differences that relate to outdoor lighting. See strikeout-underline language below for proposed changes that will occur with the outdoor lighting ordinance.

**Comment [a3j2]:** No change proposed to Section 1410.0101.

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building concepts that will reduce negative environmental impacts, create positive environmental impacts, and encourage sustainable construction practices in the following categories:

- (a) Planning and design;
- (b) Energy efficiency;
- (c) Water efficiency and conservation;
- (d) Material conservation and resource efficiency; and
- (e) Environmental quality.

**§1410.0102 When the Green Building Regulations Apply**

**Comment [a3j3]:** No change proposed.

- (a) This article shall be known as the Green Building Regulations of the City of San Diego and shall regulate the construction of new buildings within the City of San Diego, except work located primarily in a public right-of-way, public utility towers and poles, mechanical equipment not specifically regulated in the California Green Building Standards Code, and hydraulic flood control structures. The Green Building Regulations shall apply to City-owned buildings.
- (b) Where in any specific case different sections of the Green Building Regulations specify different materials, methods of construction, or other requirements, the most restrictive section shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall apply.
- (c) Wherever in the Green Building Regulations reference is made to the Appendix, the provisions in the Appendix shall not apply unless specifically adopted pursuant to San Diego Municipal Code Section 1410.0107.
- (d) The City of San Diego shall administer and enforce the Green Building Regulations of the City of San Diego in accordance with the applicable provisions of Chapters 11 and 12 of the San Diego Municipal Code.

**§1410.0103 Adoption of the 2010 California Green Building Standards Code**

**Comment [a3j4]:** No change proposed.

- (a) The 2010 California Green Building Standards Code, published and amended by the California Building Standards Commission [BSC], and as amended by the State Department of Housing and Community Development [HCD], is adopted by reference except as otherwise provided in this Article. A copy of the 2010 California Green Building

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Standards Code is on file in the office of the City Clerk as Document No.  
\_\_\_\_\_.

- (b) When reference is made to the California Green Building Standards Code, it shall be the 2010 California Green Building Standards Code, California Code of Regulations Title 24, Part 11, as published by the California Building Standards Commission.
- (c) Each of the regulations, provisions, conditions, and terms of the 2010 California Green Building Standards Code is made a part of this Article as if fully set forth in this article.
- (d) Numbering of sub-sections in this Article is cross referenced to sections in the 2010 California Green Building Standards Code.
- (e) The adoption of the 2010 California Green Building Standards Code shall in no way limit, prohibit, impede, or prevent the City Council from adopting ordinances limiting or preventing the issuance of any type, number, or geographical distribution of permits for construction or demolition of any facility for which a permit is required.
- (f) The Building Official is authorized to enforce only those amendments made by the following state agencies:
  - (1) California Building Standards Commission (BSC); and
  - (2) The California Department of Housing and Community Development (HCD).

**§1410.0104 Portions of the 2010 California Green Building Standards Code Not Adopted by the City of San Diego**

- (a) Section 5.106.8.1 Effective date.
- (b) “Reserved.”

**§1410.0105 Modifications to the 2010 California Green Building Standards Code Adopted by the City of San Diego**

~~No local modifications to the 2010 California Green Building Standards Code are adopted by the City of San Diego.~~

- (a) Section 5.106.8 Light pollution reduction non- residential buildings.
- (b) “Reserved.”

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**§1410.0106 Additions to the 2010 California Green Building Standards Code Adopted by the City of San Diego**

No local additions to the 2010 California Green Building Standards Code are adopted by the City of San Diego.

(a) Section 4.106.8 Light pollution reduction residential buildings.

(b) “Reserved.”

**§1410.0107 Adoption of Appendices to the 2010 California Green Building Standards Code**

Comment [a3j5]: No change proposed.

Appendix Chapters to the 2010 California Green Building Standards Code are not adopted by the City of San Diego.

**§1410.0108 Use of Alternate Materials, Design, or Construction Methods**

Comment [a3j6]: No change proposed.

- (a) The provisions of the Green Building Regulations are not intended to prevent the use of any alternate material, appliance, installation, device, arrangement, method, design or method of construction not specifically prescribed by the 2010 California Green Building Standards Code, provided that any such alternative has been approved by the Building Official.
- (b) An alternate material, design or construction method shall be approved on a case-by-case basis where the Building Official finds that the proposed alternate complies with the intent of the provisions of the 2010 California Green Building Standards Code and is at least the equivalent of standards prescribed in the Code for planning and design, energy, water, material conservation and resource efficiency, environmental air quality, performance, safety and the protection of life and health.
- (c) When considering the use of alternate materials, design, or construction methods, the Building Official shall evaluate equivalency based on the compliance provisions of the 2010 California Green Building Standards Code for occupancies regulated by adopting state agencies as are found in the sections listed below.
  - (1) Section 1.2.2 in the California Building Code (CBC) for the California Building Standards Commission.
  - (2) Section 1.8.7, Chapter 1, Administration, Division 1, of the 2010 California Building Code and Section 1.2.6, Chapter 1, Administration, Division 1, of the 2010 California Residential

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Code for the Department of Housing and Community  
Development.

**§1410.0401 Light Pollution Reduction Residential Buildings.**

- (a) Section 4.106.8 is added to the California Green Building Standards Code pursuant to Section 1410.0106 of the San Diego Municipal Code in accordance with Section 1410.0401(b).
- (b) 4.106.8 Light pollution reduction.

Outdoor lighting systems installed on residential buildings shall comply with the following requirements:

- (1) The requirements in the California Energy Code for Lighting Zones 1-4 as defined in Chapter 10 of the California Administrative Code and identified on the City's adopted Map xxx filed in the office of the City Clerk;
- (2) Backlight, Uplight and Glare (BUG) ratings as defined in IESNA TM-15-11 for Lighting Zones referenced in Section 1410.0401(b)(1)(i) shall not exceed those shown in Table 5.106.8 of the California Green Building Standards Code; and
- (3) City of San Diego Outdoor Lighting Regulations in Section 142.0740 of the Land Development Code, including local requirements that are more restrictive than the California Green Building Standards Code in Section 142.0740(c)(2) for shields and flat lenses and requirements in Section 142.0740(c)(3) to minimize light trespass.
- (4) Exceptions:
  - (A) Luminaires that qualify as exceptions in Section 147 of the California Energy Code
  - (B) Emergency lighting

**§1410.0501 Light Pollution Reduction Non- Residential Buildings.**

- (a) Section 5.106.8 of the California Green Building Standards Code is adopted as modified pursuant to Section 1410.0105 of the San Diego Municipal Code in accordance with Section 1410.0501(b).
- (b) 5.106.8 Light pollution reduction.

Draft April 10, 2012

Outdoor lighting systems installed on non-residential buildings shall comply with the following requirements:

- (1) The requirements in the California Energy Code for Lighting Zones 1-4 as defined in Chapter 10 of the California Administrative Code and identified on the City's adopted Map xxx filed in the office of the City Clerk;
  - (2) Backlight, Uplight and Glare (BUG) ratings as defined in IESNA TM-15-11 for Lighting Zones referenced in Section 1410.0501(b)(1)(i) shall not exceed those shown in Table 5.106.8 of the California Green Building Standards Code; and
  - (3) City of San Diego Outdoor Lighting Regulations in Section 142.0740 of the Land Development Code, including local requirements that are more restrictive than the California Green Building Standards Code in Section 142.0740(c)(2) for shields and flat lenses and requirements in Section 142.0740(c)(3) to minimize light trespass.
- (c) Section 5.106.8.1 of the California Green Building Standards Code is not adopted pursuant to Section 1410.0104 of the San Diego Municipal Code.

## Outdoor Lighting Regulations: Jurisdictional Comparison

| Jurisdiction     |          | Ordinance  | Shields  | Full Cut Off   | Color Temperature   | Closest Observatory  | Comments  |
|------------------|----------|--|--|--|---|--|---|
| San Diego        | Proposed | In process   | Required unless less than 4,050 lumens         | Required with exceptions   | <ul style="list-style-type: none"> <li>• 4000 K CCT(+/- 300)</li> <li>• 2500 K CCT after 11pm within 30 miles of Palomar</li> </ul> | <ul style="list-style-type: none"> <li>• Palomar (1936)- owned by Caltech 16,865 parcels within 30 miles</li> <li>• Mt Laguna (1968)- owned by SDSU only 1 parcel within 30 miles</li> </ul> | <ul style="list-style-type: none"> <li>• New map of lighting zones (zones 2 and 3)</li> <li>• Provides exceptions for Downtown, which is located at least 45 miles from Laguna and 79 miles from Palomar</li> </ul> |
|                  | Existing | Adopted Jan 2000; effective Aug 2006   | Required, unless source is not visible offsite | Required only for parking lots after 11pm within 30 miles of observatory | No limit<br><ul style="list-style-type: none"> <li>• 4000 K CCT (+/- 300) street lights (except within 35 miles)</li> </ul>         |  |   |
| Chula Vista      |          | Adopted 1998 Ch 17.28  | Required only adjacent to residential          | Not required   | No limit  | Mt Laguna  | Adopted zone 3 lighting zone citywide per CEC process   |
| El Cajon         |          | Adopted 2010 Ord 4950  | Not required                                   | Not required   | No limit  | Mt Laguna  | Requires adequate lighting for safety and to minimize security problems. Lighting plan required (except SFR)  |
| Escondido        |          | Effective Feb 1987   | Required with exceptions                       | Not required   | No limit  | Palomar  | Exempts all lighting 4050 lumens or less and residential less than 6 units  |
| Los Angeles City |          | Effective 2010<br>Ord 181,480 (Green bldg)<br>Ord 171,858 (1998)<br>Ord 161,316 (1986) | Required with exceptions                       | Not required   | No limit<br><ul style="list-style-type: none"> <li>• 4000 K CCT (+/- 300) street lights</li> </ul>                                  | <ul style="list-style-type: none"> <li>• Griffith- City owned</li> <li>• Mt Wilson (1917-LA County)</li> <li>• Table Mtn</li> </ul>  | Limits light affecting residential to 2 footcandles of intensity with some exceptions   |

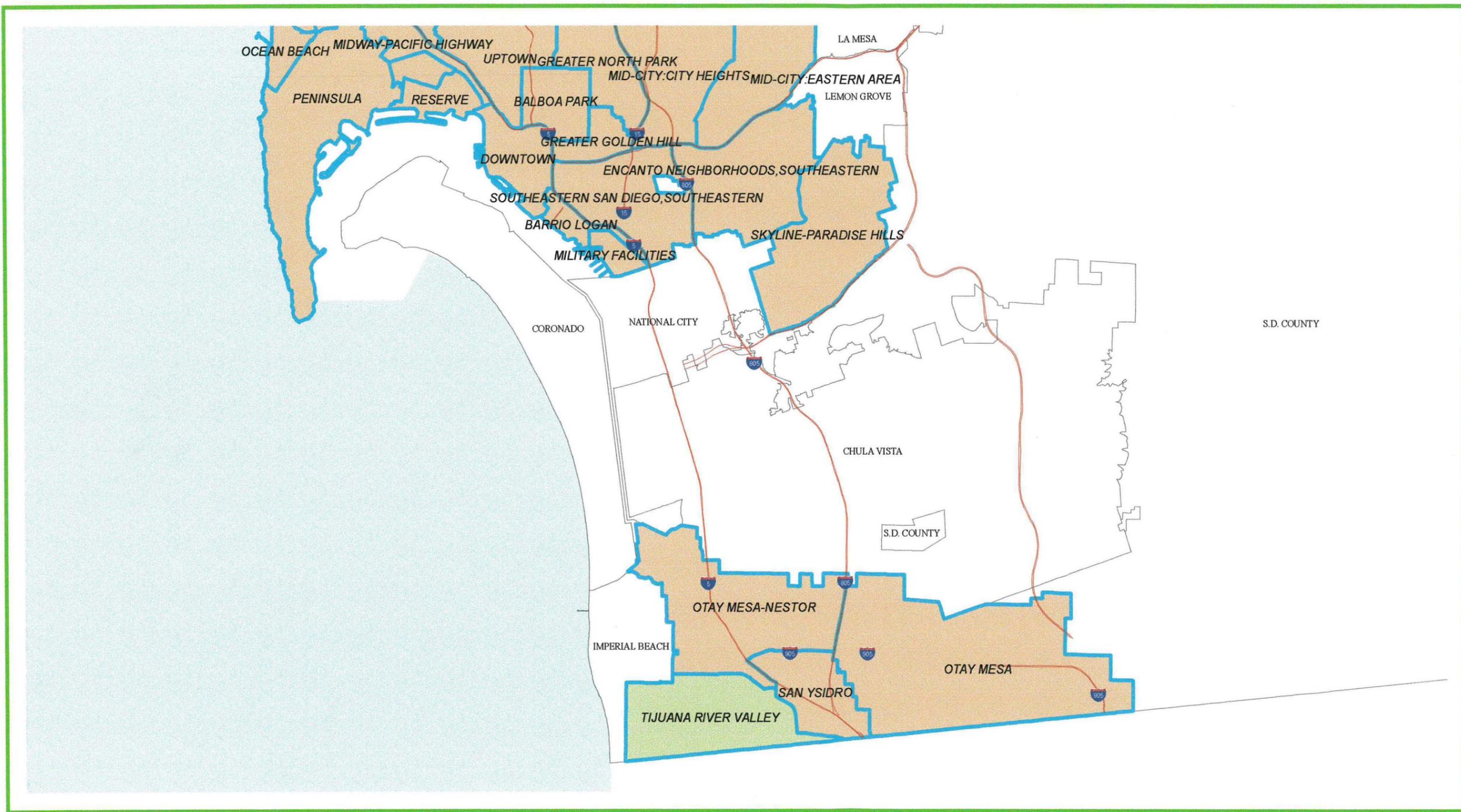
## Outdoor Lighting Regulations: Jurisdictional Comparison

| Jurisdiction                              | Ordinance                                 | Shields   | Full Cut Off   | Color Temperature  | Closest Observatory   | Comments  |
|---|---|---|--|--|---|---|
| <b>Poway</b>                              | Adopted 1997<br>Ord 484                   | Not required  | Not required   | No limit<br>• Most light on after 11pm is LPS              | Palomar   | Requires Council approval for non-LPS after 11pm  |
| <b>Riverside County</b>                   | Adopted June 1988                         | Required with exceptions  | Not required   | No limit   | <ul style="list-style-type: none"> <li>• Big Bear Lake (1969)</li> <li>• Palomar</li> </ul>   | Allows shielded broad spectrum light, except within 15 miles of Palomar   |
| <b>San Jose</b>                           | Adopted June 2000<br>R-56286<br>Ord 26248 | Required with exceptions  | Required, unless less than 4,050 lumens                | No limit<br>• 4000 K CCT (+/- 300) street lights           | Lick (1888)   | <ul style="list-style-type: none"> <li>• Observatory is 26 miles from downtown San Jose</li> <li>• Downtown core is exempt from lighting requirements</li> <li>• In process of replacing LPS street lights with LEDs</li> </ul> |
| <b>Santee</b>                             | Adopted 1985<br>Ord 152                   | Not required  | Not required   | No limit   | Mt Laguna   | General requirements about directing light downward   |
| <b>Tucson, Arizona</b>                    | Adopted Feb 2012                          | Required, unless less than 3000 lumens within 25 miles of Kitt Peak; or less than 11,000 lumens | Not required, additional lumens allowed if full cutoff | 3500 K CCT maximum for public and private outdoor lighting | <ul style="list-style-type: none"> <li>• Kitt Peak (1962)</li> <li>• Mt Graham</li> <li>• Mt Lemon</li> <li>• MMT Steward WIYN</li> </ul> | <ul style="list-style-type: none"> <li>• Not subject to California Title 24 regulations (Cal Green or Energy Code)</li> <li>• City has unique concentration of observatories in desert environment</li> </ul>                   |
| <b>San Diego State University</b>         | N/A                                       |   |  | No limit<br>4300K parking lots                             | Mt Laguna   | <ul style="list-style-type: none"> <li>• SDSU is owner of Mt Laguna observatory</li> <li>• Installed 4300 K lights in multiple parking lots</li> </ul>  |
| <b>University of California San Diego</b> | N/A                                       |   |  | No limit<br>4300K parking lots                             | Palomar   | <ul style="list-style-type: none"> <li>• Installed 4300 K lights in multiple parking lots and 3500K in one rooftop lot</li> </ul>   |



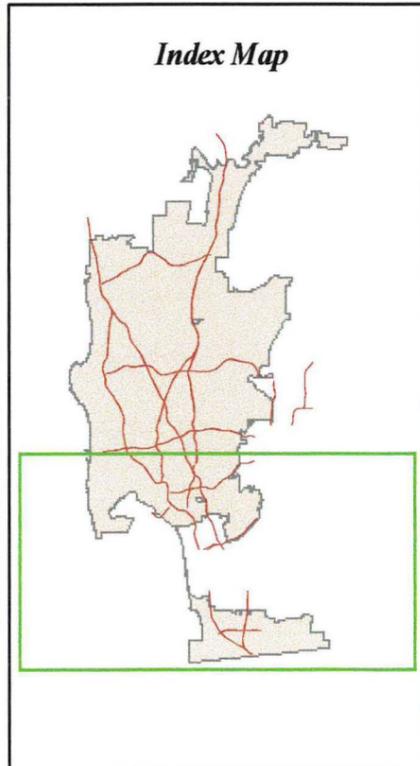
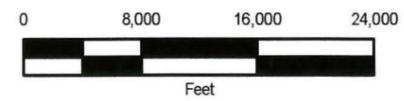


# Energy Code Lighting Zones (South) [DRAFT]



**Legend**

- Lighting Zone 3
- Lighting Zone 2 (South)
- Community Plan Areas
- Freeways



SanGIS Basemap Accuracy  
 SanGIS Land (Lot) basemap data for the City of San Diego tested 20.7' horizontal accuracy at the 95% confidence level.  
 This data meets the ASPRS Standard for Class 1 Map Accuracy at a scale of 1:12,000 (1"=1,000').  
 This assessment assumes utilization of the data on a citywide basis. Localized data may exceed or fail to meet this accuracy with errors in excess of 100' possible.

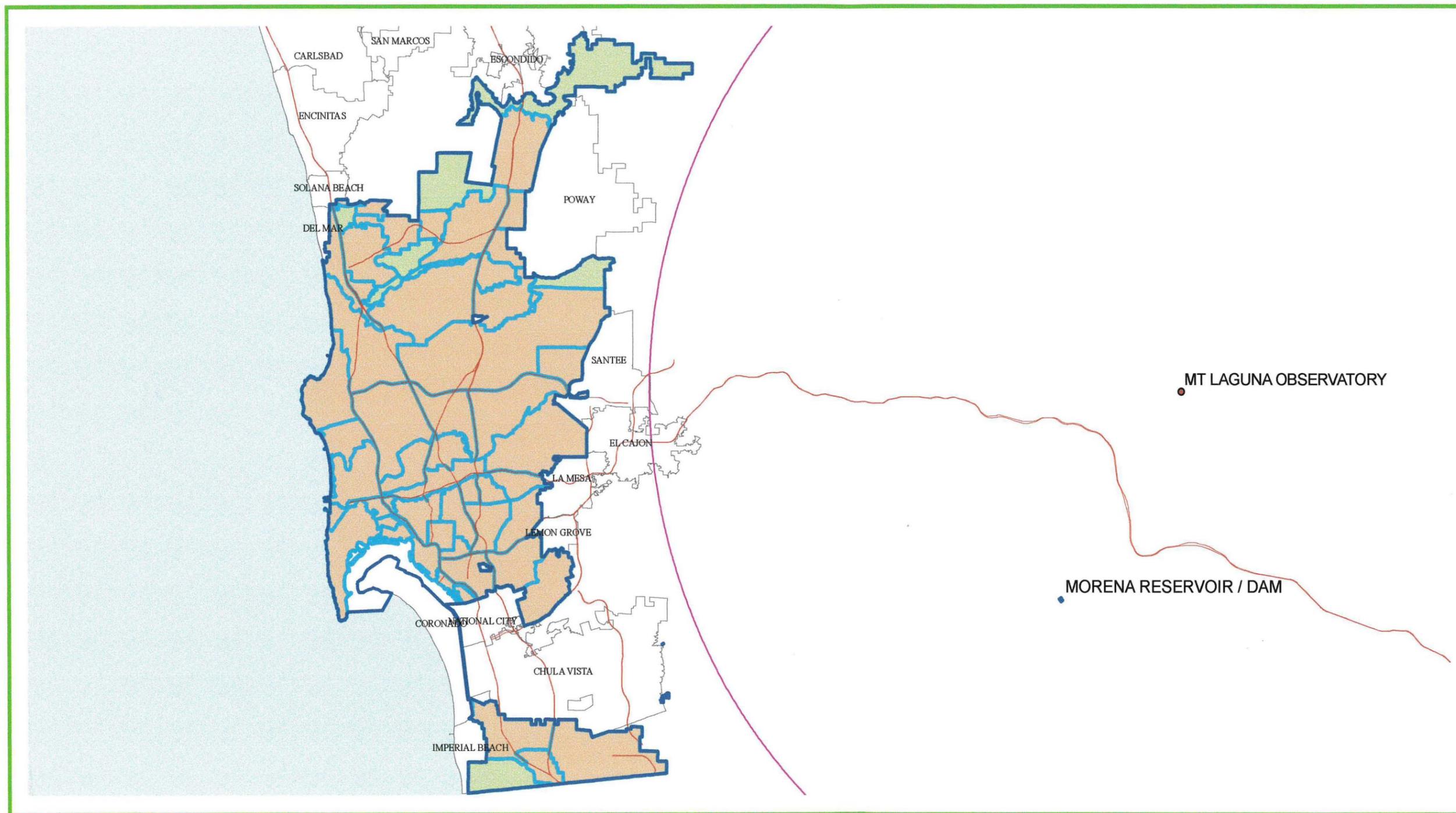
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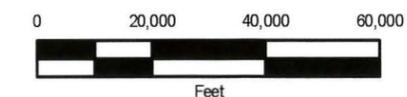
DATE: Mar 12, 2012

# 30-Mile Radius For Mt Laguna Observatory

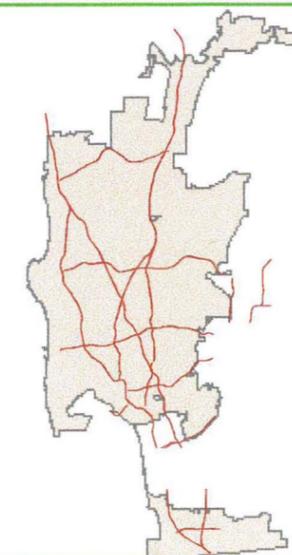


## Legend

-  30-Mile Radius For Mt Laguna Observatory
-  City Of San Diego
-  Lighting Zone 2
-  Lighting Zone 3
-  Community Plan Areas
-  Freeways



## Index Map



SanGIS Basemap Accuracy  
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DATE: Mar 12, 2012