Appendix B3

Assessment of Lighting Effects on Biological Resources

SOUTH ENVIRONMENTAL
2061 N. Los Robles Avenue, Ste. 205 Pasadena, California 91104 / www.southenvironmental.com

June 30, 2025

Stephanie DeHerrera
Rand Paster Nelson
633 W. Fifth Street, Suite 5880
Los Angeles, California 90071
Email: stephanie@rpnllp.com

RE: Updated Project Description for the 9176 Sunset Boulevard Project – Sunset Jewel Box

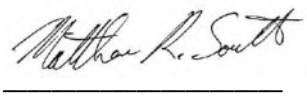
To Stephanie:

South Environmental prepared the *Assessment of Lighting Effects on Biological Resources for the 9176 Sunset Boulevard Project* dated August 25, 2023 (Attachment A) and found that the proposed 9176 Sunset Boulevard Project would have no significant impact to biological resources in the region. The findings were based on the conclusion that lighting from the proposed billboard as designed would be disruptive to biological resources up to 385-feet away and no biological resources occur within that distance as that area is entirely urbanized. Therefore, the project would avoid impacting the nearest biological resources that occur 1,700 feet away from the lighting source.

Following the completion of the biological assessment the project description was slightly changed to include a reduction in illumination from the proposed billboard. This adjustment was in response to comments on a Draft Environmental Impact Report for this project to further minimize potential impacts from the billboards lighting. Specifically, the digital sign area was reduced to 2,807 square feet with illumination spanning only the northwestern and northeastern corners of the building where illumination was most concentrated in the previous design. Therefore, we find no significant impact to biological resources for the updated project. The findings remain consistent with those previously submitted as site conditions have not changed and the illumination produced by the project would be less intense, thereby reducing any potential effects to biological resources.

Please email me msouth@southenvironmental.com or call me at (303) 818-3632 if you have any questions or would like me to revise costs based on different assumptions.

Respectfully Submitted,



Matthew South

Principal Biologist

Attachments

Attachment A: *Assessment of Lighting Effects on Biological Resources for the 9176 Sunset Boulevard Project – Sunset Jewel Box*

Attachment A: Assessment of Lighting Effects on Biological Resources for the 9176 Sunset Boulevard Project – Sunset Jewel Box

August 25, 2023

Stephanie DeHerrera
Rand Paster Nelson
Email: stephanie@rpnllp.com

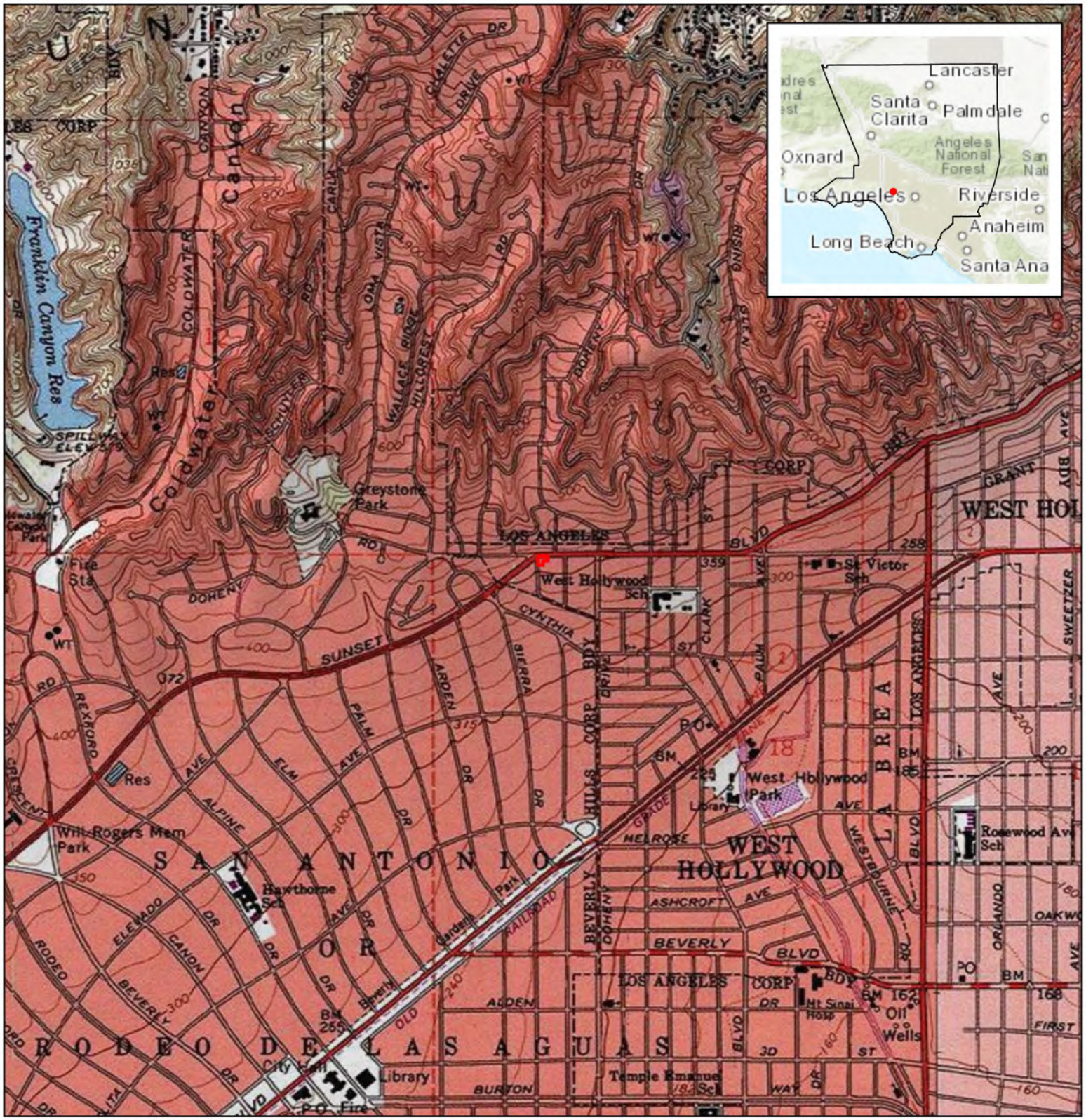
RE: Assessment of Lighting Effects on Biological Resources for the 9176 Sunset Boulevard Project – Sunset Jewel Box

To Stephanie:

This report includes findings of a biological resources impacts analysis conducted by South Environmental for the 9176 Sunset Blvd Project. The proposed project includes an LED billboard encompassing portions of the west, north, and east sides of the building at 9176 Sunset Boulevard in the City of West Hollywood, California. This report takes into consideration the environmental setting around the proposed project, a lighting study provided for the project, and a review of the literature around the effects of lighting on various biological resources.

Location and Setting

As shown in Figures 1 and 2, the project site is in a densely urbanized area of Sunset Boulevard in West Hollywood, Los Angeles. The project site is located on Sunset Blvd within the City of West Hollywood, California, in Los Angeles County. The project site is within the Beverly Hills 7.5-minute USGS topographic quad and within Section 7 of Township 01 South and Range 14 West. The project site is surrounded by dense urban development including roads, housing, and businesses in every direction. This area is artificially lit with nighttime lighting along Sunset Boulevard and the existing ambient lighting is considered very high. The nearest protected area is Greystone Mansion and Gardens that occurs 2000-feet to the east but would not provide habitat for special-status species as it is not native open space. The nearest native habitats to the project site are within Franklin Canyon Open Space that is located over 1-mile to the northwest of the project site at Franklin Canyon Reservoir.



Source: ESRI USA Topo Maps and World Topo Map 2023

9176 Sunset Boulevard Project

Figure 1. Project Location

Project Site

0 1,000 2,000 Feet

Scale: 1:24,000

N

Project Site is within the City of West Hollywood, California, in Los Angeles County on the USGS Beverly Hills 7.5-minute quadrangle maps in Section 07 of Township 01 Southand Range 14 West

Center Coordinate (Decimal Degrees):
Latitude: 34.0903783N Longitude: -118.3919411W

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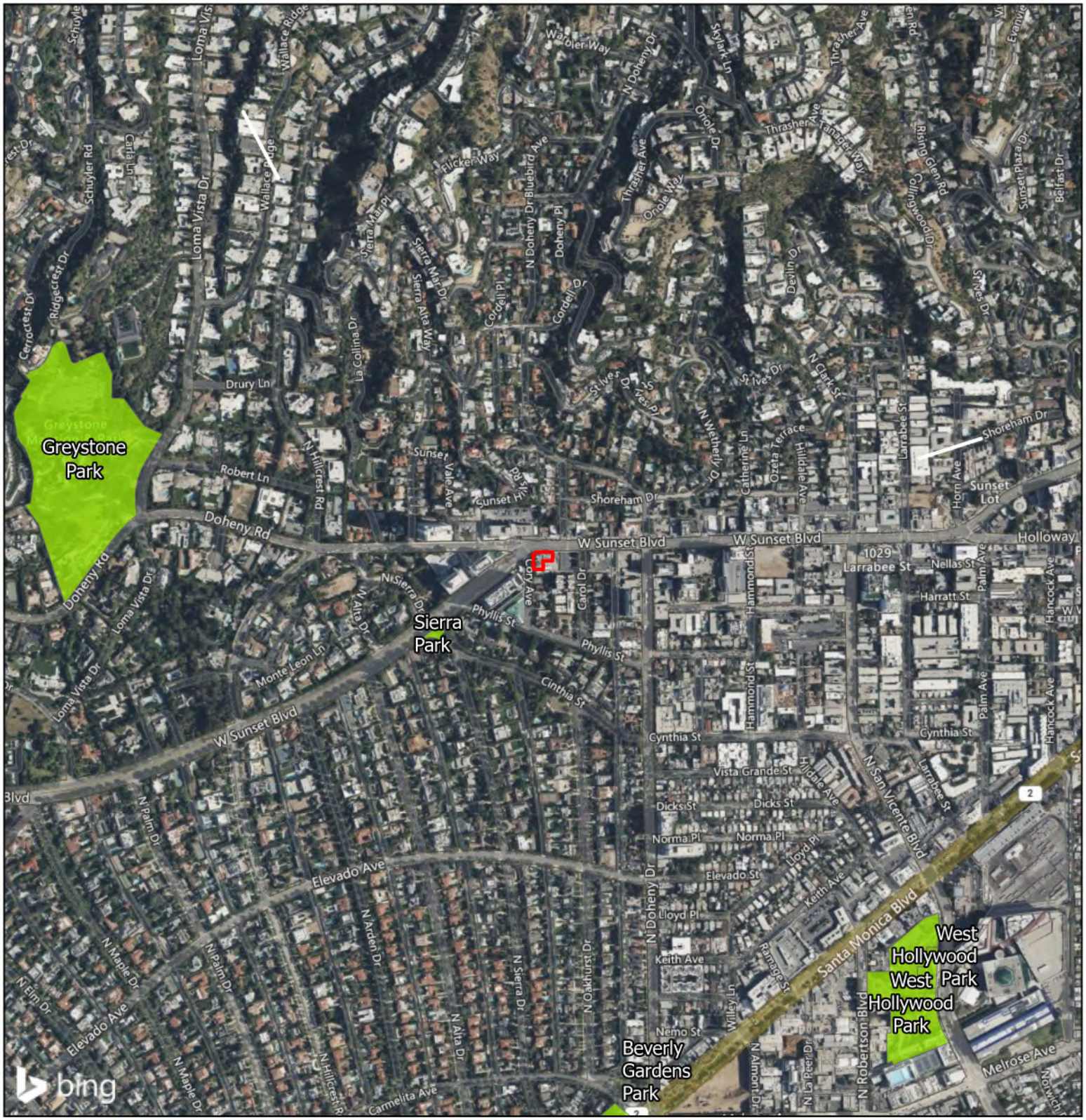

Source: BING Aerial Imagery 2023

9176 Sunset Boulevard Project

Figure 2. Project Vicinity

0 500 1,000 Feet

N

Scale: 1:10,000

Project Site

California Protected Areas Database

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Proposed Development

The proposed development consists of a new commercial development on approximately 18,608 square feet of property at 9176 Sunset Blvd. in West Hollywood, Los Angeles. The project includes illuminated digital signs on the external features of the west and north walls. These digital signs will not exceed 6000 candelas/m^2 during the day until 20 minutes prior to sunset and will not exceed 300 candelas/m^2 at night from sunset until 20 minutes prior to sunrise. The digital signs will not cast light above 90 feet from the ground.

Methodology

This report includes an assessment of the proposed billboard lighting effects on biological resources such as wildlife and plants, including protected and sensitive species that are protected by the state and local regulations. This assessment is based on information compiled through a review of appropriate reference materials such as a lighting study prepared for the project and literature regarding the sensitivity and/or rarity of biological resources of the region.

Literature Review

The assessment of the parcel began with a review of literature relating to the biological resources that are known to occur near the project area that included the following resources:

The California Department of Fish and Wildlife (CDFW) California Natural Diversity Database was reviewed to identify special-status plants, animals, and natural communities that have previously recorded in the United States Geologic Service (USGS) Beverly Hills 7.5" quadrangle that the project site is located within, and the eight surrounding USGS 7.5" quads: Burbank, Inglewood, Hollywood, Canoga Park, Van Nuys, Topanga, Venice (CDFW 2023).

- United States Fish and Wildlife Service (USFWS) Environmental Conservation Online System (ECOS) Information for Planning and Consultation (IPaC) (USFWS 2023a)
- USFWS Designated and Proposed Critical Habitat GIS data (USFWS 2023b)
- California Native Plant Society (CNPS) online Inventory of Rare and Endangered Plants of California (CNPS 2023).
- National Hydrography Dataset (USGS 2023)
- National Wetlands Inventory (USFWS 2023c)
- California Protected Areas Database (CPAD 2023)
- Santa Monica Mountains Comprehensive Plan (SMMCP 2023)

Light impacts from the project was determined using the digital lighting study conducted by Francis Krahe & Associates for the project that is in Attachment A. Generally, the lighting study describes light intensity at various distances from the project, as well as pre-existing lighting conditions in the area. In combination with biological literature on the impacts of artificial lighting on different species, this information is used to assess the potential for biological resources to be impacted by the proposed project.

Equation 1, shown below (Lighting Study section 6.2.a), was used to determine illuminance at various distances from the proposed billboard.

$$E_V = \frac{L * S}{10.76 * D^2}$$

Where E_V is the luminance cast (fc), L is the luminance of the project (cd/m^2), S is the surface area the light is cast on (ft^2), and D is the distance from the project (ft). This analysis defines surface area as 1290 ft^2, to match the maximum illuminance measured in the lighting study. As a result, all analysis in this report is based on the maximum illuminance possible at any distance from the project, without regard to buildings that may block light or the viewing angle of the sign. The luminance from the project is taken to be 300 cd/m^2 as any biological impacts are likely to occur at night, when the sun's light does not overtake the output of the digital signage.

Biological Setting

The project site and surrounding areas are highly urbanized and there are no native habitats that occur within 1-mile of the project site. The nearest habitat would be in Franklin Canyon Park located 1-mile to the northwest. Wildlife typically found in urban areas would be expected to use the project site and surrounding area but no plants or animals that are rare, threatened, or protected special-status species would occur on the project site or surrounding areas because they require native habitats. Special-status species do not occur in urban areas and urban development is not considered habitat for wildlife or plants and is the result of removing or eliminating habitats and native plants and animals.

There are no natural water features on or near the site and any potential features would be found in culverted areas underground or under roads and would not be visible or impacted by the proposed development. The nearest water feature is Franklin Canyon Reservoir located 1-mile to the northwest of the project.

Project site and vicinity is not within a habitat linkage or wildlife movement corridor. Urban areas are devoid of habitat and no habitat occurs within 1-mile of the site. Dense urban development is not an area that links habitats for wildlife, it is avoided by wildlife and roads and other

development are deterrents for wildlife except for those that are highly adapted to thrive in developed areas (i.e. raccoons, coyotes, pigeons). The Santa Monica Mountains to the north of the project site is a movement corridor but the project site is separated from these areas by over 1,700 feet of dense development. No habitat linkages or wildlife movement corridors occur on or near the project site. The ambient lighting and urbanization ensure that wildlife avoids the area currently. According to the Santa Monica Mountains Habitat Linkage Map the project site is 1,700-feet southwest of the nearest undeveloped hillside area in the Santa Monica Mountains, which marks the southern boundary of the mapped linkage areas. The project site has no direct connection to that area and only dense developments occur between that area and the project site.

Lighting Impacts Assessment

The effects of night lighting on wildlife is well known and include the following potential impacts:

- Lighting can deter birds or alter behaviors of birds such as mating song timing and nest creation. Bird reproduction is signaled by lighting and artificial lighting can affect both foraging behavior and reproduction timing.
- Birds and insects can be attracted to lights and alter flight leading to death or injury.
- Lighting can deter wildlife from movement areas when lighting illuminates the area and wildlife such as mountain lion is unable to conceal itself.
- Trees can be impacted by raised light levels by either inducing photosynthesis or impacting the photoperiod.

The Exhibit below shows the illuminance vs. distance of the proposed billboard, which indicates how illuminated areas would be at different distances from the billboard source. The potential for illumination to impact plants and animals is calculated as described in the next section and the thresholds for impacts to these is also shown in the graph in Exhibit 1. These potential impacts from lighting are discussed below and the potential for these to occur from the project are discussed and assessed in detail.

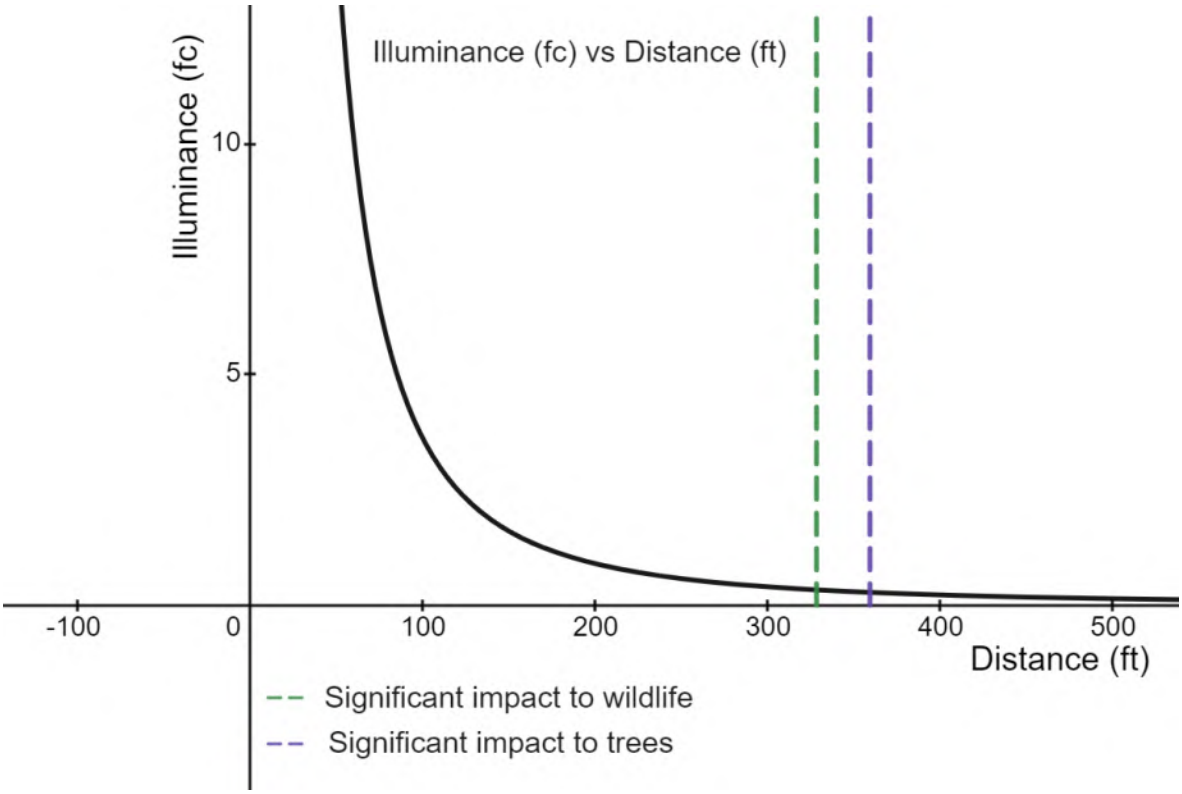


Exhibit 1. A graph of Eq.1, showing the illuminance created by the project at varying distances. The calculated illuminance has a significant impact on wildlife up to 328 feet from the project, and a significant impact on trees up to 359 feet from the project.

Impacts to Wildlife

To assess the potential impacts to wildlife from night lighting we use bats as the model species for threshold of significance. There are 12 bats that are classified as special status species in California, and they are particularly sensitive to Artificial Light at Night (ALAN) because their foraging activities are carried out at night and they roost and breed in dark areas, which could be disturbed by even small amounts of light. Bats in this respect, would be considered one of the most sensitive species to night lighting due to the nocturnal habitats and potential impacts from lighting on this group would be sufficient to understand impacts to other wildlife that are equal or less susceptible to lighting impacts.

Impacts on various bat species from ALAN have been studied extensively. A study conducted on the impact of LED lights on foraging activities found that amount of foraging activity decreased significantly at light intensities of 3.6 lux, or .334 footcandles.[1] This study concluded that bats are

[1] Stone, E.L., Jones, G. and Harris, S. (2012), Conserving energy at a cost to biodiversity? Impacts of LED lighting on bats. *Global Change Biology*, **18**.

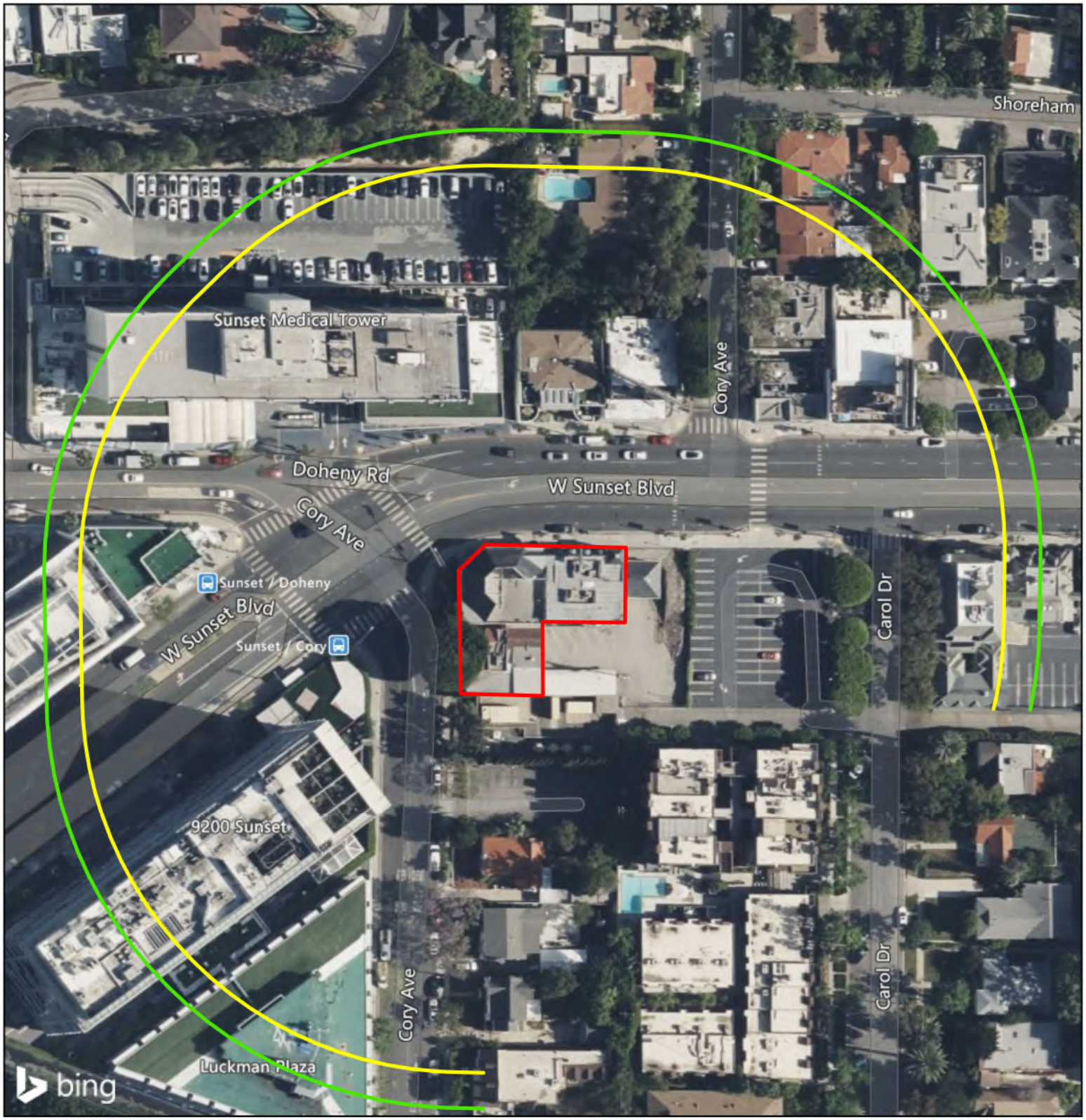
less likely to travel through areas with greater light intensity than that, though even very low intensities discourage bat activity. The project has a limited impact area, which does not contain any native habitat. Utilizing Eq.1 above, the .334 footcandle threshold to significantly impact bat activity would occur within the area approximately 328 from the project billboard, as represented in Figure 3 below. Bats within this area would be deterred from foraging or roosting activities. However, this area does not contain suitable habitat for bats, or any other special status species. Additionally, the closest water source that could be utilized by roosting bats is approximately 1.2 miles away from the project site. Further, measurements of current light levels within the impact area are currently above the illuminance necessary to alter bat behavior. Due to the lack of native habitat and high levels of pre-existing light, it is unlikely that bats utilize the project impact area for foraging or roosting activities. Therefore, the lighting proposed by the project would have no impact on bats.

Because bats are exceptionally light intolerant, the potential for impacts to birds or other species such as mammals would likely be less than that of bats. The nearest habitat with substantial areas that would support special-status wildlife is 1.2-miles away from the light source. The nearest SMM habitat block is over 1,700-feet away from the nearest light source and is a small habitat fragment not likely capable of supporting a population of special-status species. Because the potential lighting impacts would be within areas 359-feet from the proposed billboard no impacts would occur to wildlife because wildlife would occur at greater distances from the site in the areas where habitat occurs.

Common urban species may be deterred by the lighting, but these species are highly adaptable to night lighting and if present at the site are already accustomed to these conditions. Also, common urban wildlife has numerous urban areas to use outside of the proposed billboard effects and the "loss" of urban habitat is not significant. Native habitats are those that support native species and are provided protection by state and local regulation. No native habitat or wildlife would be impacted by the billboard lighting because it would be located too far away from the light source.

Impacts to Wildlife Movement Corridors and Habitat Linkages

The nearest habitat block in the SMM is located 1,700-feet away from the proposed project. Because the illumination effects on wildlife would only travel 385-feet from the billboard this would not have an impact or deterrent effect on the movement corridor or habitat block because it is too far away from the source. The footcandles of illumination at 1,700 feet from the project where the nearest habitat block occurs would be 0.012 footcandles, a negligible amount.



Source: BING Aerial Imagery 2023

9176 Sunset Boulevard Project

Figure 3. Light Impacts Map

0 70 140 Feet

N

Scale: 1:1,400

- Threshold for Significant Impact to Animals (328-ft)
- Threshold for Significant Impact to Plants
- Project Site

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Impacts to Plants

Trees and other plants can be impacted by raised light levels by either inducing photosynthesis or impacting the photoperiod. Photosynthesis requires a higher incident illuminance and is not applicable to this project because the source of light is not powerful enough. However, changes to a tree's photoperiod, which determines dormancy, shoot growth, and flowering, can occur at LED light levels as low as .279 footcandles. Therefore, according to Eq.1 trees such as southern California black walnut could be impacted by the project up to 359 feet away due to changes in photoperiod, as represented in Figure 3 and in Exhibit 1 above.

However, the areas surrounding the project site already exceed the illuminance necessary to alter a tree's photoperiod. The addition of the project's planned illuminance would not significantly change the lifecycle of any nearby trees because the changes would have already occurred within 359 feet of the proposed light source. As the area surrounding the project is entirely developed with roadways and housing it is unlikely for any sensitive natural communities would be impacted at this distance and the nearest known undeveloped area is 1,700-feet away. The addition of the project's light would not significantly impact any nearby sensitive natural communities or trees as a result.

Response to Public Comments

During the project proposal process, the community can submit comments concerning the project, including environmental concerns. This section aims to address comments concerning the environmental impact of the project that have not previously been addressed in this report.

Firstly, concerns were raised around the mountain lion (*Puma concolor*) population in the Santa Monica Mountains, specifically as a mountain lion has been sighted within Habitat Block 54 of the Santa Monica Mountains Conservancy. Habitat Block 54 is approximately 7920 feet from the project site. Accordingly, the maximum light cast from the project to that location would be .00057 footcandles. This amount of light is far below the threshold to create any impact to wildlife in the area, including any mountain lions that may be resident there.

Additional comments concern the impact on birds that may be flying over the project site, either by disorienting them during migration or by attracting them to the project site and causing collisional mortality. One cited study does support the idea that artificial light at night alters bird migration patterns and can attract birds[2], however this study was conducted approximately 6.2

[2] Poot, H., Ens, B. J., de Vries, H., Donners, M. A. H., Wernand, M. R., and Marquenie. J. M. (2008), Green light for nocturnally migrating birds. *Ecology and Society* ***13****(2): 47.*

miles away from other artificial lighting and can not shed light on how adding light to an already brightly lit urban area will impact bird migration patterns. Additionally, migrating birds regularly fly at altitudes of several thousand feet. At this vertical distance light from the proposed project will have degraded to negligible amounts due to the angle of the light and extreme distance. Therefore, it is unlikely that the proposed project will alter bird migration patterns over the already urbanized landscape.

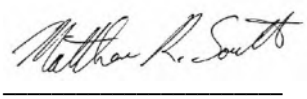
The impact of continuous building lighting on collisional bird deaths is a known concern of buildings and lighting. One study on collisional deaths at a low-rise building in Chicago found that collisions had a positive relationship with the percentage of lit area of the building and mostly impacted songbirds.[3] This analysis also found that colliding birds were attracted to specific light sources and were not simply disoriented by overall city sky glow. The proposed project, like all buildings, will result in some level of collisional bird deaths. However, the project site is in an already lit area, and songbirds would not be expected to be particularly attracted to the project given the existing light pollution. Further, these sporadic deaths will not endanger the urban songbird population as the area is already well lit and no native habitat or bird nesting habitat occurs on or near the project site. These minimal bird collision deaths would be at such a low rate as to not alter the trajectory of bird populations and would therefore not be significant according to CEQA.

Conclusion

This report analyzes the biological impacts of light from the proposed project at 9176 Sunset Blvd. in Los Angeles, California. A combination of database searches, literature review, and lighting study analysis were used to determine the potential impacts to biological resources near the project. There are significant levels of pre-existing light in the area because of surrounding roadways and developments. The distance at which light from the proposed project would be disruptive to biological resources is also very limited at 385-feet where only urbanized areas occur and no biological resources would occur. The nearest habitat block is 1,700 feet away from the project where lighting would increase a negligible 0.012 footcandles, which is well below the threshold for impacts to biological resources. Therefore, this analysis determined that no significant impact would be made to biological resources in the area.

Respectfully Submitted,

[3] Van Doren, B.M., et al. (2021), Drivers of fatal bird collisions in an urban center. *Proceedings of the National Academy of Sciences USA* **118**.



Matthew South

Principal Biologist

Attachment A – Lighting Study

Attachment A – Lighting Study

APPENDIX C1

Digital Lighting Study

FRANCIS KRAHE & ASSOCIATES
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Los Angeles, CA 90013
+1 213 617 0477
fkaild.com

SUNSET JEWEL BOX

9176 Sunset Boulevard,

West Hollywood, California

LIGHTING STUDY

Prepared for:

April 23, 2021

Table of Contents

List of Tables

List of Figures

This Lighting Study by Francis Krahe & Associate Inc. (Study) analyzes the proposed lighting associated with the Sunset Jewel Box (Project) located at 9176 Sunset Boulevard in the City of West Hollywood, California. The Project is a commercial use building located on the south side of the Sunset Boulevard right of way, to the east of the Cory Avenue intersection, and west of 9156 Sunset Boulevard.

This Study reviews the parameters that affect light trespass or Glare (each as defined below) at adjacent sensitive use properties in the vicinity of the Project, reviews the applicable lighting metrics and regulations pertaining to artificial lighting, examines the existing lighting conditions within and surrounding the Project, and evaluates the Project's illuminated sign (Sign) to identify potential environmental impacts on surrounding sensitive use properties.

The methods of analysis utilized for this Study are based upon the recommended practices established by the Illuminating Engineering Society of North America (IESNA) for the practice of illumination engineering design and application, and the actual measurements of light sources and illuminated surfaces. The IESNA 10th Edition Handbook is the current reference published by IESNA, which supersedes the 9th Edition IESNA Handbook and various Recommended Practice (RP) References published by IESNA prior to 2011.

1. Summary

This Study reviews the proposed Project (as described herein as Appendix A) with respect to light trespass and glare at adjacent sensitive use properties near the Project Site. These adjacent sensitive use properties are identified as the most sensitive use sites due to their close proximity to the Project and possible direct view of the Project Signs. Light intensity diminishes rapidly in relation to distance (see Inverse Square Law page 8). Therefore, more distant sensitive site locations will receive much lower Light trespass illuminance and or luminance, and will therefore be less affected by the Project.

Exterior lighting issues are focused around two key subjects: light trespass and glare. These two technical terms are defined by the IESNA as follows:

- ***Light Trespass***[1] is the artificial light produced on a property that falls on an adjacent property. Light trespass is measured in terms of illuminance (foot-candles or metric units lux), and can be measured at any point and in any direction. Where Light trespass is evaluated the illuminance is measured perpendicular to the source of light, toward the source of light, at the property line, or the location where light would cause an issue. Light trespass is evaluated at night.

- ***Glare***[2] occurs when either the luminance is too high or the range of brightness in a visual field is too large. A bright light source, such as a flood light or street light, viewed against a dark sky may be uncomfortable to look at, and may create a temporary sensation of blindness, which is referred to as disability glare. Glare is evaluated by measuring the luminance (footlamberts or metric units candelas/m^2) at the source of light, such as a digital sign, in comparison to the surrounding adjacent luminance. Contrast ratios define the extent of Glare within the field of view at any observer position. The Contrast ratio is determined by the variation of luminance within the field of view. "High," "Medium," and "Low" Contrast ratios are the comparison of peak measured luminance to the average luminance within a field of view: Contrast ratios greater than 30:1 (High); between 30:1 to 10:1 (Medium); and below 10:1 (Low), respectively. Contrast ratios above 30:1 are generally uncomfortable for the human eye to perceive. Any source luminance that is more than 50 times the adjacent background will be viewed as prominent, and, may be viewed as distracting. Glare may occur either during the day or night.

[1] IESNA Handbook, 10th Edition, 19.3: Light Pollution and Trespass, page 19.7
[2] IESNA Handbook, 10th Edition, 4.10: Glare, page 4.25

This Study analyzes the Project's potential environmental impacts relating to lighting based on The Project's illuminated sign (Sign Lighting), as described by the Sign Concept Design Documents included in Appendix A of the Study.

The Project Sign Lighting would ultimately comply with the requirements of the City of West Hollywood Sunset Boulevard Off-Site Signage Policy (WEHO Policy) as adopted as an amendment to the Sunset Specific Plan (Ordinance No. 19-1063) by the City (Appendix B), which regulates sign types, location, size and operating characteristics of signage proposed on the Project Site specifically and within the WEHO Policy boundaries generally. For purposes of impact analysis, this Study analyzes the proposed signage on the Project Site (identified in Appendix A as the Conceptual Sign Plan).

This Study utilizes the illumination standards for Sign Lighting as defined by WEHO Policy for sensitive use properties adjacent to Sunset Boulevard for purposes of environmental analysis. Accordingly, the Sign Lighting would comply with the following requirements:

- Light trespass illuminance less than 1.4 footcandles (fc) at residential use properties adjacent to Sunset Boulevard.
- Illuminated signs will not exceed 6000 candelas/m^2 luminance during the day from sunrise until 20 minutes prior to sunset.
- Illuminated signs will not exceed 300 candelas/m^2 at night from sunset until 20 minutes prior to sunrise.
- From 2:00 a.m until sunrise no animated content or moving patterns shall be permitted.
- Sign luminance shall transition smoothly from daytime luminance to nighttime luminance and vice versa.
- Illuminated signs that have the potential to exceed 300 candelas/m^2 will include an electronic control mechanism to reduce sign luminance to 300 candelas/m^2 at any time when ambient sunlight is less than 100 footcandles (fc).
- Externally illuminated signs will incorporate design elements to limit the direct view of the light source surface at all exterior light fixtures to ensure that the light source cannot be seen from adjacent residential-zoned properties.

This Study demonstrates light trespass from the Project Sign at sensitive use properties adjacent to Sunset Boulevard would be below the 1.4 footcandles (fc) limit for illuminated signs as defined by the WEHO Policy. There is no light trespass limit for commercial use properties, which are not considered light or glare-sensitive receptors. Therefore, this Study does not evaluate light trespass illuminance or glare from the Project Sign at commercial properties.

This Study also evaluates Project Sign light trespass illuminance at sensitive use properties more distant from Sunset Boulevard, which are not a part of the WEHO Policy Specific Plan, with the maximum illuminance defined by the California Energy Commission for urban areas in California, Lighting Zone LZ3, 0.74 fc. This Study demonstrates the light trespass from the Project Sign at more distant residential properties that are more than 250 feet from Sunset Boulevard will be less than 0.74 fc.

Furthermore, the Project Sign is evaluated with respect to glare visible at adjacent residential properties or roadways. To present a conservative analysis, this Study evaluates the Project Signs with a maximum luminance of 6000 cd/m^2 during the day and 300 cd/m^2 at night with all Project Signs operating at all white. This Study confirms the contrast ratios, which compares the maximum sign luminance to the existing average luminance measured at the Monitoring Sites, are less than 30:1. Therefore, the Project Sign would not create a new glare condition at adjacent residential properties.

The glare at roadways is evaluated with respect to the standards identified by the California Motor Vehicle Code, which defines maximum sign luminance within drivers field of view for both day and night. This Study confirms the Project Sign would not exceed the maximum luminance defined by the California Motor Vehicle Code during the day, at night, and during periods of low sun intensity. Therefore, the results of this Study indicate the Project Sign would not create a new source of Light trespass or glare.

2. Project Description

The Project consists of a new commercial development (Project) totaling approximately 53,030 square feet of floor area on an approximately 18,608 square feet property at 9176 Sunset Boulevard, West Hollywood, California (see Figure 1). The Project is a commercial use building located on the south side of the Sunset Boulevard right of way, to the east of

Figure 1: Project Site

the Cory Avenue intersection, and west of 9156 Sunset Boulevard. The Project includes illuminated digital signs as described by the Sign Concept Design attached herein as Appendix A.

3. Glossary of Lighting Terminology

Discussions of lighting issues include precise definitions, descriptions or terminology of the specific lighting technical parameters. The following glossary summarizes explanations of the technical lighting terms utilized in this Study and the related practice standards to facilitate discussion of these issues. The following technical terms are used in this Study.

Brightness: The magnitude of sensation that results from viewing surfaces from which light comes to the eye. This sensation is determined partly by the measurable luminance of the source and partly by the conditions of observation (Context), such as the state of adaptation of the eye. For example, very bright lamps at night appear dim during the day, because the eye adapts to the higher brightness of daylight.

BUG Rating: A luminaire classification system established in *IES TM-15-11*, BUG Ratings Addendum that provides for uniform assessment of the directional characteristics of illumination for exterior area lighting. BUG is an acronym composed of Backlight, Uplight, and Glare. BUG ratings are based on a zonal lumen calculations for secondary solid angles defined in *IES TM-15-11*.

Candela: Measure of light energy from a source at a specific standard angle and distance. Candela (cd) is a convenient measure to evaluate output of light from a lamp or light fixture in terms of both the intensity of light and the direction of travel of the light energy away from the source.

Contrast: Calculated evaluation of high, medium and low contrast of visible light sources or surfaces within the Property by a ratio of luminance. Contrast is the ratio of one surface luminance to a second surface luminance or to the field of view. Contrast exceeding 30 to 1 are usually deemed uncomfortable; 10 to 1 are clearly visible; and less than 3 to 1 appear to be equal.

Fully Shielded: A lighting fixture constructed in such a manner that all light emitted by the fixture, either directly from the lamp or a diffusing element, or indirectly by reflection or refraction from any part of the Luminaire, is projected below the horizontal as determined by photometric test or certified by the manufacturer. Any structural part of the light fixture providing this shielding must be permanently affixed. In other words, no light shines above the horizontal from any part of the fixture.

Glare: Glare is visual discomfort experienced from high luminance or high range of luminance. For exterior environments at night, glare occurs when the range of luminance in a visual field is too large. The light energy incident at a point is measured by a scale of footcandles or lux, and is described in the technical term Illuminance. This incident light is not visible to the eye until it is reflected from a surface, such as pavement, wall, dust in the atmosphere or the surface of a light bulb. The visible brightness of a surface is measured in footlamberts (or metric equivalent candelas per square meter) and is described by the term Luminance.

The human eye processes brightness variations across a very broad spectrum of intensities. The range of brightness generated by direct noon sun versus a moonlight evening is over 5000 to 1. Human eyes are capable of accommodating to this range of intensities given adequate time to adjust. However, the eye cannot process brightness ratios of more than 30 to 1 within a view without discomfort. See IESNA 10th Edition Handbook, Section 4.10.1, Discomfort Glare and Section 10.9.2 Calculating Glare.

For the purpose of this analysis, brightness of light sources may be described subjectively by the following criteria:

High Contrast Conditions: View of light fixture emitting surface, such as a lens, reflector, or lamp, where brightness contrast ratio exceeds 30 to 1 (source Luminance to background Luminance ratio in footlamberts).

Medium Contrast Conditions: Brightly lighted surfaces where contrast ratio exceeds 10 to 1, but is less than 30 to 1 (lighted surface Luminance to background Luminance ratio in footlamberts).

Low Contrast Conditions: Illuminated surfaces where contrast ratio exceeds 3 to 1, but less than 10 to 1 (source Luminance to background Luminance ratio in footlamberts).

Illuminance:

Illuminance is the means of evaluating the density of Luminous Flux. Illuminance indicates the amount of Luminous Flux from a light source falling on a given area. Illuminance is measured in footcandles (fc) which is the lumens per square foot, or Lux (lumens per square meter). Illuminance need not necessarily be related to a real surface since it may be measured at any point within a space. Illuminance is determined from the Luminous intensity of the light source. Illuminance of a point source decreases with the square of the distance from the light source (see Inverse Square Law definition).

Horizontal Illuminance:

Illuminance incident upon a horizontal plane. The orientation of the illuminance meter or calculation point will be 180° from Nadir.

Vertical Illuminance:

Illuminance incident upon a vertical plane. The orientation of the illuminance meter or calculation point will be 90° from Nadir.

Inverse Square Law:

In physics, an inverse-square law is any physical law stating that a specified physical quantity or intensity is inversely proportional to the square of the distance from the source of that physical quantity. The fundamental cause for this relationship can be understood as geometric dilution

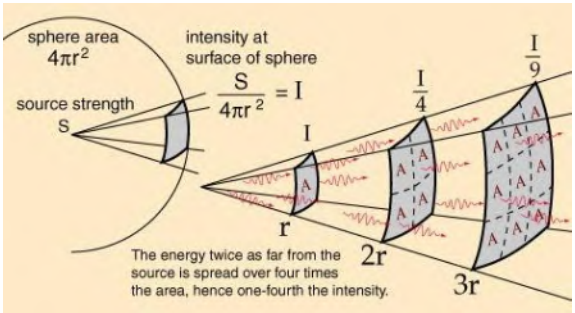

Figure 2: Inverse square law diagram (hyperphysics.phy-ast.gsu.edu)

corresponding to point-source radiation into three-dimensional space (see Figure 2). The divergence of a vector field which is the resultant of radial inverse-square law fields with respect to one or more sources is everywhere proportional to the strength of the local sources, and hence zero outside sources. Newton's law of universal gravitation follows an inverse-square law, as do the effects of electric, magnetic, light, sound, and radiation phenomena. Thus, Illuminance decreases with the square of the distance from the light source.

Output Direction: Luminaires for general lighting are classified in accordance with the percentages of total luminaire output emitted above and below horizontal. The light distribution curves may take many forms within the limits of upward and downward distribution, depending upon the type of light and the design of the luminaire.

Lighting Array: An installation of multiple light sources or lamps where the distance between each lamp or light source within the Lighting Array is less than 5 feet on center in any direction from any other source.

Light Source: Device which emits light energy from an electric power source.

Light Trespass: Electric light from subject property incident onto adjacent properties, measured in footcandles or lux, usually analyzed by measurement at or near the adjacent property line.

Lighting Zone (LZ): Defined by IESNA and summarized in Table 26.4 in the Handbook and adopted by CALGreen.

Lighting Zone LZ2: Outdoor areas of human activity where the vision of human residents and users is adapted to moderate light levels. Lighting is not uniform or consistent. Lighting is generally desired for safety, security and/or convenience.

Lighting Zone LZ3: Outdoor areas of human activity where the vision of human residents and users is adapted to moderately high light levels. Lighting is generally desired for safety, security and/or convenience.

Lighting Zone LZ4: Outdoor areas of human activity where the vision of human residents and users is adapted to high light levels. Lighting is generally desired for safety, security and/or convenience.

Luminaire: A complete lighting unit consisting of a lamp or lamps and ballast(s) (when applicable) together with the parts designed to distribute the light, to position and protect the lamps, and to connect the lamps to the power supply. Also referred to as a Light Fixture.

Luminance: Luminance is a measure of emissive or reflected light from a specific surface in a specific direction over a standard area. Luminance is measured in footlamberts (fL) (Candela per square foot) or cd/m^2 (Candela per square meter). 1fL = 3.43 cd/m^2.

Whereas Illuminance indicates the amount of Luminous Flux falling on a given surface, Luminance describes the brightness of an illuminated or luminous surface. Luminance is defined as the ratio of luminous intensity of a surface (Candela) to the projected area of this surface (m^2 or ft^2).

Luminous Flux: Mean value of total Candelas produced by a light source. Luminous Flux describes the total amount of light emitted by a light source. The unit for measuring Luminous Flux is Lumen (lm).

This radiation could basically be measured or expressed in watts. This does not, however, describe the optical effect of a light source adequately, since the varying spectral sensitivity of the eye is not taken into account. To include the spectral sensitivity of the eye the Luminous Flux is measured in lumen. Radiant Flux or 1 W emitted at the peak of the spectral sensitivity (in the photopic range at 555 nanometers produces a Luminous Flux of 683 lumen). The unit of lumen does not define direction.

Sensitive Use Site: A property located near the Project Site where light from the Project may interfere with the use within the property, or may present an adverse effect to flora and fauna within the property. Sensitive Use Sites for this Study include residentially zoned properties, outdoor dining restaurants, and native habitat.

Skyglow: Skyglow is the description of luminous atmospheric background and results from both natural and human made conditions. Natural causes of skyglow include sunlight reflected from the surface of the earth and moon, sunlight illuminating the upper atmosphere, and visible illumination from other interplanetary sources. Human made causes of skyglow include electric light that is emitted directly upward into the sky (Uplight), or reflected off of the ground.

4. Review of Lighting Regulations & Reference Standards

Exterior lighting is regulated throughout California by the local municipal code and the state energy and building codes. Pertinent lighting sections are summarized and discussed for the City of West HollywoodMunicipal Code, the Sunset Boulevard Specific Plan, the State of California Green Building Code, and the California Energy Code (CalGreen). Reference standards include model lighting ordinances provided by the Illuminating Engineering Society of North America (IESNA) and the International Dark Sky Organization, ASHRAE 90-75, and the U.S. Green Building Council. Various aspects of these reference standards are included in local regulations to improve the outcomes of any approved project and avoid future disputes or legal challenges to proposed lighting plans. The lighting standards summarized below balance the requirements of property owners for sufficient brightness and flexibility for the use of their property, with minimizing the off-site negative effects of Light trespass and Glare.

4.1 Sunset Boulevard Specific Plan

The Sunset Boulevard Specific Plan (the “Specific Plan”) regulates lighting with respect to building lighting, transportation, street lighting and light trespass (i.e., the spillover of light onto adjacent light-sensitive properties) and Sign Lighting. The City also enforces the building code requirements of the West Hollywood Building Code, the California Building Code, the California Green Building Standards Code (CALGreen), and the California Electrical Code.

The Specific Plan includes the following requirements which apply in this Study to Sign illumination within the Sunset Boulevard Off-Site Signage Policy (WEHO Policy).

- Sign luminance will be less than 6,000 candelas per meter squared (cd/m^2) during the day, and less than 300 cd/m^2 from 20 minutes prior to sunset until 20 minutes prior to sunrise.

- Sign luminance shall transition smoothly over no less than 20 minutes, from the daytime to the nighttime (or nighttime to daytime) maximum luminance.

- From 2:00 a.m until sunrise no animated content or moving patterns shall be permitted

- Sign illuminance will not exceed 1.4 foot-candles at any adjacent residential zoned property.

In this Study the standards above apply to Sign Lighting where Project Signs are adjacent to sensitive use properties within the City of West Hollywood and adjacent to, within 250 feet of Sunset Boulevard. The distance of 250 feet is identified in the Sunset Strip Off-Site Signage Policy Initial Study / Negative Declaration, Section 3.1(d), page 252 (attached herein Appendix C), which states:

> "Along Sunset Boulevard, most residential properties are set back behind the commercial properties that front onto Sunset Boulevard. The slope to the north and south of Sunset Boulevard significantly afftest the visibility of signs from residential properties. … The distance from Sunset Strip properties to adjacent residential properties varies consideralby. The properties within close proximity are generally 250 feet to 300 feet away from the existing signs on Sunset Boulevard."

Therefore, residential use properties within 250 feet of Sunset Boulevard are considered within the area included to and subject to the WEHO Policy regulations and the 1.4 fc light trespass illuminance threshold applies.

This Study also evaluates Sign light trespass illuminance at sensitive use properties that are not adjacent to Sunset Boulevard and more than 250 feet from Sunset Boulevard, and not a part of the Sunset Specific Plan and directly regulated by the WEHO Policy. For those residential or sensitive use properties that are not adjacent to Sunset Boulevard, the regulations of CALGreen would apply as noted below.

- CEC defines all urban areas as LZ3 (see below). Therefore, Project Sign light trespass illuminance will not exceed 0.74 foot-candles at any adjacent residential zoned property more than 250 feet away from Sunset Boulevard.

4.2 California Code of Regulations, Title 24

Title 24 of the California Code of Regulations (CCR), also known as the California Building Standards Code, includes regulations for signs throughout the State of California. The following components of Title 24 include standards related to Sign Lighting:

a. 2019 California Administrative Code, Administrative Regulations for the California Energy Commission (CEC):

The California Administrative Code, which is Part 1 of Title 24, includes Section 10-114. Determination of outdoor lighting zones and administrative rules for use. This section establishes rules for implementing outdoor lighting zones, and is included herein as Appendix D.

Nighttime lighting environment are defined as Lighting Zones 1 through 4 in Table 10-114-A LIGHTING ZONE CHARACTERISTICS AND RULES FOR AMENDMENTS BY LOCAL JURISDICTIONS. The requirements of Section 10-114 are established to show compliance with Section 140.7 of Title 24, California Code of Regulations, Part 6. The description of nighttime lighting environments in Table 10-114 are similar to IESNA Table 26.4, discussed below.

The Project Site and surrounding properties are an urban, mixed use, commercial and residential zone with extensive nighttime use, including nearby industrial, retail, restaurants, and entertainment venues. Current best practices for lighting standards recognize the unique issues related to nighttime use adjacent to sensitive use sites. As noted above, CEC includes designations for Lighting Zones (LZ) 1 through 4, included below in Appendix D, which correspond to the Light trespass Illuminance recommendations within the IESNA 10th Edition Handbook, Table 26.4, included herein Appendix H and I respectively. The IESNA recommendations for Light trespass Illuminance vary based upon the extent of nighttime human activity and the extent of natural habitat.

The existing conditions surrounding the Project site and along Sunset Boulevard are consistent with the definition of Lighting Zone 4 noted above. In addition, the IESNA defines Lighting Zone 4 as:

> "areas of human activity where the vision of human residents and users is adapted to high light levels. Lighting is generally considered necessary for safety, security and/or convenience and it is mostly uniform or continuous."

IESNA Table 26.5, lists a Pre-curfew 15 Lux (1.4 footcandles) maximum at the location where trespass is under review for Zone 4. As noted above, the City of West Hollywood Ordinance has incorporated the requirements of Lighting Zone 4, 1.4 fc maximum light trespass illuminance, for all residential properties in the vicinity of Sunset Boulevard. Therefore, this Study utilizes the WEHO Policay maximum Sign light trespass illuminance of 1.4 fc at sensitive use properties adjacent to Sunset Boulevard.

Per the CEC, California Building Energy Efficiency Standards, Section 10-114, the designations for outdoor lighting zones in urban areas are as follows:

> "The default for urban areas, as defined by the U.S. Census Bureau, is Lighting Zone 3. Local AHJs (Authorities Having Jurisdiction) 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."

All urban areas within California are designated Lighting Zone 3 as default under the CEC. The corresponding light trespass illuminance defined by IESNA for LZ, which limits the Light trespass to 8 lux (0.74 footcandles). Therefore, all urban areas within the City of West Hollywood not included within the Sunset Specific Plan, and adjacent neighborhoods within the City of Los Angeles, and the City of Beverly Hills are designated by CEC as Lighting Zone 3. The City of Los Angeles Municipal Code includes sign lighting regulations which permit sign light trespass illuminance not to exceed 3.0 fc (LAMC Section) at a residential use property. However, this Study utilizes the more stringent CEC designation of LZ 3, 0.74 fc as the basis of the evaluation of Project Sign light trespass to present a more conservative analysis for areas not within the Sunset Boulevard Specific Plan.

b. California Energy Code 2019, Section 140.7, PRESCRIPTIVE REQUIREMENTS FOR OUTDOOR LIGHTING

The California Energy Code (CEC) stipulates allowable energy use for Outdoor Lighting (see Appendix E herein), including with the aim of reducing energy consumption at night through efficient and effective use of sign lighting equipment. Sign lighting is exempt as per "Section 140.7 (a), Exceptions to Section 140.7(a) …. 7. Lighting of signs complying with the requirements of Sections 130.3 and 140.8". However, the requirements of CEC are applied in this Study to present a conservative analysis of light trespass illuminance at residential use properties.

c. California Energy Code 2019, Section 130.3, SIGN LIGHTING CONTROLS

The California Energy Code (CEC) stipulates control requirements for signs (see Appendix F herein), including with the aim of reducing energy consumption at night through efficient and effective use of sign lighting equipment.

d. California Energy Code 2019, Section 140.8, PRESCRIPTIVE REQUIREMENTS FOR SIGNS

The California Energy Code (CEC) stipulates energy and light source requirements for signs (see Appendix G herein), including requirements for "(a) Maximum allowed lighting power.", or "(b) Alternate lighting sources." Both sections require high efficiency light sources, LED, or equivalent.

4.3 California Vehicle Code, Division 11. Rules of the Road

Chapter 2, Article 3 of the California Vehicle Code stipulates limits to the location of light sources that may cause glare and impair the vision of drivers.

ARTICLE 3. Offenses Relating to Traffic Devices [21450 - 21468] (Article 3 enacted by Stats. 1959, Ch. 3.), Section 21466.5. No person shall place or maintain or display, upon or in view of any highway, any light of any color of such brilliance as to impair the vision of drivers upon the highway. A light source shall be considered vision impairing when its brilliance exceeds the values listed below.

The brightness reading of an objectionable light source shall be measured with a 1-1/2 degree photoelectric brightness meter placed at the driver's point of view. The maximum measured brightness of the light source within 10 degrees from the driver's normal field of view shall not be more than 1,000 times the minimum measured brightness in the driver's field of view, except that when the minimum measured brightness in the field of view is 10 footlamberts or less, the measured brightness of the light source in footlambert shall not exceed 500 plus 100 times the angle, in degrees, between the driver's field of view and the light source.

4.4 IESNA Recommended Practices

The Illuminating Engineering Society of North America (IESNA) recommends illumination standards for a wide range of building and development types. These recommendations are widely recognized and accepted as best practices and are therefore a consistent predictor of the type and direction of illumination for any given building type. For all areas not stipulated by the regulatory building code, municipal code or specifically defined requirements, the IESNA standards are used as the basis for establishing the amount and direction of light for the Project.

The IESNA 10th Edition Lighting Handbook and subsequent publications define Outdoor Lighting Zones relative to a range of human activity versus natural habitat. Table 26.4, Nighttime Outdoor Lighting Zone Definitions, included in Appendix H of this Study, establishes the Zone designation for a range of existing lighting conditions, from low or no existing lighting to high light levels in urban areas. Table 26.4 is referenced by the CEC as noted above in relation to allowable energy use for outdoor lighting. In addition, the IESNA 10th Edition Lighting Handbook defines Recommended Light trespass Limits in Table 26.5, included in the Appendix I hereto, relative to the Outdoor Lighting Zones. The Recommended Light trespass Illuminance Limits describe the maximum Light trespass values in Lux at the location where trespass is under review.

The existing conditions surrounding and adjacent to the Project site are best described as Lighting Zone 4 in IESNA Table 26.4. Therefore, the corresponding maximum Pre-curfew illuminance for Zone 4 identified in IESNA Table 26.5 is 15 Lux (1.4 footcandles) maximum at the location where trespass is under review.

5. Significance Threshold

Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 California Code of Regulations, Sections 15000–15387) provides a set of sample questions to evaluate impacts with regard to aesthetics, including light and glare. The question that pertains to light and glare is as follows:

Would the project:

Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

In the context of this question from Appendix G of the CEQA Guidelines, the determination of significance in this Study takes into account the following factors:

The change in ambient nighttime levels as a result of project sources; and

The extent to which project lighting would spill off the Property and affect adjacent residential zoned properties.

Specifically, the Project would create a significant impact with regard to artificial light or glare if:

Project Sign Light trespass illuminance is greater than 1.4 fc at residential zoned property lines adjacent to Sunset Boulevard.

Project Sign Light trespass illuminance is greater than 0.74 fc at residential zoned property lines beyond 250 feet from Sunset Boulevard.

Project Sign creates Glare with new high contrast conditions, with luminance greater than 300 cd/m^2 or contrast ratio greater than 30:1, visible from a field of view from a residentially zoned property.

In addition, based on the California Vehicle Code requirements identified above, the Project would create a significant impact with regard to artificial light or glare effects on drivers of motor vehicles if:

The maximum measured brightness of the light source within 10 degrees from the driver's normal field of view shall not be more than 1,000 times the minimum measured brightness in the driver's field of view, except that when the minimum measured brightness in the field of view is 10 footlamberts or less, the measured brightness of the light source in footlambert shall not exceed 500 plus 100 times the angle, in degrees, between the driver's field of view and the light source.[3]

[3] The driver's field of view from the center of the roadway plus 10 degrees."

6. Methodology

6.1 Existing Conditions Procedures

Existing conditions lighting observations were conducted following recommended practice procedures defined by the IESNA in RP-33-00 Lighting for Outdoor Environments, TM-10-00 Addressing Obtrusive Light (Urban Sky Glow and Light trespass) in Conjunction with Roadway Lighting, and TM-11-00 Light trespass: Research, Results and Recommendations. Field illuminance and luminance measurements were conducted to accurately document all existing incident and visible light at each Monitoring Site location. Incident light can be understood as a vector of luminous flux moving through space. As the vector (light) is incident upon a surface, the intensity of the resulting illuminance will vary depending upon the relative orientation of the vector to the surface. The greatest illuminance will result when the surface and vector are perpendicular. The least illuminance will result when the surface and vector are parallel. In the field conditions, where there are multiple sources of light originating from varied positions, illuminance measurements are recorded horizontally with the photosensor facing up at 3 feet above grade, and vertically with the photosensor facing the Project as per as per IESNA standards. These measurements document the total horizontal illuminance received at a Monitoring Site as well as the direction and intensity of light converging on the Monitoring Site from the direction of the Property. Since most of the Monitoring Sites are located at a long distance away from the Property, greater than 100 feet as noted in Section 7 below, the vertical illuminance represents a plane perpendicular to the light sources. Under these conditions, there is little difference between the vertical and perpendicular plane, and the vertical plane analysis that is conducted in this Study would be equal to or greater than the measured luminance from a precisely perpendicular plane analysis. Therefore, this study utilizes a vertical and horizontal illuminance analysis. The existing Illuminance is measured with a Minolta Illuminance meter.

Figure 3: Minolta LS-100 meter

The existing luminance is measured from a Monitoring Site to light sources and surfaces within the field of view toward the Property from that Monitoring Site. The existing conditions luminance data is measured with a Minolta LS-100 Luminance meter with procedures consistent with best practices for field measurement of luminance as per IESNA standards. The LS-100 meter utilized by Francis Krahe & Associates, Inc. reports luminance data in either candelas per square meter or footlamberts (fL). All existing luminance data measured and reported in this Study are recorded as cd/m^2.

6.2 Project Analysis

The analysis of the Project includes evaluation of the Light trespass illuminance from the Project at adjacent sensitive use properties, and an evaluation of glare from the Project visible at sensitive use properties or at adjacent roadway locations.

This Study presents a conservative analysis with respect to Light trespass and glare. The Project Sign Lighting presented in Appendix A is evaluated with all lighting permitted within the limits of the WEHO Policy. The Project Sign Lighting presented in Appendix A is evaluated with the sign operating at the maximum night luminance, all white.

a. Project Light Trespass Analysis

Light trespass illuminance is evaluated with respect to vertical illuminance at the locations where lighting is under review through the illumination modeling software program AGI32. This software utilizes the Project three-dimensional architectural computer model and the building exterior materials to generate an accurate prediction of future Project illuminance from the Project Sign identified within the Sign Concept (Appendix A). The calculated illuminance data is presented at 10 feet on center within a vertical planar surface. The calculation plane simulates the illumination (fc) captured by light meters.

Figure 4: Vertical Calculations Planes, WHMC

Light trespass illuminance from the Project Sign is evaluated in this study at the nearest residential use or other sensitive use property. . Vertical calculation planes for the Sign Light trespass analysis are presented in Figure 4.

The locations for analysis correspond to the adjacent residential use properties, as illustrated in Figure 4. Light trespass illuminance is evaluated within vertical planes at each adjacent property line location extending from grade to a maximum building or sign elevation above grade (for this Project 78.5 feet above grade).

The vertical calculation planes analyze the lighting at locations near the Project property line, which will be greater than the illuminance at any location more distant from the Project. Incident light (fc) from a source degrades in proportion to the inverse square of the distance from the source to the location where lighting is under review. The illuminance Ev (fc) incident at any given distance D (ft) from an illuminated surface S (ft^2) with uniform surface luminance of L (cd/m^2) is calculated by the following formula:

$$E_v = \frac{L \times S}{10.76 \times D^2}$$

This formula illustrates the reduction in illuminance at any location as the distance increases from a light source. More distant residential properties or other sensitive sites will receive less light from the Project due to the increased distance. Therefore, the Project will produce a less significant Light trespass impact on residential properties or other sensitive sites more distant from the review locations identified in Figure 4.

b. Project Glare Analysis

Glare from the Project is evaluated at adjacent residential use properties and for drivers on adjacent streets. Project Sign Lighting luminance is evaluated by the contrast ratio, which equals the maximum Project luminance divided by the measured average existing luminance within the field of view as measured at the Monitoring Sites identified in the field survey of existing conditions (see Section 7 below). Contrast ratios greater than 30:1 are considered potential glare conditions.

Luminance is independent of distance for large area sources, such as illuminated signs, where the viewing locations are relatively close to the sign and the sign fills a large portion of the field of view. At viewing locations less than 19 times the height or width of the illuminated surface, the sampled area viewed or measured by a luminance meter increases with distance, cancelling the inverse square losses. The standard meter for luminance measurement utilizes a 3 degree lens, thus the 3 degree view translates to approximately 19.1 times the height or width dimension. At viewing locations beyond 19 times the height or width the illuminated surface becomes a point source, and the inverse square relationship will again predict the measured luminance or perceived brightness. The Project includes the sign as defined in Appendix A. The luminance of the Project Sign is analyzed with a constant luminance of 300 cd/m^2 for all viewing distances up to 1,000 feet.

The potential roadway Glare impacts are analyzed with respect to the Project luminance compliance with the California Vehicle Code requirements for both night and day conditions. According to California Vehicle Code Section 21466.5, the Project would have a significant impact with regard to artificial light or glare if:

The maximum measured brightness of a light source within 10 degrees from a driver's normal line of sight exceed 1,000 times the minimum measured brightness in the driver's field of view, except when the minimum values are less than 10 footlamberts (fL).

At minimum luminance less than 10 footlamberts (fL) the source brightness shall not exceed 500 fL plus 100 times the angle, in degrees, between the driver's line of sight and the light source.

7. Project Existing Conditions

This Lighting Study by Francis Krahe & Associate Inc. (Study) analyzes proposed lighting associated with the Sunset Jewel Box (Project) located at 9176 Sunset Boulevard in the City of West Hollywood, California. The existing lighting conditions within and surrounding the Project include city streetlights, exterior parking lot lights, exterior lighting utilized for security and safety, commercial illuminated signs, and landscape lighting at adjacent residences.

The distance to adjacent residential properties varies considerably. There are existing residential properties located 104 feet to the southeast of the Project southeast property line at 1031 Carol Street, located at 375 feet west of the Project site at 9233 Doheny Road, and located at 215 feet to the north of Project property line at 1112 Cory Avenue.

7.1 Existing Conditions Monitoring Sites

Monitoring sites are utilized to describe and evaluate the existing lighting conditions at and surrounding the Property to determine the maximum potential impacts that may result from light or glare onto adjacent sensitive sites surrounding the Property. All Monitoring Site locations are within close proximity of the Project and have views of the Property. Monitoring Sites may also be considered existing residential use properties, or may be located adjacent to existing residential properties.

The following criteria are used to select potential Monitoring Site locations:

Project Light Visibility – Monitoring sites are analyzed that provide direct view of the areas of greatest light intensity from the Project.

Proximity – Monitoring sites at the least distance to the Project are analyzed. These locations are selected because light intensity decreases exponentially with distance. Locations at a greater distance will experience less light intensity than nearby locations.

Figure 5 shows the Project's location, the Monitoring Site locations and the properties surrounding the Project. The Project site is shaded green. Monitoring Site locations were selected for observation and field lighting measurements to evaluate the views to the Project from adjacent residential properties and to determine the extent and intensity of existing light sources within and surrounding the Project. The Monitoring Sites are within the public right of way, adjacent to residences or at the Project property line. These locations are representative of the view to the Project from the vicinity of the sensitive sites surrounding the Project to the north, east, south and west.

Figure 5 illustrates the following Monitoring Site locations:

Monitoring Site M-E1: Monitoring Site M-E1 is located adjacent to 1033 Carol Drive at the west side of the Carol Street right of way, to evaluate the Project east elevations and east facing signs. The distance to the Project property line is approximately 104 feet, and the distance to the Project east exterior sign face is approximately 165 feet.

Monitoring Site M-N1: Monitoring Site M-N1 is located adjacent to the north Project property line, adjacent to the 1112 Cory Avenue, to evaluate the Project north elevations and north facing signs. The distance to the Project property line is approximately 215 feet, and the distance to the Project north exterior sign face is approximately 215 feet.

Figure 5: Monitoring Sites

Monitoring Site M-N2: Monitoring Site M-N2 is located adjacent to the north Project property line, adjacent to the 1245 North Doheny Drive, to evaluate the Project north elevations and north facing signs. The distance to the Project property line is approximately 930 feet, and the distance to the Project north exterior sign face is approximately 930 feet. The Project Sign may be visible from M-N2 due to the increased street elevation relative to the Project Site and the elevation of buildings and trees between the Project site and M-N2. Properties to the south of M-N2 along Doheny Drive are at lower elevation relative to the Project Sign and the view from Doheny Drive to the Project Site is obscured by trees and buildings fronting on Sunset Boulevard.

Monitoring Site M-W1: Monitoring Site M-W1 is located adjacent to the east property line of 9233 Doheny Road, at the west sidewalk of Sunset Hills Road, to evaluate the Project west elevation and west facing signs. The distance to the Project property line is approximately 375 feet, and the distance to the Project west exterior sign face is approximately 375 feet.

Monitoring Site M-S1: Monitoring Site M-S1 is located adjacent to the north property line of 1024 Corey Ave., at the south side of the property, to evaluate the Project south elevations and south facing signs. The distance to the Project property line is at the property line, there are no signs on the south side of the project.

7.2 Criteria

As established in Section 1.3, the following factors were used to assess the existing conditions at each Monitoring Site:

Table 1. Existing Conditions Lighting Criteria

Criteria	Metric	Procedure
Light trespass - Illuminance	Measured illuminance (footcandle) documented at each Monitoring Site	Measured illuminance recorded each Monitoring Site with Minolta illuminance meter.
Glare – Contrast Ratio	Measured luminance candelas per meter squared, documented at each Monitoring Site Observed existing conditions	Measured luminance recorded at each Monitoring Site with Minolta luminance meter. Day and night photograph to record the evaluation of the view to the Project Site from the Monitoring Site in terms of Project visibility and prominent light sources, lighted surfaces, and illuminated signs.

7.3 Monitoring Site Survey Data

The observations and measurement of existing lighting conditions within and surrounding the Property are summarized below in relation to the evaluation factors established in Section 5, Significance Threshold:

Illuminance: The Illuminance listed in Table 2, below, summarize the measured Illuminance at the Monitoring Sites. The measured illuminance is consistent with an urban lighting condition, with relatively high illuminance at the street and sidewalk within the public right of way and nearby commercial properties, and lower illuminance within the residential properties, but sufficient light for safety and security. The existing Property includes lighting for the existing parking lot and signs. Adjacent commercial properties to the south, east, and west contribute to a relatively bright night environment.

Measured illuminance greater than 1.4 fc is evaluated as high illuminance, from 0.75 fc to 1.4 fc is evaluated as medium illuminance, and from 0.74 fc or less as low illuminance.

The highest existing horizontal illuminance level was recorded at Monitoring Site at M-W1 with 2.31 fc, while the lowest horizontal illuminance was recorded at Monitoring Site M-S1 at 0.20 fc. The highest existing vertical illuminance level was recorded at Monitoring Site ME-1 at 1.99 fc, while the lowest vertical illuminance was recorded at Monitoring Site M-N2 at 0.08 fc.

Table 2. Measured Illuminance (fc) at Monitoring Sites

Monitoring Site	Illuminance (fc)		Location	Evaluation
	Horizontal	Vertical		
M-E1	0.25	1.99	1033 Carol Drive	Low Horizontal, High Vertical illuminance
M-N1	0.30	0.38	1112 Cory Avenue	Low Horizontal, Low Vertical illuminance
M-N2	0.22	0.08	1245 North Doheny Drive	Low Horizontal, Low Vertical illuminance
M-W1	2.31	0.55	9233 Doheny Road	High Horizontal, Low Vertical illuminance
M-S1	0.20	0.29	1024 Corey Avenue	Low Horizontal, Low Vertical illuminance

Contrast/Glare: the visual evaluation of High, Medium and Low Contrast describes the perception of how bright a visible object appears to the surrounding objects within any given field of view and context. High Contrast indicates a potential glare condition for residential properties nearby.

Contrast is the ratio of one surface luminance to a second surface luminance or to the field of view. Contrast exceeding 30 to 1 are usually deemed uncomfortable and evaluated as high; less than 30 to 1 to greater than 10:1 are medium contrast; 10 to 1 are clearly visible and evaluated as low; and less than 3 to 1 appear to be equal, and evaluated as very low.

The measured luminance recorded at the Monitoring Sites within the view to the Project includes prominent, high brightness light sources and illuminated surfaces, such as streetlights, illuminated signs, and flood lighted buildings, as well as lower brightness surfaces such as sidewalks, parking lots, and un-illuminated walls or landscape areas. The existing Project Site is an industrial site with parking lot light poles and existing exterior lights. The site is well illuminated with many bright surfaces visible. The range of recorded luminance is summarized in Table 3.

For this Study the following luminance criteria are applied to measured and calculated luminance: Luminance below 10 cd/m^2 is evaluated as Low luminance; Luminance greater than 10 cd/m^2 and less than 300 cd/m^2 is evaluated as medium luminance; Luminance greater than 300 cd/m^2 is evaluated as high luminance.

The highest average luminance was recorded at Monitoring Site M-E1 at 257 cd/m^2, while the lowest average luminance was measured at Monitoring Site M-N1 at 131 cd/m^2. The measured average luminance is Medium Luminance (greater than 10 cd/m^2 and less than 300 cd/m^2) at all five monitoring sites.

The highest maximum luminance was recorded at Monitoring Site M-N2 with 4031 cd/m^2, while the lowest maximum luminance was measured at Monitoring Site M-N1 at 1544 cd/m^2. The measured maximum luminance is High Luminance (greater than 300 cd/m^2) at all five monitoring sites.

The calculated contrast ratio (maximum luminance / average luminance) varies from a minimum of 11.1 to 1 at Monitoring Site M-E1 to a maximum of 17.8 to 1 at Monitoring Site M-S1. The calculated existing contrast ratio at all five Monitoring Site locations is medium contrast (less than 30 to 1, and greater than 10 to 1).

Table 3: Measured Luminance, (cd/m^2) at Monitoring Sites

Monitoring Site	Luminance (cd/m^2)		Contrast Ratio (Max / Average)	Location	Evaluation
	Average	Maximum			
M-E1	257	2864	11.1	1033 Carol Drive	Medium average luminance, High maximum luminance, medium contrast
M-N1	131	1544	11.8	1112 Cory Avenue	Medium average luminance, high maximum luminance, medium contrast
M-N2	255	4031	15.8	1245 North Doheny Drive	Medium average luminance, high maximum luminance, medium contrast
M-W1	133	1918	14.4	9233 Doheny Road	Medium average luminance, high maximum luminance, medium contrast
M-S1	189	3361	17.8	1024 Corey Avenue	Medium average luminance, high maximum luminance, medium contrast

a. Monitoring Site M-E1:

Monitoring Site M-E1 is located adjacent to 1033 Carol Drive at the west side of the Carol Street right of way, to evaluate the Project east elevations and east facing signs. The distance to the Project property line is approximately 104 feet, and the distance to the Project east exterior sign face is approximately 165 feet.

Figure 6: M-E1 February 2, 2021, 11:25 am.

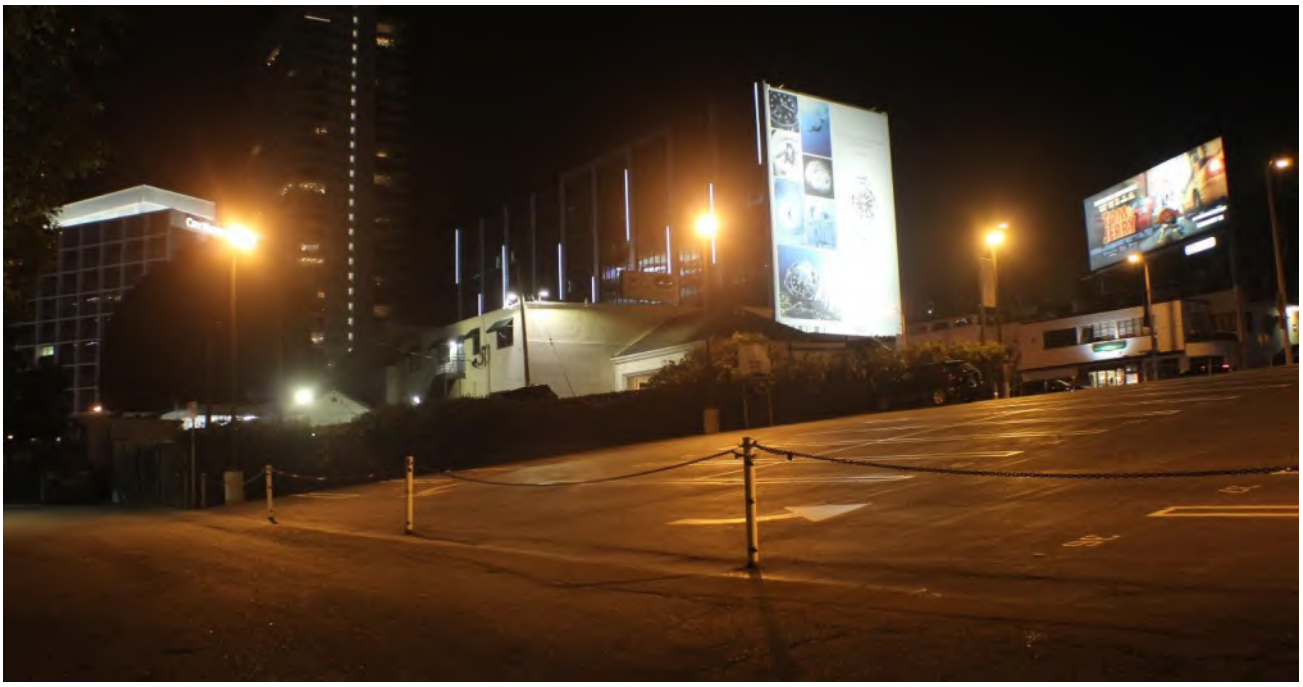

Figure 7: M-E1 February 15, 2021, 8:38 pm.

b. Monitoring Site M-N1:

Monitoring Site M-N1 is located adjacent to the north Project property line, adjacent to the 1112 Cory Avenue, to evaluate the Project north elevations and north facing signs. The distance to the Project property line is approximately 215 feet, and the distance to the Project north exterior sign face is approximately 215 feet.

Figure 8: M-N1 February 16, 2021, 11:00 am.

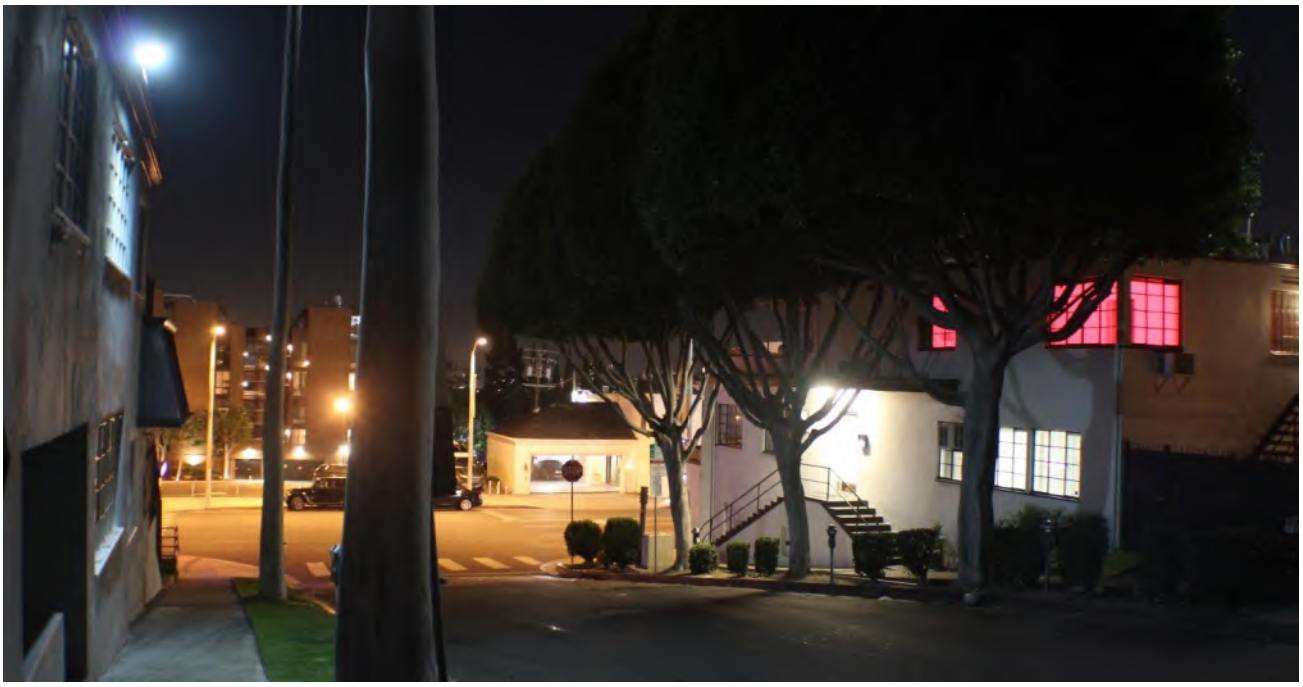

Figure 9: M-N1 February 15, 2021, 8:50 pm.

c. Monitoring Site M-N2:

Monitoring Site M-N2 is located adjacent to the north Project property line, adjacent to the 1245 North Doheny Drive, to evaluate the Project north elevations and north facing signs. The distance to the Project property line is approximately 930 feet, and the distance to the Project north exterior sign face is approximately 930 feet.

Figure 10: M-N2 February 3, 2021, 11:50 am.

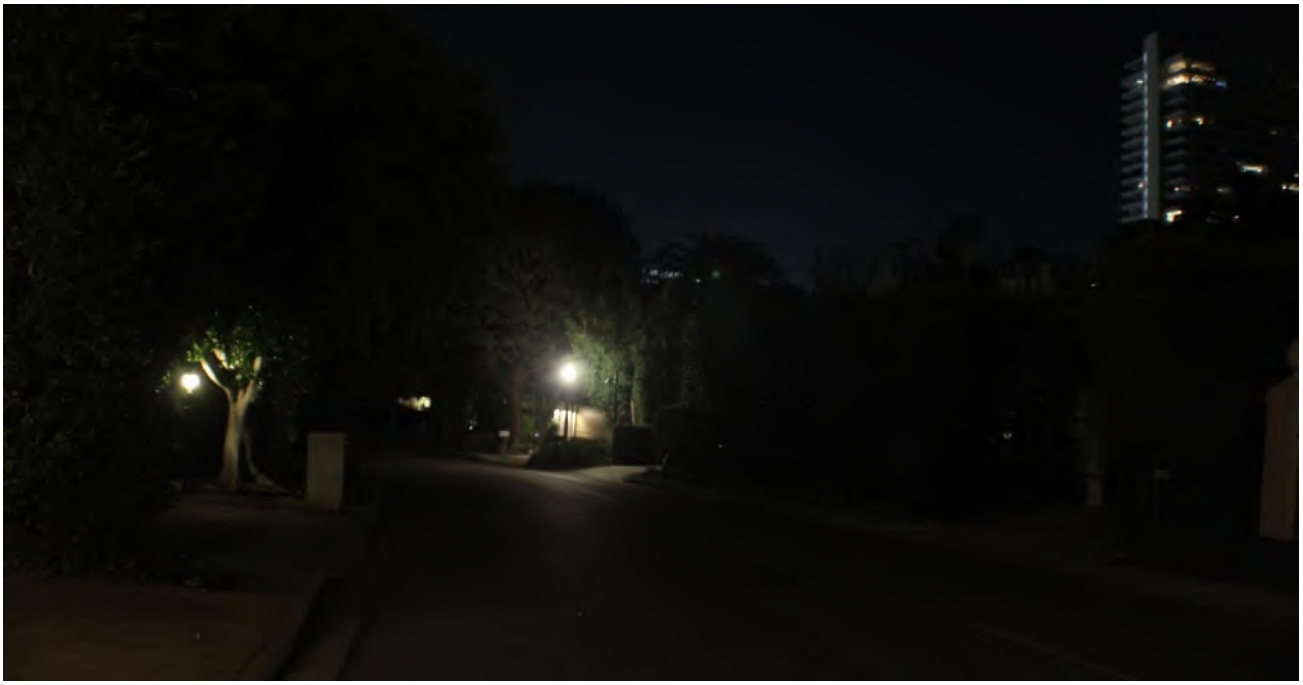

Figure 11: M-N2 February 15, 2021, 9:09 pm.

d. Monitoring Site M-W1:

Monitoring Site M-W1 is located adjacent to the east property line of 9233 Doheny Road, at the west sidewalk of Sunset Hills Road, to evaluate the Project west elevation and west facing signs. The distance to the Project property line is approximately 375 feet, and the distance to the Project west exterior sign face is approximately 375 feet.

Figure 12: M-W1 February 16, 2021, 11:30 am.

Figure 13: M-W1 February 15, 2021, 8:59 pm.

e. Monitoring Site M-S1:

Monitoring Site M-S1 is located adjacent to the north property line of 1024 Corey Ave., at the east sidewalk of Corey Ave. This site is at the south property line. There are no signs on the south side of the project.

Figure 14: M-S1 February 22, 2021, 11:30 am.

Figure 15: M-S1 February 24, 2021, 8:00 pm.

8. The Project Analysis

The Project would introduce a new illuminated Sign as described in Section 2 and depicted in Appendix A. Future proposed Project may cause Light trespass or Glare with respect to the following variables:

- The Project Signs increase light toward an adjacent sensitive use property and are close enough (immediately adjacent to or less than 1000 feet away) to create substantial Light trespass illuminance at a residential property line or other sensitive site.
- The light source surface area is large enough to create substantial Light trespass illuminance at an adjacent residential property line or other sensitive site.
- The light source surface is bright enough to create Glare, or high contrast conditions, when the light source surface luminance or sign luminance is compared to the surrounding surface luminance.

The following criteria are used to evaluate the Project impacts from the Project Signs with respect to Light trespass:

- Project Signs Light trespass illuminance must be less than 1.4 fc at residential zoned property lines adjacent to Sunset Boulevard.
- The Project Signs Light trespass illuminance must be less than 0.74 fc at residential zoned property lines beyond 250 feet from Sunset Boulevard and/or within the City of Los Angeles or Beverly Hills.

The following criteria are used to evaluate the Project impacts from the Project Signs with respect to Glare:

- Project Signs Luminance visible from residential properties must be less than high contrast conditions, less than 30 to 1 contrast ratios (Project Sign maximum luminance to Average Measured luminance).

9. Project Sign Analysis

The Project Sign location and size is identified in detail within the Appendix A, and evaluated with all sign surfaces operating simultaneously at maximum luminance of 300 cd/m^2, all white, at night, and 6000 cd/m^2, all white, during the day. The Project Sign will not operate in this manner in practice. However, this analysis represents a conservative evaluation of the Project Sign's potential for offsite light trespass Illuminance and glare.

Specifically, the proposed Project Sign would conform to the requirements stipulated in the WEHO Policy, and evaluated under the performance requirements stipulated therein.

9.1 Project Sign Light Trespass Illuminance Analysis

The Project Sign light trespass analysis evaluates the illuminance (fc) from the Project Signs leaving the Project site toward adjacent residential use or other sensitive use properties. The Project Signs include the signs as defined in and as illustrated in the Project Concept Sign Plan in Appendix A. Table 4 summarizes the Signlight trespass illuminance calculation data at the vertical plane locations illustrated in Figure 4, which are located at the nearest sensitive use properties as defined by the WEHO Policy. Complete calculated data is presented in Appendix J.

The Project Sign maximum calculated illuminance in Table 4 varies from a minimum of 0.00 fc at vertical plane VP-E1 to a maximum of 1.00 fc at vertical plane VP-N1.

Table 4: Sign Trespass Illuminance (fc), WHMC at 300 cd/m^2

Vertical Plane	Illuminance (fc)			Analysis (1.4 fc threshold)
	Max	Min	Avg	
VP-E1	0.00	0.00	0.00	Less than threshold
VP-E2	0.10	0.00	0.04	Less than threshold
VP-E3	0.30	0.00	0.09	Less than threshold
VP-N1	1.00	0.00	0.71	Less than threshold
VP-N2	0.50	0.00	0.22	Less than threshold
VP-N3	0.10	0.00	0.03	Less than threshold
VP-N4	0.30	0.00	0.03	Less than threshold
VP-S1	0.20	0.00	0.04	Less than threshold
VP-S2	0.10	0.00	0.06	Less than threshold
VP-S3	0.10	0.00	0.01	Less than threshold
VP-W1	0.30	0.00	0.11	Less than threshold

Furthermore, the Project Sign light trespass analysis evaluates the illuminance (fc) from the Project Sign leaving the Project site toward residential use or other sensitive use properties more than 250 feet from Sunset Boulevard at the lower threshould of 0.74 fc , which applies to all urban areas in the cities of West Hollywood, Los Angeles, and Beverly Hills. The Project Sign is defined and as illustrated in the Project Concept Sign Plan in Appendix A. Table 5 summarizes the Sign light trespass illuminance calculation data at the vertical planes VP-N5 and VP-N6 illustrated in Figure 16, which are within the City of Los Angeles and located approximately 250 feet north of Sunset Boulevard. Complete calculated data is presented in Appendix J.

Table 5: Sign Trespass Illuminance (fc), CALGreen at 300 cd/m^2

Vertical Plane	Illuminance (fc)			Analysis (0.74 fc threshold)
	Max	Min	Avg	
VP-N5	0.40	0.00	0.34	Less than threshold
VP-N6	0.40	0.00	0.22	Less than threshold

Figure 16: Calculation Planes, CALGreen

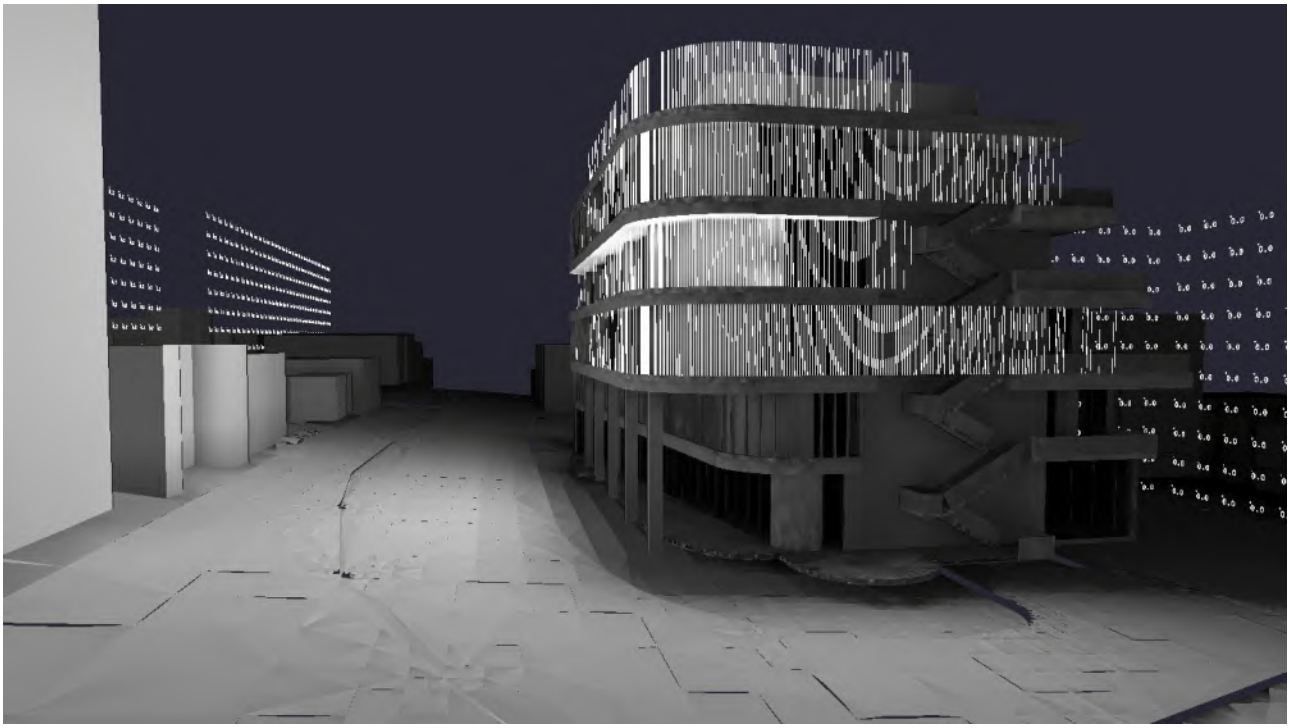

Figure 17: Illuminance Calculation Rendered Sunset Blvd. View East, data above 1.4 fc appear in red text

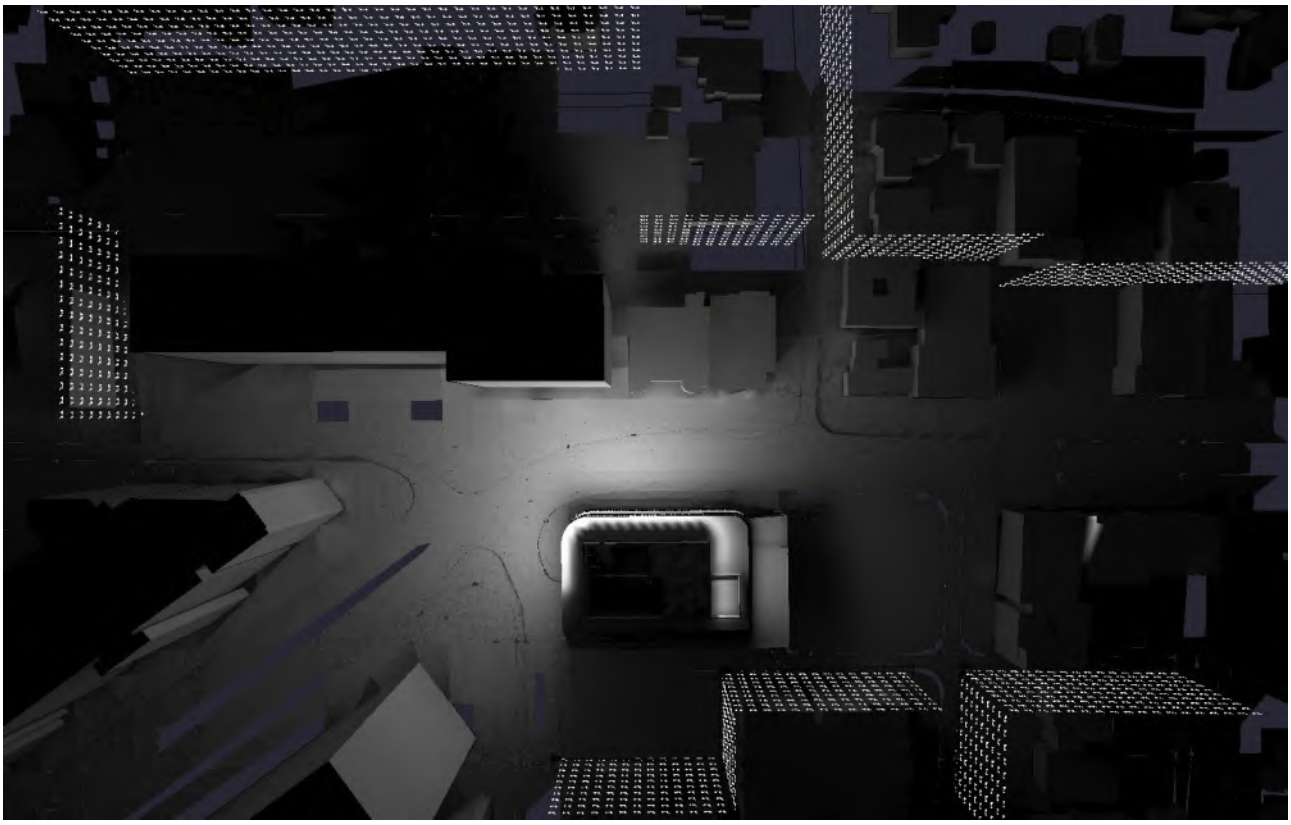

Figure 18: Illuminance Calculation Rendered Plan View, data above 1.4 fc appear in red text

9.2 Project Sign Glare Analysis

Glare from Sign lighting occurs when the light source is visible against a dark background, such as a dark sky. The maximum source brightness is determined by the rated source luminance. For this Study, the maximum nighttime sign luminance is 300 cd/m^2. The measured existing luminance is summarized in Table 3 in Section 7 above. Table 6 summarizes the contrast ratio calculated for the Project Sign maximum night luminance versus the average existing measured luminance in Table 3 at each Monitoring Site.

Table 6: Contrast Ratio: comparison of existing measured to Project Signs @ 300 cd/m^2

Monitoring Site	Existing Measured Luminance		Project Sign Luminance		Evaluation
	Average	Maximum	Max	Contrast Ratio	
M-E1	257.2	2864.0	300	1.2	Low Contrast, no Glare
M-N1	131.3	1544.0	300	2.3	Low Contrast, no Glare
M-N2	255.9	4031.0	300	1.2	Low Contrast, no Glare
M-W1	133.0	1918.0	300	2.3	Low Contrast, no Glare
M-S1	188.8	3361.0	300	1.6	Low Contrast, no Glare

The contrast ratio is less than 10 to 1 at all five Monitoring Site locations, which is Low Contrast and indicates no glare. All five Monitoring Sites are near the Project Site and have potential direct view of the Project Sign. The Low Contrast, no glare evaluation at all five Monitoring Sites indicates the Project Sign will not present a glare condition for sensitive sites more distant from the Project than the Monitoring Sites.

9.3 Sign Glare Analysis for Roadways

The lighting impact to driver's visibility from the Project Sign is evaluated by way of the methodology defined above at the locations where lighting is under review. As summarized below, the results of this evaluation demonstrate the light impacts resulting from the Project Sign at the locations where light is under review are below the significance threshold for excessive luminance, or glare, during night, twilight (sunrise/sunset), and day. The Project meets the California Vehicle Code standard for roadways approaching the Project from all directions.

The Glare analysis of the Project Sign during night assumes use of the Sign on full white at the maximum luminance of 300 cd/m^2 and compares the resulting luminance to the most stringent requirements of the California Vehicle Code to determine if the Project Sign introduces a source of distracting glare to drivers. The most stringent condition identified within the California Vehicle Code Section 21466.5, states: "except that when the minimum measured brightness in the field of view is 10 footlamberts or less, the measured brightness of the light source in footlamberts (fL) shall not exceed 500 plus 100 times the angle, in roadway degrees, between the driver's field of view and the light source." Thus, a conservative evaluation, occurs where the Project Sign is visible within the centerline of the driver's field of view, the angle noted above within the field of view is 0, the surrounding surface luminance is less than 10 fL, and therefore the

maximum allowable luminance is 500 fL. Therefore, the most conservative condition at night evaluates Project Sign against a threshold for luminance of a maximum 500 fL.

A measured brightness within the driver's field of view of less than 10 fL may occur at night. The Project Sign is evaluated with a maximum luminance of 300 cd/m^2. Calculating the equivalent Project sign luminance by converting to english units from metric units: 300 cd/m^2 equals 87.6 fL. The Project Sign will not exceed 87.6 fL, which is 17.5% of the 500 fL maximum, the most conservative limit stipulated by the California Vehicle Code for conditions where the minimum brightness in the driver's field of view is less than 10 fL.

When the sign is located beyond the driver's 10 degree field of view the maximum luminance is permitted to increase under the California Vehicle Code. For example, signs located 15 degrees from the centerline of the driver's field of view would be limited to a maximum of 1,000 fL (500 fL plus 100 times the angle (5 degrees) = 1,000 fL). All Project illuminated signs will operate at maximum of 87.6 fL at night, or less than approximately 8.8% of the maximum allowed by the California Vehicle code for those locations at 15 degrees from the center of the driver's field of view. Therefore, at night the Project Sign beyond the drivers 10 degree field of view will not exceed the 1000 fL threshold and will not introduce a new source of glare as defined by the California Vehicle Code Section 21466.5.

The Project Sign is also evaluated during twilight (the transition period from day to night, from 20 minutes before sunset until sunset, and from 20 minutes before sunrise, and thereafter. Sunlight increases gradually from the minimum brightness before sunrise at approximately 45 to 50 minutes before sunrise (dawn) to maximum brightness at mid-day, and then decreases gradually to the minimum brightness at 45 to 50 minutes after sunset. Therefore, the minimum ambient luminance occurs between sunset and sunrise. However, in order to analyze the most conservative, low level sunlight conditions, this analysis adjusts the time frame for the minimum ambient luminance condition of 10 fL to sunset and until sunrise, extending the duration of night. At sunset the ambient sunlight will be greater than the minimum values during the night, and at 20 minutes before sunrise the luminance will also be greater than the minimum at night. At sunset, the minimum luminance values within the driver's field of view will be above the minimum nighttime values (10fL) due to the light from the setting sun. However, to maintain a conservative analysis, this evaluation assumes the minimum luminance within the driver's field of view will be less than 10 fL from sunset until 20 minutes before sunrise. Therefore, the maximum luminance threshold during this time will remain at 500 fL as noted above in the evaluation of the night threshold. The maximum sign luminance of 500 fL converting to metric units equals 1579 cd/m^2.

The Project Sign is designed to operate at 300 cd/m^2 (87.6 fL) maximum luminance, from sunset to 20 minutes before sunrise. At 20 minutes before sunset the Project Sign is specified to begin transition from the maximum daytime luminance of 6,000 cd/m^2 to the maximum nighttime luminance of 300 candelas/m^2. This transition must be completed no later than sunset to avoid potential high contrast, glare conditions. Similarly, the Project Sign is specified to transition from the night maximum luminance of 300 cd/m^2 to the day maximum luminance of 6,000 cd/m^2, beginning no earlier than 20 minutes before sunrise.

Therefore, the Project Sign will not exceed 300 cd/m^2 for the period beginning at sunset until sunrise. The Project Sign remains limited to the 300 cd/m^2 (87.6 fL) maximum luminance value, from sunset to 20 minutes before sunrise. Therefore, at sunset and until 20 minutes before sunrise, the Project Sign will not exceed the threshold of 500 fL, and will therefore not introduce a new source of Glare.

The evaluation of the Project Sign during the day (sunrise until 20 minutes before sunset) compares the daytime, ambient brightness to the maximum sign brightness stipulated by the California Vehicle Code during full sun conditions and overcast sky conditions. The California Vehicle Code, Section 21466.5 above permits the Project sign to "generate light intensity levels greater than 1,000 times the minimum measured brightness in the driver's field of view, except when the minimum values are less than 10 (fL)."

During the day (after sunrise until 20 minutes before sunset) sunlight with clear sky conditions or light overcast conditions provides sufficient illuminance to generate surface brightness greater than 10 fL and up to 1200 fL on the least reflective

surfaces, such as roadway pavement. Utilizing the value of 10 fL as the minimum within the driver's field of view, the maximum allowable brightness would be 1,000 times 10 fL, or 10,000 fL. The WEHO Policy requires that the Project illuminated signs not exceed 6,000 cd/m^2 (1750 fL) during the daytime hours of operation, and Project Sign will therefore operate at less than 17.5% of the maximum luminance stipulated by the California Vehicle Code. Therefore, the Project Sign will not create a new source of glare during daytime hours of operation with clear sky or light overcast conditions.

Severe storms, heavy cloud cover, or other atmospheric conditions may occur during the day, which may cause the minimum brightness within the driver's field of view to be less than 10 fL The Project Sign includes an electronic control system to reduce the sign luminance from 6,000 cd/m^2 (1,750 fL) to 300 candelas/m^2 (87.6 fL) maximum when the ambient sun light falls to illuminance values similar to night, less than 100 fc. During the day, when storms, cloud cover, or other low ambient sunlight conditions occur and when the ambient sunlight is less than 100 fc, the Project Sign will transition from the daytime 6,000 cd/m^2 (1,750 fL) to 300 candelas/m^2 (87.6 fL) maximum, and thereby ensure that the sign brightness remains less than the maximum brightness stipulated by the California Vehicle Code. Therefore, the Project Sign will not create a new source of glare during daytime periods with storm or severe overcast weather conditions.

The Project Sign is designed to not exceed 300 candelas/m2 (87.6 fL) luminance at night or during overcast sky conditions and will not exceed 6,000 cd/m2 (1,750 fL) during the day. The luminance is less than the California Vehicle Code standard, including 17.5% of the maximum allowable luminance identified as the threshold for glare during the day, therefore the Project Sign will not create a new source of Glare.

10. Conclusions

The Project proposes to install an illuminated Sign while minimizing light trespass and glare to neighboring sensitive use properties through design features that comply with the following:

Project Sign light trespass illuminance will be less than 1.4 fc at all adjacent residential use properties located within or adjacent to the Sunset Strip Specific Plan City of West Hollywood as stipulated by the WEHO Policy. Furthermore, the Project Sign light trespass illuminance will be less than 0.74 fc at all residential use properties located more than 250 feet from Sunset Boulevard, within the City of West Hollywood, the City of Los Angeles, and or the City of Beverly Hills.

The Project Sign will be less than high contrast conditions with a maximum sign luminance of 300 cd/m^2 at night and during sunset, sunrise, and overcast conditions, and will not create Glare at residential, sensitive sites, or roadway sites.

The Project Sign will be less than high contrast conditions with maximum sign luminance of 6,000 cd/m^2 during daytime and will not create glare at residential, sensitive sites, or roadway sites.

The Project Sign will be controlled by a time clock and photocell to transition smoothly from the maximum daytime luminance of 6,000 cd/m^2 to the maximum nighttime luminance of 300 cd/m^2, beginning at 20 minutes prior to sunset and completed no later than sunset to avoid potential high contrast, glare conditions. Similarly, the Project Sign will transition from the night maximum luminance of 300 cd/m^2 to the day maximum luminance of 6,000 cd/m^2, beginning no earlier than 20 minutes before sunrise and concluding after sunrise.

This analysis accurately evaluates the potential for the Project Sign to create a new source of light trespass and or glare at adjacent residential properties. The Project Sign locations, types, dimensions, and maximum luminance are as described by the Sign Concept Plan in Appendix A and are evaluated with the sign operating at maximum luminance at night of 300 cd/m^2, all white. The Project Sign will not operate in this manner in practice. As such, this analysis represents a conservative evaluation of the proposed Project's Sign potential for off-site light trespass, and glare.

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DRAFT

ENTITLEMENT SUBMITTAL
DECEMBER 04, 2020

JBC
The John Buck Company
9176 Sunset Blvd
West Hollywood
California 90069

Gensler

DRAFT

NOT FOR CONSTRUCTION

Sunset Jewel Box

05.2543.000

RENDERING

PERSPECTIVE RENDERING - SUNSET BLVD

A0.20

JBC
The John Buck Company
9176 Sunset Blvd
West Hollywood
California 90069

Gensler

DRAFT

NOT FOR CONSTRUCTION

Sunset Jewel Box

05.2543.000

RENDERING

PERSPECTIVE RENDERING - SUNSET BLVD

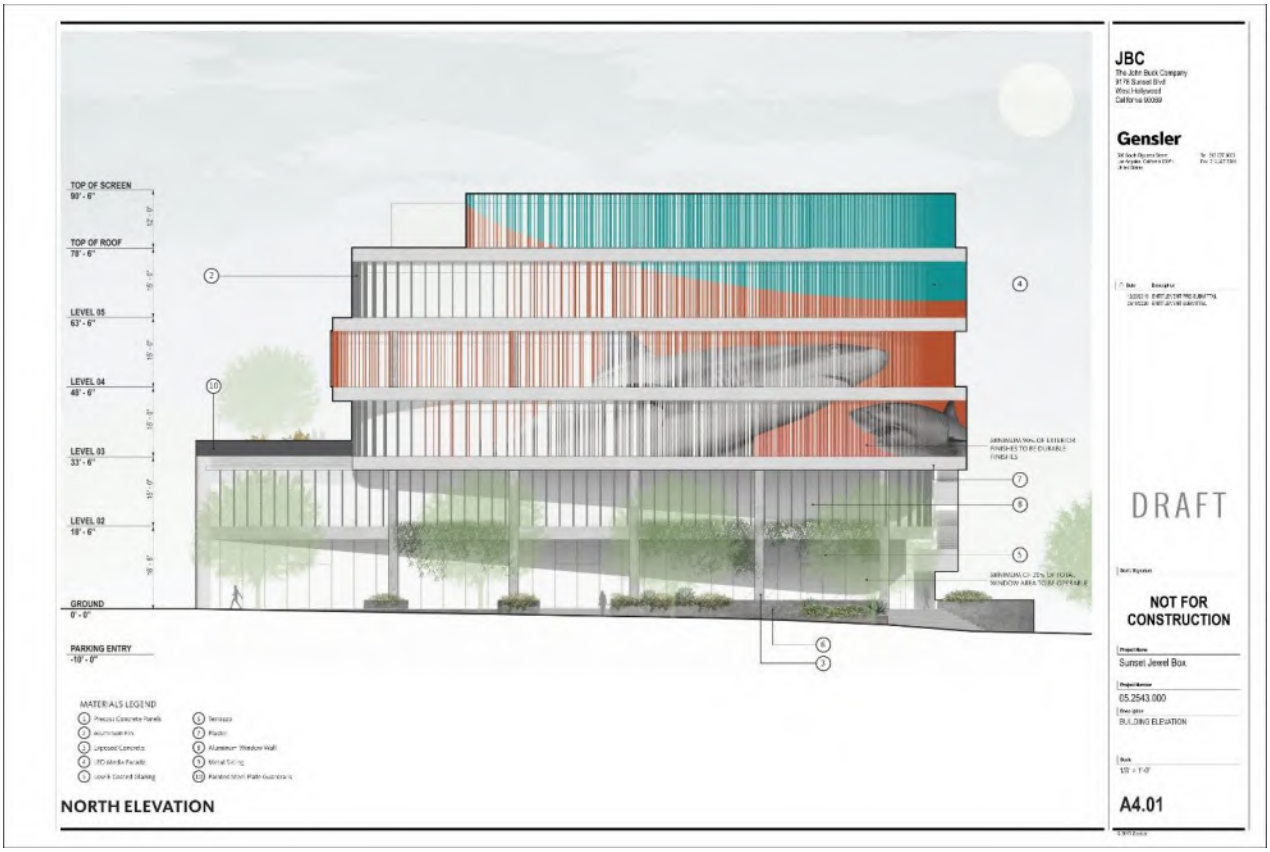
A0.21

PERSPECTIVE RENDERING - SUNSET BLVD

PERSPECTIVE RENDERING - SUNSET BLVD

PERSPECTIVE RENDERING - CORY AVE

INTERIOR RENDERING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LEVEL 02
18' - 6"
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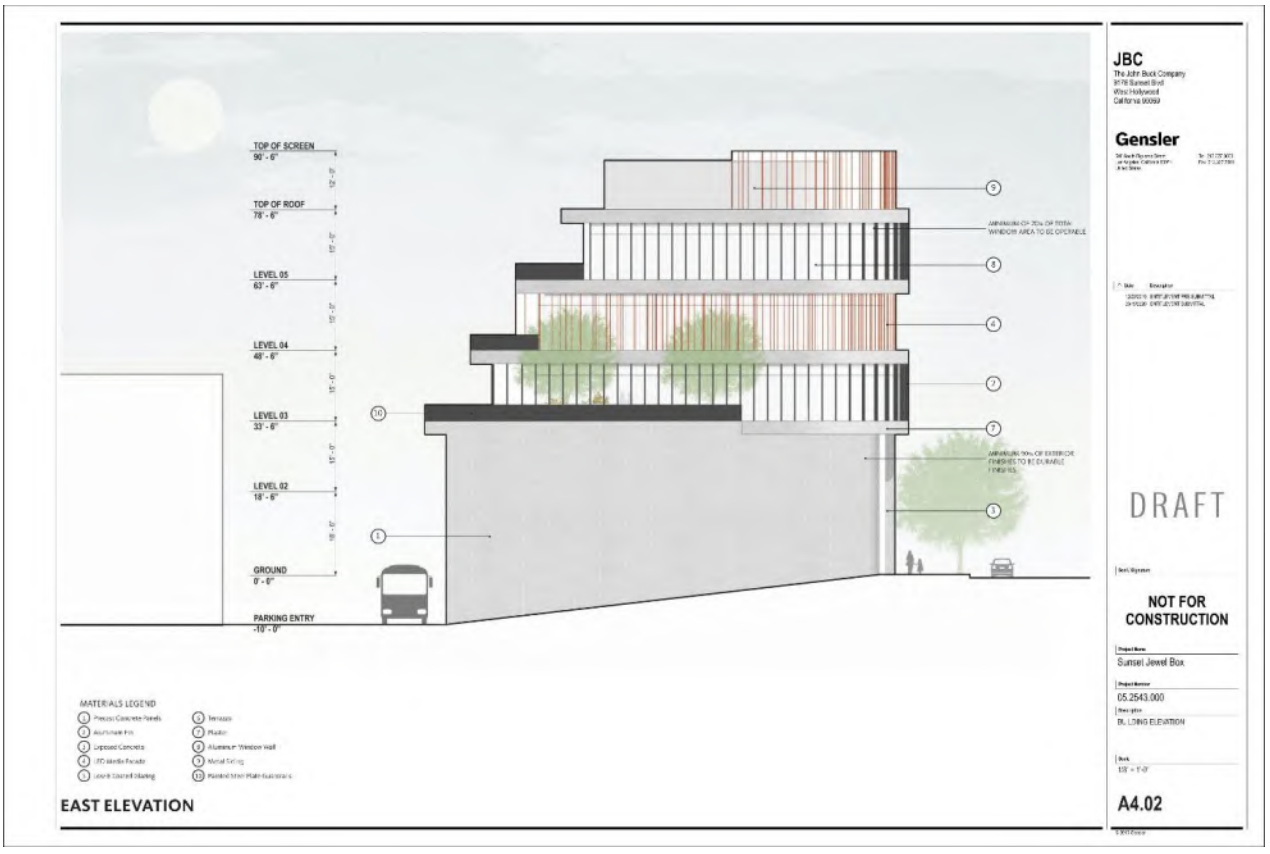
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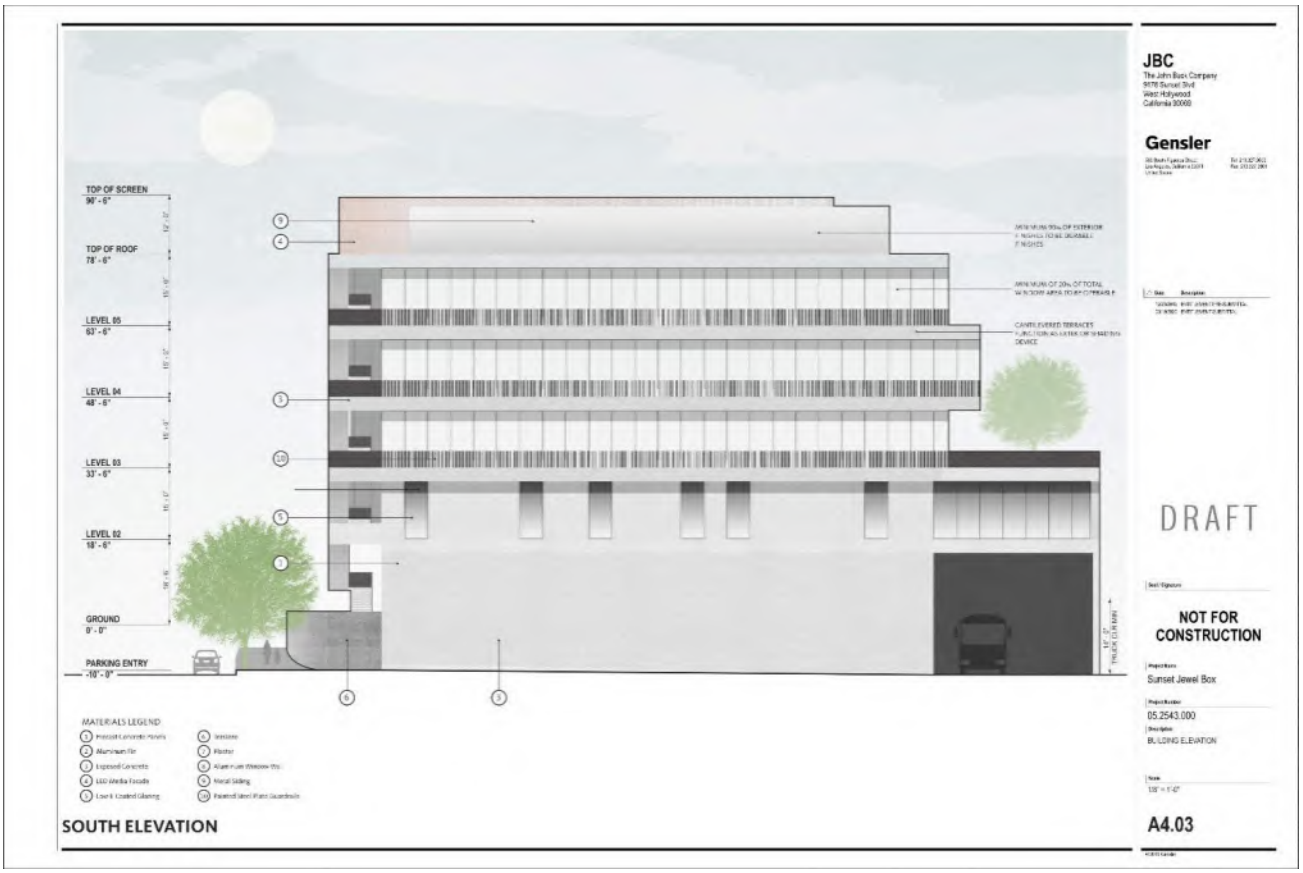
EAST ELEVATION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Sunset Jewel Box
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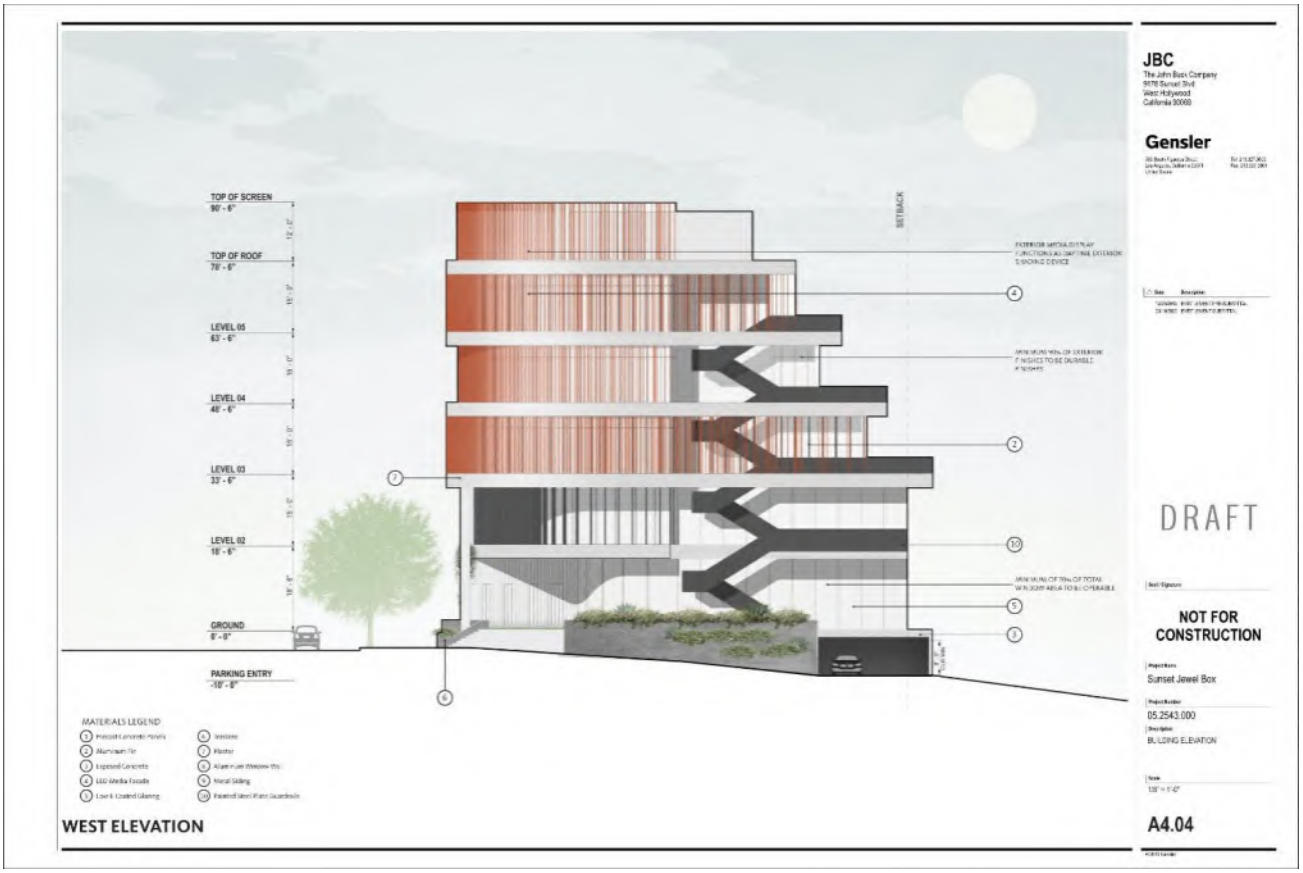
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Gensler
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GROUND
0' - 0"
PARKING ENTRY
-10' - 0"
SETBACK
DRAFT
NOT FOR CONSTRUCTION
Sunset Jewel Box
05.2543.000
BUILDING ELEVATION
MATERIALS LEGEND
WEST ELEVATION
A4.04

APPENDIX B: **City of West Hollywood Ordinance No. 19-1063, Attachment A, pgs. 13, 14, 15**

5. **Lighting and Operational Standards.** All new or modified off-site advertising signs, architectural lighting, and temporary displays shall comply with the following luminance and operational standards.
    a. Hours of Operation: All digital billboards shall meet the following limits for time of day and ambient lighting conditions:
        i. Sign luminance shall change during each day on the following schedule:
            1. Daytime: From sunrise until 20 minutes prior to sunset, luminance shall not exceed 6,000 candelas per meter squared. Any portions of signs that are less than 10' above adjacent side shall not exceed 2,400 candelas.
            2. Evening: From sunset until 20 minutes prior to sunrise Luminance shall not exceed 300 candelas per meter squared.
            3. After Hours: From 2:00 am until sunrise, no animated content or moving patterns shall be permitted.
    b. Illuminance
        i. Illuminance from signs or architectural lights shall not exceed 1.4 foot candles at any adjacent residential zoned property line.
    c. Digital Sign Control and Transitions.
        i. Sign luminance shall transition smoothly between the hours of operation limits above over a time period of no less than 20 minutes. All transitions shall be completed so that the maximum allowable luminance is achieved by the stated time listed above.
        ii. When ambient sunlight illuminance during daytime is less than 100 foot candles for more than one (1) hour, the digital billboard should transition at a smooth rate of change from the daytime luminance level permitted above to the evening luminance level permitted at a suggested rate of no less than 20 minutes.
        iii. Each image displayed on a digital billboard shall not be refreshed more often than once every 8 seconds.
        iv. Each image displayed on a digital billboard (i.e., each individual advertisement or artwork) shall fade in from the previous image over no less than one (1) second, and shall fade out over no less than one (1) second to the image of the immediately succeeding content.
    d. Visual Comfort and Contrast Control
        i. Digital billboards shall not incorporate driver interaction features.
        ii. No signs shall use colors or images that replicate or could be confused with traffic safety signage.
        iii. No signs shall use scrolling text.
        iv. Signs shall not use stroboscopic of flashing images which rapidly change direction, oscillate, flash or reverse in contrast.
        v. Animated content and moving images shall be designed specifically for the size and format of the digital billboard.
        vi. Animated content shall <u>not</u> exhibit
            1. Rapidly changing images shall use dissolves for transitions between static images, and between static and animated content;
            2. Sequences that result in visible brightness change over more than ten percent (10%) of the total display area at a greater rate than three (3) changes per second; or
            3. Edits at a rate of more than one (1) edit every three (3) seconds
    e. Renewable Energy Use.

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i. All new billboard operations shall utilize the highest available clean energy tier from the City's energy provider to the extent feasible.
ii. The incremental energy usage attributable to digital signs, as defined in 4.c, should be fully offset to the extent feasible through demonstrated improvement in the energy performance for new buildings or major renovations of existing buildings.

f. Audio. On site sound shall be allowed only during special events.
g. Monitoring
   i. All digital billboard operators shall submit a Lighting Monitoring Report to the Director upon installation, and at three year intervals thereafter to confirm conformance with the lighting requirements above. The report shall include:
      1. Digital billboard luminance measured in nits (candelas per square meter). Measurements shall be conducted at the property line of the digital billboard site, or in the nearest adjacent public right of way, perpendicular to the digital billboard sign face.
      2. Digital billboard sign illuminance measured in foot candles. Measurements shall be conducted perpendicular to the digital billboard sign face, at the property line containing the digital billboard, and at adjoining residential use property or properties. The illuminance meter shall be aimed toward the sign face from the measurement location.
      3. All measurements shall include both luminance and illuminance for three conditions:
         a. The sign off
         b. The sign illuminated with an image
         c. The sign illuminated using an all-white display
   ii. Complaints about lighting will be investigated by the City, and if determined necessary by the Director, the digital billboard operator shall provide an updated Lighting Monitoring Report within 72 hours of the notice from the City. The City shall reserve the right to conduct digital billboard lighting measurements. If the measured luminance and or illuminance exceed the data presented in operator's Lighting Monitoring Report, the findings of the City report shall prevail.

6. **Architectural Lighting.** Architectural lighting may be integrated into a building façade to enhance the architectural design of the building if the following requirements are met:

    a. Integral large scale architectural lighting, digital or otherwise, shall contain no commercial logos, images, or messages that may be interpreted as advertising.
    b. Architectural lighting shall not be counted towards permitted signage area, either on or off-site, and shall not be considered a billboard.
    c. Architectural lighting is subject to maximum allowable lighting levels of Section 5.
    d. Architectural lighting shall be designed and operated to minimize impact on adjacent buildings.

7. **Temporary Creative Billboards or Tall Walls.** Temporary modification to existing billboards or tall wall signs may be permitted in compliance with this section. The following regulations are intended to encourage creatively designed short-term installations that make a positive visual contribution to Sunset Boulevard and to the overall image of the city.

    a. **Approval Authority**. Temporary creative billboards and tall walls are subject to approval by the Director.
    b. **Time Limit.** The Director may approve the placement of a temporary creative billboard or tall wall for a maximum period of 12 months. One six-month time extension may be approved or denied by the Director and the temporary creative billboard or tall wall shall be removed immediately upon expiration. Certain types of physical extensions may be installed for a longer period, as allowed by state law.
    c. **Standards:** A temporary creative billboard or tall wall sign shall be designed and located in compliance with all of the following standards:

        i. The temporary creative billboard or tall wall sign shall alter an existing sign without changing its location. Any enlargement of the sign shall be designed as an integral part of the image and contribute to the overall creativity of its design.
        ii. The temporary creative billboard or tall wall sign shall be properly sited and well-integrated within the context of its surroundings.
        iii. Temporary creative billboard or tall wall shall be an inventive and original representation of the product or business being advertised.
        iv. The temporary creative billboard or tall wall sign shall exhibit one or more of the following elements:
            1. Three-dimensional props and extensions.
            2. Extensions with cut-out shapes or voids.
            3. Integrated thematic lighting such as neon, LED, images which change from day to night through lighting effects, projected light, video projections, or other emerging technologies.
            4. Moving or animated mechanical elements.
            5. Different day-time and night-time images.
            6. Hand-painted graphics or graphics crafted on-site.
            7. Alternative textures and materials, such as plants and vegetation.
            8. Live action.

d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less Than Significant Impact. The existing lighting conditions along Sunset Boulevard include a variety of light sources that contribute to a brightly illuminated outdoor urban environment. The streets and sidewalks along Sunset Boulevard have a relatively high illumination consistent with the vehicular design standards for a high volume arterial street. The public right of way is surrounded on both north and south with commercial properties where parking lot lights and exterior building lighting is frequent. Within this well-illuminated context, lighted billboards and signs are prominent but are not excessively bright in comparison to their surroundings.

Additional lighting or lighting in new locations along the Sunset Strip could result in potential effects if new sources of light trespass were introduced and if the light trespass were to affect light-sensitive receptors such that daytime or nighttime views would become adversely affected. Light-sensitive receptors are generally considered residential properties, and also may include hotel, hospital or nursing home uses, where excessive light at night may impact the use of the property. Light trespass is measured in terms of illuminance in a unit of measurement called a "footcandle," which is the illuminance on a one-square-foot surface coming from a uniform source of light.

Along Sunset Boulevard, most residential properties are set back behind the commercial properties that front onto Sunset Boulevard. The slope to the north and south of Sunset Boulevard significantly affects the visibility of the signs from residential properties. To the north, the properties are typically situated well above the elevation of Sunset Boulevard, and in most locations, properties are well above the top elevation of illuminated signs. To the north of Sunset Boulevard, the ambient light levels at residential streets and properties are very low, so the light at these properties from signs on Sunset Boulevard may be more noticeable. However, most of the existing illuminated signs are located and directed such that there are few locations where signs project significant light trespass or glare. The distance from Sunset Strip properties to adjacent residential properties varies considerably. The properties within close proximity are generally 250 feet to 300 feet away from the existing signs on Sunset Boulevard. To the south of Sunset Boulevard, the residential properties are below the elevation of Sunset Boulevard and well below the elevation of the illuminated signs. Signs located on the south side of Sunset Boulevard have the potential to create light trespass and or glare due to the difference in elevation. However, most of the existing illuminated signs are located and directed such that there are few locations where signs project significant light trespass or glare.

The proposed project would change the existing lighting environment in the project area. Digital conversions would replace existing static illuminated signs with LED screens. Additionally, digital conversions may also involve reorientation of a billboard face from horizontal to vertical, which would change the surface area that is illuminated. Some billboards that are being converted to digital may also undergo one or more of the allowable standard modifications. Standard modifications (to either digital or static billboards) would not involve a substantial change in billboard illuminance light trespass; however, a reoriented billboard face, a billboard that undergoes a height or location adjustment, and the addition of a second face to a single-sided

certifying organizations that ensures uniform application of the CRRC testing and rating procedures, labeling and rating, and such other rating procedures for other factors that improves the accuracy of properties of roofing products affecting energy performance as the CRRC and the Commission may adopt.

4. The entity shall require manufacturers and independent certifying organizations within its program to use only laboratories accredited by the supervisory entity to perform tests in accordance with CRRC-1.
5. The entity shall maintain appropriate guidelines for testing laboratories and manufacturers, including requirements for adequate:
   A. Possession and calibration of equipment;
   B. Education, competence, and training of personnel;
   C. Quality control;
   D. Record keeping and reporting;
   E. Periodic review including, but not limited to, blind testing by laboratories; inspections of products; and inspections of laboratories, and manufacturing facilities;
   F. Challenges to ratings; and
   G. Guidelines to maintain the integrity of the program, including, but not limited to, provisions to avoid conflicts of interest within the rating process.
6. The entity shall be a nonprofit organization and shall maintain reasonable, nondiscriminatory fee schedules for the services it provides, and shall make its fee schedules, the financial information on which fees are based, and financial statements available to its members for inspection.
7. The entity shall provide hearing processes that give laboratories, manufacturers and certifying agencies a fair review of decisions that adversely affect them.
8. The entity shall maintain a policy committee or similar body whose procedures are designed to avoid conflicts of interest in deciding appeals, resolving disputes and setting policy for the certifying organizations in its program.
9. The entity shall publish at least annually a directory of rated products and products that are no longer rated by the CRRC.
10. The entity itself shall be free from conflict-of-interest ties or to undue influence from any particular roofing product manufacturing interest(s), testing or independent certifying organization(s).
11. The entity shall provide or authorize the use of labels that can be used to meet the requirements for showing compliance with the requirements of Sections 140.1, 140.2, 140.3(a)1, 141.0(b)2B, 150.1(c)11, 150.2(b)1H and 150.2(b)2, and this section.
12. The entity's rating program shall allow for multiple participants in each aspect of the program to provide for competition between manufacturers and between testing labs.

Authority: Sections *25402 and* 25402.1, Public Resources Code.
Reference: Sections *25007, 25008, 25218.5, 25310,* 25402, 25402.1, *25402.4, 25402.5, 25402.8 and 25943,* Public Resources Code.

10-114. Determination of outdoor lighting zones and administrative rules for use. This section establishes rules for implementing outdoor lighting zones to show compliance with Section 140.7 of Title 24, California Code of Regulations, Part 6.

(a) **Lighting zones.** Exterior lighting allowances in California vary by Lighting Zones (LZ).

(b) **Lighting zone characteristics.** Table 10-114-A specifies the relative ambient illumination level and the statewide default location for each lighting zone.

(c) **Amending the lighting zone designation.** A local jurisdiction may officially adopt changes to the lighting zone designation of an area by following a public process that allows for formal public notification, review and comment about the proposed change. The local jurisdiction may determine areas where Lighting Zone 4 is applicable and may increase or decrease the lighting zones for areas that are in State Default Lighting Zones 1, 2 and 3, as specified in Table 10-114-A.

(d) **Commission notification, amended outdoor lighting zone designation.** Local jurisdictions who adopt changes to the State Default Lighting Zones shall notify the Commission by providing the following materials to the Executive Director:

1. A detailed specification of the boundaries of the adopted 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;
2. A description of the public process that was conducted in adopting the lighting zone changes; and
3. An explanation of how the adopted lighting zone changes are consistent with the specifications of Section 10-114.

(e) The Commission shall have the authority to not allow Lighting Zone changes which the Commission finds to be inconsistent with the specifications of Section 10-114.

Authority: Sections *25402 and* 25402.1, Public Resources Code.
Reference: Sections *25007, 25008, 25218.5, 25310,* 25402, 25402.1, *25402.4, 25402.5, 25402.8 and 25943,* Public Resources Code.

10-115 – Community shared solar electric generation system or community shared battery storage system compliance option for onsite solar electric generation or battery storage requirements.

(a) **Community shared solar electric generation system or battery storage system offset.** A community shared solar system, other community shared renewable system, community shared battery storage system, or combination of the aforementioned systems (hereinafter referred to as a community shared solar or battery stor-

age system) may be approved by the Commission as a compliance option to partially or totally meet the on-site solar electric generation system and/or battery storage system that is otherwise required by Section 150.1(b)1 of Title 24, California Code of Regulations, Part 6. To be approved, the community shared solar electric generation or community shared battery storage system shall meet the following requirements.

1. **Enforcement agency.** The community shared solar electric generation system and/or community shared battery storage system shall be installed and available for enforcement agency site inspection, no later than the point in time the enforcement agency must physically verify compliance of the building, which would otherwise be required to have an on-site solar electric generation and/or battery storage system, and shall not cause delay in the process of enforcement agency review and approval of that building. The enforcement agency shall have jurisdiction and facilitated access to make site inspections. All documentation for the community solar electric generation system and/or community solar battery storage system that is required to demonstrate compliance for the building shall be completed prior to building permit application.
2. **Energy performance.** The community shared solar electric generation system and/or community shared battery storage system shall be demonstrated to provide the same or better energy performance equal to the partial or total compliance with the energy performance of the on-site solar electric generation and/or battery storage system that would otherwise have been required for the building, computed by compliance software certified for use by the Commission.
3. **Dedicated building energy savings benefits.** The community shared solar electric generation system and/or community shared battery storage system shall provide energy saving benefits directly to the building that would otherwise have been required to have an on-site solar electric generation system and/or battery storage system. The energy savings benefits shall be allocated from the total resource of the community shared solar electric generation system and/or community shared battery storage system in a manner demonstrated to be equivalent to the reductions in

TABLE 10-114-A
LIGHTING ZONE CHARACTERISTICS AND RULES FOR AMENDMENTS BY LOCAL JURISDICTIONS

ZONE	AMBIENT ILLUMINATION	STATEWIDE DEFAULT LOCATION	MOVING UP TO HIGHER ZONES	MOVING DOWN TO LOWER ZONES
LZ0	Very Low	Undeveloped areas of government designated parks, recreation areas, and wildlife preserves.	Undeveloped areas of government designated parks, recreation areas, and wildlife preserves can be designated as LZ1 or LZ2 if they are contained within such a zone.	Not applicable.
LZ1	Low	Developed portion of 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.	Developed portion of a government designated park, recreation area, or wildlife preserve, can be designated as LZ2 or LZ3 if they are contained within such a zone.	Not applicable.
LZ2	Moderate	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 may be designated as LZ1 by the local jurisdiction for lower illumination standards, without any size limits.
LZ3	Moderately High	Urban areas, as defined by the 2000 U.S. Census.	Special districts within a default LZ3 may be designated as 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.

energy consumption that would have resulted from the on-site solar electric generation system and/or battery storage system that is otherwise required by Section 150.1 of Title 24. The energy savings benefits allocated to the building shall be in the form of:

A. actual reductions in the energy consumption of the dedicated building;

B. utility energy reduction credits that will result in virtual reductions in the building's energy consumption that is subject to energy bill payments; or

C. payments to the building that will have an equivalent effect as energy bill reductions.

The reduction in the building's energy bill resulting from A, B, or C above shall be greater than the added cost to the building resulting from the building's share in the community shared solar or battery system.

4. **Durability.** The community shared solar electric generation system and/or community shared battery storage system shall be designed and installed to provide the energy savings benefits to the dedicated building specified in Section 10-115(a)3 for a period of no less than twenty (20) years.

5. **Additionality.** The community shared solar electric generation system and/or community shared battery storage system shall provide the energy savings benefits specified in Section 10-115(a)3 exclusively to the dedicated building. Those energy savings benefits shall in no way be attributed to other purposes or transferred to other buildings or property.

6. **Accountability and recordkeeping.** Applicants for Commission approval of community shared solar electric generation systems and/or community shared battery storage systems shall be accountable to all parties who relied on these systems for partial or total compliance with the on-site solar electric generation and/or battery storage system that would otherwise be required, including but not limited to builders of the buildings, owners of the buildings, enforcement agencies, and the Commission. Recordkeeping regarding compliance with the requirements in Sections 10-115(a)1–6 shall be maintained over the period of time specified in Section 10-115(a)4 for each building for which the community shared solar electric generation or battery storage system is used to demonstrate partial or total compliance. Access to these records shall be provided to any entity approved by the Commission for auditing compliance with these requirements.

(b) **Application for commission approval.** Any entity may apply to the Commission for approval to administer a community shared solar electric generation or community shared battery storage system to provide partial or total compliance with the on-site solar electric generation system and/or battery storage system required by Section 150.1 of Title 24, California Code of Regulations, Part 6. The application shall demonstrate to the Commission's satisfaction that each of the requirements specified in Section 10-115(a)1-6 will be met and shall include detailed explanation of the actions that will be taken by the applicant to ensure that each requirement is met over the period of time specified in Section 10-115(a)4 for each building for which a partial or total offset is used to demonstrate compliance. All applicants have the burden of proof to establish that their application should be granted. The Commission shall have the authority to not approve any application that the Commission determines to be inconsistent with the requirements of Section 10-115.

(c) **Commission approval.** Community shared solar electric generation systems and/or community shared battery storage systems, which demonstrate to the Commission's satisfaction that all of the requirements specified in Section 10-115 will be met, shall be approved.

Authority: Sections *25402 and* 25402.1, Public Resources Code.

Reference: Sections *25007, 25008, 25218.5, 25310,* 25402, 25402.1, *25402.4, 25402.5, 25402.8 and 25943,* Public Resources Code.

APPENDIX E: **2019 California Energy Code, Section 140.7 Prescriptive Requirements for Outdoor Lighting**

TABLE 140.6-G
TAILORED METHOD GENERAL LIGHTING POWER ALLOWED –BY ILLUMANCE AND ROOM CAVITY RATIO

	GENERAL LIGHTING POWER DENSITY (W/FT²) FOR THE FOLLOWING RCR VALUES[b] VALUES[b]			
GENERAL ILLUMINANCE LEVEL (LUX)[a]	RCR ≤ 2.0	RCR > 2.0 AND ≤ 3.5	RCR > 3.5 AND ≤ 7.0	RCR > 7.0
150	0.40	0.45	0.60	0.75
200	0.45	0.55	0.75	1.00
300	0.65	0.80	1.00	1.40
400	0.75	0.95	1.25	1.50
500	0.90	1.05	1.45	1.85
600	1.08	1.24	1.64	2.38

a. Illuminance values from Column 2 of Table 140.6-D.
b. RCR values are calculated using applicable equations in Table 140.6-F.

Note: Authority: Sections 25213, 25218, 25218.5, 25402 and 25402.1, *Public Resources Code*. Reference: Sections 25007, 25008, 25218.5, 25310, 25402, 25402.1, 25402.4, 25402.5, 25402.8, and 25943, *Public Resources Code*.

SECTION 140.7 PRESCRIPTIVE REQUIREMENTS FOR OUTDOOR LIGHTING

(a) An outdoor lighting installation complies with this section if it meets the requirements in Subsections (b) and (c), and the actual outdoor lighting power installed is no greater than the allowed outdoor lighting power calculated under Subsection (d). The allowed outdoor lighting shall be calculated according to outdoor lighting zone in Title 24, Part 1, Section 10-114.

Exceptions to Section 140.7(a): When more than 50 percent of the light from a luminaire falls within one or more of the following applications, the lighting power for that luminaire shall be exempt from Section 140.7:

1. Temporary outdoor lighting.
2. Lighting required and regulated by the Federal Aviation Administration, and the Coast Guard.
3. Lighting for public streets, roadways, highways and traffic signage lighting, including lighting for driveway entrances occurring in the public right-of-way.
4. Lighting for sports and athletic fields, and children's playgrounds.
5. Lighting for industrial sites, including but not limited to, rail yards, maritime shipyards and docks, piers and marinas, chemical and petroleum processing plants, and aviation facilities.
6. Lighting of public monuments.
7. Lighting of signs complying with the requirements of Sections 130.3 and 140.8.
8. Lighting of tunnels, bridges, stairs, wheelchair elevator lifts for American with Disabilities Act (ADA) compliance, and ramps that are other than parking garage ramps.
9. Landscape lighting.
10. In theme parks: outdoor lighting only for themes and special effects.
11. Lighting for outdoor theatrical and other outdoor live performances, provided that these lighting systems are additions to area lighting systems and are controlled by a multiscene or theatrical cross-fade control station accessible only to authorized operators.
12. Outdoor lighting systems for qualified historic buildings, as defined in the *California Historic Building Code* (Title 24, Part 8), if they consist solely of historic lighting components or replicas of historic lighting components. If lighting systems for qualified historic buildings contain some historic lighting components or replicas of historic components, combined with other lighting components, only those historic or historic replica components are exempt. All other outdoor lighting systems for qualified historic buildings shall comply with Section 140.7.

(b) **Outdoor lighting power trade-offs.** Outdoor lighting power trade-offs shall be determined as follows:

1. Allowed lighting power determined according to Section 140.7(d)1 for general hardscape lighting allowance may be traded to specific applications in Section 140.7(d)2, provided the hardscape area from which the lighting power is traded continues to be illuminated in accordance with Section 140.7(d)1A.
2. Allowed lighting power determined according to Section 140.7(d)2 for additional lighting power allowances for specific applications shall not be traded between specific applications, or to hardscape lighting in Section 140.7(d)1.
3. Trading of lighting power allowances between outdoor and indoor areas shall not be permitted.

(c) **Calculation of actual lighting power.** The wattage of outdoor luminaires shall be determined in accordance with Section 130.0(c).

(d) **Calculation of allowed lighting power.** The allowed lighting power shall be the combined total of the sum of the

general hardscape lighting allowance determined in accordance with Section 140.7(d)1, and the sum of the additional lighting power allowance for specific applications determined in accordance with Section 140.7(d)2.

1. **General hardscape lighting allowance.** Determine the general hardscape lighting power allowances as follows:
   A. The general hardscape area of a site shall include parking lot(s), roadway(s), driveway(s), sidewalk(s), walkway(s), bikeway(s), plaza(s), bridge(s), tunnel(s), and other improved area(s) that are illuminated. In plan view of the site, determine the illuminated hardscape area, which is defined as any hardscape area that is within a square pattern around each luminaire or pole that is ten times the luminaire mounting height with the luminaire in the middle of the pattern, less any areas that are within a building, beyond the hardscape area, beyond property lines or obstructed by a structure. The illuminated hardscape area shall include portions of planters and landscaped areas that are within the lighting application and are less than or equal to 10 feet wide in the short dimensions and are enclosed by hardscape or other improvement on at least three sides. Multiply the illuminated hardscape area by the area wattage allowance (AWA) from Table 140.7-A for the appropriate lighting zone.
   B. Determine the perimeter length of the general hardscape area. The total perimeter shall not include portions of hardscape that are not illuminated according to Section 140.7(d)1A. Multiply the hardscape perimeter by the linear wattage allowance (LWA) for hardscape from Table 140.7-A for the appropriate lighting zone. The perimeter length for hardscape around landscaped areas and permanent planters shall be determined as follows:
      i. Landscaped areas completely enclosed within the hardscape area, and which have a width or length less than 10 feet wide, shall not be added to the hardscape perimeter length.
      ii. Landscaped areas completely enclosed within the hardscape area, and which width or length is a minimum of 10 feet wide, the perimeter of the landscaped areas or permanent planter shall be added to the hardscape perimeter length.
      iii. Landscaped edges that are not abutting the hardscape shall not be added to the hardscape perimeter length.
   C. Determine the initial wattage allowance (IWA) for general hardscape lighting from Table 140.7-A for the appropriate lighting zone. The hardscape area shall be permitted one IWA per site.
   D. The general hardscape lighting allowance shall be the sum of the allowed watts determined from (A), (B) and (C) above.
2. **Additional lighting power allowance for specific applications.** Additional lighting power for specific applications shall be the smaller of the additional lighting allowances for specific applications determined in accordance with Table 140.7-B for the appropriate lighting zone, or the actual installed lighting power meeting the requirements for the allowance.

Note: Authority: Sections 25213, 25218, 25218.5, 25402 and 25402.1, *Public Resources Code*. Reference: Sections 25007, 25008, 25218.5, 25310, 25402, 25402.1, 25402.4, 25402.5, 25402.8, and 25943, *Public Resources Code*.

TABLE 140.7-A
GENERAL HARDSCAPE LIGHTING POWER ALLOWANCE

TYPE OF POWER ALLOWANCE	LIGHTING ZONE 0[3]	LIGHTING ZONE 1	LIGHTING ZONE 2[2]		LIGHTING ZONE 3[2]		LIGHTING ZONE 4
	Asphalt/Concrete	Asphalt/Concrete	Asphalt	Concrete[2]	Asphalt	Concrete[2]	Asphalt/Concrete
Area wattage allowance (AWA)	No allowance[1]	0.018 W/ft^2	0.023 W/ft^2	0.025 W/ft^2	0.025 W/ft^2	0.03 W/ft^2	0.03 W/ft^2
Linear wattage allowance (LWA)		0.15 W/lf	0.17 W/lf	0.4 W/lf	0.25 W/lf	0.4 W/lf	0.35 W/lf
Initial wattage allowance (IWA)		180 W	250 W	250 W	350 W	350 W	400 W

1. Continuous lighting is explicitly prohibited in Lighting Zone 0. A single luminaire of 15 Watts or less may be installed at an entrance to a parking area, trail head, fee payment kiosk, outhouse, or toilet facility, as required to provide safe navigation of the site infrastructure. Luminaires installed shall meet the maximum zonal lumen limits as specified in Section 130.2(b).
2. Where greater than 50% of the paved surface of a parking lot is finished with concrete. This does not extend beyond the parking lot, and does not include any other General Hardscape areas.
3. Narrow band spectrum light sources with a dominant peak wavelength greater than 580 nm – as mandated by local, state, or federal agencies to minimize the impact on local, active professional astronomy or nocturnal habitat of specific local fauna – shall be allowed a 2.0 lighting power allowance multiplier.

TABLE 140.7-B
ADDITIONAL LIGHTING POWER ALLOWANCE FOR SPECIFIC APPLICATIONS
All area and distance measurements in plan view unless otherwise noted.

LIGHTING APPLICATION	LIGHTING ZONE 0	LIGHTING ZONE 1	LIGHTING ZONE 2	LIGHTING ZONE 3	LIGHTING ZONE 4
WATTAGE ALLOWANCE PER APPLICATION. Use all that apply as appropriate.					
Building entrances or exits. Allowance per door. Luminaires qualifying for this allowance shall be within 20 feet of the door.	Not applicable	9 watts	15 watts	19 watts	21 watts
Primary entrances to senior care facilities, police stations, healthcare facilities, fire stations and emergency vehicle facilities. Allowance per primary entrance(s) only. Primary entrances shall provide access for the general public and shall not be used exclusively for staff or service personnel. This allowance shall be in addition to the building entrance or exit allowance above. Luminaires qualifying for this allowance shall be within 100 feet of the primary entrance.	Not applicable	20 watts	40 watts	57 watts	60 watts
Drive up windows. Allowance per customer service location. Luminaires qualifying for this allowance shall be within two mounting heights of the sill of the window.	Not applicable	16 watts	30 watts	50 watts	75 watts
Vehicle service station uncovered fuel dispenser. Allowance per fueling dispenser. Luminaires qualifying for this allowance shall be within two mounting heights of the dispenser.	Not applicable	55 watts	77 watts	81 watts	135 watts
ATM machine lighting. Allowance per ATM machine. Luminaires qualifying for this allowance shall be within 50 feet of the dispenser.	Not applicable	100 watts for first ATM machine, 35 watts for each additional ATM machine.			
WATTAGE ALLOWANCE PER UNIT LENGTH (W/linear ft). May be used for one or two frontage side(s) per site.					
Outdoor sales frontage. Allowance for frontage immediately adjacent to the principal viewing location(s) and unobstructed for its viewing length. A corner sales lot may include two adjacent sides, provided that a different principal viewing location exists for each side. Luminaires qualifying for this allowance shall be located between the principal viewing location and the frontage outdoor sales area.	Not applicable	No Allowance	11 W/linear ft	19 W/linear ft	25 W/linear ft
WATTAGE ALLOWANCE PER HARDSCAPE AREA (W/ft²). May be used for any illuminated hardscape area on the site.					
Hardscape ornamental lighting. Allowance for the total site illuminated hardscape area. Luminaires qualifying for this allowance shall be rated for 100 watts or less as determined in accordance with Section 130.0(d), and shall be post-top luminaires, lanterns, pendant luminaires or chandeliers.	Not applicable	No Allowance	0.007 W/ft²	0.013 W/ft²	0.019 W/ft²
WATTAGE ALLOWANCE PER SPECIFIC AREA (W/ft²). **Use as appropriate, provided that none of the following specific applications shall be used for the same area.**					
Building facades. Only areas of building facade that are illuminated shall qualify for this allowance. Luminaires qualifying for this allowance shall be aimed at the facade and shall be capable of illuminating it without obstruction or interference by permanent building features or other objects.	Notapplicable	No Allowance	0.100 W/ft²	0.170 W/ft²	0.225 W/ft²
Outdoor sales lots. Allowance for uncovered sales lots used exclusively for the display of vehicles or other merchandise for sale. Driveways, parking lots or other nonsales areas shall be considered hardscape areas even if these areas are completely surrounded by sales lot on all sides. Luminaires qualifying for this allowance shall be within five mounting heights of the sales lot area.	Not applicable	0.060 W/ft²	0.210 W/ft²	0.280 W/ft²	0.485 W/ft²
Vehicle service station hardscape. Allowance for the total illuminated hardscape area less area of buildings, under canopies, off property, or obstructed by signs or structures. Luminaires qualifying for this allowance shall be illuminating the hardscape area and shall not be within a building, below a canopy, beyond property lines or obstructed by a sign or other structure.	Not applicable	0.006 W/ft²	0.068 W/ft²	0.138 W/ft²	0.200 W/ft²
Vehicle service station canopies. Allowance for the total area within the drip line of the canopy. Luminaires qualifying for this allowance shall be located under the canopy.	Not applicable	0.220 W/ft²	0.430 W/ft²	0.580 W/ft²	1.010 W/ft²
Sales canopies. Allowance for the total area within the drip line of the canopy. Luminaires qualifying for this allowance shall be located under the canopy.	Not applicable	No Allowance	0.470 W/ft²	0.622 W/ft²	0.740 W/ft²
Nonsales canopies and tunnels. Allowance for the total area within the drip line of the canopy or inside the tunnel. Luminaires qualifying for this allowance shall be located under the canopy or tunnel.	Not applicable	0.057 W/ft²	0.137 W/ft²	0.270 W/ft²	0.370 W/ft²
Guard stations. Allowance up to 1,000 square feet per vehicle lane. Guard stations provide access to secure areas controlled by security personnel who stop and may inspect vehicles and vehicle occupants, including identification, documentation, vehicle license plates and vehicle contents. Qualifying luminaires shall be within two mounting heights of a vehicle lane or the guardhouse.	Not applicable	0.081 W/ft²	0.176 W/ft²	0.325 W/ft²	0.425 W/ft²
Student pick-up/drop-off zone. Allowance for the area of the student pick-up/drop-off zone, with or without canopy, for preschool through 12th grade school campuses. A student pick-up/drop off zone is a curbside, controlled traffic area on a school campus where students are picked-up and dropped off from vehicles. The allowed area shall be the smaller of the actual width or 25 feet, times the smaller of the actual length or 250 feet. Qualifying luminaires shall be within two mounting heights of the student pick-up/drop-off zone.	Not applicable	No Allowance	0.056 W/ft²	0.200 W/ft²	No Allowance
Outdoor dining. Allowance for the total illuminated hardscape of outdoor dining. Outdoor dining areas are hardscape areas used to serve and consume food and beverages. Qualifying luminaires shall be within two mounting heights of the hardscape area of outdoor dining.	Not applicable	0.004 W/ft²	0.030 W/ft²	0.050 W/ft²	0.075 W/ft²
Special security lighting for retail parking and pedestrian hardscape. This additional allowance is for illuminated retail parking and pedestrian hardscape identified as having special security needs. This allowance shall be in addition to the building entrance or exit allowance.	Not applicable	0.004 W/ft²	0.005 W/ft²	0.010 W/ft²	No Allowance

SECTION 130.3
SIGN LIGHTING CONTROLS

Nonresidential buildings other than healthcare facilities, high-rise residential buildings, and hotel/motel buildings shall comply with the applicable requirements of Sections 130.3(a)1 through 130.3(a)3.

(a) **Controls for sign lighting.** All sign lighting shall meet the requirements below as applicable:

1. **Indoor signs.** All indoor sign lighting other than exit sign lighting shall be controlled with an automatic time-switch control or astronomical time-switch control.
2. **Outdoor signs.** Outdoor sign lighting shall meet the following requirements as applicable:
   A. All outdoor sign lighting shall be controlled with a photocontrol in addition to an automatic time-switch control, or an astronomical time-switch control.

   Exception to Section 130.3(a)2A: Outdoor signs in tunnels, and signs in large permanently covered outdoor areas that are intended to be continuously lit, 24 hours per day and 365 days per year.

   B. All outdoor sign lighting that is ON both day and night shall be controlled with a dimmer that provides the ability to automatically reduce sign lighting power by a minimum of 65 percent during nighttime hours. Signs that are illuminated at night and for more than 1 hour during daylight hours shall be considered ON both day and night.

   Exception to Section 130.3(a)2B: Outdoor signs in tunnels and large covered areas that are intended to be illuminated both day and night.
3. **Demand responsive Electronic Message Center (EMC) control.** See Section 110.12 for requirements for demand responsive EMC controls.

Note: Authority: Sections 25213, 25218, 25218.5, 25402 and 25402.1, *Public Resources Code.* Reference: Sections 25007, 25008, 25218.5, 25310, 25402, 25402.1, 25402.4, 25402.5, 25402.8, and 25943, *Public Resources Code.*

SECTION 130.4
LIGHTING CONTROL ACCEPTANCE AND INSTALLATION CERTIFICATE REQUIREMENTS

Nonresidential buildings other than healthcare facilities, high-rise residential buildings and hotel/motel buildings shall comply with the applicable requirements of Sections 130.4(a) through 130.4(c). Healthcare facilities shall comply with the applicable acceptance and installation documentation requirements of OSHPD.

(a) **Lighting control acceptance requirements.** Before an occupancy permit is granted, indoor and outdoor lighting controls serving the building, area or site shall be certified as meeting the Acceptance Requirements for Code Compliance in accordance with Section 130.4(a). A Certificate of Acceptance shall be submitted to the enforcement agency under Section 10-103(a) of Part 1, that:

1. Certifies that all of the lighting acceptance testing necessary to meet the requirements of Part 6 is completed;
2. Certifies that the applicable procedures in Reference Nonresidential Appendix NA7.6 and NA7.8 have been followed;
3. Certifies that automatic daylight controls comply with Section 130.1(d) and Reference Nonresidential Appendix NA7.6.1;
4. Certifies that lighting shut-OFF controls comply with Section 130.1(c) and Reference Nonresidential Appendix NA7.6.2;
5. Certifies that demand responsive controls comply with Section 130.1(e) and Reference Nonresidential Appendix NA7.6.3; and
6. Certifies that outdoor lighting controls comply with the applicable requirements of Section 130.2(c) and Reference Nonresidential Appendix NA7.8; and
7. Certifies that lighting systems receiving the Institutional Tuning Power Adjustment Factor comply with Section 140.6(a)2J and Reference Nonresidential Appendix NA7.7.6.2.

(b) **Lighting control installation certificate requirements.** To be recognized for compliance with Part 6 an installation certificate shall be submitted in accordance with Section 10-103(a) for any lighting control system, energy management control system, track lighting integral current limiter, track lighting supplementary overcurrent protection panel, interlocked lighting system, lighting power adjustment factor, or additional wattage available for a videoconference studio, in accordance with the following requirements, as applicable:

1. Certification that when a lighting control system is installed to comply with lighting control requirements in Part 6 it complies with the applicable requirements of Section 110.9; and complies with Reference Nonresidential Appendix NA7.7.1.
2. Certificationes that when an energy management control system is installed to function as a lighting control required by Part 6 it functionally meets all applicable requirements for each application for which it is installed, in accordance with Sections 110.9, 130.0 through 130.5, 140.6 through 150.0, and 150.2; and complies with Reference Nonresidential Appendix NA7.7.2.
3. **Reserved.**
4. **Reserved.**
5. Certification that interlocked lighting systems used to serve an approved area comply with Section 140.6(a)1; and comply with Reference Nonresidential Appendix NA7.7.5.

SECTION 140.8
PRESCRIPTIVE REQUIREMENTS FOR SIGNS

This section applies to all internally illuminated and externally illuminated signs, unfiltered light emitting diodes (LEDs) and unfiltered neon, both indoor and outdoor. Each sign shall comply with either subsection (a) or (b), as applicable.

(a) **Maximum allowed lighting power.**

1. For internally illuminated signs, the maximum allowed lighting power shall not exceed the product of the illuminated sign area and 12 watts per square foot. For double-faced signs, only the area of a single face shall be used to determine the allowed lighting power.
2. For externally illuminated signs, the maximum allowed lighting power shall not exceed the product of the illuminated sign area and 2.3 watts per square foot. Only areas of an externally lighted sign that are illuminated without obstruction or interference, by one or more luminaires, shall be used.
3. Lighting for unfiltered light emitting diodes (LEDs) and unfiltered neon shall comply with Section 140.8(b).

(b) **Alternate lighting sources.** The sign shall comply if it is equipped only with one or more of the following light sources:

1. High pressure sodium lamps; or
2. Metal halide lamps that are:
   A. Pulse start or ceramic served by a ballast that has a minimum efficiency of 88 percent or greater, or
   B. Pulse start that are 320 watts or smaller, are not 250 watt or 175 watt lamps, and are served by a ballast that has a minimum efficiency of 80 percent.

   Ballast efficiency is the reference lamp power divided by the ballast input power when tested according to ANSI C82.6-2015.
3. Neon or cold cathode lamps with transformer or power supply efficiency greater than or equal to the following:
   A. A minimum efficiency of 75 percent when the transformer or power supply rated output current is less than 50 mA; or
   B. A minimum efficiency of 68 percent when the transformer or power supply rated output current is 50 mA or greater.

   The ratio of the output wattage to the input wattage is at 100 percent tubing load.
4. Fluorescent lighting systems meeting one of the following requirements:
   A. Use only lamps with a minimum color rendering index (CRI) of 80; or
   B. Use only electronic ballasts with a fundamental output frequency not less than 20 kHz.
5. Light emitting diodes (LEDs) with a power supply having an efficiency of 80 percent or greater; or

   Exception to Section 140.8(b)5: Single voltage external power supplies that are designed to convert 120 volt AC input into lower voltage DC or AC output, and have a nameplate output power less than or equal to 250 watts, shall comply with the applicable requirements of the appliance efficiency regulations (Title 20).
6. Compact fluorescent lamps that do not contain a medium screw base socket (E24/E26).

Exception 1 to Section 140.8: Unfiltered incandescent lamps that are not part of an electronic message center (EMC), an internally illuminated sign or an externally illuminated sign.

Exception 2 to Section 140.8: Exit signs. Exit signs shall meet the requirements of the appliance efficiency regulations.

Exception 3 to Section 140.8: Traffic Signs. Traffic signs shall meet the requirements of the appliance efficiency regulations.

Note: Authority: Sections 25213, 25218, 25218.5, 25402 and 25402.1, *Public Resources Code*. Reference: Sections 25007, 25008, 25218.5, 25310, 25402, 25402.1, 25402.4, 25402.5, 25402.8, and 25943, *Public Resources Code*.

SECTION 140.9
PRESCRIPTIVE REQUIREMENTS FOR COVERED PROCESSES

(a) **Prescriptive requirements for computer rooms.** Space conditioning systems serving a computer room with a power density greater than 20 W/ft^2 shall comply with this section by being designed with and having constructed and installed a cooling system that meets the requirements of Subsections 1 through 6.

1. **Economizers.** Each individual cooling system primarily serving computer room shall include either:
   A. An integrated air economizer capable of providing 100 percent of the expected system cooling load as calculated in accordance with a method approved by the Commission, at outside air temperatures of 55°F dry-bulb/50°F wet-bulb and below, and be equipped with a fault detection and diagnostic system as specified by Section 120.2(i); or
   B. An integrated water economizer capable of providing 100 percent of the expected system cooling load as calculated in accordance with a method approved by the Commission, at outside air temperatures of 40°F dry-bulb/35°F wet-bulb and below.

   Exception 1 to Section 140.9(a)1: Individual computer rooms under 5 tons in a building that does not have any economizers.

   Exception 2 to Section 140.9(a)1: New cooling systems serving an existing computer room in an existing building up to a total of 50 tons of new cooling equipment per building.

APPENDIX H: **IESNA 10th Edition Lighting Handbook, Table 26.4, Nighttime Outdoor Lighting Zone Definitions**

Table 26.4 | Nighttime Outdoor Lighting Zone Definitions

Zone	Outdoor Lighting Situation	Definition
LZ4	High Ambient Lighting	Areas of human activity where the vision of human residents and users is adapted to high light levels. Lighting is generally considered necessary for safety, security and/or convenience and it is mostly uniform and/or continuous. After curfew, lighting may be extinguished or reduced in some areas as activity levels decline.
LZ3	Moderately High Ambient Lighting	Areas of human activity where the vision of human residents and users is adapted to moderately high light levels. Lighting is generally desired for safety, security and/or convenience and it is often uniform and/or continuous. After curfew, lighting may be extinguished or reduced in most areas as activity levels decline.
LZ2	Moderate Ambient Lighting	Areas of human activity where the vision of human residents and users is adapted to moderate light levels. Lighting may typically be used for safety and convenience but it is not necessarily uniform or continuous. After curfew, lighting may be extinguished or reduced as activity levels decline.
LZ1	Low Ambient Lighting	Areas where lighting might adversely affect flora and fauna or disturb the character of the area. The vision of human residents and users is adapted to low light levels. Lighting may be used for safety and convenience but it is not necessarily uniform or continuous. After curfew, most lighting should be extinguished or reduced as activity levels decline.
LZ0	No Ambient Lighting	Areas where the natural environment will be seriously and adversely affected by lighting. Impacts include disturbing the biological cycles of flora and fauna and/or detracting from human enjoyment and appreciation of the natural environment. Human activity is subordinate in importance to nature. The vision of human residents and users is adapted to the darkness, and they expect to see little or no lighting. When not needed, lighting should be extinguished.

Table 26.5 | Recommended Light Trespass Illuminance Limits

Lighting Zone	Limit in lux[a]	
	Pre-curfew	Post-curfew
LZ4	15	6
LZ3	8	3
LZ2	3	1
LZ1	1	0
LZ0	0.1	0

a. Maximum initial illuminance on a plane perpendicular to the line of sight to the luminaire(s). Plane located at observer position where light trespass is under review. [7]

APPENDIX J:**Sign Lighting Illuminance Calculation (fc)**

Sign Lighting illuminance data presented below is derived from the lighting illuminance calculations prepared as per the methods described in Section 6.2 above. Illuminance data is presented in the following tables with location coordinates defined relative to the elevation and horizontal distance from lower left, viewing from the Property to the vertical plane where Light trespass illuminance is under review. Grid data is displayed at ten feet on center, vertical and horizontal.

Vertical Plane VP-E1

HORIZONTAL (ft)	5	15	25	35	45	55	65
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00
85	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Vertical Plane VP-E2

HORIZONTAL (ft)	5	15	25	35	45	55	65	75	85	95
95	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.00	0.00
85	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.00	0.00	0.00
75	0.10	0.10	0.10	0.10	0.10	0.00	0.10	0.00	0.00	0.00
65	0.10	0.10	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00
55	0.10	0.10	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00
45	0.10	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	0.10	0.10	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Vertical Plane VP-E3

HORIZONTAL (ft)	5	15	25	35	45	55	65	75	85	95	105	115	125	135	145
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10	0.10	0.10	0.10
85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10	0.10	0.10	0.10
75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.10	0.10	0.10	0.10	0.10	0.10
65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10	0.10	0.10
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10	0.10	0.10	0.10
45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10	0.10	0.10
35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.10
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Vertical Plane VP-E3

HORIZONTAL (ft)	155	165	175	185	195	205	215	225	235	245	255	265	275	285	295
95	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.20	0.20	0.20	0.20	0.20
85	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.20	0.20	0.20	0.20	0.20
75	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.20	0.20	0.20	0.20	0.20
65	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.20	0.20	0.20	0.20	0.20
55	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.20	0.20	0.20	0.20	0.20	0.20
45	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.20	0.20	0.20	0.20	0.20
35	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.20	0.20	0.20	0.20
25	0.00	0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.20	0.20	0.20
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.20	0.20
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.00

Vertical Plane VP-E3

HORIZONTAL (ft)	305	315	325	335	345
95	0.20	0.20	0.30	0.30	0.30
85	0.20	0.30	0.30	0.30	0.30
75	0.20	0.20	0.30	0.30	0.30
65	0.20	0.20	0.30	0.30	0.30
55	0.20	0.20	0.30	0.30	0.30
45	0.20	0.20	0.30	0.30	0.30
35	0.20	0.20	0.30	0.30	0.30
25	0.20	0.20	0.20	0.30	0.30
15	0.20	0.20	0.20	0.20	0.20
5	0.00	0.00	0.00	0.00	0.10

Vertical Plane VP-N1

HORIZONTAL (ft)	5	15	25	35	45	55	65	75	85	95	105	115
95	0.80	0.80	0.80	0.80	0.80	0.80	0.70	0.70	0.70	0.60	0.60	0.50
85	0.80	0.90	0.90	0.80	0.80	0.80	0.80	0.70	0.70	0.60	0.60	0.60
75	0.90	0.90	0.90	0.90	0.80	0.80	0.80	0.70	0.70	0.70	0.60	0.60
65	0.80	0.90	0.90	0.90	0.80	0.80	0.80	0.80	0.70	0.70	0.60	0.60
55	0.90	1.00	0.90	0.90	0.90	0.80	0.80	0.80	0.70	0.70	0.60	0.60
45	0.90	1.00	0.90	0.90	0.90	0.80	0.80	0.80	0.70	0.70	0.60	0.60
35	0.90	1.00	1.00	0.90	0.90	0.90	0.80	0.80	0.70	0.70	0.60	0.60
25	0.90	0.90	1.00	0.90	0.90	0.80	0.80	0.70	0.70	0.60	0.60	0.60
15	0.70	0.80	0.70	0.70	0.70	0.70	0.60	0.60	0.60	0.60	0.60	0.50
5	0.00	0.30	0.30	0.30	0.20	0.20	0.20	0.20	0.30	0.20	0.20	0.20

Vertical Plane VP-N2

HORIZONTAL (ft)	5	15	25	35	45	55	65	75	85	95	105	115	125
95	0.40	0.40	0.30	0.30	0.30	0.30	0.30	0.20	0.20	0.20	0.20	0.20	0.10
85	0.40	0.40	0.40	0.30	0.30	0.30	0.20	0.20	0.20	0.20	0.20	0.20	0.10
75	0.40	0.40	0.40	0.30	0.30	0.30	0.30	0.20	0.20	0.20	0.20	0.20	0.10
65	0.40	0.40	0.40	0.30	0.30	0.30	0.30	0.20	0.20	0.20	0.20	0.20	0.10
55	0.50	0.40	0.40	0.40	0.30	0.30	0.20	0.30	0.20	0.20	0.20	0.20	0.10
45	0.50	0.40	0.40	0.30	0.30	0.30	0.30	0.20	0.20	0.20	0.20	0.20	0.20
35	0.40	0.40	0.40	0.30	0.30	0.30	0.30	0.20	0.20	0.20	0.20	0.20	0.20
25	0.50	0.40	0.40	0.40	0.30	0.30	0.00	0.00	0.20	0.20	0.20	0.20	0.20
15	0.30	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Vertical Plane VP-N3

HORIZONTAL (ft)	5	15	25	35	45	55	65	75	85	95	105	115	125	135	145
95	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.00	0.00
85	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.00	0.00
75	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.00	0.00
65	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.10	0.00	0.00
55	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.00	0.00	0.00
45	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.00	0.00	0.00
35	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.00	0.00	0.00
25	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Vertical Plane VP-N3

HORIZONTAL (ft)	155	165	175	185	195	205	215	225	235	245	255	265	275	285	295
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Vertical Plane VP-N3

HORIZONTAL (ft)	305	315	325	335
95	0.00	0.00	0.00	0.00
85	0.00	0.00	0.00	0.00
75	0.00	0.00	0.00	0.00
65	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00

Vertical Plane VP-N4

HORIZONTAL (ft)	5	15	25	35	45	55	65	75	85	95	105	115	125	135	145
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Vertical Plane VP-N4

HORIZONTAL (ft)	155	165	175	185	195	205	215	225	235	245	255	265	275	285	295
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Vertical Plane VP-N4

HORIZONTAL (ft)	305	315	325	335	345	355	365	375
95	0.00	0.10	0.10	0.10	0.20	0.20	0.20	0.30
85	0.00	0.10	0.10	0.10	0.20	0.20	0.20	0.30
75	0.00	0.10	0.10	0.10	0.20	0.20	0.20	0.30
65	0.00	0.10	0.10	0.10	0.20	0.20	0.20	0.30
55	0.00	0.10	0.10	0.10	0.20	0.20	0.30	0.30
45	0.00	0.10	0.10	0.10	0.20	0.20	0.20	0.30
35	0.00	0.10	0.10	0.10	0.20	0.20	0.20	0.30
25	0.00	0.10	0.10	0.10	0.20	0.20	0.30	0.30
15	0.00	0.10	0.10	0.10	0.20	0.20	0.30	0.30
5	0.00	0.00	0.10	0.10	0.20	0.20	0.30	0.30

Vertical Plane VP-S1

HORIZONTAL (ft)	5	15	25	35	45	55	65	75	85	95	105	115	125
95	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.20
85	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.20
75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10	0.10	0.10	0.20
65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10	0.10	0.10
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10	0.10	0.10
45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10	0.10
35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10	0.10
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10	0.10
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10

Vertical Plane VP-S2

HORIZONTAL (ft)	5	15	25	35	45	55	65	75	85	95	105	115	125	135	145
95	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.00
85	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.00
75	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.00
65	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.00	0.00
55	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.00	0.00
45	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.10	0.00	0.00
35	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.10	0.10	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Vertical Plane VP-S3

HORIZONTAL (ft)	5	15	25	35	45	55	65	75	85	95	105	115	125	135	145
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Vertical Plane VP-S3

HORIZONTAL (ft)	155	165	175
95	0.00	0.10	0.10
85	0.10	0.10	0.10
75	0.00	0.00	0.10
65	0.00	0.10	0.10
55	0.00	0.10	0.10
45	0.00	0.00	0.10
35	0.00	0.00	0.10
25	0.00	0.00	0.00
15	0.00	0.00	0.00
5	0.00	0.00	0.00

Vertical Plane VP-W1

HORIZONTAL (ft)	5	15	25	35	45	55	65	75	85	95	105	115	125	135	145
95	0.20	0.20	0.30	0.30	0.30	0.20	0.20	0.20	0.10	0.00	0.00	0.00	0.00	0.00	0.00
85	0.20	0.20	0.30	0.20	0.20	0.20	0.20	0.20	0.10	0.00	0.00	0.00	0.00	0.00	0.00
75	0.20	0.20	0.30	0.30	0.20	0.30	0.20	0.20	0.10	0.00	0.00	0.00	0.00	0.00	0.00
65	0.20	0.30	0.30	0.30	0.20	0.20	0.20	0.20	0.10	0.00	0.00	0.00	0.00	0.00	0.00
55	0.20	0.30	0.30	0.30	0.30	0.20	0.20	0.20	0.10	0.00	0.00	0.00	0.00	0.00	0.00
45	0.20	0.30	0.30	0.30	0.30	0.20	0.20	0.20	0.10	0.00	0.00	0.00	0.00	0.00	0.00
35	0.20	0.20	0.30	0.30	0.30	0.20	0.20	0.20	0.10	0.00	0.00	0.00	0.00	0.00	0.00
25	0.20	0.20	0.30	0.30	0.20	0.20	0.20	0.20	0.10	0.00	0.00	0.00	0.00	0.00	0.00
15	0.20	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Vertical Plane VP-N5

HORIZONTAL (ft)	5	15	25	35	45	55	65	75	85	95	105	115	125	135
95	0.30	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.30	0.30	0.30	0.30	0.30
85	0.30	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.30	0.30	0.30	0.30	0.30
75	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.30	0.30	0.30	0.30	0.30
65	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.30	0.30	0.30	0.30
55	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.30	0.30	0.30
45	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.30	0.30	0.30	0.30	0.30
35	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.30	0.30	0.30
25	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.30	0.30	0.30	0.30	0.30
15	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.30	0.30	0.30	0.30
5	0.00	0.00	0.30	0.10	0.00	0.00	0.00	0.00	0.00	0.10	0.20	0.20	0.30	0.30

Vertical Plane VP-N6

HORIZONTAL (ft)	5	15	25	35	45	55	65	75	85	95	105	115	125
95	0.40	0.30	0.30	0.30	0.30	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
85	0.40	0.30	0.30	0.30	0.30	0.30	0.20	0.20	0.20	0.20	0.20	0.20	0.20
75	0.40	0.40	0.30	0.30	0.30	0.30	0.20	0.20	0.20	0.20	0.20	0.20	0.20
65	0.40	0.30	0.30	0.30	0.30	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
55	0.40	0.40	0.30	0.30	0.30	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
45	0.40	0.30	0.30	0.30	0.30	0.30	0.20	0.20	0.20	0.20	0.20	0.20	0.20
35	0.30	0.30	0.30	0.30	0.30	0.30	0.20	0.20	0.20	0.20	0.20	0.20	0.20
25	0.40	0.30	0.30	0.30	0.30	0.30	0.20	0.20	0.20	0.20	0.20	0.20	0.20
15	0.40	0.30	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.30	0.30	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00