

### 3. Shading

The effects of shading by one building upon another can be either positive or negative depending upon the site-specific circumstances of the properties involved. A potential benefit of shading for adjacent structures may be a cooling effect gained during warm weather. Negative consequences of shading include the loss of natural light for passive or active solar energy applications or the loss of warming influences during cool weather. Factors influencing the relative impact of shadow effects are site-specific and include differences in terrain elevation between involved properties, the height and bulk of structures, the time of year, the duration of shading in a day, and the sensitivity of adjacent land uses to loss of sunlight.

Shadows cast by structures vary in length and direction throughout the day and from season to season. Shadow lengths increase during the "low sun" or winter season and are longest on December 21-22, the winter solstice. The winter solstice, therefore, represents the worst-case shadow condition and the potential for loss of access to sunlight that a project could cause is greatest. Shadow lengths are shortest on June 21-22, the summer solstice. Shadow lengths on the spring and fall equinoxes, March 20-21 and September 22-23 respectively, would fall midway between the summer and winter extremes.

Shadows are cast to the west by objects during the morning hours when the sun is coming up on the horizon in the east. During late morning and early afternoon the shadows of objects move northerly and by late afternoon they are cast easterly in response to the apparent movement of the sun across the sky from east to west. Shadows cast in winter are longer, and those at the winter solstice the longest. It is instructive, therefore, to map the daily shadow pattern cast by a proposed building on December 21st because it is illustrative of the "worst case" impacts a proposed structure may have upon nearby sensitive land uses.

Of the total amount of the sun's energy available during a daylight period, approximately 85% of it reaches the earth between 9:00 a.m. and 3:00 p.m. The California Energy Commission defines this time period as the useable solar sky-space.<sup>15</sup> Useable sky-space, at the winter solstice, is that portion of the sky lying between the position of the sun (i.e., sun angle or azimuth) when it is 45 degrees to either side of true south—the portion of the sky covered or traversed by the sun between 9:00 a.m. and 3:00 p.m. For either an active or passive solar energy system to work it is not necessary for it to be exposed to sunlight from sunrise to sunset.

Land uses are considered sensitive when sunlight is important to function, physical comfort, or the conduct of commerce. Facilities and operations identified as potentially sensitive to the loss of sunlight include: "...routinely usable outdoor spaces associated with residential, recreational, or institutional (e.g., schools or convalescent homes) land uses; commercial uses such as pedestrian-oriented outdoor spaces or restaurants with outdoor eating areas; nurseries; and existing solar energy collectors."<sup>16</sup>

To determine shading impacts of the existing and proposed Project structures, their shadow lengths were calculated and their patterns projected in plan view on site vicinity maps showing the location of surrounding buildings. Although not required by the stated thresholds (as discussed below), both winter and summer solstice shadow patterns were examined to document the full (high to low) range of shadow impacts on adjacent land uses and to promote a full understanding of the Project's impacts, or lack thereof. The Project's shadow analysis is included in **Appendix 2** to this document.

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15 Solar Access: A Guidebook for California Communities, March, 1980, p. 11.

16 City of Los Angeles Draft CEQA Thresholds Guide, May 14, 1998, City of Los Angeles Environmental Affairs Department (EAD), p. L.3-1. This document is recommended by EAD as guidance to all City Departments in the preparation of environmental documents for new private development projects.

### Existing Conditions

The Project site is centrally located within the Century City North Specific Plan Area and would be located at 2000 Avenue of the Stars on the block bound by Avenue of the Stars, Constellation Boulevard, Century Park East, and Olympic Boulevard. The Project site has two existing eight-story structures located at 2020 and 2040 Avenue of the Stars and the two 44-story Century Park Towers. As discussed above (Section V.A.1) the existing buildings are situated among existing mid-rise and high-rise commercial office and hotel buildings that are considerably taller.

The 19-story Century Plaza Hotel is located on the southwestern side of the Avenue of the Stars opposite the proposed Project site. Commercial properties abut or lie along streets on three sides of the Project site (to the southwest, the northwest and the northeast). Complex shadow patterns are created in this urban setting when the shadows cast by the existing buildings in the Project vicinity coalesce.

#### Winter Solstice (December 21-22)

In the morning hours existing structures cast shadows in a northwesterly pattern that parallels the streetscape areas along the eastern side of the Avenue of the Stars. When the morning shadows are longest they shade both sides of Constellation Boulevard and portions of the Century Club, a two-story restaurant, on the opposite side of the street. The 2040 Avenue of the Stars building shades the open court area between the structures from the morning hours until early afternoon. In the afternoon the existing structures cast shadows northeasterly into the plaza area between the buildings and the Century Plaza Towers (**Figure AE-8**). Shadows cast by the existing buildings are completely contained within the Century City North Specific Plan area. No residential areas are affected at any time of day.

#### Summer Solstice (June 21-22)

During the summer solstice the sun travels more directly overhead than at any other day of the year with the result being that shadow directions and lengths are changed considerably. Shadows cast by objects in early mornings and late evenings fall more directly to the east and west. Shadows at the summer solstice will also be the shortest of the year

At the summer solstice, shadows cast by the existing eight-story buildings are substantially shorter than at the winter solstice. Shadows reach but do not significantly enter into either Constellation Boulevard or Avenue of the Stars. The day's shadows are also short enough that the open court area between the two existing structures is only partially shaded during the morning and late afternoon hours (**Figure AE-9**). Shadows cast by the existing buildings are completely contained within the Century City North Specific Plan area. No residential areas are affected at any time of day.

### Threshold of Significance

Regulation of the duration and amount of shading a proposed Project may generate is addressed by the City of Los Angeles Draft CEQA Thresholds Guide and also in the City's area plans and specific plans. The City of Los Angeles Draft CEQA Thresholds Guide provides general guidelines for determining whether a Project impact would be considered significant:

“...shadow-sensitive uses would be shaded by Project-related structures for more than three hours between the hours of 9:00 a.m. and 3:00 p.m. Pacific Standard Time (between late October and early April), or for more than four hours between the hours of 9:00 a.m. and 5:00 p.m. Pacific Daylight Time (between early April and late October).”<sup>17</sup>

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<sup>17</sup> City of Los Angeles Draft CEQA Thresholds Guide, May 14, 1998, City of Los Angeles EAD, p. L.3-3.

**Insert Figure AE-8 Existing Shadow Pattern – December 21-22 (Winter Solstice)**

**Insert Figure AE-9 Existing Shadow Pattern – June 21-22**

The Century City North Specific Plan contains specific, more restrictive provisions for urban development within the Plan area that may cast shadows into residential neighborhoods along its boundaries. The Century City North Specific Plan addresses concerns about building shading upon potentially sensitive residential uses by ordinance. The Specific Plan Ordinance states that a proposed project must be designed in a way:

“...to reasonably assure that it (the proposed project) will not cast a shadow for more than two hours, between 8:00 A.M. and 8:00 P.M., upon any detached single-family dwelling located outside the Specific Plan Area.”

The Specific Plan criterion narrows the impact to a two-hour time period. Because the Specific Plan requirements are more restrictive than the general Thresholds Guide, it provides the applicable threshold of significance for the proposed Project.

### **Project Impacts**

The Project would remove the two existing eight-story structures and develop a single 15-story office building. The proposed Project would be constructed within the same general footprint of the two existing structures. The proposed structure would have its longer axis facing the Avenue of the Stars. The plaza located between the Century Plaza Towers and the proposed Project would be reconfigured and have a more open design. The proposed building would rise to mirror the Century Plaza Hotel in height on the opposite side of the Avenue of the Stars.

#### Winter Solstice (December 21-22)

The proposed structure's winter solstice shadows would cover a greater distance on the ground throughout the day than existing conditions. In the mornings, shadows would extend northwesterly beyond Constellation Boulevard to shade the City National Bank building north of Constellation Boulevard at 1950 Avenue of the Stars. By 9:00 am, Project shadows would reach the landscaped area and open court areas on the south side of the Charles Schwab office building at 1900 Avenue of the Stars. Late morning Project shadows would shorten substantially and fall within undeveloped space north of Constellation Boulevard and the Century Club. At noon the Century Club would be shaded, as would a portion of the plaza between the Project and the Century Plaza Towers. By 3:00 p.m. the plaza between the Project and the Century Plaza Towers would be in shadow that would reach the lower, westerly-facing sides of the Towers (**Figure AE-10**).

The winter solstice shadow pattern cast by the proposed Project would be contained completely within the central commercial landscape of the Century City North Specific Plan Area. No residential areas would be affected by Project shadows at any time of day.

#### Summer Solstice (June 21-22)

At the summer solstice the shadows of the proposed Project would be considerably shorter at all times of day than during the winter solstice. Morning (9:00 am) shadows would be cast westerly to shade the eastern side of the Avenue of the Stars. The overall shadow length would be reduced to the extent that it would no longer shade the City National Bank building, nor would it shade the Century Club at any time of day. In the afternoon (3:00 p.m.) Project structure shadows would extend easterly into open and landscaped areas of the Project. The plaza between the Project and the Century Plaza Towers would also remain sunny for most of the afternoon until later in the day as shadows gradually extend farther east into the plaza area (**Figure AE-11**).

**Insert Figure AE-10 Proposed Project Shadow Pattern – December 21-22 (Winter Solstice)**

**Insert Figure AE-11 Proposed Project Shadow Patern June 21-22 (Summer Solstice)**

In summary, the proposed fifteen-story Project would be taller than the existing eight-story buildings and the Project's shadows would be correspondingly longer at all times of the year. The proposed building footprint, however, would not be as wide in an easterly direction. The result of the adjusted footprint is that the effect of the added building height would not be manifested in as wide-spread an area being shaded in the afternoons, over that already shaded by existing structures, as might have been anticipated.

Winter and summer solstice proposed Project shadows would be completely confined to the interior commercial landscape of the Century City North Specific Plan Area, an area containing numerous mid- and high-rise commercial buildings.

The closest area of residential land use is located southeasterly of the site on the opposite side of Olympic Boulevard and its interchange with the Avenue of the Stars. This multi-tenant residential area would not be affected by shadows from the proposed Project as it is located north of the residential units and prevailing angles of sunlight are from the south in all seasons at this latitude.

No Project shading of residential land uses either inside or outside of the above Specific Plan Area would occur.

#### **Mitigation Measures**

Based on stated thresholds of significance, no significant shadow impacts would occur. Therefore, no mitigation measures are required or recommended.

#### **Significant Project Impacts After Mitigation**

The proposed Project would not result in significant unavoidable impacts.

#### **Cumulative Impacts**

The proposed 38-story Constellation Place building located at the corner of Century Park West and Constellation Boulevard, will cast long shadows that will shade areas that will also be affected by shadows cast by the proposed Project. However, the areas they shade in common are all commercial properties within the Century City North Specific Plan, and not residential areas outside the Specific Plan area. Further, these shadows would occur from Constellation Place with or without the proposed Project. No significant cumulative impact would occur. No other related projects are located close enough to the Project site to cumulatively contribute to the Project's overall less than significant shadow impacts. Therefore, no significant cumulative impact on shadows would occur.