2.11 WIND AND SHADOW

2.11.1 WIND IMPACTS

Comment

10. The wind studies indicate that the only location on the island where there will be an increase in winds exceeding prescribed comfort levels will be at the southeast corner of Education Building 367. An exterior stairwell and parking lot are located here. Would there be a wind tunnel effect in the exterior corridor of Building 367 from 45 mph winds? What measures will be taken to protect staff and students who park in the lot? This area is a busy pedestrian area on the campus; what measures will be taken to protect staff and students as they walk to and from the building? (Johannes Hoffman, AIA Contracting Officer’s Technical Representative, U.S. Department of Labor, Employment and Training Administration) [15.8]

Response

The comment states that there would be an increase in winds that exceed prescribed comfort levels at the southeast corner of Education Building 367 on the Job Corps campus and asks what measures will be taken to protect pedestrians in this area. Pedestrian comfort was assessed as part of a wind tunnel test conducted for this EIR. As shown in Table IV.I.1: Wind Speeds Exceeded 10 Percent of the Time – Existing and Proposed Project, in EIR Section IV.I, Wind and Shadow, on p. IV.I.38, and as discussed in the third bullet point on p. IV.I.50, equivalent wind speeds at the southeast corner of Education Building 367 on the Job Corps campus (Test Point No. 12) currently exceed the pedestrian comfort criterion of 11 mph and would continue to do so after implementation of the Proposed Project. Equivalent wind speeds at Test Point No. 12 would increase from 16 mph to 19 mph. At 10 other locations on the Job Corps campus (Test Points No. 8, 9, 10, 11, 13, 14, 15, 16, 17, and 28), equivalent wind speeds would decrease. Overall, the wind conditions on the Job Corps campus would improve with implementation of the Proposed Project.

The wind tunnel test conducted for this EIR also assessed the potential for hazardous winds. As shown in Table IV.I.2: Wind Hazards – Existing and Proposed Project, on EIR p. IV.I.43, and as discussed in the third bullet point on EIR p. IV.I.47, existing wind speeds on the Job Corps campus are already high at 34 mph and would remain high with implementation of the Proposed Project. Equivalent wind speeds at Test Point No. 12 (the southeast corner of Building 367, at 5th Street and Avenue C) would increase from 34 mph to 45 mph. The exterior corridor of Building 367 and the adjacent parking lot would continue to be very windy. At this location, the wind hazard criterion of 34 mph would be exceeded for a total of 15 hours per year, so there would not be a constant or continuous wind tunnel effect. As discussed in the third bullet point on EIR p. IV.I.50, while implementation of the Proposed Project would create a new wind hazard at Test Point No. 12, it would eliminate 10 existing wind hazards at Test Points No. 8, 9, 10, 11, 13, 14,
11. Wind and Shadow

Thus, as a whole, hazardous wind conditions on the Job Corps campus would improve.

As required by Mitigation Measure M-WS-3, on EIR pp. IV.I.51-IV.I.52, wind speeds on Treasure Island would be monitored by a qualified wind consultant throughout the 15- to 20-year construction period, and areas where potentially hazardous winds are likely to occur would be identified. Potentially hazardous winds are those exceeding an equivalent wind speed of 26 mph for more than a single full hour per year. As the Proposed Project is built out, the project sponsors would be required to implement measures designed to minimize pedestrian exposure to hazardous winds in these areas. The measures could include placing weighted warning signs in appropriate locations, identifying alternate pedestrian or bicycle routes, and installing landscaping or semi-permanent windscreens to provide shelter from the wind.

While Mitigation Measure M-WS-3 would apply during the construction period, Mitigation Measure M-WS-4, on EIR pp. IV.I.56-IV.I.60, would require ongoing review and mitigation of hazardous wind impacts during the building design and review process. Prior to design approval of each building, a qualified wind consultant will review and compare the exposure, massing, and orientation of the proposed building to the model that was tested in the wind tunnel. If the qualified wind consultant concludes that the proposed building would not create a new wind hazard or contribute to a wind hazard that was identified in the wind tunnel test conducted for this EIR, then no further review would be required. If the qualified wind consultant concludes that the proposed building could create a new wind hazard or contribute to a wind hazard that was identified in the wind tunnel, then one of two options would be implemented. The consultant could propose changes in building design, building orientation, or measures such as the addition of street furniture (bus stop shelters, vending kiosks) or landscaping if such measures would prevent the proposed building from creating a new wind hazard or contributing to a preexisting wind hazard. In the event that such measures would not prevent the proposed building from creating a new wind hazard or contributing to a preexisting wind hazard, the consultant could determine that additional wind tunnel testing would be required. Following a wind tunnel test, the consultant could propose design changes or the addition of street furniture or landscaping if such measures would prevent the proposed building from creating a new wind hazard or contributing to a wind hazard.

Thus, Mitigation Measures M-WS-3 and M-WS-4 would provide for detailed wind analysis at the engineering design level and for site-specific mitigation during construction and operation of the Proposed Project. These measures would apply to project buildings that have the potential to contribute to the preexisting wind hazard at Building 367. Where necessary and feasible, implementation of Mitigation Measures M-WS-3 and M-WS-4 would result in mitigation actions that could include changing building designs or orientations, installing permanent or semi-permanent windscreens to provide shelter from the wind, installing or modifying landscaping to
provide shelter from the wind, and/or identifying alternate pedestrian or bicycle routes. Such engineering analysis cannot be performed at this time. Rather, such analysis must be performed at the time specific building designs that may affect the existing wind conditions at Building 367 are proposed, since the resulting wind hazard is in part a function of the specific design of proposed buildings.

As discussed on EIR pp. IV.I.50-IV.I.60, it is possible that not all wind hazards would be eliminated even with implementation of Mitigation Measures M-WS-3 and M-WS-4. For this reason, the EIR states that the Proposed Project’s wind impacts would be potentially significant and unavoidable.

2.11.2 SHADOW IMPACTS

Comment

According to the DEIR, shadows from the Proposed Project would impact the existing open spaces and recreation areas in the Job Corps campus, a federally owned property. It also concludes that shadows from the Proposed Project would impact 16 of the 19 parks and open spaces proposed as a part of the project, as well the proposed 7 individual neighborhood parks (to be called collectively the Cityside Neighborhood Park). The DEIR then goes through the approximately 27 total areas of parks and open spaces one by one and concludes that shadows on any individual park or open space would not be significant.

Please respond to each the following questions/comments:

- Even though the DEIR concludes that the shadows cast by the Proposed Project on the open space and recreational areas, including those within the federal Jobs Corps area, would not be individually significant, how can the DEIR conclude that shadows from the Proposed Project on all but 3 of the approximately 27 parks/open space areas on TI and YBI, when considered cumulatively, would not be a significant impact?
- The Proposed Project would create a brand new island suburb. The DEIR states that the existing buildings do not cast shadows on the existing parks and open spaces. Please explain why the proposed new buildings cannot be located and designed so that they will not cast shadow on substantially all of the parks and open spaces on TI? (Vedica Puri, President, Telegraph Hill Dwellers) [39.73]

Response

The comment does not address the adequacy or accuracy of the EIR but asks why the proposed buildings cannot be located and designed to avoid casting shadows on the parks and open spaces. In the Northern Hemisphere, building shadows generally fall to the west in the morning, to the north in the middle of the day, and to the east in the late afternoon and early evening. The proposed buildings would have to be located primarily on the northern and eastern portions of Treasure Island, with the parks and open spaces located primarily on the southern and western portions of Treasure Island, to avoid casting shadows on the parks and open spaces. According to the project sponsors, the proposed buildings are located on the southern and western portions of
Chapter IX
2. Comments and Responses
11. Wind and Shadow

the island for the following reasons: In order to form a cohesive community, the proposed buildings are centered around the existing historic buildings on the southern portion of the island that would be retained and reused as part of the Proposed Project. The southern portion of the island is naturally higher than the northern portion, which makes it less susceptible to the potential impacts of sea level rise. In addition, the southern and western portions of the island rest on the original sand shoal/dense rock layer that was later covered with fill to create Treasure Island. The sand shoal/dense rock layer is the most suitable location for seismic stabilization and the construction of the proposed buildings (see Figure 1.3.c: Best Soil Capacity, on p. 14 of the draft Treasure Island and Yerba Buena Island Design for Development, and Figure 2-1: Preconstruction Conditions, in Appendix C-1: Geotechnical Conceptual Design Report Treasure Island, of the Treasure Island Infrastructure Plan).

The comment questions how the EIR can conclude that the Proposed Project would not have a significant shadow impact even though it would cast shadow on 24 of 27 parks and open spaces when considered collectively. The significance criteria discussed in EIR Section IV.I, Wind and Shadow, on EIR p. IV.I.3 relate to shadows that would affect, in an adverse manner, the use of any park or open space under the jurisdiction of the Recreation and Park Commission, or shadows that would substantially affect the usability of other existing publicly accessible open space or outdoor recreation facilities or other public areas. As noted on EIR p. IV.I.3, the Proposed Project would not create any shadow impacts on parks or open space under the jurisdiction of the Recreation and Park Commission. Furthermore, the Proposed Project involves the creation of a new network of open spaces and recreation facilities. Limited areas of existing publicly accessible open spaces in their present condition would remain with implementation of the Proposed Project (Job Corps campus, school open space, portions of Yerba Buena Island), and the EIR, on p. IV.I.19, finds that the Proposed Project’s shadow impacts would not substantially affect their usability.

Typically, shadow analyses focus on new building shadows on existing parks and open spaces. In the case of the Proposed Project, the buildings, parks, and open spaces have been designed together as part of a master-planned community (see Section T.11, Public Open Space Framework, on p. 61, of the March 5, 2010 draft Treasure Island and Yerba Buena Island Design for Development). For informational purposes, the EIR analyzes the Proposed Project’s shadow impacts on the proposed parks and open spaces to determine how their usability would be affected.

The significance criteria do not use a number or a percentage of parks that are shadowed in order to determine the significance of a project’s shadow impacts; they focus on the usability of parks and open spaces. Analyzing the Proposed Project’s shadow impacts on all of the parks and open spaces in a collective manner would not provide meaningful information. The various types of proposed parks and open spaces to be developed would be used for different activities, so
shadows would affect the usability of the various parks in different ways. For example, the usability of the Sports Park would be affected by shadows in a different manner than shadows on the wetlands. As discussed on EIR pp. IV.I.23-IV.I.24, parks and open spaces with similar types of activities are grouped together and analyzed collectively. Based on the relevant significance criterion discussed on EIR p. IV.I.3, and as discussed on EIR pp. IV.I.5-IV.I.25, the Proposed Project would not substantially affect the usability of publicly accessible open space, outdoor recreation facilities, or other public areas.