

**Apr 19 2024**

**STATE CLEARINGHOUSE**

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**From:** Zachariasen, Judith@DOC <Judith.Zachariasen@conservation.ca.gov>

**Sent:** Friday, April 19, 2024 9:57 AM

**To:** GPUUpdate2045@cityofirvine.org

**Cc:** OLRA@DOC <OLRA@conservation.ca.gov>; OPR State Clearinghouse

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**Subject:** General Plan Draft PEIR - SCH No. 2023070463

Dear Alyssa Matheus,

The California Geological Survey (CGS) has received the Draft Program Environmental Impact Report (PEIR) for the Irvine 2045 General Plan Update. This email conveys the following comments from CGS concerning geologic issues related to the project area:

1. Liquefaction and Landslide Hazards

The draft PEIR addresses these hazards but includes a number of errors, omissions, or misrepresentations of geologic and seismic conditions.

- a. Figure 4.5-1, "Seismic Hazards," includes Earthquake Zones of Required Investigation (ZORI) mapped by CGS only for liquefaction hazard. However, CGS has also mapped ZORI for earthquake-induced landslide hazards within the boundaries of the City of Irvine. Figure 4.5-1 should be revised to show both of these seismic hazards. We note that Figure 4.5-2, which depicts deep-seated landslide susceptibility, is related to but different than earthquake-induced landslide hazard. For example, development in ZORI carries state-defined requirements for addressing the hazard. In addition, the first paragraph of Section 4.5.5.1.b states that, "Figure 4.5-2 identifies the areas of the City that are considered vulnerable to seismic induced landslides." This sentence should be revised, as the areas of deep-seated landslide susceptibility are not specifically areas subject to seismically induced landsliding.

The combined extent of the relevant Earthquake Zones of Required Investigation Maps (EZRIM) can be viewed here: <https://maps.conservation.ca.gov/cgs/EQZApp/app/>

Individual Seismic Hazard Zone Reports, EZRIM, and associated GIS data are available for download here:

[https://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?  
map=regulatorymaps](https://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=regulatorymaps)

- b. On page 4.5-4, the draft PEIR states, "Liquefaction zones may also contain areas susceptible to the effects of earthquake-induced landslides." This is incorrect. Liquefaction and earthquake-induced landslides, though both generated by seismic shaking, are two distinct hazards. And, in large part, they do not occur in the same location. So, in general, liquefaction hazard zones do not "contain" or overlap with earthquake-induced landslide hazard zones. This sentence should be revised to correct this misrepresentation.
- c. In the first paragraph of Section 4.5.5.1.b, the last sentence, "Even these areas;[sic]"

however, are designated as having a moderately low risk of landslides due to seismic conditions, and a low likelihood of a landslide under other conditions,” should be supported with evidence, which has not been provided in the text. If this information comes from an outside reference, a citation should be provided.

## 2. Ground Shaking Hazards

The draft PEIR addresses this hazard but contains some issues that should be corrected or clarified. In the middle of the second paragraph of Section 4.5.1.2, the consultants write that the Third Uniform California Earthquake Rupture Forecast (UCERF3) “provides the most recent assessment of the probability of a major earthquake on various faults between 2015 to 2044” and reports that the “San Joaquin Hills Fault, located within the City, has a 40 percent probability of a major earthquake occurring while the Newport-Inglewood Fault, located 8 miles from the City, has a 95 percent probability of occurring.” In the last sentence of the paragraph, the consultants write that “the likelihood of a powerful earthquake occurring along these faults [Newport-Inglewood and San Joaquin Hills] per the 2015 Third Uniform California Earthquake Rupture Forecast within the next 25 years is exceptionally low.” These two statements appear inconsistent, as 40% and 95% probabilities of occurrence could hardly be considered “exceptionally low.” CGS recommends the consultants review this section and the references that inform it and clarify the text to indicate consistently the level of hazard associated with ground shaking from these nearby earthquake sources. This text is repeated in Section 4.5.5.1.a, and should be addressed there as well.

## 3. Other

In the last paragraph of Section 4.5.2.3d (p. 4.5-12), the report mentions the “Northbridge” earthquake. This should be “Northridge.”

If you have any additional comments or questions, please feel free to call or email.

Thank you,  
Judy Zachariasen



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