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Sent: Monday, August 5, 2024 12:24 PM
To: longrangeplan@ci.ferndale.ca.us; citymanager@ci.ferndale.ca.us
Cc: OLRA@DOC <OLRA@conservation.ca.gov>; OPR State Clearinghouse <State.Clearinghouse@opr.ca.gov>
Subject: City of Ferndale Safety Element Draft - CGS comments

Dear Jay Parrish,

The California Geological Survey (CGS) has received the Draft Safety Element for the City of Ferndale General Plan Update. This email conveys the following comments from CGS concerning geologic issues related to the project area:

1. The text (p. 3-1) refers to the Cascadia Subduction Zone (CSZ) as the fault that separates the Juan de Fuca and North American plates. This is true. However, in California, the CSZ is primarily defined as the boundary between the Gorda and North American plates, as the Juan de Fuca plate is largely present offshore Oregon, Washington, and British Columbia. This is mentioned in a supplementary text box, but the main text would probably benefit from the Gorda plate being mentioned as the subducting plate of interest to Northern California.

2. The text (p. 3-2) refers to "two historic Quaternary fault lines." The term "historical" has a specific meaning in describing ages of Quaternary faults, so using the term "historic" could be confusing to readers. "Historical" faults are defined as having ruptured in the historical period, which in California is approximately the last 150 years, whereas the faults mapped through Ferndale are characterized as "undifferentiated Quaternary," i.e. defined only as having ruptured within the Quaternary Period (defined in the SGS and CGS Quaternary Fault and Fold Database [QFFD] as less than 1.6 million years, although in 2009, the International Commission on Stratigraphy redefined the Quaternary Period to have begun at 2.6 million years; the QFFD has not explicitly redefined its age categories to date). The distinction between "historical" and other age categories is significant for seismic hazard characterization. I would recommend removing the word "historic" from the text.

3. The text on page 3-2 states, "This indirect evidence might include geological features such as offset sedimentary layers, land-scape features like scarps or ridges…". Offset layers and features like scarps and ridges would probably constitute direct evidence of faulting.

4. Figure 3-3, Potential Liquefaction, should include in the legend the color scheme shown in

the map, i.e what color corresponds to areas of potential liquefaction. In addition, the source of the mapping should be included in the map and in the text – who did the mapping, and where does the data come from?

5. Figures 3-4, 3-5, 3-6, and 3-7 should also show the source of the data. Figure 3-4 includes no information about the source. Figure 3-5 includes "USGS" in the title but doesn't say where the data came from at the USGS. The sources for Figures 3-6 and 3-7 are stated in the text, but it would be useful to include them on the figures. I think all figures would benefit from the addition of a URL and/or a formal reference on the figure.

6. Although a detailed editorial review is beyond the scope of this evaluation, there are numerous grammar, language, and usage issues in the existing text that interfere somewhat with clarity with regard to geologic issues. The text would benefit from a thorough editorial review prior to finalization.

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

Thank you,
Judy Zachariasen

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