

## MEMORANDUM

To: Matt Aamot, Senior Planner, Planning and Development Services

From: John N. Thompson, L.E.G., Sr. Planner, Public Works

Date: June 9, 2010

**RE: Comments on Geologic Hazards Section of the Draft Foothills Subarea Plan**

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I did a review of portions of the Plan and ask that the following comments be considered in shaping a revision of the Geologic Hazards section of the draft Foothills Subarea Plan before it is finalized.

1. **Big Picture** - Earthquakes generated from the Cascadia Subduction Zone, active local faults, as well as Mount Baker all have the potential to generate a seismic event capable of causing structural damage and triggering landslides, lahars, or liquefaction in the subarea. The potential magnitude and intensity of each of these three seismic origins should be recognized.
2. **Active Fault(s)** - The Kendall scarp/Boulder Creek fault runs through the subarea from just south of Kendall east to Canyon Creek. This active fault displays evidence for at least 3 distinct seismic events (Barnett 2007) with magnitudes up to 7.2 (E. Schermer, personal communication). For comparison, the 2001 6.6 M Nisqually quake caused over a \$126 million in damage claims from Seattle to Olympia and was felt in Bellingham and southern British Columbia. The presence of active fault(s) should be noted and discussed in the geological hazards section of the subarea plan. This is important because:
  - a. The size of quake that could be generated at a local active fault must be considered to guide facility planning, site selection, and structural design for the facilities identified in Section 10 and for private development. Local earthquakes could be much larger than was previously recognized.
  - b. The recently documented seismic history should be considered when using the CAO liquefaction and shaking hazard maps as guides. In other words, the CAO maps may not reflect the recent data and the designer should ensure they are using the most current data and standards appropriate to the site conditions and location.
3. **Landslides** – Debris flows and debris avalanches are two types of landslides that can occur on many scales and are not exclusive to volcanoes. The landslide discussions should more explicitly address the landforms and landslide types and hazards of the subarea in its entirety in addition to hazards associated with Mount Baker. The mistaken perception could be created with the current wording that landslides from Mount Baker are the primary concern. The January 2009 storm event and associated landslides are an example of how wide spread the landslide hazard is within the subarea.
4. **Flooding** - flooding on Nooksack tributaries should be noted and described in the flooding section.