

CASCADIA EARTHQUAKE INFRASTRUCTURE IMPLICATIONS

Scenario: Magnitude 8 – 9 near Cascadia Subduction zone resulting in ground shaking here in the M 6 – M 7 range but for several minutes. Most of western Oregon and Washington will be affected.

A. LOCAL STRUCTURAL DAMAGE POTENTIAL

- Unreinforced masonry buildings (Medford, Jacksonville, Ashland, Central Point) – failures and collapse likely.
- Wood frame buildings – older buildings slide off foundations if not bolted to foundations; newer (Post 1992) survive with minimal damage. Multi-story apartments over garages are vulnerable. Damage to interior likely.
- Newer steel frame administrative buildings will likely survive. These should be inspected by a structural engineer before entering. Severe damage to interior (anything not tied down).
- Bridges – newer bridges survive, but approaches on fill may need repair; older bridges such as I-5 Viaduct likely to fail. All will need to be inspected by a structural engineer before use.
- Streets– likely buckled and cracked in places and blocked with debris and fallen trees and power lines.
- Highways - According to Oregon Department of Geology and Mineral Industries (DOGAMI) both Interstate 5 and Highway 101 along the coast will cease to be transportation corridors, severely limiting emergency response to SW Oregon.
- Water service – yields from Big Butte Springs may change; conveyance pipes to Bear Creek Valley may crack and leak. Multiple leaks likely in distribution pipes. Robert Duff Water Treatment Plant functioning may be compromised. Irrigation canals may fail, crack and leak. (Note: *The Medford Water Commissioned a “Hardening” study of these facilities and is addressing the findings*).
- Sewer – sewer lines may crack and leak and the regional sewage treatment plant may be compromised.
- Energy – electrical power cut off as transmission, distribution and support facilities may be compromised. Natural gas supply and distribution lines may crack and leak. Gasoline supplies will be limited hindering travel and road repair.
- Communication – phone systems, both landline and cell systems may fail or be overloaded with calls.

- Official emergency radio communication should function as will HAM radio capability – if battery powered.
- Dams – older dams such as Hossler Dam (800 Ac Ft. storage) in Ashland may fail; others such as Emigrant, Hyatt, Howard Prairie and Lost Creek may be damaged. All will need to be inspected. Flooding possible.
- Airport – Runways may remain functional but the terminal and tower functions may be compromised by interior damage.
- Landslides – landslides will occur locally in areas of steep slopes, not necessarily limited to areas already mapped. Regionally, key state roads through steep hills such as connecting the coast with the interior will likely be blocked by slides. Landslides will be worse if the earthquake coincides with the winter rainy season.
- Aftershocks common and increasingly disturbing

(NOTE: Restoration of these and other losses could take weeks or months!)

B. IMPLICATIONS

- There will be casualties. There will be confusion and, possibly, chaos
- Family members and other loved ones will likely be separated.
- It will be difficult to travel along blocked streets. Bicycles may be the best mode of transportation. Crossing Bear Creek and I-5 will be a challenge.
- “Normal” communication may not exist for weeks. Emergency communication among key officials and staffs will be critical.
- Those first responders, still able to function, will be overwhelmed. 911 Dispatch operators will be overwhelmed.
- Residents will largely be on their own. Rescues by neighbors, colleagues and bystanders common.
- Vulnerable populations in nursing homes, hospitals and residential care facilities will need professional attention.
- There will be a run on stores for food and supplies.

C. ADDRESSING THESE ISSUES

- Public awareness of the hazard and survival techniques such as this week’s series of talks will help us all be better prepared.
- Individual and family preparation will play a key role in survival – not as a victim but as a resource to others.
- Earthquake planning, preparation, training and practice will save lives.