

APPENDIX I

RISKS

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NEWS

Woman survives Astoria landslide: 'We're still homeless'

Cati Foss is still recovering after her home was impacted by a landslide last January

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by: Gabby Urenda



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were also in the home at the time of the accident.

“There’s not enough words to describe those few minutes of our life,” said Foss. “The basement collapsed underneath me... so, I ended up with a concussion and slammed my back into a coat rack when I was on my porch.”

Federal funds could help Astoria with flooding, landslides →

As the Oregon coast deals with landslides and a potential major earthquake, [Astoria officials are hoping federal funds can put their mind at ease.](#)

U.S. Rep. Suzanne Bonamici is requesting \$902,500 in funding for a landslide mitigation project in Astoria that would help protect a neighborhood from common winter flooding or the Big One — the Cascadia Subduction Earthquake that would impact a 600-mile fault located 70-100 miles off the West Coast of North America.

It would reduce potential landslides by improving drainage in high elevation forested areas. This includes protecting 32 homes from potential loss and another 69 homes from partial damage.

Foss said landslides have been a longstanding issue in Astoria and wants to see it resolved.



Cati Foss' home on Alameda Avenue in Astoria.

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Foss lived in the home for eight years prior to the accident. She remembers noticing a bit of land movement on the property and began looking at landslide insurance shortly after.

Vet running coast-to-coast for suicide awareness →

"Slide insurance is just completely unaffordable. We were looking at \$30,000 a year," recalled Foss. "It's like if you were purchasing a brand-new car every year."

Months after the slide, shoes and clothes can be seen in the rubble of what's left of Foss' home on Alameda Avenue.

When asked what their future looks like, Foss said, "I don't know. We will have to wait and see."



A street view of Cati Foss' basement seven months after her home was impacted by a landslide.

The residents of Astoria will also have to wait to find out if the landslide mitigation project will receive the necessary funding to help the city's critical infrastructure needs.

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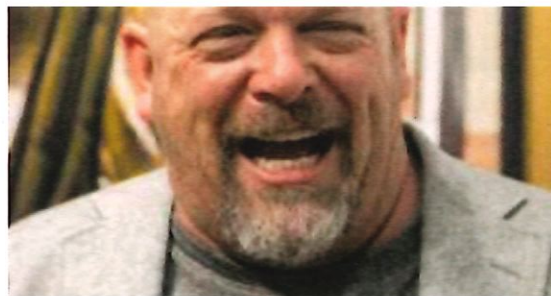
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Definition



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Auto Savings

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Cloudy

Mostly Cloudy
Precip: 23%

PM Rain
Precip: 100%

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Pacific Northwest

Sophisticated 3D mapping study shows Astoria at high risk for landslides

Updated: Jan. 10, 2019, 6:03 a.m. | Published: Oct. 16, 2013, 6:36 p.m.

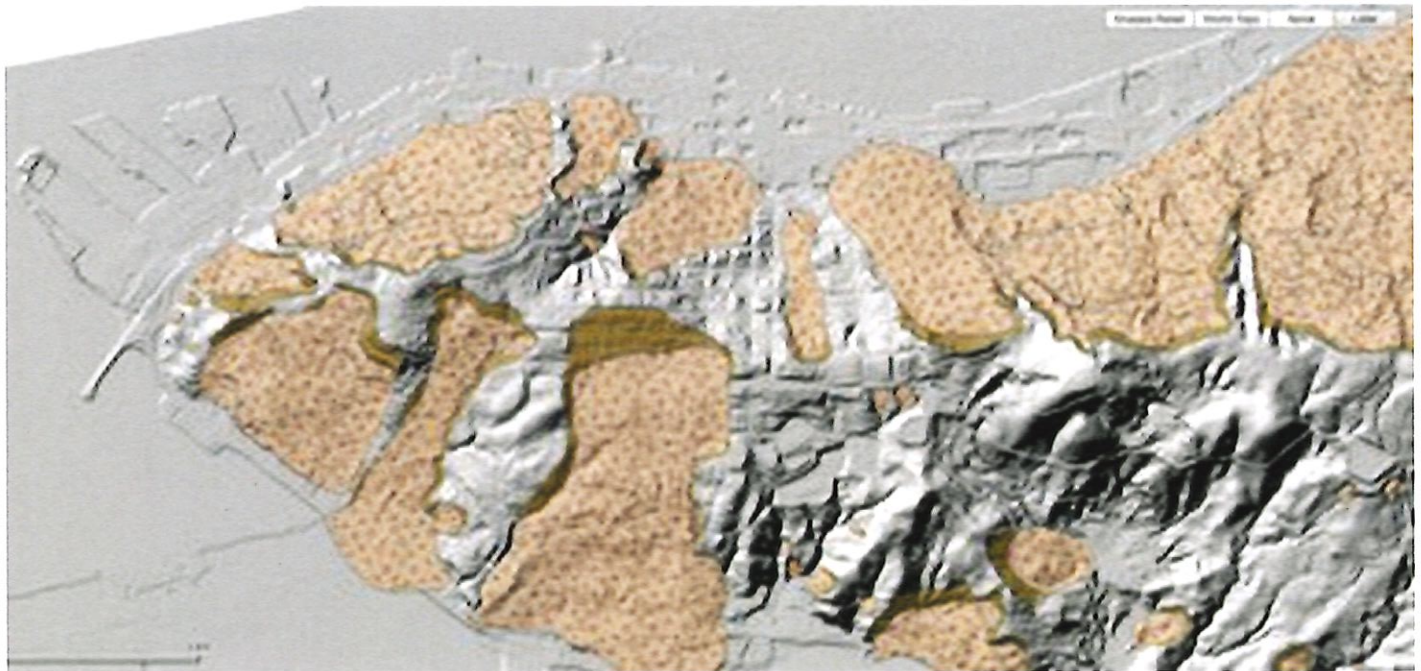


By Stuart Tomlinson | The Oregonian/OregonLive

Desktop30.jpg

Images of March 2007 landslide at the corner of 1st and Commercial streets in Astoria.

(Benjamin Brink/The Oregonian 2007)



A screen grab of DOGAMI's LIDAR viewer shows historic landslides on the Earth's surface in Astoria. The dark brown areas are the scarps, or head of the landslide. The light brown areas show the landslide debris.

The laser-mapping technology revealed what Astoria residents know all too well: The city is at a high risk for landslides.

Scientists with the Oregon Department of Geology and Mineral Industries created the

[landslide susceptibility maps of Astoria](#)

with LIDAR, the remote sensing technique that uses light pulses collected from planes flying overhead to generate highly detailed 3D images of the Earth's surface.

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The department has been collecting the imagery for the past 10 years and

[eventually hopes to map the entire state](#)

The department's chief scientist, Ian Madin, said scientists Bill Burns and Kate Mickelson located 120 landslides within the city limits and discovered that 83 of them have moved in the past 150 years.

In March 2007, the so-called First Street Gorge landslide -- the most recent big slide -- began moving after heavy rains. It also had moved during heavy rains in 1954.

Six years ago, four square blocks of mostly overgrown open space were reduced to a jumble of broken macadam, fallen trees and upturned earth, dropping as much as 15 to 20 vertical feet in places.

The conditions that caused the slide work like this, city officials told The Oregonian in 2007: Heavy rains swell the water table beneath the city, rising over the siltstone bedrock and into the "slip plain"-- the area between the siltstone and the clay above it.

The clay gets very slippery when wet, and water and gravity do the rest.

During the 1954 landslide, 18 homes were damaged. Some homes back then were demolished and others moved, and the city never allowed anyone to build there again. Several homes were damaged by the 2007 slide, as were water and sewer lines.

Madin said the most recent study found that 55 percent of Astoria is highly susceptible to shallow landslides -- those with movement occurring along a plane less than 9.5 feet deep.

While rains can trigger landslides, much larger landslides could come during an earthquake.

In a major earthquake, the city could expect a loss ratio of 65 percent of the city's structures and infrastructure, with "50 percent of the damage and losses resulting just from landslides," Madin said.

The maps, he said, can help city planners and emergency managers "refine emergency response plans, public outreach activities, the selection of appropriate safe-haven sites and mitigation of critical facilities and infrastructure."

They also can be used, Madin said, to develop evacuation plans by avoiding roads that may be blocked by landslides and gauge the impact on potentially dangerous hazardous waste facilities.

"It is important to remember that these maps and results are valuable for regional screening," Burns said. "They aren't for site specific evaluations. However, they give planners an idea of what is out there and where to focus their efforts."

-- Stuart Tomlinson

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https://www.dailyastorian.com/news/local/astoria-might-tighten-geotechnical-standards/article_4fd5407e-84c9-11ea-b7ae-77b374298917.html

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Astoria might tighten geotechnical standards

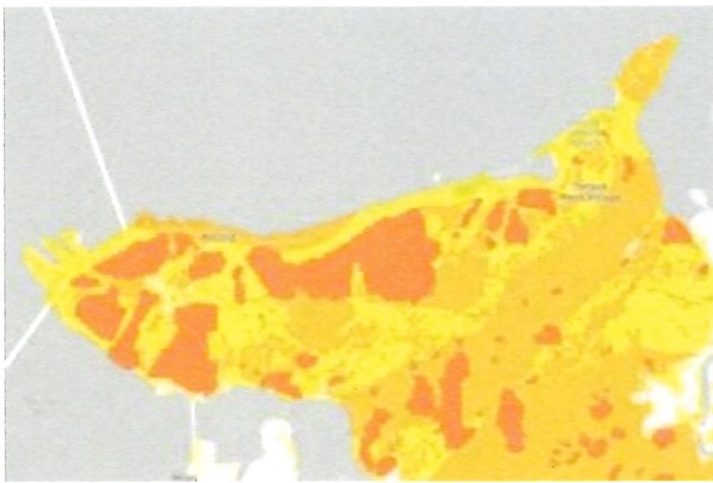
Rules could add costs to development

By Edward Stratton, The Astorian
Apr 22, 2020

Installing a hot tub or driving pilings for a deck in Astoria could soon require geotechnical reports potentially costing thousands of dollars.

With most of the city in landslide zones, city staff is recommending geotechnical reports for certain activities on medium- to high-risk hillsides to limit legal liability.

In 2013, the state Department of Geology and Mineral Industries completed lidar flyovers, providing a radar-like laser scan of parts of the state. Since the scans, local governments have begun work on geological hazard ordinances.



Much of Astoria is at very high (red), high (orange) and moderate (yellow) risk of a landslide. The city is planning an ordinance to address development in such areas.

Oregon Department of Geology and Mineral Industries

The scans uncovered more than 120 landslides throughout Astoria, including 83 in the past 150 years. More than half the city is highly susceptible to landslides 9.5 feet or shallower, and more than one-third is susceptible to deep landslides 15 feet or farther into the ground.

The City Council now needs to develop an acceptable level of risk to protect the city and property owners from liability in case things slide, City Planner Barbara Fryer

said at a recent council meeting.

“We can say things like ‘avoid the hazard completely,’” she said. “However ... that’s not a viable answer for Astoria, because we have quite a few hazards here in Astoria, and we want to continue development.”

City staff has recommended that geotechnical reports be required in medium- to high-risk hillsides depending on how risky the activity. Something like a deck with no pilings or excavation no deeper than 2 feet wouldn’t warrant a report, Fryer said, but something deeper with pilings would be a trigger. Higher-risk activities include decks more than 30 inches above grade, pile-supported foundations, movement of more than 20 cubic yards of soil or installing a hot tub.

“The addition of that additional weight could trigger the need for the geotechnical investigation to make sure it will not cause additional slippage of the material underneath,” she said.

Mayor Bruce Jones wondered what the average geotechnical report costs. The reports can range between \$2,000 and \$8,000, Fryer said, while a full investigation for a riskier activity can cost even more. Public Works Director Jeff Harrington said he’s seen much cheaper

reports for smaller projects.

City Manager Brett Estes pointed out recent landslides related to development near Safeway, U.S. Coast Guard housing and the Uniontown neighborhood in which the city was listed in lawsuits. The ordinance is about trying to protect property owners and the city from such liability, he said.

“It’s also trying to be able to gauge how much risk are we able to accept as a community,” Estes said.

He pointed to liability agreements as a tool to make property owners accept liability for building in higher-risk areas. The city has discussed the option with one property owner wanting to build on particularly vulnerable land.

Whether or not someone should build in a certain place isn’t a decision for city staff, but for the city as a whole in balancing safety and development, said Nathan Crater, the city’s engineer.

“It’s a tough balance to achieve,” he said. “I hope we can get there by getting good council input, and good public feedback, and to strike that balance.”

Getting public feedback on the draft ordinance has been tougher amid the coronavirus pandemic.

The City Council was awarded a \$10,000 grant from the state Department of Land Conservation and Development to create an online open house and other information for the public to learn about landslide risks and provide feedback. Fryer hopes to have the open house online in mid to late May.

The grant requires the city to finish all public involvement by the end of June.

Edward Stratton

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