

In Gearhart, what’s an acceptable level of risk?

State sets firehouse numbers in context

Where to build the Gearhart firehouse? Since the bond for a new firehouse was defeated in 2006, the topic has simmered in Gearhart as the city seeks a replacement for its current firehouse, constructed in 1958 and deemed structurally inadequate in a Cascadia Subduction Zone earthquake and tsunami.

Consultant Tom Horning of Horning Geosciences in Seaside presented an analysis of potential firehouse locations at a January town hall. Stewart Schultz, professor of biology at the University of Zadar, Croatia, submitted a contradictory analysis to the city in April. “At the town hall, the information presented to the city was completely different from that in his report, and incorrect,” Schultz said.

Both Horning and Schultz state their findings are based on data from the state’s Department of Geology and Mineral Industries. With each report citing DOG-AMI, we reached out to the agency and spoke with Jonathan Allan, Ph.D, a coastal geomorphologist. Allan is the Oregon Science Lead, National Tsunami Hazard Mitigation Program, Oregon Department of Geology and Mineral Industries. He reviewed both documents.

Q: As I understand it, Stewart Schultz’s report draws conclusions based on a medium-sized Cascadia Subduction Zone event, while Horning’s conclusions are based on risk for a large-scale scenario? Can it be boiled down to that?

Allan: My understanding is that there are at least four sites that were being considered: the existing site; one up on the dune west of the existing fire station (Gearhart Park); one at the intersection of 10th, and Cottage; and one on 13th (High Point).

What it mainly comes to is: what is the acceptable level of risk to the community in order for that fire station to also meet its immediate strategic needs, which is servicing the local area.

From our standpoint that’s a reasonable approach to take.

Q: How vulnerable is the current fire station site?

Allan: The existing fire station site is inundated by the medium, the large, extra-large, and extra-extra-large events. Four out of five events actually inundate the existing site.

The actual water level at the fire station for the large scenario reaches around 31 feet.

But then it climbs dramatically



Seaside Signal



SEEN FROM SEASIDE
R.J. MARX

to closer to about 56 feet for the XL. And it’s slightly larger than that for the extra-extra large.

The (Gearhart) park site is high and dry for medium.

At the two higher elevation sites, 10th Street and 13th Street, large doesn’t inundate either of those sites. They’re basically high and dry. The water levels reach 62 feet for an extra-large scenario at the 10th Street site, given the ground elevation at the site. The 13th Street site has really similar numbers. Those two sites are only exceeded by XL and XXL scenarios.

Q: Is it the frequency of tsunamis over time that tells us when the next tsunami will hit?

Allan: You know, there’s a lot of debate about that one in terms of the possibility of sort of a cyclical nature here.

We have essentially 46 events defined over a 10,200-year period. You can certainly see some evidence of grouping, but really how real that is, is debatable.

Q: In other words, the timing is random.

Allan: Exactly. It’s a very challenging area.

What we can say is we know the number of very big events that impacted Cascadia over the last 10,000 years, 19 of them which are the full margin rupture. The last one took place in 1700 when that was a magnitude 9 event. It’s been 319 years since the last event. Strain is already accumulating, and has been since the last event. So we’re building to the next event. We know that the interval between ruptures can be anywhere

HOW EXPERTS INTERPRET THE DATA

Tom Horning of Horning Geosciences in Seaside offers a recommendation of potential building sites on high ground at 10th Street or 13th Street on Marion Avenue. He concludes that Gearhart must prepare for an “L-1” scenario — a large tsunami event.

“Fifty-foot waves are in keeping with the large tsunami scenario,” he writes. “Tsunami for the L-1 scenario is modeled to flood to 40 to 42 feet, or about the roof of the existing firehouse.”

Stewart Schultz, a full botany professor at the University of Zadar in Bosnia, offers a different conclusion: “The probability that the next tsunami from a major event floods the Pacific Way Station is close to zero (2%), not large.”

The highest likelihood tsunami height at Pacific Way from a mega-event is about 30 feet, not 50 feet, Schultz writes.

He adds that the height of a large tsunami, at 40 feet, is two feet below the roof of the existing station.

from 100 years to as long as 1,000 years. But on average they’ll go off an average of 500 years spread across the entire Coast.

(Oregon State University professor) Chris Goldfinger’s most recent work, which was published in 2017, indicates that Cascadia has something like an 18 percent chance of rupturing in the next 50 years.

Q: Looping back to the Horning and Schultz firehouse studies, is either one definitive?

Allan: Tom’s comments are right on in that he’s basing a lot of his comments on existing information.

For example, he cites the work of Kurt Peterson, who did some paleo-tsunami coring work in histories along the coast.

He knows that run-up elevations defined in Cannon Beach reached about 50 feet, so based on that he argues that’s strong grounds to go with the large approach. That’s a perfectly reasonable approach to take using

geological data.

Fundamentally what it comes down to what is the level of risk the community is willing to take.

Q: Can you analyze Schultz’s conclusions?

Allan: He’s kind of cherry-picking some of his comments here in

terms of statistics. He’s right — in a large event, there’s a 5 percent it being exceeded. A medium event, there’s around 21 percent chance of it being exceeded. Those are based on our work.

But keep in mind the approach we developed is not truly a probabilistic approach. Hundreds of thousands of simulations are run of earthquakes, where you can truly extrapolate the recurrence and exceed its values associated with those.

Q: What does that mean? You’re more interested in complex modeling than numbers?

Allan: Yes. In the best of all worlds, you would actually run many, many, many simulations to

‘FOUR OUT OF FIVE EVENTS ACTUALLY INUNDATE THE EXISTING SITE!’

— Jonathan Allan, DOGAMI

Hughes-Ransom helps Seaside families to ‘take control’

Very few people enjoy contemplating the end of life. Death, while inevitable, is not typically a subject discussed over donuts and coffee. Aside from philosophical discussions you may engage in with your friends regarding the afterlife, what happens to the body after death and making arrangements for the big goodbye shouldn’t be shrouded in mystery. Eric J. Anderson would like to change that.

In late March he became the owner of Hughes-Ransom Mortuaries located in Astoria and Seaside. He’s inviting his Clatsop County neighbors to come in and meet him and tour the facilities.

Anderson, and face to face, please, just call him Eric, was born and raised in Minnesota, the youngest of seven. He’s 100% Norwegian and familiar with Scandinavian culture and heritage. Before making the decision to enter the funeral business, at Concordia College in Moorhead, Minnesota, where he graduated with a bachelor of science degree in mortuary science, Anderson at first thought he would be a schoolteacher.

He entered the funeral and mortuary business after gradua-



VIEW FROM THE PORCH
EVE MARX

tion when he moved to Oregon. The Hughes-Ransom family has declared Anderson part of their family business for years. Last year he became a manager, and this March, the owner.

There are approximately 320 deaths a year in Clatsop County, Anderson said. Eighty percent of people now choose cremation. Cremation does not require or eliminate the need for a funeral service. Traditional, contemporary, even highly individualized services can be planned before or after the cremation process. Services can be as elaborate or as simple as the deceased or their loved ones desire. Options for memorialization are plentiful, ranging from burial of the ashes in an urn to outdoor niches to scattering. Ashes can be dispersed amongst family members or even friends, contained in individualized beautiful handmade boxes to rest on the mantelpiece. Some people choose to



Eve Marx/For Seaside Signal

Eric J. Anderson, new owner of Hughes-Ransom Mortuary, is here to help you in your time of need.

inscribe their family member’s name on a tree plaque or park bench.

“It can be whatever you want it to be,” Anderson said.

As more people prefer to take control of their own arrangements, prepaid arrangements or simply putting some plans in place are becoming more prevalent. An important reason for this pragmatic approach to death is pre-arrangement reduces family concerns, including the financial, at the time of the death.

At the very least, Anderson said, it’s beneficial to take the first steps of pre-arrangement by having a conversation with loved ones about one’s wishes.

Having paperwork organized is a plus, as is having the person’s Social Security number. It’s also helpful to know in advance when the time comes, which funeral home you’ll choose. After receiving the call, most bodies are picked up within an hour.

“Do some homework,” Anderson advised.

Anderson sees his primary role as serving families. A family man himself, he is the proud father of three. He said he’s looking forward to having his daughters join him in Seaside this summer. Anderson is experienced in dealing with sudden tragedy. He was one of the funeral directors involved in the 2016 services for fallen Seaside Police Officer Jason Goodding, killed in the line of duty. Not every funeral, he said, is a wholly sad occasion. Many services, he said, instead of mourning, choose to focus on celebrating the life of the person.

The Hughes-Ransom Mortuaries has been a provider of compassionate service in the community for over 100 years. “We proudly and respectfully serve our community and provide the highest level of funeral, cremation and memorial reception services, with the utmost attention

to better constrain the uncertainty portion. This is something that the American Society of Civil Engineers has actually been working on the last several years now, in developing design standards for tsunamis for critical and essential buildings.

They’ve come up with 2,500-year design wave in a tsunami inundation zone. While that type of approach has its own inherent problems with the modeling that was done, it needs to be truly implemented to begin to really define what these recurrences are.

Another comment — Schultz made a statement about the existing site and how a medium would only reach a certain height above the ground and then people could basically escape out the top of the fire station. I thought that was somewhat naive, because to be honest, existing buildings are not designed to withstand the types of forces that are thrown at them by a tsunami.

In reality, when you look at what happened in Japan, unless a building was specifically designed to withstand the forces, effectively the buildings in the inundation zone, certainly multistory buildings up to two stories, were decimated. It was only the truly multistory buildings that tended to survive the event. We’re talking about structures that are much more heavily designed and robust for those conditions.

It’s another consideration and again it goes to what is the purpose of the fire station: Is there a dual purpose, one being to serve the strategic needs of the community for fire and risk and so on, and/or designing it as a vertical evacuation structure?

For the latter, you’d have to truly engineer it using much more robust modeling and engineering guidelines to build it to sufficient height and to withstand the forces. That takes a lot more time and effort to come up with those design standards.

Q: Will you be in contact with Gearhart over this?

Allan: We’re obviously available to them any time, or are looking for additional information.

Q: You’ve gone through this with other cities?

Allan: We’ve worked with other cities in terms of providing information. Each community has taken a slightly different approach. We’ve worked with, for example, the communities of Nehalem and Manzanita when they were establishing their fire station. The city of Yachats has gone through this process, when they made a decision to move outside of the large inundation zone for their purposes.

It again comes down to fundamentally the specific level of risk that is acceptable to a community.

to detail,” Anderson said.

He pointed out that in a world full of funeral corporations, Hughes-Ransom remains an independently owned and operated funeral home. Only licensed funeral directors are on staff, and there is no high pressure sales team.

“We encourage you to visit us before making any arrangements,” Anderson said. “We’re here to assist you in your time of need. We offer a range of personalized services to suit your family’s wishes and requirements. Count on us to help you plan a personal, lasting tribute to your loved one. We will carefully guide you through the many decisions that must be made during this challenging time. You’re welcome to call us any time of the day, any day of the week, for immediate assistance, or visit our funeral home in person at your convenience.”

The third weekend in June, Anderson will be hosting an open house at the Seaside location, where he will be available to talk, give tours of the facility, and respond to questions.

For more information about Hughes-Ransom Mortuary, log on to www.hughes-ransom.com.