



# How Tillamook Weathered the Storm:

A Case Study on Creating Climate Resilience on Oregon's North Coast

December 2016





*When culverts failed, inundation and debris did significant damage to county roads.  
Credit: Tillamook County Roads*

## Introduction

Even in a state known for wet weather, December 2015 stood out. A series of major storms hit northwestern Oregon and brought record-breaking rainfall, high winds, and high tides. Tillamook was one of thirteen Oregon counties that experienced a state of emergency. Challenging conditions included major highways and local roads closed due to flooding, failed culverts, landslides, and sinkholes. Transportation and health agencies worked hard to reconnect flooded and isolated communities. In spring 2016, staff from the Oregon Department of Transportation and the Oregon Health Authority's Public Health Division went to Tillamook to learn how they weathered the storms.



**As communities across Oregon prepare for new climate conditions, the question of how to adapt to those changes can seem overwhelming. Oregon's Tillamook County has already made great strides to build the resilience of their health and transportation systems by learning from the severe weather events they face today. This case study shares lessons they've learned that can inform action across Oregon as we prepare for the future together.**

*Cover Photo Credits:*

*High water creates difficult conditions for travelers on Highway 101 - Credit: Tillamook Headlight Herald  
An aerial view of flooding in Tillamook in the first week of the storms - Phil Deyoe & the Tillamook County Pioneer  
County workers assess a landslide on Miami Foley Road - Tillamook County Roads*

**“Conversations about climate change adaptation and Cascadia preparedness can’t just happen at a local level, they need to be addressed at a statewide level.”**

*– Mark Labhart, Tillamook County Commissioner*



## Lesson #1

### **Communication is Key to Safety**

There are sometimes warning signs for severe events. That’s when the work starts for Gordon McCraw, Tillamook County Emergency Management Director. When he heard the major storm forecasts, he used Facebook, email distribution lists, and local radio stations to warn people living and working in the county to prepare for bad weather and stay off the roads. Adventist Health used this early warning to prepare staff, notifying them to stock emergency kits and overnight supplies in case they were stranded. Once the storm hit, local elected officials like County Commissioner Mark Labhart served as public information officers, working with media so county staff could focus on emergency response.



## Lesson #2

### **Connect Leaders to Integrate Emergency Response Efforts**

Tillamook relies on their Incident Command Team (ICT) during disasters. Leaders from key organizations like the Office of Emergency Management, County Roads, fire districts, and police departments all head to the dispatch center, where they have permanent work stations and phone lines. “You don’t usually see the kind of coordination and information-sharing that you do in Tillamook County,” McCraw says, “but in a rural area you must have multiple hats.” During the December storms, 9-1-1 dispatchers answered calls while the ICT managed the response. This allowed different agencies to quickly prioritize calls and determine whose team should respond.

Tillamook Regional Medical Center ran smoothly during the adverse weather due to an emergency operations management plan that relies on a position rather than a person. In the event of a disaster, the nursing supervisor becomes the acting incident commander, and all supervisors are trained and ready for this responsibility. This resulted in a smooth emergency response during the December storms, even though Adventist Health’s Emergency Manager was out of state at the time.

**“Bureaucracy puts up roadblocks. One of my jobs is to help figure out how to deal with those roadblocks.”**

*– Gordon McCraw, Tillamook County Emergency Management Director*

### Lesson #3

## Reach Beyond Everyday Boundaries

Agency leaders like Tillamook County Roads and Public Works Director Liane Welch have learned to bridge jurisdictional divides to solve problems. "I'm willing to accept risk so long as it's not a safety risk," she says. When downed trees blocked roads during the storm, McCraw and the ICT determined which agency staff was closest and had the right equipment. ODOT, the County, the fire department, or the local utility district might remove a tree, regardless of jurisdiction, as another agency provided flagging or lights. Everyone recognized the value of clearing small obstacles quickly so emergency responders could do their critical work.

Other organizations took on new duties and found creative solutions. Director Mimi Haley of the Columbia Coordinated Care Organization (CCO) realized that flooded roads could disrupt access to necessary prescriptions. She worked quickly with regional health providers so her members could get temporary coverage from out-of-network pharmacies, sent out a press release, and spread the word through local media. Tillamook County Transportation District ran emergency shuttles on a difficult detour route to take people to and from jobs, medical care, and groceries when road closures isolated the community of Oceanside.

Creativity and cooperation allowed Kilchis House, an assisted living facility run by CARE Inc., to safely evacuate residents through floodwaters during one of the early nights of the storms. The evacuation plan called for staff to move residents to a Red Cross shelter – but the Red Cross had not yet opened one. CARE's Executive Director Erin Skaar, McCraw, and the ICT found an alternate evacuation location, while the Tillamook Regional Medical Center helped triage medically vulnerable residents who needed a hospital bed. The fire department and transportation district partnered to move residents to safety.

### Lesson #4

## Build Community Capacity and Social Cohesion

Skaar and others credited community volunteer support as an essential part of successful storm response. "There is a sense in our community," Skaar said, "that we need to help our neighbors. If you're not hurting, you're helping." While Kilchis' kitchen was out of commission due to flooding, local businesses cooked free hot meals for residents for seven days.

"Establishing relationships up-front is key," explains Wheeler City Manager Geoff Wullschlager. While a spirit of cooperation can rise up during an emergency, true resilience comes from preparing before a crisis hits. Community organizations like the Emergency Volunteer Corps of Nehalem Bay (EVC) build strong social networks between neighbors to keep their community safe during emergencies. Since 2008 EVC block captains have mapped 80 neighborhoods, identifying vulnerable individuals who may need assistance during an emergency. EVC stocks emergency supplies and has organized a Community Emergency Medical Reserve Corps able to provide on-call medical care during disasters. The EVC builds social cohesion through annual meetings, trainings, staging drills and providing other community service to maintain non-disaster volunteer commitment. Other transportation and health agencies see the EVC as a critical resource and have fostered partnerships with them. For example, Adventist Health's emergency manager Eric Swanson has helped them apply for grants to obtain additional equipment and supplies. These kinds of preparations streamline emergency response, accelerate cooperation, and maintain morale when disasters like the December storms hit.

**“In a disaster, we need to understand the roles and responsibilities of all our partners.”**

– Mimi Haley, Columbia County CCO Director



## Lesson #5

### **Help the Helpers**

Emergency conditions make for long and difficult hours for staff at all of the responding agencies. With the north and south parts of the county divided by road closures, Sunset Empire Transit District’s Ridecare drivers worked late taking Tillamook patients to Portland area hospitals for necessary medical services. ODOT crews worked around the clock to reopen highways, and county staff put in 17-19 hour days doing the same for county roads. Organization leaders had to make sure their staff got enough food and sleep, even while they worked long hours themselves. Welch recalls a night she drove home only to encounter rising water on a county road – she got out to flag so other motorists could pass safely. After the storm, she and other leaders brainstormed ways to better support their staff during a disaster, like stocking vehicle emergency kits with easy-to-eat foods.



## Lesson #6

### **Maintenance Matters**

Part of effective emergency planning is maintaining infrastructure to minimize vulnerabilities that may fail under difficult conditions. Welch diagnosed inadequate culverts as the main reason several county roads didn’t withstand the storms – and noted that the ones that failed were already known to be in poor condition. “The transportation networks will be better off the more we can commit to regular and high levels of maintenance,” agrees Bill Jablonski, Local Area Liaison for ODOT Region 2. Regularly clearing culverts and pipes under roads can help prevent washouts, and having an inventory of the location and condition of these assets directly supports maintenance and emergency response efforts.

When agencies defer maintenance due to insufficient funding, severe events add to the problem. Tillamook County Roads has shifted time and resources to repairing damage from the December 2015 storms, delaying some previously planned projects. Since these repair efforts focus on failed sites, other parts of the system will continue to deteriorate due to lack of routine maintenance.

**“Resilience takes leadership from the top, and a champion to make things happen.”**

– Liane Welch, Tillamook County Roads-Public Works Director



**“As a health system, we’re continually preparing for emergency events.”**

– Eric Swanson, Adventist Health Executive Director for Strategy & Business Development & Emergency Manager

## Lesson #7

### **Learn From Successes and Surprises**

Tillamook leaders pointed to the importance of sitting down after events to learn what worked and what didn't. Where emergency protocols weren't clear, they found their agencies and communities were more likely to struggle to manage events during the storms. For example, the City of Wheeler had too little support in the first 24 hours, which left some leaders staying up all night as they tried to clear storm drains with their bare hands. Once everyone had mobilized, they found they then had too many people trying to direct the response, and it took some time to make coordinated and effective decisions. They struggled to find a drinking water test facility open on weekends, and then to identify the appropriate authority to lift boil water notices after testing showed no danger.

The City of Wheeler and other Tillamook organizations are updating their emergency operations in response to challenges they experienced during the December storms. Both Tillamook County Transit District and Sunset Empire Transit District are strengthening their emergency

infrastructure, exploring resources like backup generators, radio equipment, and driver lodging options. Haley and Columbia CCO had successfully deployed innovative emergency measures, but have learned they need guidance for when to declare the end of the emergency and how to return to normal operations. Skaar and Kilchis House staff are adjusting their emergency plan, which had never before been used in real-world conditions. “We need to be prepared to evacuate wherever, and to take care of ourselves and our residents when we get there,” Skaar says. “We have to think through, what if we had less support next time? No transportation vehicles, no fire department, no hospital space ... what if we were doing this in the dark?”

Tillamook has already learned that the time and effort to make these adjustments pays off, as some of the response successes of the December storms came from lessons from previous disasters. In the past floods had threatened Tillamook Regional Medical Center's operations, pointing to a need for the staff on duty to know how to secure the hospital against inundation. In response, they had instituted regular drills to train staff to respond to storms and floods. Several staff members received this training only a month before the December storms required them to use it, and afterward they expressed gratitude that they'd had the chance to learn and practice the right procedures.

**“Our community, in many ways, is very divided. Yet in the face of the storm, people who hadn't talked to each other in years were working side by side.”**

– Geoff Wullshlager, City of Wheeler City Manager



**“When we’re talking about climate change, what will the new normal be?”**

– Erin Skaar, CARE Inc. Executive Director



## Lesson #8

### **When the Emergency Ends, the Work Doesn't**

Tillamook health and transportation agencies have spent much of 2016 doing the hard work of recovery. ODOT and the county have obtained federal funds to cover some public infrastructure repair, and Labhart chairs a hazard mitigation committee to determine which projects will receive FEMA grants. CARE Inc. has provided financial assistance to residents who lost income during the storms, and turned a concert into a benefit for those who were impacted. McCraw and other county officials continue to get questions from property owners whose private roads and driveways had significant damage, but are not eligible for FEMA funds. The post office in Wheeler remained closed due to flood damage for many months, creating challenges for local seniors who were forced to travel to other communities for their mail. Labhart described these challenges as “the disaster after the disaster,” which can range from difficult to life-threatening.

Questions remain about how best to rebuild. Jablonski points out that detour routes are key when highways fail, but federal funding for repairing roads after natural disasters does not typically provide extra resources to increase route resilience. As Tillamook County works to reconstruct one of the area’s key detour routes, FHWA and ODOT are supporting their efforts to redesign it to better withstand future storms. However, there is no established approach for making these kinds of vital enhancements to the transportation system a given during recovery.

### **Preparing for an Uncertain Future**

The people who kept Tillamook safe during the storms express pride in how well their communities weathered this challenge, but acknowledge that they cannot become complacent about future events. McCraw, a Hurricane Katrina survivor, knows that many emergency plans fail to address all challenges of a catastrophic event, which can leave people torn between ensuring the safety of their families and responsibilities to the broader community. Should an unprecedented storm or a Cascadia quake occur, he warns, “first responders will become victims, and victims will be first responders.” He and others in Tillamook believe it’s crucial to empower emergency managers to make good decisions in situations where they may not have the chance to check policies and procedures.

Tillamook leaders are rising to meet the challenges posed by natural disasters and climate change despite the unknowns. Preparing for more common events like floods and severe weather also prepares communities for more significant disasters. Welch encourages her employees to have family plans and emergency supplies. She and McCraw are partnering with Umatilla County under the “sister county” model, where geographically distant Oregon counties pair up to offer assistance and resources in the event of a disaster.

Labhart believes in the importance of coming together as a state to address climate resilience and disaster preparedness. He convenes local efforts to tackle difficult questions like whether to limit development in areas in danger of coastal erosion, but says some conversations require a larger table. “It’s not about big government, it’s about the safety of your children and grandchildren. You need a lot of champions out there to say, ‘we need to be prepared for the future.’”



## What is resilience?

Resiliency is a community or organization's ability to use available resources to respond to, withstand, recover from, and learn from adverse situations such as natural hazard events.

## Why resiliency matters to Tillamook County

Coastal views and abundant waterways create challenges as well as opportunities in Tillamook. Over the past 20 years, Tillamook County experienced 17 presidentially declared disasters caused by flooding and severe weather events. Each year storms and floods damage roads, bridges, businesses, and private homes, and coastal erosion is impacting development in several communities. As our climate changes, scientists predict the Oregon coast will face warmer, wetter weather along with more intense winter storms. These changes will lead to increases in annual rainfall, erosion, and sea level rise up to 24 inches by 2100. Tillamook and other coastal counties are doubly vulnerable to earthquakes along the Cascadia Subduction Zone due to the possibility of a devastating tsunami.

## Connecting health and transportation

The Oregon Department of Transportation (ODOT) and the Oregon Health Authority - Public Health Division (OHA-PHD) created this case study as part of a collaborative effort to identify, develop and promote connections between public health and transportation. Good transportation policy and funding choices can influence the health of Oregonians, reduce health care costs, and create a better quality of life in our communities. The five leading causes of death in Oregon are cancer, heart disease, chronic lower respiratory disease, stroke, and unintentional injuries – each of which can be influenced by transportation choices and options. This partnership includes initiatives to help communities convene their health and transportation agencies to solve important problems; share data and pursue joint research; and improve the safety and convenience of walking, biking, and taking transit. To learn more about how ODOT and OHA can help foster climate resiliency in your community, take a look at the following resources:

- [State of Oregon's Transportation and Health](#)
- [Oregon Climate and Health Program](#)
- [OHA-PHD Climate Change and Public Health](#)
- [Transportation and Growth Management Education and Outreach](#)
- [ODOT Climate Change](#)