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# *2010 Coastal Transportation Issues Update: A Report to the Oregon Transportation Commission (OTC) July 21, 2010 (Portland, Oregon)*

*by Onno Husing, Director, OCZMA*

*U.S. Highway 101 on the Oregon Coast (Lane County)*

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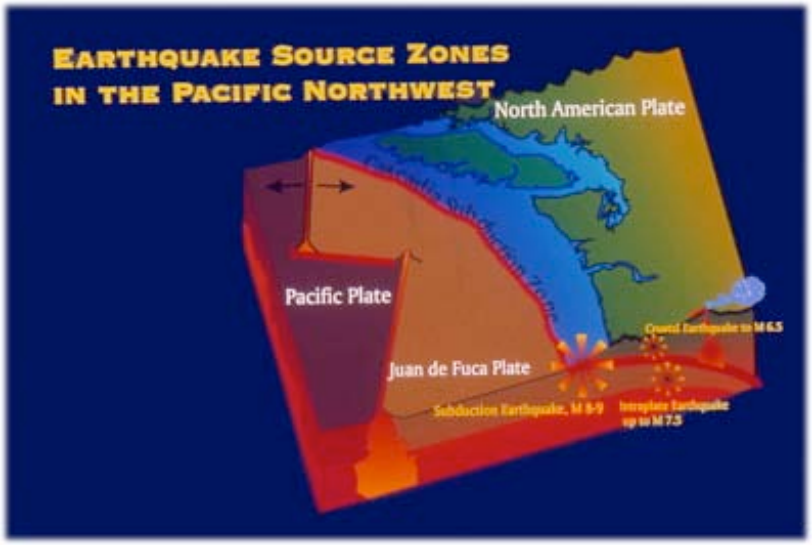
## *1.0 Preparing For Cascadia: A Vulnerable System*




It's been ten years since the awful winter of 1999-2000. That was when, in December 1999, torrential rains triggered two oceanfront landslides which swept away huge chunks of U.S. Highway 101 at Cape Foulweather (Lincoln County) and Cape Cove (Western Lane County).

The road closures caused ***a lot*** of hardship. The Oregon Department of Transportation (ODOT), working with their contractors, did a great job of repairing the highway. It was dirty and dangerous work, especially at Cape Cove where an exposed hillside towered above the construction site. The contractors installed a horn at the site. Workers were told, if the horn sounds, run for your lives because the hillside is about to give way. Of course, road repairs took place during the winter in the rain and that only added to the danger.

Heavy rain was probably the immediate cause of the two landslides. When hillsides on the Oregon Coast become super-saturated, enormous hydrologic pressure builds along the buried "slip planes." The other contributing factors were the construction techniques used by the Oregon Highway Commission (OHC) back in the 1930s. At Cape Creek and Cape Foulweather, the roadbed of U.S. Highway 101 was carved out of the hillside. That made the steep slopes even steeper and more prone to failure.

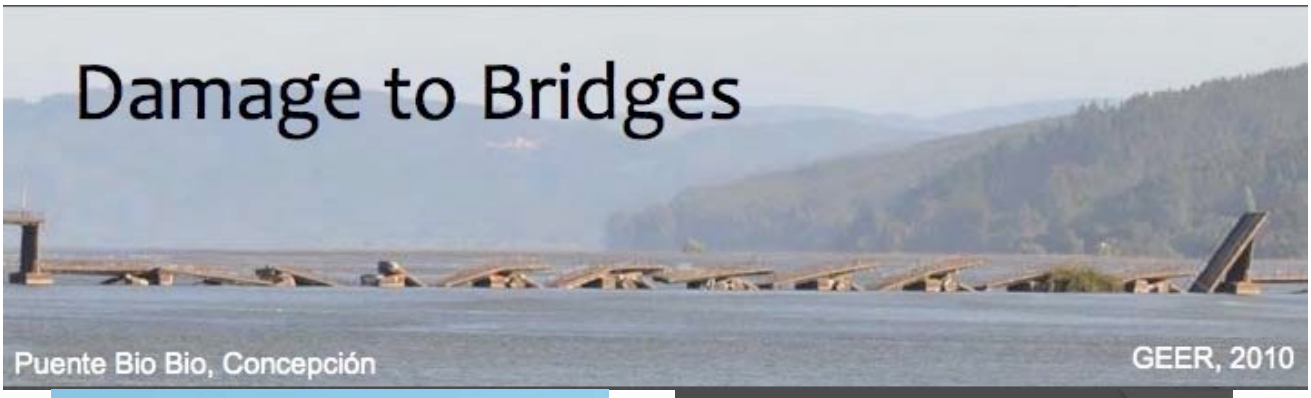
After those road closures, a lot of time was spent identifying "alternative routes" along the U.S. Highway 101 Corridor. It wasn't an easy task. In places where the highway hugs the cliff, the nearby inland terrain is, naturally, also rugged. And, during that experience, we learned how hard it is to convert logging roads into alternative routes for U.S. Highway 101. Those narrow roads were never meant to handle large volumes of traffic—especially lumbering RVs (recreational vehicles) driven by senior citizens. And, serious liability issues arise when logging roads become highway detours. Despite all the obstacles, credible contingency plans (alternative routes) were prepared.

We've been fortunate in the last decade. There haven't been additional major road failures along U.S. Highway 101. A few short-term closures happened when the two tunnels on the Oregon Coast (at Cape Creek and Arch Cape) had to be repaired. ODOT, though, employed the lessons learned from the winter of 1999-2000. By working with the communities in advance, they minimized disruptions to commerce.

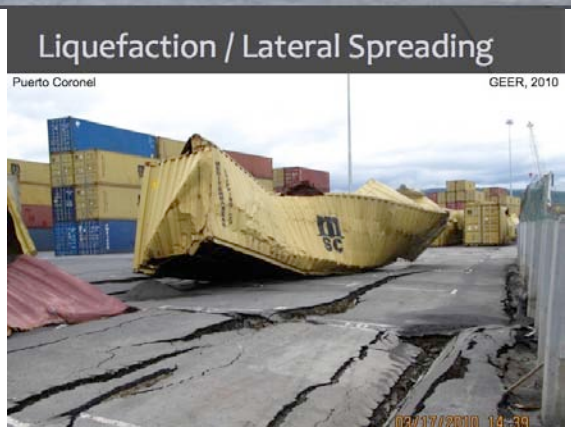
### *Wrapping Our Minds Around the Challenge*

When a major earthquake rattles our region and triggers landslides, ***especially if it takes place during a heavy winter rainfall event,*** the Oregon Coast will be thrown for a loop. In the last decade, scientists at Oregon State University (OSU) and the Oregon Department of Geology & Minerals Industries (DOGAMI) unearthed additional clues from the geological record about the frequency and scale of Cascadia events. The newly acquired data suggests events happen on the average of every 300-350 years (instead of about one every 500 years). The last major event to hit

Oregon was 300 years ago. There's an estimated 40% chance a powerful earthquake will occur along the Oregon Coast in the next 50 years. On the South Coast, there's an 80% chance the southern margin of the Cascadia Subduction Zone will buckle.








Two recent subduction zone earthquakes—one off Indonesia in 2004 and the 2010 earthquake in Chile—provide fresh insights into what a Cascadia event will mean for us. The Chilean earthquake (photos above), in particular, illustrates the brutal impact these titanic events have on modern transportation infrastructure.

## *ODOT's Seismic Study: Off to a Good Start*

***Front Cover of ODOT Seismic Study***


These realities came into focus during the 1990s. To their credit, ODOT, the Oregon Department of Geology & Mineral Industries (DOGAMI) and the Oregon Emergency Management (OEM) faced the situation head on. Important steps have been taken to help us prepare.

One of the first questions ODOT's management team asked was—"Okay, what will happen to the ***bridges*** in Oregon, especially in Western Oregon?" ODOT teamed up with Portland State University (PSU) to jointly study the status of Oregon's bridges. Starting in 2007, the ODOT-PSU study employed a computer program called REDARS 2. REDARS 2 simulates damage to bridges by predicting ground motions for a specific location given different magnitudes of earthquakes. The computer program also estimates the cost of traffic delays to the public if a particular bridge is out of commission.

On November 17, 2009 the Bridge Engineering Section at ODOT released the milestone report entitled, ***Seismic Vulnerability of Oregon State Highway Bridges: Mitigation Strategies to Reduce Major Mobility Risks***. http://www.oregon.gov/ODOT/COMM/nr09111601.shtml

The report, two years in the making, didn't pull any punches. Here are key passages from the *Executive Summary*:

> Hundreds of Oregon bridges remain vulnerable to earthquake damage. Although 15-20 earthquakes of a magnitude greater than 3.0 are felt each year in the Pacific Northwest, modern Seismic Design Specifications were not available or used for bridge design until early 1990.
>
> With a majority of state owned bridges designed and built between 1950 and 1980, the State of Oregon would face a devastating post earthquake situation if a major event occurred in the state. The Oregon Department of Transportation (ODOT) has begun to define the magnitude of the problem by evaluating the vulnerability of state highway bridges in Western Oregon. This report is intended to be ***a first step in a comprehensive look at seismic risk*** to transportation systems that could include slides, fill slopes, local roads and bridges, and supply lines, such as fuel depots, electricity, water and sewer lines. (Page 6, *emphasis added*)

The *Executive Summary* also states:

> The study found that highway mobility would be severely reduced after a major Cascadia Subduction Zone event, as well as after a significant crustal earthquake, U.S. Highway 101 would have dozens of failures that would be impassible due to bridge collapses. ***All of the existing highways that connect U.S. Highway 101 would be impassable*** due to bridge collapse and major damage (Page 7, *emphasis added*).

ODOT predicts that small segments of the I-5 Corridor will be functioning because a number of the overpasses over the I-5 Corridor have been replaced since 1990. The report warns, though, older bypasses will collapse and block the I-5 Corridor. For coastal residents, the seismic report provides an apocalyptic vision. Major coastal transportation infrastructure assets will be in ruins (north-and-south routes & east-to-west routes). And, devastation along the I-5 Corridor will cripple emergency response efforts and prolong the recovery period on the coast. It will be a royal mess.

## *One Step at a Time*

In April 2009, the Oregon Emergency Management (OEM) carried out a weeklong exercise to assess Oregon's readiness to cope with a Cascadia event. Exercises, if done well, can be extremely revealing. After the exercise, ODOT established a three-tiered classification system of "damage states" for bridges:

(1) **Serviceable**. For bridges experiencing very little or no damage and being serviceable right after a post earthquake inspection.
(2) **Damaged**. For bridges experiencing moderate to little damage, and requiring extensive repair work before re-opening to service.
(3) **Collapsed.** For bridges totally collapsed or within individual spans collapsed during this earthquake. A full or partial replacement of these bridges was anticipated.

ODOT estimates the time of closure for these bridges could be ***3 to 12 months***, assuming emergency contracting provisions and the use of ***temporary*** bridges will restore traffic flows. The report enumerated ***142 bridges on the Oregon Coast***. Temporary bridges, once installed, will be subject to major load/weight limitations. The ODOT report stated, "The ***restoration of the entire transportation network could take 3 to 5 years***, and would require ***a nationwide effort*** because of the limited workforce and resources availability within Oregon." (Page 7, *emphasis added*)

On February 11, 2010, at a hearing in the Oregon State Capitol before the House Transportation Committee, ODOT's Bridge Engineer, Bruce Johnson, briefed legislators on the seismic study.


***Oregon State Capitol***

Bruce Johnson described how ODOT is using a small portion of the Bridge Program allocation to begin bridge retrofits. Given the ***huge*** number of bridges in Oregon that need retrofitting, ODOT ***must*** be strategic. Bruce Johnson explained how the "Phase 1 Seismic Retrofit" process works. ODOT ties down bridge girders to their respective piers using restraining cables. Doing that is enough to keep a bridge "serviceable" through an event. That means a structure can be put back in service soon after an earthquake. To determine which bridges are priorities for retrofitting, ODOT uses a highest mile/dollar improvement test. Bridge maintenance schedules are also taken into account. If a bridge is up for a major maintenance project, for efficiency sake, ODOT will carry out a Phase 1 Seismic Retrofit at that same time.

## *What About Landslides?*

At that legislative hearing a legislator from the Portland Metro Area asked, "I admire what ODOT is doing. It sounds like the Markham Bridge may still be standing. But, what if the Terwilliger curves are gone because they've slid away?"

Great question. ODOT has given that a lot of thought. The seismic report underscores the survey of the bridges is a just ***a major first step*** in the process. ODOT has just initiated a process work with stakeholders to develop ***a comprehensive plan*** that will addresses ***all the system failures*** likely to happen during a Cascadia event. It's a huge task. Here's another passage from the seismic report spelling out the work ahead:

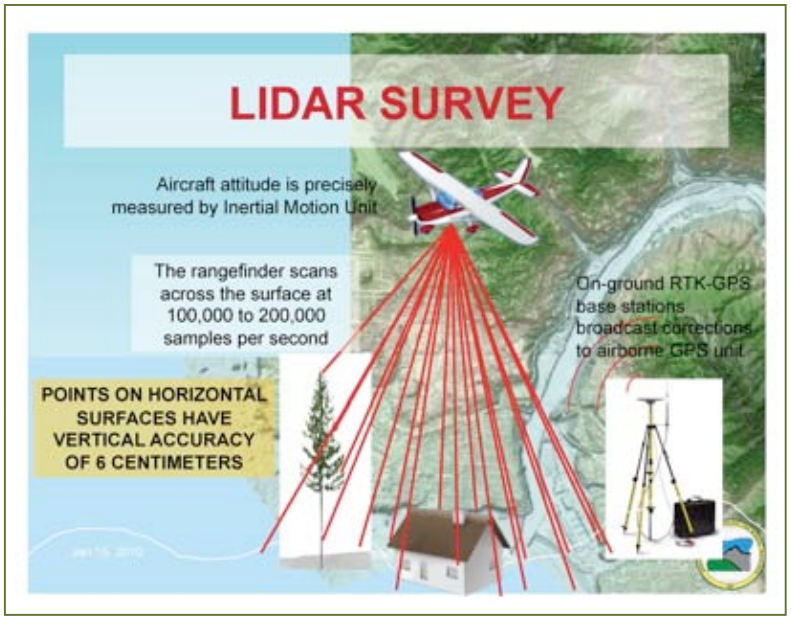
> Further research is needed before the State can fully realize the benefits of the analysis done so far to establish the highest priority for retrofitting using the limited Bridge Program funding. It would be very useful in developing a coordinated mitigation program if a comprehensive study of seismic vulnerability and risk for the entire transportation system was conducted. The goal of such a study would be to define an overall perspective on resulting mobility impacts and loss of basic, critical supply lines after a major seismic event. (Page 7)

The report states updating existing lifeline route designations is a "pressing need." Given what we are facing on the Oregon Coast, we could not agree more. Again, ten years ago two highway closures on U.S. Highway 101 demonstrated our vulnerability. The next focus will be on landslides and tsunamis. At the local level, we need to help ODOT attract resources to accelerate a comprehensive-coordinated study of ***the entire system***. With that knowledge in hand, we can revisit city and county transportation infrastructure contingency plans.

## *The Right Data at the Right Time*

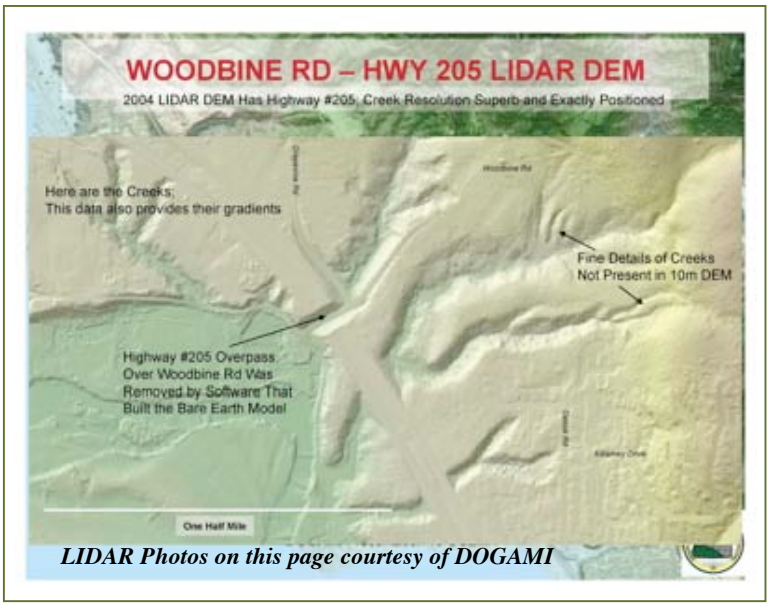
In the wake of these challenges, there's good news. In 2009, the State of Oregon made timely investments in ***LIDAR***. What's LIDAR? LIDAR stands for "light detection and ranging." It's a new tool that can provide very precise, accurate, and high-resolution images of the surface of the

earth, vegetation, and the built environment. Airborne LIDAR technology uses a laser range finder mounted in a precisely navigated aircraft to scan the earth's surface at very high rates. LIDAR generates amazing/revealing maps of all sorts of significant features on the landscape.




Here's how this effort came about. In 2009, the Oregon Legislature appropriated $1.5 million of seed money from the Oregon Watershed Enhancement Board's (OWEB) research funds. DOGAMI was instructed to find funding partners. That led to the establishment of the Oregon LIDAR Consortium (OLC). ODOT is a member of the OLC. Some state governments in the United States are planning to collect LIDAR data for their entire state. For now, Oregon has focused on getting LIDAR data generated for the more populated areas of the state. That, of course, means virtually all of Western Oregon.

For our purposes, LIDAR data can help ODOT (and local governments) identify landslide formations prone to failure. Many of those places are well known. Others landslide prone areas, though, are more difficult to detect. LIDAR identifies landscape features even highly trained geologists carrying out on-site inspections can miss. The good news is LIDAR is available for almost all of Western Oregon. When processed and examined by trained professionals, LIDAR data is like looking at an X-Ray or a CAT Scan (CT).




*LIDAR Photos on this page courtesy of DOGAMI*

LIDAR data, applied correctly, will improve ODOT's and local government's ability to predict what's going to happen to transportation infrastructure during a Cascadia event. It will also help us understand the impact from crustal earthquakes and more mundane large rain events. Some of the things we learn will ***not*** be welcome news. Some existing contingency plans, alternative routes and lifeline route plans, will be rendered obsolete.

Important interagency discussions are underway to put Oregon on a path to carry out that ***comprehensive/multidisciplinary accelerated program*** to ***review all the LIDAR data*** for the entire U.S. Highway 101 Corridor and the east-west routes to the I-5 Corridor. A Memorandum of Understanding (MOU) is in the works between ODOT and DOGAMI. Soon there will be a vetted list of activities (a framework, a workscope and project budgets) to leverage the skill sets of ODOT, DOGAMI and the university community.

On June 2, 2010, ODOT Director Matt Garrett wrote Gerry Williams, PhD. PE, the Chair of the Oregon Seismic Safety Advisory Commission (OSSPAC):

> I agree one of the next steps would be to develop a comprehensive *Seismic Transportation Reliability Plan*. The effort should be a multi-agency study including the Oregon Department of Transportation (ODOT, AOC (Association of Oregon Counties), LOC (League of Oregon Cities), Oregon Emergency Management (OEM), Oregon Department of Geology & Mineral Industries (DOGAMI), and OSSPAC (Oregon Seismic Safety Policy Advisory Commission) in a cooperative effort with interest groups such as the Oregon Trucking Association (OTA), American Automobile Association (AAA), major utility companies, and other interest groups. Funding would need to be secured in order to proceed with the organization of such a study.

This timely dialogue began with the premise that ***new resources***, probably federal funds, would need to be identified. Re-directing limited state funding, at this time, from other pressing needs would be counterproductive. That's especially true because, by thinking big, taking a comprehensive ***system-wide*** approach, and ***acting now***, Oregon can position itself to serve as a pilot project for the nation. The Federal Emergency Management Agency (FEMA), Federal Highway Administration (FHWA), United States Geological Survey (USGS) and the Department of Homeland Security (DHS) all have strong programmatic responsibilities in this arena.

## *2.0 Keeping U.S. Highway 101 Functional: "Practical Design"*

OCZMA

**Oregon Coastal Notes**

Oregon Coastal Zone Management Association — June 2010

***Solving Big Problems in Tillamook County: A Case Study of the Intersection of U.S. Highway 101/Route 6 & Other Successes***

*Onno Husing, Director, OCZMA*



Most of the time U.S. Highway 101 functions well. Bottlenecks, though, are popping up in some coastal communities that have an impact on large sections of the corridor. The bottlenecks are happening because the highway serves as the ***main street*** and the major ***north-to-south*** route, and, it was built when cars and trucks were smaller and traffic counts were lower.

Looking ahead, we should be deeply concerned. You don't need to have a transportation planning degree to understand we've ***got*** to make strategic "improvements" to U.S. Highway 101—***especially*** within cities.

The modernization of the highway is not a new thing. In many places the original highway was replaced with a ***bypass***. However, when it came to the coastal cities, the business community often spearheaded opposition to bypasses. Today, only one city along the U.S. Highway 101 corridor on the Oregon Coast has a bypass—the City of Cannon Beach, and, most love it.

The Oregon Department of Transportation (ODOT) no longer has the resources to build bypasses around coastal cities. Consider these sobering facts. Bypasses cost between $40 million to $50 million ***a mile***. That cost estimate comes from the Newberg-Dundee Bypass discussions. Why does it cost so much? Permitting, legal fees, public process, engineering, right-of way-purchases, construction materials, labor, and two new interchanges. A bypass around a coastal city will probably need to be five or six miles long. Do the arithmetic. ***Conservatively***, a five-mile long bypass will cost between $200 million and $300 million (probably more).

Even if ODOT had funds for bypasses, the environmental, engineering, permitting and political issues facing bypass projects on the Oregon Coast would be daunting.

The implications are clear. To keep U.S. Highway 101 functional, as population increases, mobility must be maintained ***through the downtowns***. At the same time, downtowns (main streets) need to be pedestrian and business friendly. Juggling those objectives will take leadership rooted in pragmatism.

*Download this Case Study at OCZMA's web site: www.oczma.org*

OCZMA just released a major case study, *Solving Big Problems in Tillamook County: A Case Study of the Intersection of U.S. Highway 101 and Route 6 and Other Successes* (June 2010). That case study offers valuable lessons to Oregonians wrestling with transportation issues.

In a nutshell, here are the major themes of the case study.

OCZMA underscored ***improving mobility through the downtowns*** on the Oregon Coast has to be among one of the highest priorities. That's because ODOT does ***not*** have the money to construct bypasses around coastal cities. Today, bypasses cost between $30 and $50 million a mile. A bypass gets expensive because they usually need to be at least 5 miles long. Moreover, even if ODOT had the funds, on the Oregon Coast, the geological-geographic-environmental-legal/regulatory-political challenges would be formidable.

That's why finding ways to ***improve mobility through coastal cities*** must be a high priority. It certainly has to be done before you can think about doing a bypass (because a bypass would almost certainly require a Goal Exception). Widening a highway, building a couplet and redesigning an intersection can be ***wrenching*** experiences for a community. The fallout from those processes, when they become controversial, can be profound for local government officials.

But, there's good news to report.

ODOT's recent policy commitment to "***practical design***" featuring "context-sensitive solutions" is a step in the right direction. It means, in some settings, ODOT entertains the adoption of ***alternative mobility standards***. ODOT's local partners on the Oregon Coast report to us that they deeply appreciate ODOT's new flexible approach to working through difficult issues.

The case study on the City of Tillamook tells one of those stories about how to get it right. It explains how fully coordinated, dedicated hands-on leadership (at the local and the state level) coupled with practical design, shows a path forward. Of course, give and take ***on all sides*** needs to happen to make that work.

In Tillamook we also saw the importance of having ***adequate resources*** at the ready to lay the groundwork to move through the process in a ***timely*** way. The efficacy of genuine community outreach was demonstrated; how misunderstandings can be reduced and how it is possible to give people a sense of ownership in a project.

## *3.0 "Houston—We've Got a Bridge Problem!"*

Before we proceed further, I have a confession. I am ***not*** objective when it comes to Conde McCullough's bridges on the Oregon Coast. For me, the bridges are brilliant architectural icons that define the aesthetics of our region. In 2008, OCZMA issued, *A History of U.S. Highway 101* which celebrated McCullough's legacy. And, since then, I've given numerous passionate presentations about the history of U.S. Highway 101.

But, at the same time, I understand that cold, hard analytical eyes need to be trained on ***all*** the coastal bridges. Today, ***at least three*** major coastal bridges present serious capacity issues. They are:

- the New Young's Bay Bridge in Astoria
- the Yaquina Bay Bridge in Newport
- the McCullough Bridge in North Bend/Coos Bay

Thankfully, the other major bridges on the Oregon Coast—the Siuslaw Bridge (Florence), the Reedsport Bridge and the Isaac Lee Paterson Bridge (Gold Beach)—do ***not*** present the same mobility concerns. That's because these other bridges serve less-traveled segments of the Oregon Coast. In previous reports to the OTC, we noted how the 350-mile long U.S. Highway 101 Corridor has a number of distinct "***travel sheds***." The boundaries of those travel sheds follow key east-to-west corridors. For instance, Route 38 and Route 42 on the South Coast, influence which segments of U.S. Highway 101 carry the most traffic. And, for those same reasons, far less truck traffic is found on the beautiful stretch of the winding two-lane highway between Yachats and Florence.

*(Note: When the Alsea Bridge in Waldport had to be demolished, the new bridge over the Alsea River was built with four lanes and wide shoulders).*

Lincoln County Commissioner Don Lindly, noted, "Here in our area, we know we face a huge issue with the Yaquina Bay Bridge. With NOAA (National Oceanic & Atmospheric Administration) coming, the new Oregon Coast Community College (OCCC) campus, the Wilder Development, and the airport, all located in South Beach, in time, we have to get serious about building a second structure over Yaquina Bay." Commissioner Lindly believes a new "companion structure" just west of the existing Yaquina Bay Bridge, makes the most sense.

By far, though, on the Oregon Coast, the most pressing issue is the fate of the McCullough Bridge over the Coos River. Perhaps the grandest of McCullough's bridges, the McCullough Bridge is presently undergoing a major cathodic project. Hamilton Construction and Great Western Corporation are doing the work. It's a ***big*** job. It cost ***$35 million*** just to do ***the south half*** of the bridge. At this time, ODOT does ***not*** have the funds to repair and protect the north half of the bridge for perhaps another 4-5 years.

On June 21, 2010, in the early evening, I arrived at the project to take photos and inspect the re-habilitation work. By chance, I ran into Rich Wanke, the President of Great Western Corporation (GWC). GWC is the subcontractor performing the cathodic protection work.

Rich Wanke explained how the work is proceeding. GWC built a large mobile (on rails) enclosure (700,000 pounds) around and over the bridge and the arches below. It is an amazing contraption.


*Rich Wanke, President, GWC*

And, the quality of the work is ***stunning***. The completed portion of the bridge looks precisely like it did in 1936! The aesthetics of cathodic protection have improved dramatically in recent years.

Rich Wanke shared his frustration. He said, "Look, we are already mobilized for this project. The north side of the bridge ***really*** needs the same work—***now***. If, somehow, the money can be found to do that, we can save ODOT million of dollars. We just got a bid from Columbia Helicopters. They can lift the enclosure, in 12-foot sections, and carry it to the other side of the bridge. And, we have a fantastic skilled workforce, fully trained, in place, to do that specialized work. It makes ***SO MUCH SENSE*** to do the north side of the bridge after we finish the south side."

The next day I placed calls to key individuals in ODOT to get up-to-speed on the McCullough Bridge project. First, I spoke with Mark Usselman (Area Manager and Acting Region 3 Manager). Then I called Paul Mather (who, until recently, was Region 3 Manager and is about to assume a different post at ODOT). Then I called Bruce Johnson (ODOT's Bridge Engineer). Another person on the must-call list was Martin Callery from the Oregon International Port of Coos Bay. On the South Coast, Martin is the go-to-guy for transportation (a member of the Southwest Area Commission on Transportation [SWACT]).


*McCullough Bridge South End Cathodic Project Photos*

During those phone calls, I shared what I learned from Rich Wanke with Usselman, Mather, Johnson and Callery. They all urged me to work with Rich Wanke to get new cost data from Hamilton Construction and GWC and include this information in my report to the OTC.

Bruce Johnson explained, "We have a very limited budget at ODOT in comparison with the needs of the highway system. For pavement conditions, ODOT strives for 90% fair or better. For bridges, ODOT strives for 68% fair or better. So, when we have a big project, like the McCullough Bridge, we often try to phase it." Bruce noted, "We have so many transportation

needs in the State of Oregon. I'll be frank. Just preserving a bridge, takes careful planning to prioritize and schedule the most efficient and economical time."
Bruce Johnson, better than anyone, understands fixing the north side of the McCullough Bridge ***now***, rather than years from now, makes the most cost-effective sense before the damage gets worse.


*McCullough Bridge, North Bend/Coos Bay*

Under ODOT's current schedule, ODOT ***may*** be able to fix the north half of the McCullough Bridge sometime after ***2014***. Bruce conceded, "It's ***not*** a good situation." He added, "By waiting till 2014 or later, we risk the deterioration to the north side of the bridge will accelerate. That's typically how it happens. Once things start to go, it feeds on itself." That's also what Rich Wanke told me. Patch jobs on the old concrete, in that environment, don't work.

Bruce Johnson continued, "If there's rapid deterioration, and, if we have to ***replace*** that bridge, and that could happen, it will be a ***$800 million job***." Bruce Johnson concluded, "That would have unknown budget consequences for the State of Oregon."

I almost dropped the phone. From earlier discussions about the replacement costs of a major bridge on the Oregon Coast, I sensed it could cost $400 million or $500 million ***per bridge*** to build a new structure. Later, Bruce Johnson e-mailed a statement authored by his Bridge Program Manager. It reads:

> "The combined CP costs on the McCullough Bridge will exceed our entire bridge program for an entire year. I want him (*Onno Husing*) to emphasize that any attempt to accelerate the project will not be with bridge funds. I would also be up front and say that we are not even scoping this for 2015 since we have two major bridges over the Columbia River to paint, and other pressing issues like replacing a posted bridge on a freight route."

I salute the Bridge Program Manager's candor. It's a reality check.

Martin Callery helped me understand the pivotal role the McCullough Bridge plays on the South Coast. Martin said, "That bridge is ***a lifeline*** for the South Coast economy. It has become even more important because rail service for our manufacturers isn't available. Those products are now being trucked." Martin continued, "If the proposed chromite mining operation in Coos County happens, they will truck ore to the railhead in Eugene for trans-shipment." A recent *Oregonian* article (June 14, 2010) reported the chromite mining operation would generate 23,000 truckloads of ore a year. The mine will create, directly, 70 family wage jobs. A lot of other income will be generated in the community for trucking firms and the local suppliers for that mining operation.

Martin explained that, for years, in Coos Bay, there have been searching conversations about eventually needing a second bridge over Coos Bay. The most difficult factor is finding agreement on ***where*** a new bridge should be located. Martin said, "And, when it comes to the McCullough Bridge, people in our community are emotionally committed to that structure. Any talk about changing it, even a little, would spark an outcry. That's probably why we need to think about building a second structure someday."

Lincoln County Commissioner Don Lindly said precisely the same thing about his area's feelings about the Yaquina Bay Bridge. Because of its architectural and historical significance, talk about tearing down it down seems totally out of the question.

So, ***first things first***. Can we preserve ***the existing*** McCullough Bridge? Are we going to need to reinstate ferry service across Coos Bay?

Since my visit with Rich Wanke on June 21, 2010 in North Bend, there have been follow-up conversations with GWC and Hamilton Construction. The companies worked overtime to scope out updated cost-bid estimates to complete the North Approach of the McCullough Bridge. On June 30, 2010, Neal Spoon, Estimator, Hamilton Construction sent me a letter. I, of course, forwarded Neal's letter to ODOT staff. Here's the key passage from Neal Spoon's letter:

> As requested, Hamilton and GWC have prepared a preliminary cost estimate to perform a similar scope of work on the North Approach as we are currently doing on the South Approach. Our estimated cost is between $42,000,000 and $49,000,000. The final cost will be driven largely by the quantity of concrete repair that will be required.

On the phone, Neal explained there's an estimated cost ***range*** because, until you actually start doing the work, and see how much deterioration has taken place, you can only estimate, within a range, how much concrete will be needed. And, the costs of doing the North Approach to the McCullough Bridge exceed the $35 million figure I had heard earlier. Here's why. The work on the South Approach of the McCullough Bridge was done on land. The North Approach will be mostly ***above-water*** work. In addition, the North Approach is larger than the South Approach (about 25% longer and 25% larger in surface area) and it will take a year longer to do the work than the South Approach.

However, there are some firm numbers to work with. ***Forty-five jobs*** over several years would be directly ***related*** to that project. And, of course, a substantial amount of additional personal income will be generated because of the multiplier effect of the wages and the additional work other companies will receive as suppliers of the project. And, GWC knows if they ***don't*** have to demobilize (and then later rebuild the existing enclosure around the bridge) they can save the State of Oregon a lot of money.

*Congressman Peter DeFazio*

Because Oregon Congressman Peter De Fazio is a ***very*** influential member of Congress (especially for transportation) eyes on the South Coast are turning to him for advice. This is becoming an emergency. Maybe a state-federal approach to finding the funding can be arranged in time. If we take care of the McCullough Bridge, maybe we won't face a budgetary catastrophe. The good news is we have about a year to attract the additional funding. What alternative do we have?

As this report was being finalized, GWC forwarded current photos of the underside of the McCullough Bridge (with ODOT inspectors looking on). According to Rich Wanke, "The deterioration is worse than we thought. We did a random inspection. In a number of places we could see exposed rebar, rock-pockets, serious spalling, stress cracks in bottom loaded portions of the main longitudinal floor beams." Rich said, "Although I

am ***not*** an engineer, we have been involved in more restoration projects of this style than any other contract at least on the West Coast. At least one of these photos indicates a very serious structural

malady that may be very well close to a critical situation."

***Photos (above & below) courtesy of Rich Wanke, President, Great Western Corporation (GWC)***

One can imagine what would happen to the North Approach if we have an earthquake. The South Approach has had seismic retrofitting done during the current rehabilitation work.

The good news is ODOT is sending a team of inspectors to Coos County to assess the condition of the North Approach to the McCullough Bridge. Having this information in hand, soon, will inform conversations about a potential state-federal financial package to preserve the North Approach to the McCullough Bridge.

And, think about the history. Think of a world without the McCullough Bridge in it.

***(Conde McCullough at left)—photo courtesy of John P. McCullough Collection/ODOT***

## *4.0 Some Other Coastal Transportation Highlights*

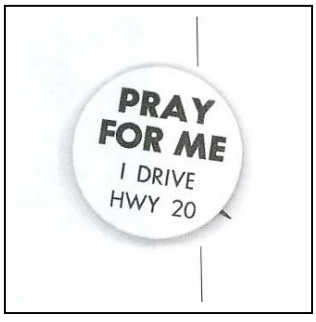
- ***For Tillamook County-Clatsop County.***

Please see OCZMA's June 2010 case study. This study can be downloaded from OCZMA's web site: www.oczma.org

- ***U.S. Highway 101 south of Spencer Creek Bridge.***

In Lincoln County, the area south of the newly constructed Spencer Creek Bridge (at Beverly Beach north of Newport) on U.S. Highway 101 needs to be stabilized (photo at left). This oceanfront section of U.S. Highway 101, is one of the most beautiful stretches of oceanfront highway on the Oregon Coast, is fast eroding. Commissioner Don Lindly explained there are plans under discussion to move the roadbed east. That will mean the construction of a large retaining wall on the east side of the highway. It also probably means some kind of shoreline protection structure will be needed at the base of the bluff west of U.S. Highway 101 (with its attendant angst about the impacts to the beach). The project is estimated to be in the $25-$35 million dollar range. In the past, when the alternative analysis was conducted for the replacement of the Spencer Creek Bridge, finding an alternative inland route for U.S. Highway 101 in this area was ruled out as impractical.

- ***Pioneer Mountain-Eddyville.***




Work proceeds on that historic modernization project. It is, in every respect, a transformational project for the Central Oregon Coast. Alas, it appears that the project may be delayed because of issues with several bridge columns being "out of plumb." The contractor is doing more fact finding to understand what's going on. They will then devise plans to deal with that issue. Before this latest hang-up, the Highway 20 project was on a course to be completed in the Spring of 2011.

***• OR 34 South Corvallis Bypass-Peoria Road.***

Many people on the Central Oregon Coast anticipate that the Highway 20 Corridor—from Newport to the I-5 Corridor will, in time, become one of the preferred corridors to the Oregon Coast (even for many people in the Portland Metro region). For that reason, the bypass south of the City of Corvallis in Benton County is an important facility for the Oregon Coast. That's also the major reason a couplet was built in Philomath in advance of the Highway 20 improvements, so, Philomath wouldn't become a bottleneck.

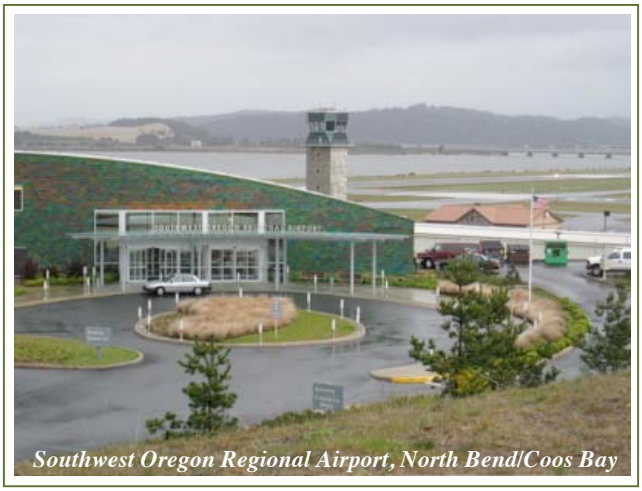
The intersection at OR 34 and the South Corvallis Bypass sees heavy traffic volumes. Improvements to the traffic flow in and out of Corvallis have been studied for the past several years. The project was known as the Van Buren Bridge Replacement. The traffic analysis showed that changes to the intersection of OR 34 and the South Corvallis Bypass (just east of the Van Buren Avenue bridge) need to occur as the first phase of several improvements. Some day, a major grade-separated intersection (interchange) project will be needed at that location to keep traffic moving. For now, new dual slip lanes that allow traffic traveling northbound on the South Corvallis Bypass to enter the eastbound lanes of OR 34 (toward the I-5 Corridor) without stopping will be built to enhance mobility at that intersection. In addition, the City of Corvallis is considering several other traffic solutions, traffic demand management (TDM) and traffic system management (TSM) to make improvements on the City's grid. This approach allows optimization of the current road system without major expansion. It's also in keeping with the goals of the Oregon Transportation Plan (OTP) and the least cost planning effort (thanks to Vivian Payne, ODOT's Area Manager for her help on this section).

***• The Lincoln City Gaps.***

Alas, that project has been delayed due to concerns raised by the City of Lincoln City. Vivian Payne, ODOT's Area Manager, provided a short summary of the status of the project:

> There has been extensive public outreach and information efforts using a project stakeholder committee, open house forums, direct mailings and Internet presence, presentations to the City Council, and numerous individual meetings with interested stakeholders. There are two Lincoln City staff members representing the City's interests on the project development team, and an Executive Steering Committee that includes the City's Mayor, a City Councilor and the City Manager, as well as ODOT staff.
>
> Major progress to date: 1) establishing the project limits; topographic survey and modeling; traffic counts and analysis, including current and 20-year projects; 2) multiple alternate roadway layouts and designs; hydraulic assessment and design; 3) wetland delineation; and several early acquisition of right of way properties.
>
> As previously mentioned, we are currently working on a facility plan that will identify the project's footprint. This includes the five-lane design and all other design features, such as the water quality design and wetland mitigation design. We hope to be complete with that by the first of 2011. Once the project's footprint has been determined, we will define the first construction phase and refine the design.

- ***Commercial Air Service.***


*Southwest Oregon Regional Airport, North Bend/Coos Bay*

On the Oregon Coast three cities presently have commercial air service: North Bend/Coos Bay, Newport and Astoria.

The air service in North Bend/Coos Bay (with an incredible new passenger terminal) can be considered a "mature" program. North Bend-Coos Bay's population base and considerable distance from other airport hubs explains why they have had a viable commercial air service for some time. The building of the Bandon Dunes golf course complex also helped drive passenger counts.

Several years ago the City of Newport and the Port of Astoria teamed up to acquire $3.6 million funding from ***ConnectOregon*** to underwrite SeaPort Airlines to provide service to Astoria and Newport. SeaPort Airline's commercial air service was launched in March 2009, during one of the deepest recessions in American history. SeaPort Airlines employed a nine-passenger Pilatus PC-12 aircraft, which is a beautiful airplane. But, the Pilatus PC-12 is rather costly to operate.

And, ***until this month***, SeaPort failed to get interline agreements in place (they reached a deal with US Airways). And, the fledgling airline has struggled to stand up an effective marketing program.

The City of Newport recently commissioned a review of the Newport market for air service (*Newport Municipal Airport: Passenger Demand Analysis*, prepared by Mead & Hunt [June 16, 2010]). The Mead & Hunt report notes:

> SeaPort Airlines is the sole provider to the Newport Municipal Airport since March 2009. Newport had an average of 14 weekly departures and 126 outbound seats during a sample week in May 2010. In June 2010, SeaPort will add a third daily flight. Load factors for SeaPort flights have reached a high of 50 percent. Since the service began, the flights are averaging just above a 35 percent load factor (Page 3).

At the same time, the number of passengers using the air service in Astoria is lagging. That makes the service, in particular at Astoria, vulnerable. Just recently, SeaPort Airlines cut the number of flights in and out of Astoria.

SeaPort Airlines intends to begin using lower operating cost Cessna Caravans to make their service to Newport and Astoria more sustainable. The Mead & Hunt study, which focused on Newport also notes:

> Further efforts on expanding interline ticketing and baggage agreements and code sharing will further increase the conveniences and utility of the service. Additional benefits of interline agreements would result in the service being displayed on the Internet and reservations systems which would be a quantum leap forward in marketplace awareness of Newport's air service (Page 27).

At the June 2010 OCZMA meeting in Astoria, John Lansing, Regional Manager, Oregon Coast, SeaPort Airlines joined us for a discussion about the future of SeaPort Airline service in Astoria. The outlook is cloudy for the Astoria service. Perhaps Astoria is too close to the Portland Airport (PDX) to be viable (there's too much competition from the automobile).

In Clatsop County and in Newport, everyone understands the importance of having commercial air service. And, intuitively, everyone understands air service from Astoria & Newport ***to Seattle*** (especially Boeing Field) has tremendous potential.


***Route Map courtesy of SeaPort Airlines***

But, for both Newport and Astoria a number of factors are in play: (1) there needs to be a robust-successful marketing program, (2) let's hope the economy holds up, (3) local people must embrace the service and use it, (4) the price-points of the service versus the cost of driving needs to be compelling, and (5) additional interline agreements must be in place (for baggage and ticketing) soon because Seattle, like Portland, is a major hub. The Mead & Hunt report suggests the success of the air service (making it sustainable over time without large subsidies) is highly dependent on SeaPort Airline's ability to provide ***connecting flights*** to other destinations.

Leaders in Clatsop County and Newport understand the value that the air service provides for economic development. Expect to see aggressive efforts by those communities to retain commercial air service because the stakes are so high.

One last thought. Several years ago, I visited with Dan Wolf, the CEO (Chief Executive Officer) of Cape Air. At that time, Cape Air had been recruited by the City of Newport to serve Newport. The City of Newport was approached by Cape Air because the aviation consultants hired by Newport knew Cape Air pioneered air services in Cape Cod, Florida, the Caribbean, and Micronesia—markets that were similar to the Oregon Coast. Cape Air had a successful formula and a good track record.

***Dan Wolfe, CEO, Cape Air***

Dan Wolf from Cape Air told me, "When I arrived on the Oregon Coast, to me, it was just like what Cape Cod was thirty years ago. I immediately saw the potential." Dan Wolf saw a gorgeous coastal environment relatively close to population centers. When Dan was first approached by Newport, he glanced at a map of Oregon. Initially, just looking at the map, he thought the Oregon Coast may be ***too close*** to Portland to justify air service. Then, Dan Wolff quietly visited Oregon and drove the roads to the Oregon Coast. That's when he changed his mind because he could see the value proposition for people not having to make that drive. And, Dan understood that congestion in Portland would, over time, make air service to the Oregon Coast an even more attractive alternative.

I asked Dan Wolf if he thought the demographics of Portland worked. I asked that, because, after all, Portland is ***not*** as big a market as Boston. Dan replied, "***Yes!*** Absolutely. I ran the numbers. It can work, ***today***. You don't need huge numbers of passengers." Cape Air, by the way, is known for their flexible use of the Cessna Caravan aircraft—a comfortable and reliable aircraft. That's the aircraft SeaPort Airlines now says they are planning to employ.

We can make commercial air service work in Newport and Astoria.