



PORTLAND & WESTERN'S TUALATIN CROSSING

Cornelius Pass

BY ROBERT W. SCOTT/PHOTOS AS NOTED

ENGINEER MATT ADAMS has run over this route more times than he can count. Working for Genesee & Wyoming's shortline Portland & Western Railroad, Matt, a Maryland native, has called the northwest his home for the past ten years. It's the variety of railroading for the P&W that he likes, and running over the Cornelius Pass line has more variety in one short run than most shortline railroads have in their entire system.

As the conductor climbs aboard, Adams kicks off the air and notches out the throttle of his two SD40-2s and begin to pull out of North Plains, Ore., on the climb north up to the top of the grade. "Depending on the tonnage, we are required to set retainers on the

cars for the steep descent down grade," says Adams. "Today we have retainers set and will still use a good set of air along with the dynos. It looks like it might be a dicey run today," he remarks, looking out through rain-streaked windows at the dark gray skies. "Wet rail is not too friendly." In addition to the rain, autumn is in full swing so the newly fallen leaves that may accumulate along the rails will also have to be dealt with.

The two SD40-2s lurch slightly as the slack in the train behind pulls out. A snap of air is heard as Matt pulls open the sauder valve. The steady cadence of the twin 645 diesel motors is generating 6000 horsepower, and the units quickly have the train working their

way up the grade. The amp meter bounces between 1200 and 1400. On the drawbar behind are 58 loaded bulkhead and spine cars of Pacific Northwest Douglas fir.

Located just a few miles outside Portland, Ore., the Cornelius Pass line is steeped in railroad history and today incorporates the rights-of-way of three previous railroads; Southern Pacific, United Railways (owned by Spokane Portland & Seattle starting in 1910 but retaining its own identity until 1944), and Oregon Electric (SP&S/Burlington Northern).

After a series of mergers, consolidations, and spin-offs, the Portland & Western Railroad operates the route from its north end at United Junction to Banks as the "United

OPPOSITE: Diesel exhaust hangs in the air around the Portland & Western "Harbor Turn" as it exits the Cornelius Pass Tunnel and is beginning the 2 percent grade down with a large load of logs. **ABOVE:** A warm June afternoon in 2011 finds Portland & Western's Matt Adams riding in the conductor's seat as the Harbor Turn returns towards Banks, Ore., with Mount Hood in the background. P&W No. 3052 started its career in 1970 as an SD45 for the Cotton Belt. It has since been downgraded with SD40-2 prime mover, but still retains the SD45 carbody. **ROBERT W. SCOTT PHOTOS**



ABOVE: An interesting match of power is found on the Harbor Turn on June 4, 2007, with Daylight Locomotive & Machine Works (DLMX) SD-P40F 644 leading an SD45 and GP39-2 out of North Plains, Ore., with a loaded train. The grade will increase east of here as it climbs towards the Cornelius Pass Tunnel. The unit is ex-Amtrak and is the only preserved SDP40F. DREW MITCHEM

RIGHT: A loaded Harbor Turn is crossing the Holcomb Trestle in dense fog on November 5, 2006, as seen from the cab of DLMX 274. No. 274 is a Great Northern F7A built in 1950; it was subsequently used by Burlington Northern and was later sold to Seattle & North Coast Railroad. It was then acquired and restored to operating condition by DLMX and was used for a few years on the Portland & Western. MATT ADAMS



Railways District." From United Junction to Bowers Junction the line was considered part of the Oregon Electric Subdivision by Burlington Northern, while the line from Bowers Junction to Banks was merely considered a "spur" and operated under yard limits. The track used by P&W between Tigard and Banks is part of the old SP Tillamook Branch (now the Tillamook District). There are several good history books on these lines including Ed Austin and Tom Dill's history of the SP&S.

What is most interesting is that in just a 47-mile stretch from Tigard to United Junction/Harbor, the line encounters street running, pristine farm lands, a thousand-foot-long wood trestle, mountain grade territory and a 4000-foot-long summit tunnel.

Traversed five days a week, the P&W Harbor Turn operates from Tigard to Harbor and back with the same crew. Ultimate-

ly the Turn originates and terminates at the P&W yard at Albany, but between Albany and Tigard the train is known as the "OE Express." This operation hauls lumber logs from the timbered lands adjacent to the Willamette Valley for export. They are transferred from the Harbor Turn to a local P&W switch job at the Harbor siding along the Willamette River. A P&W train then delivers them to Rainier, Ore., where the logs are then de-barked and hauled by truck to the Port of Longview, Wash., across the Columbia River for export.

Another commodity hauled on the Harbor

Turn is perlite from the Lake Railway near Lakeview, Ore. That product is delivered in hoppers to St. Helens, Ore., for the manufacturing of ceiling tiles. Occasionally a lumber load from Sweet Home, Ore., destined for export shows up in the train.

In the Shadow of Oregon Electric

Through the years, the traffic over this line changed many times according to the scope of the parent owner. The United Railways was laid in 1911 from United Junction over the Pass and extended through Banks into the timber-rich lands in the northwest part

of the Coast Range. The tracks paralleled the SP Tillamook Branch for several miles in the area of Banks.

The Southern Pacific segment from Tigard to Banks was part of their Tillamook Branch over which the SP hauled heavy trains of lumber from Oregon's Coast Range for many years. The line from Banks to Tillamook was sold to Port of Tillamook Bay Railroad, which interchanged with the P&W at Banks until the line over the Coast Range was closed in 2007 due to storm damage.

The Oregon Electric was a subsidiary of the Spokane Portland & Seattle Railway originally constructed on a route that departed downtown Portland southwards utilizing extensive street running. In 1913 a connector line was opened which split off from the United Railways at Bowers Junction and headed due south to Forest Grove Junction, thence south-eastward through Beaverton to Garden Home, where it met up with the original OE route from Portland. From there the OE tracks extended south towards Albany and Eugene. During World War II trackage rights were secured over the SP between Beaverton and Tigard, eliminating the more circuitous routing via Garden Home. This provided an alternate route for OE freight traffic that avoided the street running in Portland.

At the urging of the City of Portland, the original OE route south out of Portland that included the extensive street running was abandoned in 1941. By that time, through

freight traffic had already moved to Cornelius Pass. Today, Interstate 5 closely follows the old alignment of the OE heading south out of downtown Portland. In the 1990s the line between Bowers Junction and Beaverton was removed from service to make way for the expansion of TriMet's MAX light rail line between Beaverton and Hillsboro.

From World War II onwards, the Cornelius Pass line was the main route that the SP&S used to connect the Portland and Vancouver area with the network of former OE lines in

In SP&S days, continuing through the BN era, most of the traffic originating on the OE was long-haul lumber and paper forwarded via the Great Northern and Northern Pacific to eastern markets. "The SP&S was smart as they would block their overnight OE outbound train with a GN block and an NP block," said Leachman. "The night OE road train continued to Pasco as a through train running with the SP&S power off the OE." When the train arrived in Pasco it was an easy set-over move at the yard for separating the GN and NP blocks.

What was ironic was that this train was a big money maker for the BN, but ran with a mix of four-axle power all the way to Pasco as opposed to the higher-horsepower six-axle power running through the Columbia River Gorge on the point of trains with the less profitable traffic originating in Portland proper. After the merger into Burlington Northern, traffic off the OE still required four daily trains with Trains 397 and 398 handling the priority traffic on that segment.

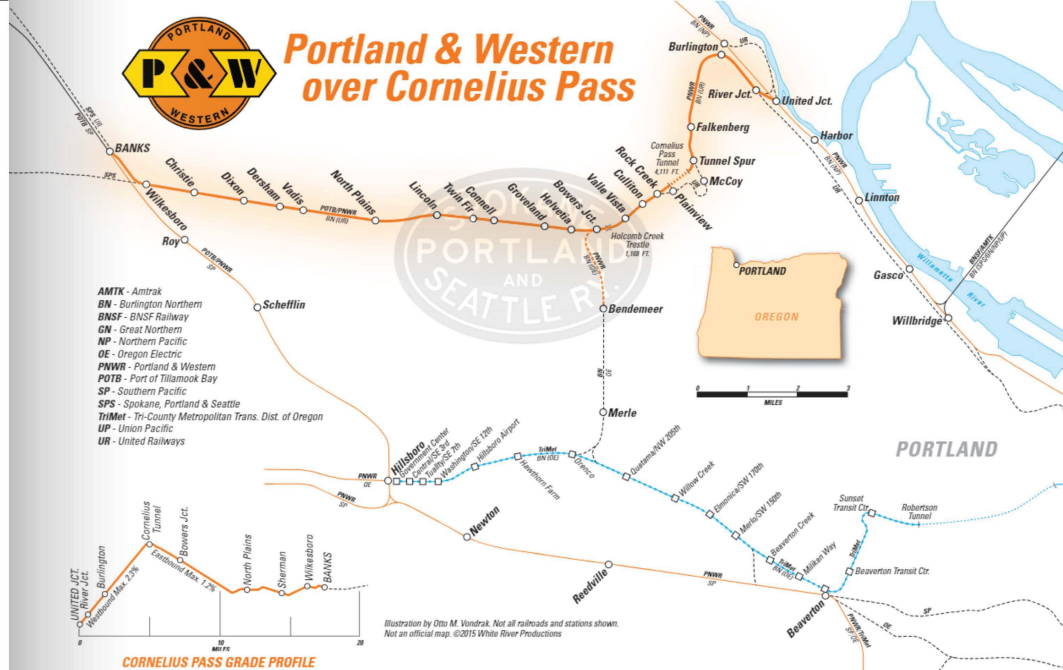
P&W Operations

Today most of the traffic is handled on a P&W train exercising trackage rights on UP from Salem to interchange with BNSF or UP at Portland. In contrast, the Harbor Turn traffic is nearly all captive as its car traffic moves from one end of the P&W system to the other without the need for a Class I interchange. The Harbor Turn delivers its cars to

From World War II onwards, the Cornelius Pass line was the main route that the SP&S used to connect the Portland and Vancouver area with the network of former Oregon Electric lines in the Willamette Valley...

the Willamette Valley extending as far south as Eugene.

Traffic to and from the OE in postwar SP&S days filled four through trains per day in addition to a number of locals and turns working along the route. Prof. Rob Leachman of U.C. Berkeley recalls that the road power for these trains was a mix of four-axle power; the OE road trains were powered by Alco FAs, RS2s, RS3s, C415s, C424, C425's, or four-axle EMD Geeps. Leachman explained, "This was due to the weight restrictions of the high bridges on the line."



Harbor and picks up returning cars that were set out by the Linnton switcher. The Harbor Turn returns with the cars to the P&W yard at Albany.

Although the overall train and car counts via Cornelius Pass are much lower in the P&W era, the train size can still be dramatic. It was not unheard of in recent years to have a 80-to-100-car, 10,000-ton Harbor Turn, although today's typical train size is 40-50 cars. The road's ex-BC Rail log cars rate at 100 tons fully loaded. With the exception of the mill at Banks, which is switched by a crew out of Hillsboro, there are no on-line industries that receive switching by the Turn.

The future of the route was in question for some time due to a September 1994 fire that destroyed a large trestle on the north end of the Pass. In July 1998, a new metal bridge was in place and trains again ran over the hill. The bridge was named in memory of Ken Fleming, a well-known carman for the P&W.

Until this year, a run across the Pass required a time-consuming runaround at Banks to enter the former United Railways District.

From Tigard, the former SP line is used to Banks, where parallel former United Railways is met. Power was run around the train and then pulled east from the SP onto the United. The return trip required the opposite move.

This run-around caused problems from time to time. Matt Adams remembers an unusual situation that arose when they came into town with a large train. "We arrived at Banks with too many cars to run around," recalls Adams. "This wasn't a completely uncommon occurrence a few years ago. Sometimes, you'd take all the Port of Tillamook

Bay cars into town, run around, and then shove them out the POTB main. Then you'd be short enough to run around the logs. This day, we not only had a bunch of cars for the Port, we also had too many logs."

Adams continued, "I was working as a conductor at the time, and, instead of doing the extremely time-consuming double runaround, we split the power up. We had three units back then, an SD45, SD9, and SDP40F No. 644. After we got the POTB cars interchanged, I took the SD45 and SD9 and pulled the entire train into Banks and out the POTB as far as I



RIGHT: Eastbound Burlington Northern Train 398 (Albany-Pasco) crosses the big trestle over Dick Road just east of Bowers, Ore., in October 1986. RANDY NELSON. **BELOW:** The speed is down to under ten m.p.h. as a loaded Harbor Turn crosses the Holcomb Creek trestle with a Geep and SD45 on June 17, 2011. This impressive bridge is set on a 1 percent grade, and the train is struggling to maintain speed. ROBERT W. SCOTT



LEFT: The highway sign points the way to Cornelius Pass for eastbound Burlington Northern Train 398 as it crosses the Sunset Highway (U.S. 26) in April 1980. Power is a mixed bag of four-axle cab and hood units. The OE connection between Beaverton and Bowers Junction lasted until the early 1990s, when TriMet converted the right-of-way for its light rail line between Beaverton and Hillsboro. This bridge over U.S. 26 was subsequently removed with little trace of its existence. RANDY NELSON

could. My engineer took the 644 and tied onto the rear, and down the United we went. It was pretty silly looking, with 644 on the lead of the logs by itself, but it was quite a fun little trip. I shoved him up the 0.5 percent at North Plains, and then up the ruling 1.2 percent (it's mostly 1 percent) up to the tunnel, then used the dynamics to help hold the thing back for the trip down the mountain."

A new two-thirds-of-a-mile connector track from the SP to the UR line outside of Banks is now in place; with it, the railroad no longer requires the runaround move, thus reducing the need for such unusual operating solutions. The \$3.1 million "Banks Rail Connector" project was completed as part of a Connect Oregon project.

The north and south approaches to the Pass are as opposite as any can be. On the north side, the ruling grade is 1.65 percent with a short stretch of 2-plus percent. It is set amid a dense forest of evergreen trees with near continual three- and four-degree reverse curves. In the winter the north side is in nearly continual shadow. On the south side of the Pass, the trees start to thin out and the right-of-way has few curves with a ruling 1.2 per-

LEFT: The Alcos are long since retired as BN GP35 No. 2516 (ex-GN 3033) leads westbound Train 397 (Vancouver-Albany) through Bowers Junction in August 1988. Most of the train is still on the Dick Road Trestle. The line diverging to the left goes to Banks. RANDY NELSON

STALLED AT BOWERS JCT.

THE SUMMER OF 1977 WAS AN INTERESTING TIME to be working at Burlington Northern. Traffic levels dictated that all the old first-generation power that was available was in service. EMD F-units, older Geeps, Alco road switchers, and Century units could be found on the mainline and the branches in Oregon and Washington. The Pacific Northwest was home to the former SP&S and Northern Pacific Alco fleet. They regularly worked the mainline from Vancouver-Pasco, Vancouver-Hoquiam, and on the Oregon Electric from Vancouver-Albany.

I worked as a brakeman for BN between 1976-78. I spent most of 1977 working on the Albany Extra Board. I was able to "Rule 33" (fill in for a vacation vacancy) a spot for several months in the OE Pool. OE Pool slots went "cheap" (low-seniority) because of a long layover at Albany and lots of work en route.

One trip that summer had an unexpected activity for the OE, namely helper service. On this particular afternoon, we were called for Train 398, the Albany-Pasco through freight. There were enough cars this day that a second train No. 682 (Albany-Vancouver) was called about four hours behind us. We had the "hotshot" train with blocks of "BK-s" (Bend-Klamath Falls) and PEs (Pasco East). Train 682 was to follow us with blocks for Willbridge, Vancouver, and Carnos Chips. Both trains worked Minto (south end of Salem) and Beaverton and picked up the appropriate blocks of cars.

We had four units (RS3 4058, F7B 827, RS3 4064, and RS11 4187) for

the trip. Heading railroad east (northbound), we lost a unit between Albany and Salem. But, we still had three and our train was not super big, so we were able to keep moving along, although not always at track speed. Train 682 left Albany a couple hours behind us and was slowly catching up to us.

We were starting up the hill to Cornelius Pass out of Forest Grove Junction when we lost our other two units, and now we were on our hands and knees crawling up the 1 percent. The old RS3 just kept pulling, but losing momentum as we approached Bowers Junction, and the grade and curvature got the best of us and we stalled. I heard my engineer let loose with a profanity (the first and only time I ever heard him swear) and he got on the radio to Train 682. They had made it to Beaverton and were only 30 minutes behind us.

The engineer was not able to get the other engines running so there we sat. A plan was formulated by the conductors and the dispatcher. Train 682 came up to Merle (about two miles behind us) and they tied down their train and cut off their power. We were on the big curve at Bowers Junction and we were able to watch as Train 682's power pulled up and coupled onto our caboose. It wasn't too long before we were on the move with a four unit "helper" shoving us through the Cornelius Pass tunnel. They cut off and went back to their train and we went on into Vancouver with our single RS3 performing as God and Alco meant it to be.

Life was always interesting on the "OE." — RANDY NELSON

Randy is a train dispatcher for BNSF Railway in Fort Worth, currently working several desks in the Pacific Northwest. He worked for BN in 1976-78, leaving the railroad in 1978 to return to college. Randy made his railroading comeback with BNSF in 1998.



cent ramp down to North Plains.

The route at United Junction goes right to the grade out of the small yard, so there is not much of a chance to get a run at the grade. Matt remembers a particularly interesting trip up the hill a few years back. "It's a crazy story, but we stalled with empties," says Adams. "It was a doomed effort from the get-go. It was in the winter of 2012, when the Northwest was getting fairly hammered with snow." The wet, sticky kind the locals call "Cascade Cement." "As we made the trip north across the United with our two GP39-2s and a short train, we did battle with snow-laden tree limbs, and we started to worry about the trip back south. I remember expressing my concern about the trip back because two GP39-2s aren't rated for much going up the hill out of United Junction, and there were a good 55 empties waiting for us." The first mile of the grade is the ruling 1.65 percent and then it lessens a little from MP 11 on. "We took off out of Harbor at the whopping ten m.p.h., we were allowed by our orders, and as soon as I cleared the slow order, I went for it, but with the length of train involved, it was fairly futile." There was several inches of snow back on the rail, and the train was losing traction, and speed, fast. "We started to slip our way to a stall, and I added to independent brake pressure as needed — a technique used to try to 'catch' the wheels when they want to slip." As the train came around the last curve before the Fleming bridge at MP 11.3, the rear

motor decided it had enough. "I have never seen so many sparks come from the wheels of an engine in my life, and with such force! All four axles gave out at once, and we were done." Adams applied the brakes so the train wouldn't roll backwards, and called the Linnton switcher. "The switcher had an SD40-2 for power. They assisted us in getting back down the hill by protecting our rear, and then we tried again, with much better success!"

Following the P&W

At the top, the Cornelius Pass Tunnel No. 1 at 4103 feet had the distinction of being the longest tunnel on an electrified interurban line when built in 1911. The electrification lasted until 1923. Originally built with timber supports, in later years the bore was lined with concrete. The south side of the Pass is beset with large deep valleys that the railroad either filled or used wood trestles to cross. The large timber pile Dick Road Trestle, also known as the Holcomb Creek bridge, is set on a 1 percent grade and crosses the valley at nearly 100 feet above the ground. At just over 1100 feet long, the bridge is an imposing structure to see, even more so when a loaded train is growingly upgrade across it.

From North Plains towards Banks the terrain turns to rolling farm fields with sporadic stands of trees, and the tracks are on a near tangent for a few miles. After they turn to join the former SP Tillamook District, the countryside transitions from farm fields to the resi-

dential areas as it approaches north Hillsboro.

In Hillsboro, the railroad shares several blocks of SW Adams Avenue with street running in the core downtown area. In this corridor the west end of the TriMet MAX light rail terminates right next to the P&W at the Hatfield Government Center Station on an alignment that follows the original Oregon Electric Route from Beaverton. Leaving the Hillsboro street running, the tracks turn east and parallel the Tualatin Valley Highway all the way to Beaverton.

Access to this area is very easy with paved streets or roads closely following the line. In the agricultural areas north of Hillsboro the road grid provides fewer access points, but one is no more than a mile from the tracks at any given time. Oregon Highway 26 can be used to quickly access the Beaverton, Hillsboro, North Plains, and Banks areas from downtown Portland, which is 20 miles to the east over the Portland Hills. Beyond North Plains, county roads follow the tracks up to the top of the pass and intersect Cornelius Pass Road. From there it's a short drive down to Highway 30 and United Junction.

The Harbor Turn used to be a day-time operation but as of late it has been an overnight job. It sometimes is moved back to days depending on maintenance or other projects. Between Hillsboro and Wilsonville, TriMet commuter rail is in place on the P&W line, and so on weekdays there is limited opportunity for track time during the morning and evening

commute hours.

Portland & Western trains routinely use the radio to call out when approaching station locations over their assigned channels, so finding and tracking a train can be fairly easy. With a slow track speed of 10-25 m.p.h., getting ahead of the train to set up at desirable photo locations is also very easy. Between North Plains and the south portal of the tunnel there are numerous wood trestles, including the impressive Holcomb Creek span located off Dick Road. The tunnel portals have limited access and there are cameras in place to deter trespassing.

There are few places left where one can find such railroad operations. A trip to experience a run of the Harbor Turn is one where you can experience a classic style of operations through a plethora of scenic locations compressed into a very short distance. As someone who makes this trip routinely, Matt Adams is still impressed at running it. "I look out across the valleys from the right-hand seat and marvel at this operation each and every time." ■

Robert is a freelance photographer and writer from Rochester, Wash. He is a fire chief with a regional fire authority outside of Olympia, Wash. The author would like to thank Prof. Rob Leachman of U.C. Berkeley and P&W engineer Matt Adams for their assistance in researching and writing this article.



OPPOSITE: The Harbor Turn is all logs as it starts making the run for the grade outside of Banks. The area around Banks and North Plains are fertile farm lands but in just a few miles this will give way to foothills punctuated with stands of fir trees. **DREW MITCHEM**

TOP RIGHT: Two big units provide power for the loaded Harbor Turn at the new connector track near Banks. The construction of this spur eliminated the need for a time consuming run-around on each leg of the trip at Banks. **ROBERT W. SCOTT** **ABOVE:** With the bell ringing and moving at a cautious five m.p.h., a mid-June morning finds the loaded Harbor Turn on street running trackage for four blocks on Adams Street in Hillsboro. **RIGHT:** A traffic signal warns drivers of impending doom if they don't yield the right-of-way at the end of the street running on Adams in Hillsboro. **DREW MITCHEM** PHOTOS

