Oregon Department of Transportation – Rail Division

# Oregon Rail Study Appendix G

# Eugene to Ashland Intercity Passenger Rail Assessment


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## EXECUTIVE SUMMARY

This report is a preliminary investigation into the feasibility of providing passenger service between Eugene and Ashland to complement existing and future passenger services between Eugene, Portland, Seattle and Vancouver, B.C. This report examines:

- Current conditions of the existing rail infrastructure and operations between Eugene and Ashland;
- Investment needed to upgrade existing infrastructure to accommodate passenger rail services and protect future freight operations; and
- Potential rail ridership by examining current travel conditions, improved travel conditions, and population trends.

The existing rail infrastructure in the Eugene-to-Ashland corridor, known as the Siskiyou Line, is a 25 mile per hour shortline railroad, spanning 220.6 miles over mountainous terrain. The line, operated by Central Oregon & Pacific Railroad (CORP), currently serves multiple shippers with nine trains per day operating along various sections of the route to provide either local switching services or run longer haul trains. Discussions with CORP indicated willingness to consider passenger operations in the corridor provided that freight operations are not adversely affected. Existing freight operations are infrequent enough that passenger operations could be compatible with appropriate investment in capacity.

Significant upgrades would be required to accommodate passenger operations. The track can be upgraded to host average operating speeds of 50 miles per hour, with a few sections having the ability to achieve a maximum speed of 90 miles per hour. Total cost for upgrading the line would be approximately $2.9 billion. The study assumes that passenger rail stations would be located in Eugene, Roseburg, Grants Pass, Medford, and Ashland. Two scenarios were tested. Both included two round trips per day between Eugene and Ashland, serving all of these stations. One assumed an end-to-end running time of approximately five hours along the existing rail alignment. The other was based on an end-to-end running time similar to an automobile travel time along I-5, a trip of approximately three hours, which would require major improvements to the existing alignment which have not been identified or priced. The five-hour scenario estimates 2,300 to 2,700 passengers annually in 2030. The three-hour scenario estimates 4,800 to 5,200 passengers annually in 2030.

## INTRODUCTION

Study of intercity passenger rail in Oregon, specifically the recent preliminary feasibility assessment of intercity passenger rail between Portland and Eugene, spurred renewed interest in other potential intercity passenger rail corridors in Oregon. This preliminary assessment briefly describes the information gathered on the existing rail facilities on

the Central Oregon & Pacific Railroad (CORP) in southwestern Oregon between Eugene and Ashland. It also presents a review of the preliminary cost estimate and capital investment necessary in the rail corridor to sustain both passenger and freight rail, and provides an explanation of the forecasted preliminary rail ridership.

This report is the first step in gathering information about the feasibility of intercity passenger rail between Eugene and Ashland. A significantly more detailed engineering and planning study of the potential environmental and economic impacts would be required to determine the tangibility of such an investment. This assessment does not determine if the investment is warranted in the corridor; instead, it provides an overview of existing conditions and a review of prepared preliminary capital cost estimates and ridership forecasts.

## CORRIDOR HISTORY

The original north-south interstate rail line through the Willamette Valley and into California was built by a succession of entrepreneurs and business rivals between 1868 and 1887. In 1870 Ben Holladay incorporated the Oregon and California Railroad (O&C). O&C's aim was to complete a route from Portland that would connect with the Southern Pacific (SP) track in northern California. The main line from Eugene to Black Butte, California was built north-to-south primarily by O&C starting in the 1870's and did not reach Ashland until 1884. At the end of 1884 the stockholders of O&C voted to sell their railroad to SP but the transaction, beset with financial and other problems, was not completed until May of 1887 and actually was not fully finalized until 1927.

In December 1887 the line was completed over the Siskiyou Range to become the first railroad link between California and Oregon. Called the "Siskiyou Route," it functioned as the only direct rail line between California and the Pacific Northwest until September of 1926 when SP completed an alternative route between Black Butte, California and Eugene via Klamath Falls, Chemult, and Oakridge. Because the Klamath Falls line was shorter and had easier grades, it became SP's principal line between the San Francisco Bay Area and Portland, relegating the Siskiyou Line to secondary status. However, the Siskiyou Line continued to be of significant importance to SP as a source of lucrative forest products traffic.

Passenger rail service was initiated in 1887 as the *Oregon Express* (northward) and *California Express* (southward). In 1901 SP began promoting the line as the *Shasta Express* (later the *Shasta Limited*).[1] In the 1920's, after SP built and opened the alternative route through Klamath Falls, passenger service along the Siskiyou Line was discontinued, although freight service continued along the route.

Between 1887 and 1994, SP continued to operate freight service along the line. On the last day of 1994, SP sold 218.7 miles of the Siskiyou Line between Springfield Junction and Belleview (just south of Ashland) to the newly-formed CORP, a subsidiary of RailTex. CORP leased the remaining 79.3 miles of the Siskiyou Line from Belleview to

[1] Southern Pacific Railroad, by Brian Solomon (1999).

Black Butte. In 2002, RailTex was merged into RailAmerica, of which CORP now is a wholly-owned subsidiary. The Siskiyou Line generally parallels Interstate 5 (I-5) between Eugene and Ashland, except for a 42.2-mile segment between Riddle and Wolf Creek where the railroad follows the course of Cow Creek. True to its historic origins, the railroad's principal traffic today still consists of wood products although in quantities much diminished from its heyday in the twentieth century. The majority of the rail traffic on the line is exchanged with Union Pacific Railroad (UPRR) at Eugene, although CORP has developed some intrastate hauls jointly with Portland & Western Railroad (PNWR). No passenger service currently operates anywhere on the Siskiyou Line.

# EXISTING CONDITIONS

## Current Track Conditions

The rail condition through much of the Eugene-to-Ashland corridor limits current operating speeds to 10 to 25 miles per hour due to steep grades, an exceptionally winding alignment and general deterioration over the past 30 years. The route is 220.6 miles long and travels through Lane, Douglas, Josephine and Jackson counties. Geographical constraints include Cow Creek Canyon where track configuration is dictated by steep terrain and a river where train speeds and operating dynamics are generally slower. There are numerous trestles and tunnels with various restrictions and bridges in various states of repair.

## Current Rail Operations

As shown in Exhibit 1, there are numerous short and long haul freight rail operations along the Eugene-to-Ashland corridor. Freight operations reflect the slow operating speeds on the line. The longer haul operations are divided into three sections along the line. A railcar originating in Medford will first move on the daily roundtrip train between Medford and Dillard; it will then go on the daily roundtrip train from Dillard to Roseburg, and in Roseburg it will go onto the northbound train to Eugene. In addition, CORP operates five local trains per day, providing pickup and delivery of railcars to/from the shippers along the line.

Despite the recent economic downturn, CORP continues to be the second largest shortline railroad in Oregon in terms of freight volume measured by individual carloads. There were 26,324[2] revenue carloads on the Siskiyou Line in 2008, down from 39,172[3] in 2006.

Industrial areas served by CORP include the Eugene/Springfield region, Roseburg, Riddle/Glendale, and the Medford/White City area with the primary commodity being wood products.

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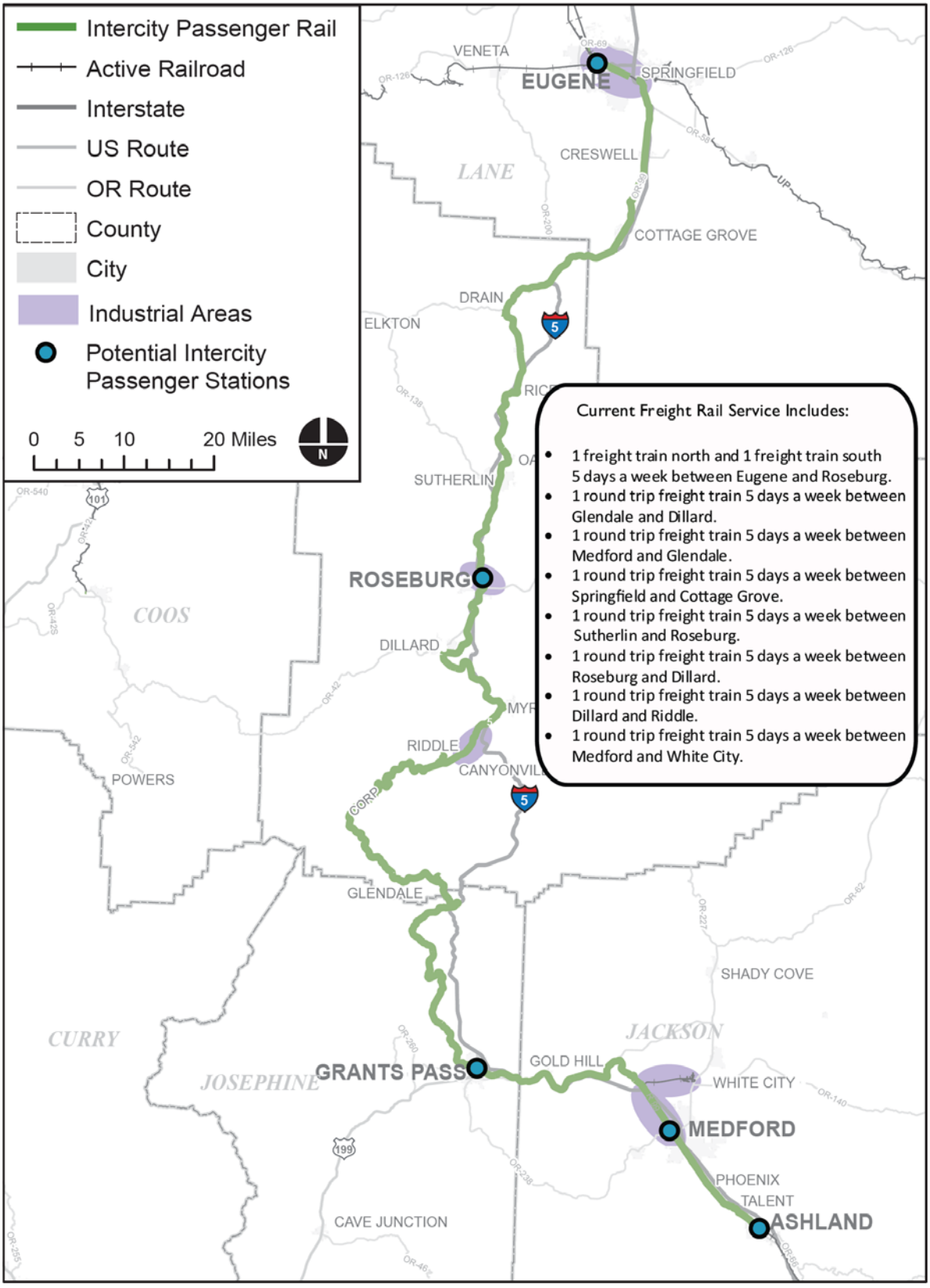
[2] 2008 Annual Report to ODOT

[3] 2006 Annual Report to ODOT reported 45,017 carloads including both the Siskiyou and Coos Bay lines. CORP's reported the 2006 Coos Bay line carloads as 5,845 in a presentation, "Central Oregon & Pacific Railroad Partnership for Coos Bay Line" November 14, 2007. 45,017 – 5,845 = 39,172.

**Exhibit 1: Eugene to Ashland Intercity Passenger Rail Study Corridor**



# INVESTMENT CONSIDERATIONS

Discussions with CORP indicate a willingness to consider allowing passenger rail operations on the Siskiyou Line so long as sufficient infrastructure upgrades are made to support the passenger service without adversely affecting their freight business. Necessary improvements would include track, tunnel, and bridge upgrades to increase operating speeds from 25 miles per hour to an average of 50 miles per hour with a maximum speed of 90 miles per hour along certain stretches of track. Freight operations could continue efficiently with the improved speeds and additional siding capacity in the vicinity of the freight areas. The line capacity with the upgrades would be sufficient to handle both projected freight growth and the addition of two passenger round trip trains per day.

For passenger rail service to occur in the corridor it must be noted that UPRR will need to be a part of all future discussions. The CORP does not control the track between Eugene and Springfield; this track is owned and operated by the UPRR and is a part of a heavily used freight corridor. UPRR has been briefed and has not voiced any opposition to the concept at this time. There has been no request for a formal position from the UPRR, and it is certain that future negotiations will be necessary to provide the capacity necessary for additional passenger operations on this segment of track.

## Preliminary Cost Estimates

The assumptions developed to assess the high-level preliminary cost estimates associated with providing intercity passenger rail along the CORP alignment are described within this section. Included are the assumptions for capital improvements, sidings and double-tracking based on the passenger/freight train capacity discussions, unit costs, and overall capital cost estimates. The total estimated cost to upgrade the track for passenger rail is approximately $2.9 billion.

### Rail Improvement Assumptions

Meetings with CORP to review the track charts revealed the extent to which the track would need improvement in order to provide intercity passenger rail service and to continue to provide efficient rail service to the freight shippers. The following assumptions were developed during this meeting.

## Assumptions

- Upgrades to existing signals, and installation of Centralized Traffic Control (CTC), communications and Positive Train Control (PTC) along the entire 220-mile alignment. As required under the Safety Act of 2008, "…each entity providing regularly scheduled intercity or commuter rail passenger transportation shall develop and submit to the Secretary of Transportation a plan for implementing a positive train control system."[4] With the implementation of intercity passenger transportation along the alignment, PTC would be required. It

[4] National Transportation Safety Board. 2008. Rail Safety Improvement Act of 2009, Positive Train Control (Excerpts). http://www.ntsb.gov/dockets/railroad/dca08mr009/412374.pdf. Accessed October 9, 2009.

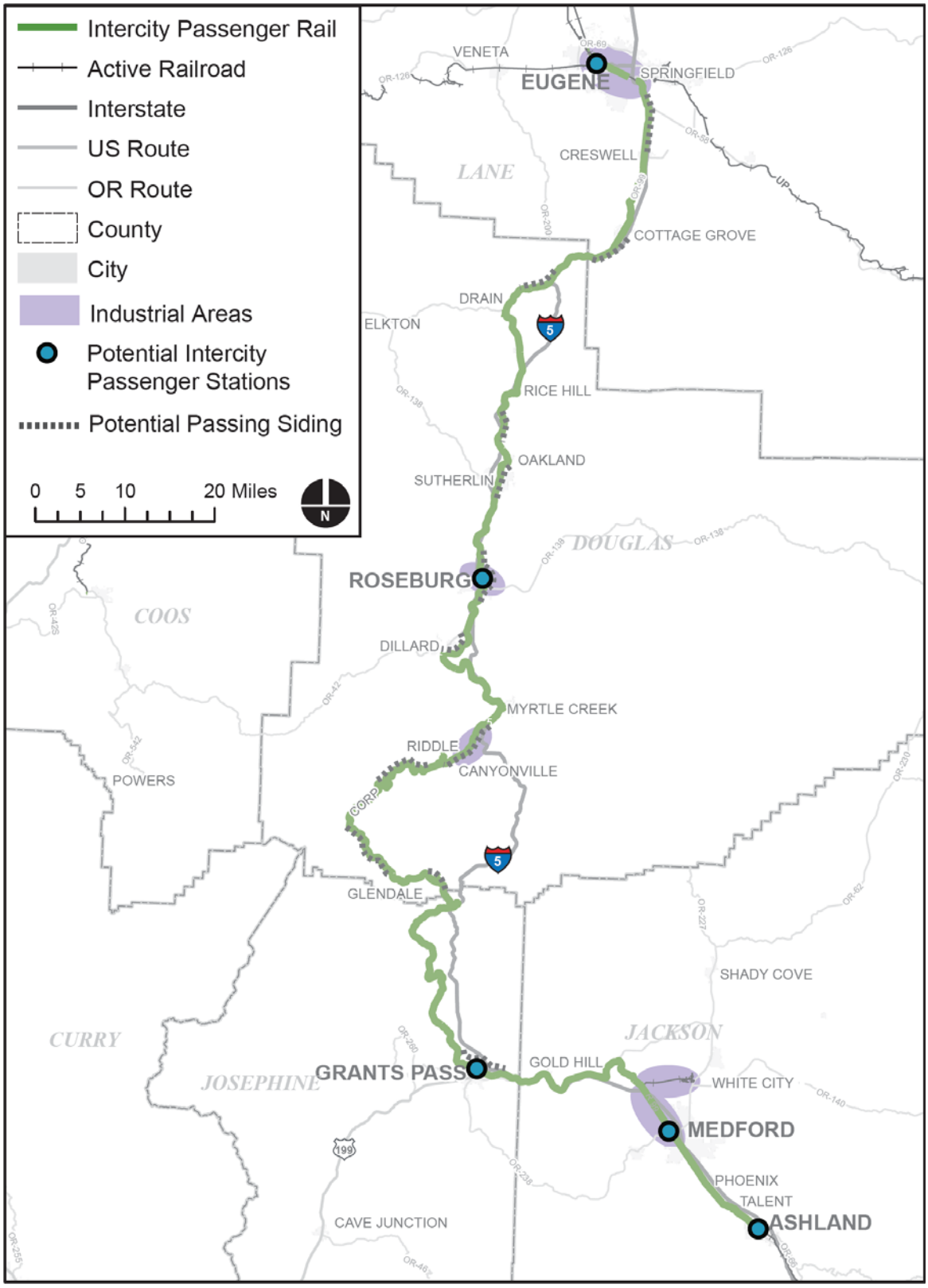
should be noted that the unit cost for signalization is estimated at $2 million per mile, which was higher than the unit costs assumed for this component for the *Portland Eugene Intercity Passenger Rail Assessment*, as the existing system(s) would have to be abandoned/removed and a new system will be installed.

- Upgrade all wooden bridges to concrete. Double track six bridges between Tolo and the south end of the Medford yard.
- New or upgraded track, crossings and crossovers to achieve up to 90 mph running speeds.
- New double-track along industrial areas and where freight train operations are located; see Exhibit 2.
- New stations and platforms.
- One maintenance and support facility.
- Other cost and contingency elements including design, construction zone train traffic control, and environmental impact mitigation.
- Repair tunnels 5 & 9; improve clearance in tunnels 3, 4, 5, 6, 7, 8 & 9 to allow double stacked cars optional (location and existing information about tunnels 3 through 9 included in Appendix B).[5]

Exhibit 2 shows the locations of sidings and double-tracking assumed in the assessment.

[5] Shannon & Wilson, Inc, Oregon Rail Tunnel Assessment. Feb 3, 2009.

**Exhibit 2: Locations of Sidings and Double-Track Needed to Provide Passenger Rail Service**



**Capital Costs**

Cost estimates for the passenger rail line from Eugene to Ashland used unit costs derived from similar passenger and freight rail projects in Oregon and elsewhere in the western United States. The unit costs are presented below in Exhibit 3. Environmental constraints and mitigation needed to complete the required infrastructure upgrades were not researched as part of this study and are not reflected in the cost of upgrades. This would be included in further study efforts should Oregon decide to pursue intercity passenger rail between Eugene and Ashland.

Cost estimates assume 5 percent inflation of construction costs to year 2016. Right of way acquisition is not included in the estimate. The total cost estimate is $2.9 billion. These costs reflect the five-hour run time scenario. No capital costs were developed for the three-hour scenario but is reasonable to assume that they would be substantially higher, since this would likely require new segments built through rolling and mountainous terrain.

**Exhibit 3: Eugene to Ashland Passenger Rail Capital Cost Estimate**

| Cost Element | Unit | Unit Cost | Units | Cost |
|---|---|---|---|---|
| Track - New with Subgrade | Mile | $2,500,000 | 36 | $90,000,000 |
| Track - Replace/Upgrade | Mile | $1,000,000 | 184 | $184,000,000 |
| Track- Replace Ties Only | Mile | $500,000 | 16 | $8,000,000 |
| Double Crossovers | Each | $2,000,000 | 16 | $32,000,000 |
| Stations and Platforms | Each | $10,000,000 | 4 | $40,000,000 |
| Signals & Communications | Mile | $2,000,000 | 220 | $440,000,000 |
| Maintenance and Support Facilities | Each | $10,000,000 | 1 | $10,000,000 |
| Crossings - All Public Crossings | Each | $500,000 | 208 | $104,000,000 |
| Safety Improvements | Lump Sum | | | $25,000,000 |
| Bridges- Replace Timber with Concrete | Foot | $4,800 | 7,425 | $35,640,000 |
| Bridges- Replace Timber with Double | Foot | $9,600 | 425 | $4,080,000 |
| Tunnels- Repair to 20 Year Life | Lump Sum | | | $2,299,600[6] |
| Tunnels- Modify for Double Stack | Lump Sum | | | $7,853,738[7] |
| | | | | |
| Subtotal | | | | $982,873,338 |
| | | | | |
| Construction Contingency | | 40% | | $393,149,335 |
| Construction Inflation (6 years at 5%) | | 34% | | $467,979,313 |
| Engineering Services (PE& NEPA) | | 12% | | $165,122,721 |
| Final Design (including ½ inflation) | | 15% | | $241,501,849 |
| Construction Engineering (including full inflation) | | 17% | | $313,480,338 |
| | | | | |
| Total in 2016 dollars | | | | $2,908,112,562 |

[6] Shannon & Wilson, Inc, Oregon Rail Tunnel Assessment. Feb 3, 2009.

[7] Shannon & Wilson, Inc, Oregon Rail Tunnel Assessment. Feb 3, 2009.

## RIDERSHIP FORECASTS

Future ridership was forecasted by analyzing existing intercity bus service, travel patterns, and growth trends in the corridor.

### Existing Passenger Service

I-5 is the main travel corridor along the west coast, and there is no passenger rail serving established population centers in the southern Oregon I-5 corridor.

Currently, the only intercity passenger rail service in southern Oregon is the Amtrak *Coast Starlight*, which uses the UP mainline east of the study corridor to provide service between Seattle and Los Angeles with stops in the following Oregon cities: Portland, Salem, Albany, Eugene, Chemult, and Klamath Falls. This service actually replaced the earlier passenger service along the Siskiyou Line in the 1920's as it shortened California-to-Oregon travel times by as much as two hours. For this study, it was determined that the *Coast Starlight* service did not compete with Eugene-to-Ashland service.

Intercity bus service is provided between Eugene and Ashland via Greyhound Lines, Inc. with stops in Eugene, Roseburg, Gold Hill (limited service), White City (limited service), Medford, and Ashland (limited service). To travel between Eugene and Ashland by bus, riders are required to change buses in Medford with a layover or continue to Sacramento, transfer buses there, and then travel to their destination. Based on discussions with Greyhound, the service currently carries approximately 2,000 passenger trips per year between Eugene and Ashland.

### Travel Patterns on Interstate-5

The single largest source of potential riders is vehicle drivers that travel on I-5 between Eugene and Ashland. I-5 carries between 25,000 and 42,000 vehicles per day between Eugene and Ashland, of which 25 to 35 percent are trucks.[8] Excluding truck trips and assuming an average of two persons per vehicle, this translates to roughly 35,000 to 72,000 person trips per day. Other than weekday peak period congestion in between Cottage Grove and Eugene and between Grants Pass, Medford and Ashland, there is currently no substantial congestion along the I-5 corridor. 2030 traffic forecasts anticipate 30,000 to 70,000 vehicles per day (50,000 to 100,000 non-truck person trips per day), which will increase congestion on I-5, again primarily within the Eugene to Cottage Grove, and Grants Pass to Ashland segments of the corridor.

The Eugene-to-Ashland corridor experiences seasonal changes with increases in the summer due to recreational traffic and occasional closures in the winter due to weather. In the summer, principal tourist destinations in the region enjoy visitors from across the world. However, most of these destinations (Crater Lake National Park, Oregon Caves National Monument, and several other state parks and campgrounds as shown in

[8] I-5 South Corridor Traffic Management Plan, Oregon Bridge Delivery Partners, December 2005 and Bundle 313 Project-Level Traffic Management Plan, Parsons Brinckerhoff, July 2007.

Exhibit 4) are not located on the CORP rail line and primarily require access by automobile, thereby narrowing the ability to capture this important market of potential riders.

Adverse weather conditions, such as fog, rain, snow, and ice, affect travel on I-5 as partial or full closures of the mountainous freeway occur occasionally during the winter months.[9] There are no alternative passenger travel options when I-5 is closed as the same weather conditions impact air passenger travel out of Medford Airport. Providing a dependable, all-weather passenger rail service would benefit travel along the corridor.

## Future Growth Considerations

Other than bridge replacements and minor capacity improvements in isolated locations, the Oregon Transportation Plan does not call for any major capacity improvements on the I-5 corridor between Eugene and Ashland. With the expected population and employment increase and no planned capacity improvements to accommodate this growth, the corridor will see a moderate level of increased congestion by 2030, which could spur public interest in energy-efficient alternatives to personal auto travel, such as intercity passenger rail travel.

Currently there over 740,000 people[10] living in the Eugene to Ashland study corridor[11] and approximately 489,000 jobs. Both population and employment are anticipated to increase by nearly 25 percent between now and 2030, to over 908,000 people and 621,000 jobs.[12]

Journey to work data from the 2000 U.S. Census shows that most trips within the study corridor are internal to each county, particularly in Lane County. It appears that many people living in Josephine County work in Jackson County, which is seen in corridor congestion during peak hours between Grants Pass, Medford and Ashland. Analysis of the data indicates that only a small percentage of commute trips in the corridor are longer than 50 miles. Based on the data, less than two percent of the existing commute trips in the corridor are made on public transportation. The combination of short commute trips, low transit usage, infrequent service and travel times that are longer than by automobile or bus, reduces the likelihood that corridor commute trips will shift onto an intercity passenger rail line.

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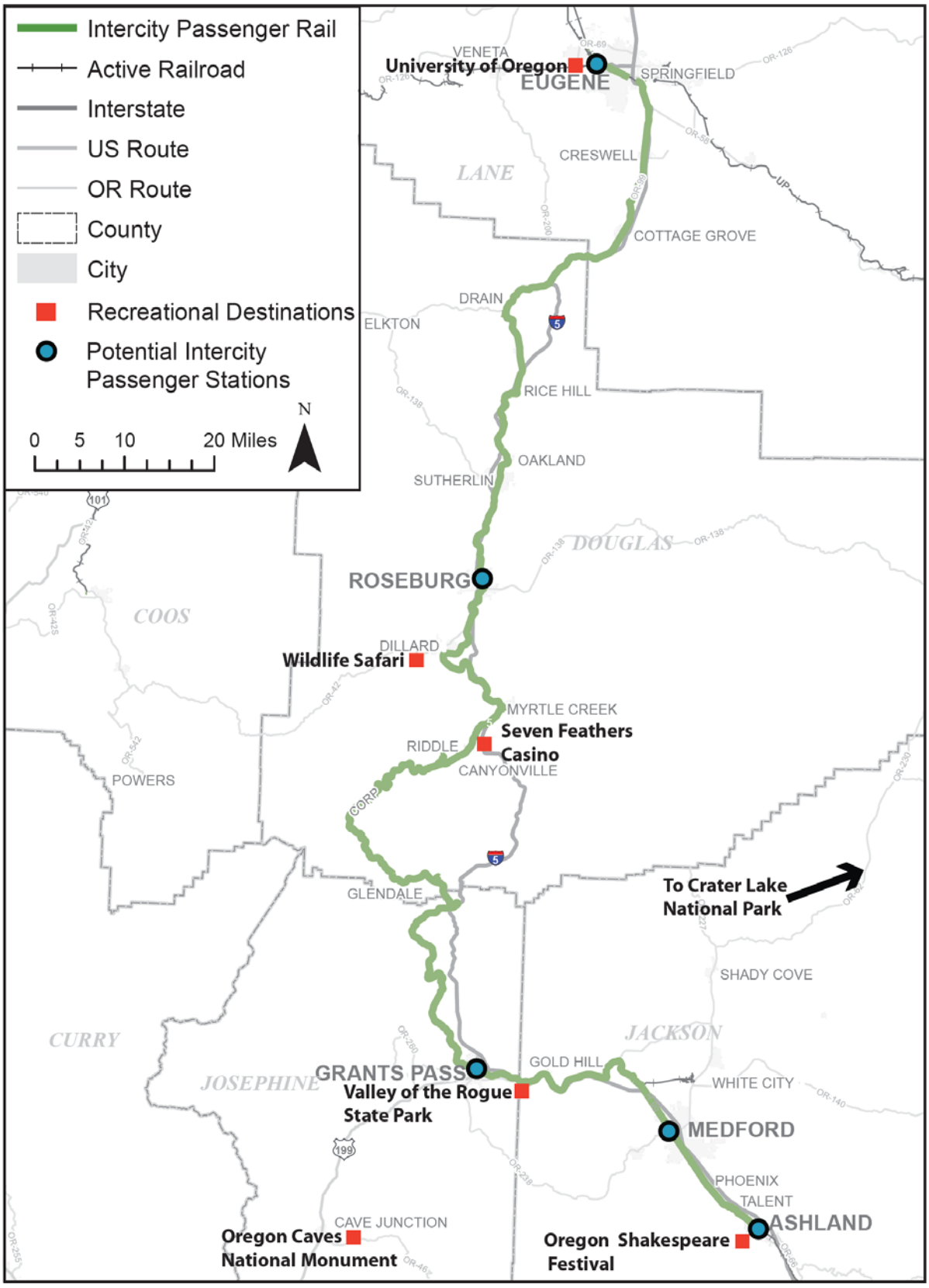
[9] However, closure of I-5 is frequent "through Siskiyou Pass south of Ashland." Oregon Department of Transportation. 2009. *Trip Check.* http://www.tripcheck.com/Pages/RCMap.asp?mainNav=RoadConditions&staticNav=ChainLaws. Accessed October 21, 2009.

[10] 2000 County population based upon the 2000 US Census at the Census Block Group Level.

[11] The corridor is defined as the counties which include the Eugene to Ashland Intercity Passenger Rail Alignment.

[12] Forecasted corridor population was arrived at by taking the percent of county population in the corridor (based on year 2000 ratio) and applying it to future year population forecasts. Corridor employment (year 2000 and forecast years) was estimated by applying the ratio of population within the corridor to the county employment statistics.

**Exhibit 4: Major Recreational Areas in the Corridor**



## Ridership Model Assumptions

Passenger ridership was estimated using the Oregon Statewide Integrated Model (SWIM), which is an integrated land use and transportation model for Oregon developed by ODOT's Transportation Planning and Analysis Unit (TPAU). SWIM combines a spatial model with an activity-based transport model. In order to inform the spatial economic model about transport conditions, and vice-versa, a SWIM simulation starts at a base year (typically 2000) and builds over time at one year increments to the horizon, forecast year (in this case 2030).

The calibration of the long distance, intercity travel component was adjusted to match ridership on the *Cascades* corridor for the year 2000. Ridership on the intercity trains was derived from the long distance travel market only. Therefore only non-commute trips of 50 miles or longer were assumed to be potential customers on the intercity passenger systems (passenger rail and Greyhound). Shorter trips, such as Ashland-to-Medford, and trips on local public transit lines are not considered as intercity passenger travel in SWIM. Interstate passenger service carried by the *Coast Starlight* is included in the model but is separated from the Eugene-to-Ashland passenger rail service. There is no change in *Coast Starlight* service in the model for this study.

SWIM was used to forecast ridership for a train service scenario of two round trips per day between Eugene and Ashland, which were compared to a baseline, 'no train' scenario. The baseline, year 2030 scenario forecast was prepared starting from year 2000 land use and transport conditions and assumed no intercity passenger rail service between Ashland and Eugene (intercity bus was included). For the build scenario, the proposed Eugene-Ashland train service was assumed to start operating by the year 2030. The build scenario land use projections were unchanged relative to the baseline forecast.

The model uses a generalized assumption for train speeds and travel times to estimate ridership demand. In addition, the model assumed that the track improvements combined with low freight train usage of the corridor would not result in any substantial delays to passenger trains.

Existing Eugene-to-Medford Greyhound bus ridership of approximately 2,000 trips annually was used as a reference with which to cross-check the model results. It is assumed that some level of Greyhound service would remain in the Eugene-to-Ashland corridor to serve points in California south of Ashland; thus, not all of the 2,000 annual bus trips today would immediately shift to a new intercity passenger rail line.

### Station Locations

There are five stations associated with the Eugene-to-Ashland intercity rail alignment, as shown earlier on Exhibit 1. It was assumed that the existing Amtrak station in Eugene would be used for intercity passenger rail services on the alignment. Roseburg, Grants Pass, and Medford would all receive new stations and boarding platforms to accommodate intercity passenger rail service, and a southern terminal station and platform would be constructed in Ashland.

### Train Operations

Intercity passenger rail service would be provided between Eugene and Ashland by two round trips every day. Although it is possible that train service could replace some of the current intercity bus service, the analysis for this study was undertaken assuming that these trips are in addition to the five to six daily round trips along the corridor provided by Greyhound intercity bus. It was also assumed that all riders of the Eugene-to-Ashland line would transfer at Eugene to continue their trip north or south; that is, there were no "through" trains starting at Ashland and traveling through Eugene to points north, or vice versa.

The rail ridership forecasts assumed that track improvements would be made to increase overall train speeds along the corridor. Even with track improvements, the total travel time from Eugene to Ashland would be approximately five hours, assuming no delays due to freight traffic. This is substantially longer than the three hours it takes to drive this route and Greyhound's advertised travel time of just under four hours to travel from Eugene to Medford (approximately 12 miles north of Ashland).

## Ridership Estimates

Preliminary modeling indicates that the Eugene-to-Ashland intercity passenger rail service would attract 2,300 to 2,700 passengers annually by 2030 under the five-hour run time scenario, and between 4,800 and 5,2300 annual passenger under the three-hour run time scenario. A range of ridership is provided as the SWIM model results were manually adjusted to account for recreational riders (recreational destinations or special events such as Oregon Ducks football games or the Oregon Shakespeare Festival).

With regard to recreational or special events trips, it may be expected that there would be some use of the passenger rail service by these trips; however, as shown earlier in Exhibit 4, there are few recreational destinations located directly along the route. Getting to and from most of the recreational destinations would require use of an automobile or paratransit after departing the train (except, perhaps, for trips to Autzen Stadium in Eugene or the Oregon Shakespeare Festival in Ashland. Thus, substantial ridership of the Eugene-to-Ashland passenger rail line for recreational trips is not expected. The ridership forecast from the SWIM model was adjusted slightly upward (approximately five percent) to account for people who attend those events.

Bad weather events are not daily occurrences and may occur infrequently during winter months. This analysis assumes there are fewer than fifteen days per year where weather would impact or fully close I-5 traffic. To estimate the adverse weather impact on average annual ridership, a five percent increase in the modeled ridership was included in the passenger forecast range.

## CONCLUSIONS: CHALLENGES, BENEFITS, AND CONSIDERATIONS

There are many challenges facing implementation of intercity passenger rail between Eugene and Ashland which tend to render initiating passenger service infeasible at this time. The estimated cost of improvements exceeds $2.9 billion, and the line would likely only attract only 2,300 to 2,700 passengers per year under the five-hour run time scenario—approximately 35 to 50 passengers per week. Under the three-hour run time scenario, ridership is forecasted to range from 4,800 to 5,200 annual riders—approximately 90 to 100 riders per week. Challenges to the feasibility of passenger rail in the corridor would also include the many needed track improvements and the freight traffic delay experienced while implementing these improvements. The transit time on an improved, existing alignment between Ashland and Eugene is estimated to be just over five hours, which is significantly longer than three hours by automobile or four hours by bus and is the primary deterrent to potential passenger rail riders. A new, faster alignment more competitive with the three-hour auto travel time would increase ridership by 50 percent over the five-hour scenario. However, to achieve the three-hour run time would require billions in capital investment to straighten the alignment through rolling and mountainous terrain which was not examined in this study.

While I-5 will experience an increase in congestion over the next 20 years, it will not approach the point where the corridor experiences congestion levels similar to those currently experienced further north along I-5 in the Willamette Valley. Minimal congestion in the southern I-5 corridor combined with the longer travel time by train makes intercity passenger rail travel between Eugene and Ashland relatively unattractive before 2030.

It should be noted that upgrades to the corridor would provide benefits to freight service too, which is a significant contributor to the regional economy. Also, providing passenger rail as a transportation alternative in the corridor would give the region another option for intercity travel, which could be especially important during winter months when weather is adverse. However, the ridership projections for the Eugene-to-Ashland passenger rail line are relatively low and at this point do not provide sufficient benefits to offset the substantial improvement costs.

It is possible that population and employment could grow faster than current projections, or that unforeseen, special recreational destinations could be constructed along the corridor. These conditions should be considered, as well as an assessment of potential environmental and economic impacts along the corridor, with any future study of Eugene-to-Ashland passenger train service. Further investigation of intercity passenger rail in this corridor should include preparing preliminary engineering designs (to at least a 5 percent or 10percent level design) to more adequately define the capital investment required for project implementation and allow for assessment of environmental impacts.

# APPENDIX A: DATA SOURCES

Information about the existing conditions within the study area was collected through a variety of sources:

- **Meeting with the Railroad**: Members from the consultant team met with CORP staff to develop the assumptions used to analyze the feasibility of providing intercity passenger rail service between Eugene and Ashland on the tracks within the Siskiyou Line right-of-way.
- **Traffic Data:** I-5 travel patterns and traffic information, drawn from corridor-level and project-level traffic management plans developed for bridge replacement projects along the corridor were used to identify current traffic characteristics, including recreational trip-making, which may use passenger rail service.
- **CORP Track Charts**: Track charts detailing operating speeds, segment length, and track and bridge conditions and characteristics were reviewed to discuss existing conditions and track improvements required to feasibly provide compatible freight and passenger rail service in the corridor.
- **Freight Operation Information:** Freight train operation data, including the number of trains per day (current and future), running speed, switching operations, and so forth were gathered from a combination of interviews with CORP staff, consultant team experience with the Siskiyou Line, customers along the route, and site visit observations.
- **Previously Established Cost Assumptions**: Per unit cost assumptions developed for the *Portland to Eugene Intercity Passenger Rail Assessment* (2010) were used for this study with minor changes.
- **Aerial and Land Use Mapping**: Aerial photos along the alignment were viewed through a geographic information system (GIS) program to understand the terrain and existing land uses within the study corridor.
- **Population Statistics within the Corridor**: The 2000 US Census population and journey to work statistics, and the June 2009 County-level Long Term Forecast by Global Insight were used to develop estimates of regional and corridor population and employment statistics.
- **Greyhound Ridership**: 2008/2009 Greyhound bus ridership in the corridor was obtained from Greyhound Lines, Inc.
- **Intercity Passenger Rail Ridership**: Forecasted bus and rail ridership was obtained through the Oregon Statewide Integrated Model (SWIM). Existing I-5 travel flow statistics between Eugene and Ashland were gathered from the U.S. Census Bureau's Journey to Work dataset to provide validity checks against the forecasted ridership. Small increases to the modeled ridership were included to account for recreational, special events, and adverse weather riders that may use the service throughout the year.