Higher Performance Rail Service for the Oregon State Rail Plan

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I. Introduction

The Draft Oregon State Rail Plan 2020 Revision, **(OR SRP)**, needs to include a mandate that more be learned about investments/service improvements to create higher performance rail service, **(HPRS)**. The objective is to accrue net positive public-private benefits that shift double digit percentages of highway traffic to rail, pay construction bonds/operating costs, and fulfill public plans/goals. An interstate compact needs to be formed with other states and the federal government to conduct business feasibility assessments to learn more how to achieve these goals with HPRS. When a sufficiently positive return on investment is identified, the project may be funded through municipal bonds, a state bank, or a national infrastructure bank.

II. Higher Performance Rail ServicesDefined

A. Capacity/Velocity/Reliability

HPRS accommodates both contemporary and future rail technology and services within the same right of way. Investments in capacity/velocity/reliability accommodate contemporary freight/passenger rail services operating in top 50 to 70 MPH ranges, plus new HPRS freight/passenger services, possibly up to 150 MPH. To cross finance one another, contemporary and new HPRS freight/passenger services use the same track infrastructure, within the same right of way.[1]

Projects with a sufficient return on investment may be implemented substantially through carefully developed incremental improvement of existing rail infrastructure, constructing entirely new infrastructure when the existing infrastructure is no longer suitable.

The twenty-mile Alameda Corridor in Southern California is a step toward HPRS in that state. It represents one among dozens of *tactical level* public-private partnerships successfully

[1] HPR is *not* "high-speed" rail, which requires a separate right of way for operations in the 150 to 275 MPH range, and is almost exclusively passenger only.

accomplished across the nation to accrue net positive public-private benefits from contemporary freight rail services. The OR SRP has many such *tactical level*, public-private partnership freight/passenger infrastructure improvements, creating incremental change. The OR SRP needs to assess plans that will transition Oregon to *strategic level* HPRS, creating significant change. Such plans will be similar to an Alameda Corridor extending for hundreds/thousands of miles, not just twenty.

B. Lower Prices/Lower Margins/Higher Volumes/Greater Net Income

The following illustrate that significant market volumes are neither attracted to, nor served by contemporary US freight rail services:

- Gross spending on truck services are about $800 billion/year increasing, while spending on freight rail services are about $70 billion/year decreasing.
- Commercial truckers, for all types of equipment/lengths of haul, use highways for over 98.25% of their work, while using rail intermodal for only about 1.75% of their work.

To pay for itself, HRPS attracts, grows, retains significant markets currently locked into the highway mode, creating greater freight/passenger volume and revenue:

- Increased capacity/velocity/reliability reduces the operating cost per unit.
- Lower operating costs support lower rates.
- Lower rates attract higher volumes and revenues.

Ongoing research into highway and rail intermodal rates shows that trucks secure greater market share than rail when their prices average about 95% of rail. When the average truck cost is about 115% of rail, then rail secures greater market share. More needs to be learned how much investment in HPRS capacity/velocity/reliability is needed to price below truckers, and attract the volume/revenue needed to repay construction bonds/operating costs. The freight is out there to be served and pay its way, it's just all on the highways, not the railways.

In short, HPRS transitions freight/passenger rail services from a relatively high margin/low volume business, to a relatively low margin/high volume business, with lower margins recouped by higher volumes.

III. Infrastructure Improvements

The following are examples of major HPRS infrastructure improvements that need to be planned to increase capacity, velocity/reliability. To be planned, they need to be listed in the OR SRP. They are not a conclusive list, but representative to make the point that incremental improvements of existing rail infrastructure lead to HPRS, and constructing entirely new infrastructure is needed to accommodate HPRS when the existing infrastructure is no longer suitable:

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A. Portland

1. Remove mainline street crossings along:

- Central East Side, from SE 12th Ave to SE Stark St
- NW Front, from Steel Bridge to NW Nicolai St
- N. Columbia Blvd. between N. Hurst and N. Fiske Ave
- Increase urban land values, (e.g., similar to along the Alameda Corridor in California, the Reno Trench in Nevada)

2. Relocate the passenger rail station underneath the Portland International Airport:

- This was assessed in the 2012-2019 Oregon Passenger Rail Project, Corridor Investment Plan[2]
- However, significantly greater freight/passenger train frequencies need to be factored to generate greater economies of scale to repay construction bonds/pay operating costs.
- Compare to the intermodality of the Zurich, Switzerland rail/airport station.
- Relocation from Portland Union Station to Portland International Airport will eliminate numerous Appendix C projects designed to eliminate freight/passenger interference in that area/along that route, especially that of the Steel Bridge, (Appendix C, page 162, fifth item)
- Requires coordination with Washington

B. Oregon City

- Oregon City Siding, (Appendix C, page 160)
- The 5,500’ siding planned in Oregon City is too short for freight:
  - It could *only* be used to *stop* passenger trains that fit it, not enable the movement of both industry standard 11,000-16,000’ freight trains, and passenger trains, too.

[2] Reference to this needs updating on page 28, a preferred alternative was selected.

- This contradicts the stated goal for Multiple Main Tracks, (Appendix C, page 162), to maximize flexibility for both freight/passenger.
- Instead, rebuild the Oregon City siding but connect its south end to the next siding south, effectively double tracking that segment.

C. Salem Metro

- **Remove mainline street crossings along:**
  - 12th St. NE passing the state capitol:
    - This complements the McGilchrist crossing plan, (Appendix C, page 155).
    - Scenarios: Put the mainline in a trench/on a viaduct in the same right of way, or relocate it east/west of present right of way, out of town.
  - This will require assessment of solutions for the Salem Amtrak station.
  - Objective to increase:
    - Velocity of through trains to maximum allowable.
    - Number of tracks from one to two, with capacity to add at least two additional tracks in future, (total at least four), to simultaneously serve both northbound and southbound passenger trains making Salem station stops at the same time.
  - Relieve through traffic from I-5.

D. Southern Oregon

- **Rebuild railway connecting Northern California to Eugene via Siskiyou Pass:**

  - Create track infrastructure needed to operate freight/passenger HPRS.
  - Relocate/tunnel where necessary to achieve HRPS goals.
  - Develop freight/passenger markets connecting Ashland/ Medford/Central Point/ Grants Pass/Roseburg:
    - Between themselves
    - Northward in the Pacific Northwest
    - Southward to Northern/Southern California
  - Relieve through traffic from parallel I-5.
  - Requires coordination with California.

E. Eastern Oregon

- **Rebuild railway crossing the Blue Mountains/Cabbage Patch:**

  - Rebuild/relocate/curve straighten/tunnel as needed between Ontario, Baker City, La Grande, and Pendleton to operate HPRS.
  - Present route significantly longer/slower than competing highway mode.

- Purpose of project to lower the cost/time required to connect:
  - Pacific Northwest to the Intermountain West
  - Eastern/Central/Western Oregon
- Relieve through traffic from parallel I-84.
- Requires coordination with Idaho.
- Benefits Utah, suggesting coordination with that state, too.

IV. Services

The Mid-Willamette Valley Intermodal Center, (MWVIC), a Connect Oregon railroad project, demonstrates the failure to properly plan for a new, contemporary freight rail service, and presents the opportunity to accommodate a proof of concept freight HPRS.[3] It is a significant oversight by the Oregon Transportation Commission that it has advanced this project to its current stage with neither a favorable transit time, nor a favorable rate from the host railroad. Favorable transit time and rates are foundational to the success of attracting an operator to, and customers for this prospective $25 million public investment by Oregonians in a contemporary freight rail terminal/service. More favorable terms as follows will make this a better public-private partnership:

A. Highway Competitive Transit Time

- Daily operation as a second section behind an Amtrak Cascades train, at passenger train speeds:
  - Second sections allow each to move with minimal impact to other trains.
- Operate at passenger train speed to:
  - Maximize the asset return ratio, minimize asset cost, to complete one 450-mile roundtrip per day, vital to obtain the daily mileage needed for economies of scale from the specialized railcars, (i.e., well cars), for international containers:
    - The current MWVIC plan for only about 500 miles/*week* in 3-day manifest service is unacceptable. Class I railroads like the UPRR know well/plan about 500 miles/*day* for this specialized equipment.
  - Compete with the highway mode, minimize inventory holding cost for beneficial commodity owners.

[3] Among Connect Oregon railroad projects are the Mid-Willamette Valley Intermodal Center, (MWVIC), the Treasure Valley Reload Center, and the Port of Morrow projects. They appear to be absent from/need to be included in both the "2020 OSRP draft" and "List of OSRP revisions" posted on the Current Planning Projects page.

B. Highway Competitive Rate

- It is lower cost to produce two units of a good/service than one, such is the case with a second section train.
- The fee paid to the UPRR to operate this second section train needs to be based on a percentage discount below the track access fee paid to operate the first section Cascades train in front of it, given the continuing, decades long, significant public investment by the states of both Oregon and Washington, and the federal government to operate Cascades service, that benefit freight, too.
- The UPRR and other Class I railroads are not interested in inland port service without public partnership, so inland port service does not compete with their business models, and the public expenditure on track infrastructure for passenger and inland port services helps them with their freight services, too.
- Implementation of MWVIC service that is both time and rate competitive may require an arrangement with the UPRR in which the inland port service pays a track access fee to the UPRR similar to European Union open access fees, or the arrangement that Amtrak and commuter agencies have with US railroads nationally.
- If operating as a second section of a Cascades train, contrast scenarios in which the MWVIC train uses Cascades personnel/locomotives, with a UPRR hook and pull arrangement.
- On top of the harm that the slow transit time will bring, the rail rates assumed by the project consultant, (Figure 25, page 66, Financial Feasibility Analysis), are unrealistically high and will make it difficult at best for MWVIC to attract/grow/retain customers.

C. Roll-On/Roll-Off Highway Service

- The MWVIC, if built, may be used to operate a proof of concept to demonstrate the validity of HPRS roll-on/roll-off, (RORO) service to/from the Seattle Metro:
  - RORO accommodates any highway vehicle:
    - Conventional North American rail intermodal services exclude most highway vehicles, leaving significant market share on the table for RORO.
  - To save cost, operate RORO rail cars in the same train hauling the international containers at passenger train speeds.
  - RORO may operate with drivers on board. If without drivers, the vehicle may be met at destination, increasing driver productivity, depending on the type of trucking operation served. Many trucks do not simply go back and forth on the same route.
  - RORO loading/unloading of vehicles is rapid compared to double stack intermodal, because there is no need for extensive terminal facilities, (e.g., acreage for parking), and equipment, (e.g., cranes/lifting tractors, chassis).

        - RORO combined with frequent service substantially reduces the amount of land occupied by terminal facilities.
        - Various RORO technologies:
            - Existing, Iron Highway, read CP shutting down Expressway, and see video The Iron Highway - End of an era!
            - New, Flexiwaggon, see Flexiwaggon in operation, and the Flexiwaggon company website with newest video.
            - New, Land Ferry, see the ten-minute Land Ferry video summarizing net positive benefit-cost assessment results.
    - RORO liberates the railway operator from direct competition with truckers, making it complementary to highway services. To leverage accrual of public-private benefits, truckers:
        - Use highways to drive first/last miles
        - Bypass intermediate highway miles at less cost, in less time.
        - Manage trip triangulation to minimize their cost/maximize their revenue:
            - May use the train one way, but not the other, in order to complete an intermediate pickup/drop-off, maximizing their revenue for the trip.
    - If the proof of concept succeeds, numerous additional RORO routes may be developed, (e.g., to/from the Port of Morrow, or Treasure Valley Reload Center projects financed by Connect Oregon).

V. Public Plans/Goals

More needs to be learned how HRPS accomplishes significant public plans/goals that make it worth the public's while to help finance HPRS projects, possibly through municipal bonds, a state bank, or a national infrastructure bank:

- Reduce spending on highway pavement and bridges
- Leverage economic development
- Reduce the cost of congestion, accidents, greenhouse gas emissions
- Create good jobs.

HRPS is consistent with seven public planning goals stated in the **2012 Moving Ahead for Progress in the 21st Century Act**, (see summary in the Land Ferry video):

- Safety
- Infrastructure Condition
- Congestion Reduction
- System Reliability
- Freight Movement and Economic Vitality
- Environmental Sustainability
- Reduced Project Delivery Delays.

Freight/passenger HPRS has a stake in all current **OR DOT Current Planning Projects**:

- **Oregon Commercial Truck Parking Study:**
  - How RORO and other HRPS innovations may divert significant numbers of truckers off highways, reducing the demand for commercial truck parking.
  - Instead of parking, truckers resting on a RORO service ride toward destination.
- **Emerging Technology Impact Assessment:**
  - HRPS to be assessed along with other emerging technologies.
- **Oregon Transportation and Highway Plans Development:**
  - Assess HRPS along with all highway plans, (e.g., how RORO may relieve significant through truck traffic between California and Washington State/ British Columbia. Why should truckers drive the length of the Willamette Valley if they could bypass it in less time/cost per mile via RORO?).

More needs to be learned how HRPS will comply with each of Oregon's nineteen **Statewide Planning Goals,** (see OR SRP, Findings of Compliance, Appendix D, page 165). For example, under Goal 6, Air, Water and Land Resources Quality, the current draft OR SRP is incorrectly stated to be in compliance. Because contemporary freight/passenger rail services control only small fractions of daily market share, their impact reducing greenhouse gas emissions, an urgent problem, is relatively low. Entering the HPRS goal into the OR SRP will begin the public process to better understand how the rail mode may be engaged to significantly reduce greenhouse gas emissions.

To continue an exploration of the air quality example, we know in general that:

- Rail transportation requires one-third the energy of highway transportation.
- Diesel locomotives use one-third the fuel of trucks, and produces one-third the greenhouse gasses and other pollutant emissions.
- Conversion of highway transportation from internal combustion engines to electric propulsion will require an enormous amount of new electric power generation.
- If electrified, (e.g., battery, catenary, third rail), rail transportation requires one-third the electrical power of highway vehicles.

What we don't know is project level, subject matter expert assessment of exactly what these air quality values are. That is the purpose of learning more through rough cut benefit-cost assessments, and when those results are positive, learning more detailed business feasibility assessments to determine project level, lifecycle, economic/social values to the public sector, and return on investment values to the private sector.

VI. Join Western States Compact

On behalf of Oregonians, the Oregon Transportation Commission needs to state in the Draft Oregon State Rail Plan 2020 Revision that more be learned about higher performance rail service for freight/passenger. A good first step is for Oregon to join California, Nevada, and Utah to fund and complete the Phase II Assessment with the federal government.[4]

The Phase II Assessment addresses higher performance rail service in the I-80 trade corridor between Northern California and Utah, via Nevada. With Oregon joined in, the Phase II Assessment will be updated to include the existing I-5 and I-84 corridors, the I-11 corridor being planned, and other highways, (e.g., US 97) that connect Oregon to California, Nevada, and Utah. Washington, Idaho, and the Canadian province of British Columbia need to be engaged to join, too. The more states/provinces engaged in the interstate/international compact, the better to minimize the Phase II Assessment cost each.

It is incumbent to learn more in the Phase II Assessment about higher performance rail service because the Phase I benefit-cost assessment proved significantly positive, about $7 billion benefit/$4 billion cost over forty years, (see the ten-minute Land Ferry video). Note that the Phase II Assessment is not exclusive to Land Ferry, but emphasizes how multiple freight/passenger higher performance rail service offerings cross finance one another, a key tenet of higher performance rail service.

The Phase II Assessment is a *pro forma* business plan that captures data and information about a variety of scenarios for higher performance rail service. On behalf of both the public and private sectors, key forecast factors including market demand, revenue and expense, return on investment, and secondary economic/social benefits all need to be documented.

Saving cost and doing things more productively is never out of season, especially when reacting to short-term problems like the Covid-19 pandemic that has shattered the economy, public tax revenues, and private budgets. Long-term problems like global warming will be equally draining. The mission of the Steel Interstate Coalition is to educate Oregonians about the opportunity suggested by higher performance rail service, and to advocate that the Oregon State Rail Plan be revised to include a mandate that more be learned about investments/service improvements to create higher performance rail service.

The Steel Interstate Coalition does business under RAIL Solution, a nonprofit 501(c)(3).

[4] The Steel Interstate Coalition/RAIL Solution provides public affairs services for the Land Ferry project, of which the Phase II Assessment is a product, for more see I-80 San Francisco to Salt Lake City.