

Potential PCC Rail System Rehabilitation Plan

- The PCC Rail Authority developed a goal to identify discreet projects that would, over time:
 - Bring the condition of the PCC Rail System to a level that would allow 286K and 25 mph operations in areas that need to support that level of operation, and to continue at that level with a standard normalized capital maintenance program.
 - Solidify the remainder of the PCC Rail System at a level that would allow 263K and 10 to 25 mph operations, and to continue at that level with a standard normalized capital maintenance program.
- In order to accomplish that goal, the PCC Rail Authority, through WSDOT, contracted with HDR, Inc to:
 - Develop and provide a normalized capital maintenance program.
 - Develop and provide a report that details the needs and costs of bringing specified line segments to a moderate condition for the operational need provided to HDR.
 - Develop and provide a recommended priority work plan that blends the upgrades developed in 2 with the normalized capital maintenance program developed in 1 based on priorities set by the PCC RA and WSDOT jointly.
- After reviewing the information provided pursuant to II. b. and c., the PCC RA and WSDOT directed HDR to provide a priority plan that would accomplish the following over a 20 year period:
 - Bring the CW Branch to 286K capability.
 - Basis. Most of the shipping on the CW Branch originates on the western fourth of the line, and it is the longest line of the three branches. The entire eventually needs 286K capability and 25 mph operation to service these customers, and to make the most efficient use of crew time.

- Bring the PV Branch--Winona to Willada to 286K capability.
 - Basis. About 800 cars per year travel between Willada and Winona. 286K upgrades, which include rail replacement, was thought to be appropriate for his level of traffic.
- Solidify the PV Branch—Willada to Thornton at 263K capability.
 - Basis. About 400 cars per year travel from Thornton to Willada on the PV sub branch. Only 263K capability is needed on this segment. Given the very light rail on this segment (75 pound), the cost of upgrading the segment for 400 cars does not appear to be economically beneficial. At some point in the future, either more cars will be shipped justifying a vigorous rail relay program, or a shuttle system to Winona or Willada can be developed, or the long term normalized maintenance program will replace all of the 75# rail with 112# rail.
- Bring the Hooper Branch—Hooper to Mockonema to 286K capability.
 - Basis. All of the traffic on the PV Hooper Branch travels between Hooper and Winona on the Hooper Branch. About 800 cars per year travel between Winona and Mockonema, which appears to justify the need for 286K upgrades as stated in b. i. above. Grain and industrial chemicals move between Winona and Mockonema, making it appropriate to consider this segment for upgrade.
- Solidify the Hooper Branch—Mockonema to Colfax at 263K capability.
 - Basis. Only about 16 cars per year use this portion of the line. An upgrade to 286K is not needed. However, that portion of the line needs work to assure continued 263K operation.
- Bring the P & L Branch—Marshall to Fallon to 286K capability.
 - Basis. When the direction was given to HDR, the plan for a unit grain loader that must be served by a 286K capable line was for it to be located at Oakesdale, and possibly further south. Since Fallon has a large loading capability that would be used to ship grain to the unit loader, it was believed that upgrading the line to Fallon to 286K was reasonable.
- Solidify the P & L Branch—Fallon to Idaho border at 263K capability.
 - Basis. Only about 160 cars per year use this portion of the line.

Upgrade to 286K capability isn't needed. However, work must be done to solidify the line at 263K capability. When a normalized capital maintenance program begins, the rail will be upgraded over time thereby raising the capability to 286K.

- Solidify the WIM at 263K capability.
 - Basis. This is also a low volume segment of the PCC Rail System. It serves a lumber mill in Princeton, Idaho. Work is needed to solidify the line at 263K capability. When a normalized capital maintenance program begins, the rail will be upgraded over time as it needs to be replaced thereby raising the capability to 286K.

- HDR Plan.
 - The HDR plan is attached as Appendix A.
 - The plan is based on bringing the lines to the conditions stated in III. over 20 years based on a ten year maintenance cycle. All work is lumped into year 1 and year 11. However, as discussed with HDR staff, the provided plan can be altered to perform the work in other periodic project programs depending on business considerations and funding availability.

- WSDOT Modifications. The HDR plan provides a good planning tool. Due to the realities of funding processes and availability, modification of the HDR suggestion appeared to be appropriate to allow spreading the cost more evenly and, if possible, at lower levels. Many alternatives can be derived from the planning tool. WSDOT made modifications based on one possible approach. The modifications were made because:
 - The HDR rail replacement plan is very costly. If possible, postponement of the plan for the start of a normalized maintenance program would make securing funds more practical. Based on the following, an aggressive rail replacement plan does not need to be instituted immediately to achieve the most important results sought (e.g. 286K capability where needed, and 25 mph operation where needed).
 - Class 2 operation (25 mph) does not require a specific size rail. One of our operators operates successfully at 25 mph on 75 lb. rail. The critical road bed component is straight, well supported rail, which is achieved by ensuring sufficient good ties, sufficient good ballast and a properly surfaced, lined and dressed roadbed.

- The HDR report indicates that the bridges are the critical component for 286K upgrades, and that 286K operations can begin after the bridges are upgraded. Again, there is no specific rail size required for 286K operations. Operators report that they can operate 286K cars on light rail if traffic isn't heavy, which is true on most lines. The most urgent need for 286K capability is between Marshall and McCoy on the P & L Branch where a unit grain loader is planned. However, this section already has 112# continuous welded rail; thus, a rail replacement program is not needed for this section.
- The HDR tie replacement program is very conservative and costly. It can be spread over an 8 biennium period, and reduced to an average of 540 ties per mile based on the following:
 - I spoke with Paul Weber of HDR on December 10, 2011 about reducing the tie program to an average of about 500 ties per mile, and spreading it out over a shorter period such as 16 years. He emphasized that his recommendations were conservative, that spreading the program out over time was appropriate, and that 500 ties per mile would satisfy the infrastructure needs if a normalized capitalized maintenance program followed immediately after the plan was completed.
 - I spoke with two railroad contractors about reducing costs by increasing ties per mile from our past efforts (e.g. low density efforts required to fix very poor areas that would create major problems if not rehabilitated). Efficiencies creating substantial cost reductions begin somewhere between 300 and 400 ties per mile. Some inefficiencies are created when a production rate of above about 600 or 700 ties per mile because surfacing and regulating machines that follow a tie insertion gang are slowed.
 - Federal Railroad Administration Standards require 8 good ties in each 39 feet of rail for 25 mph operation. Good ties can be any age so long as they meet the specific criteria set out in the regulations. However, at 40 years, most ties on the PCC Rail System need to be changed out. Many ties on the system are not that old.
 - I selected 540 ties per mile to take advantage of the efficiencies of a production mode of tie replacement without suffering the inefficiencies of trying to replace too many ties at once. 540 ties per mile also constitutes replacing half of the ties needed to meet the minimum FRA safety standards. Along with existing good ties and ties being replaced by the railroads on an ongoing basis,

replacing 540 ties per mile on the entire system over 16 years will meet the most important goals of the plan and the infrastructure needs of the rail system so long as a normalized capital maintenance program follows immediately and is indefinite.

- Bridges. The HDR report provides for an ongoing bridge replacement program. Rather than requesting replacement or major repair funds based on a high level report, a comprehensive inspection can provide the basis for a more detailed plan. It will provide information on which to set priorities, and assist the railroads in meeting new and expensive FRA Bridge Rules. In the mean time, a fund is needed to repair bridges damaged by fire, flood or other force majeure for which the railroads are not responsible.
- Crossings. The HDR report provided for crossing rehabilitation. Again, a thorough inspection, which can be done by Rail Section and Railroad staff jointly, will provide a basis for targeted planning. In the mean time, a fund is needed to correct major problems as they are discovered.
- Signals. The HDR report did not consider signal replacement or major repairs. Signals are aging and will need replacement. A thorough inspection by the railroad and WSDOT staff can provide a basis for targeted and comprehensive planning. In the mean time, a fund is needed to correct major problems as they are discovered, replace worn out components, and repair major damage from motorists, other accidents, or force majeure events.