



ADVANCING HIGH SPEED RAIL IN CASCADIA

Vancouver, B.C. Canada ■ June 9, 2010

CASCADES HIGH SPEED RAIL PROGRAM

Scott Witt ■ Director, State Rail & Marine Office ■ WSDOT ■ Olympia, WA

Highlights

- *High Speed Vision: 150mph trains 13 times daily between Seattle and Portland*
- *Cascades train ridership at record highs so far in 2010*
- *Nearly \$1 billion of public investment in Cascades Corridor to date, \$590 million in US ARRA funding just awarded to Washington State*
- *Next aims are to improve Cascades reliability and revenues, and add two new daily round trips between Seattle and Portland*

Witt outlined the vision of WSDOT's High Speed Rail Program to eventually establish dedicated high-speed tracks between Seattle and Portland, carrying up to 13 trains each way daily at speeds up to 150mph, using a cost-effective, incremental approach of undertaking projects that both produce immediate benefits and provide foundations for future services.

He noted that the state-sponsored Amtrak Cascades service is currently experiencing record ridership, with a 34% increase in February, 2010 due largely to Vancouver Winter Olympic traffic. However, March also showed an 11% increase over year-ago levels. Witt noted the importance of the second Cascades train to and from Vancouver, BC, which carried a total of 35,580 riders to and from Vancouver between August 2009 and April 2010.

Witt profiled Washington State's investment in passenger rail, which totals over \$331 million since 1994, and almost \$1 billion of public investments to date in the Cascades Corridor from Blaine to Vancouver, WA. He then covered the US Federal ARRA High Speed Passenger Rail program, where Washington State applied for \$1.3 billion in projects, and has been awarded \$590 million by the US FRA, making our state the fifth highest ARRA recipient in the nation, and outlined major projects along the Cascades Corridor that would likely be implemented as a result of ARRA funding.

He noted that WSDOT Rail was focusing on Five Ingredients for High-Speed Corridor Success: Reliability, Service Frequency, Journey Times, Accessibility, and Cultural Acceptance. Near-term, Witt declared that his team's aims were to improve on-time train performance and revenues, as well as add two more daily round-trips between Seattle and Portland, and pursue additional US Federal rail funding opportunities.

MIDWEST PLANS FOR HIGH SPEED RAIL

Kevin Brubaker ■ Deputy Director, Environmental Law and Policy Center ■ Chicago, IL

Highlights

- *Biggest ridership gains and time savings occur when making slow trains faster. Beyond 110mph, ridership gains are modest, while train costs rise dramatically*
- *Key factors for Rail: Congestion Relief, Mobility for an Aging Population, Economic Development, Jobs, Environmental Benefits, and big Public Relations results for relatively small public investments*

- *In Illinois a broad coalition got the state to double rail investment, double Amtrak service, and double ridership*
- *States must work together to develop rail plans, and secure federal funding . . . thinking of themselves as a region with “one voice”*

Brubaker noted that Passenger Rail in the US Midwest has been an incremental effort spanning almost 20 years, prior to the advent of Federal ARRA stimulus in 2009, and is focused on 90-110mph Higher Speed Rail service, offering high frequency, high reliability, and high quality. He emphasized that the greatest trip time savings occur when moving up from the slowest train speeds, and that beyond 110mph, train ridership increases slowly, while train costs can increase dramatically.

Among the factors driving the development of passenger rail in the Midwest, Brubaker cited was Congestion Relief, noting that new highways will never be built into downtown Chicago, one rail track can equal ten highway lanes of capacity, and that the Midwest High Speed Rail initiative is projected to save \$2 billion in congestion costs. Another factor he profiled was Mobility for an Aging Population, noting that America was getting older, that older Americans have the desire to travel but don't want to fly or drive, and that high-speed trains are handicapped accessible. Economic Development and New Jobs are also big factors, as trains concentrate economic and social activity around stations in cities, bring small and large cities closer, and grows regional trade and travel. As for Jobs, Brubaker noted that just the first phase of the Midwest HSR initiative is projected to generate 15,260 construction jobs and 2,090 permanent operations jobs. He profiled Rail's Environmental Benefits, observing that trains are less polluting than cars or planes, as well as being 3 times as energy efficient as cars and 6 times as energy efficient as planes, on a per passenger-mile basis.

Brubaker then examined Illinois' experience with Passenger Rail development as a case example, noting that a coalition was formed among 300 municipal officials, as well as 30 chambers of commerce, 12 university presidents, organized labor, environmental groups, and ordinary citizens with an initial objective of doubling train service on four routes across the state. The coalition won, the State of Illinois doubled its investment in Amtrak services to \$24.2 million annually. Ridership has doubled within just two years, and politicians statewide saw unprecedented positive media coverage and public attention over a state spending increase of just \$12 million. This in turn spurred interest in service extensions to other Illinois communities, and even to other states like Iowa. The impact of all this was not lost on then Illinois State Senator Barak Obama, who has carried the rail lessons of Illinois into the White House and into Federal policy since.

Brubaker's final major point was that the eight Midwestern states started to coordinate themselves to develop Passenger Rail among them, with their governors personally agreeing to form a task force to coordinate federal rail funding applications and work together as, “. . . one region, one voice.” This effort has now been stabilized with a triad, consisting of the Governors' Task Force providing executive coordination, the Midwest Regional Rail Initiative providing administrative planning, and the Midwest Rail Compact providing legislative coordination.

Brubaker concluded, noting that state departments of transportation created the region's rail plan, advocates built the necessary political support, and governors worked together to embrace USDOT Secretary Ray LaHood's challenge for states to lead the way in developing the nation's passenger rail corridors.

HIGH SPEED RAIL & EXISTING MIDWEST (AND OTHER) RAIL CORRIDORS

Bill Burgel ■ VP Rail Operations, HDR Inc ■ Portland, OR

Highlights

- *North America is coalescing into Megaregions, in which High Speed Rail Corridors can play a key role*
- *High-speed and high-frequency passenger train services are basically incompatible with freight railroad operations*
- *A combination of Express and Local Passenger Trains are needed to serve the most communities at the best train speeds and journey times*
- *State DOTs should focus on developing dedicated Higher Speed (110mph) Passenger Rail corridors in cooperation with freight railroads*

Burgel started by noting the 10 Emerging Megaregions in North America, of which Cascadia is one. He also profiled the 11 Federally-designated High Speed Rail corridors across the nation.

He then zeroed in on the Midwest and HDR's experience with several rail projects there, outlining the costs, some challenges and other practical lessons that could be gained from them. With Ohio's 3-Cs Corridor, he noted that while they won \$400 million in ARRA funding, the state legislature is so far unprepared to handle the annual cost of operating passenger trains on the corridor, endangering the project, and possibly its Federal funding.

Burgel continued, profiling Florida's Tampa – Orlando High Speed Rail project being built along 84 miles of I-4 median for \$1.4 billion with a design speed of 168mph. He also profiled how the Austin – San Antonio, Texas Lone Star Rail Project has just been basically morphed into the much larger "Texas T-Bone" between San Antonio, Dallas, and Houston with a projected route length of 490 miles and a design speed of 200mph, but no money so far.

Burgel then went into current freight railroad philosophy, noting that in rail volumes and capacities, there are corridors with low passenger/high freight volumes (which describe most mainline US railroads), and high passenger/low freight volumes (like the Northeast Corridor), but no high passenger/high freight corridors that he's aware of in America. This means that it is therefore difficult to achieve high passenger train frequencies using freight rail tracks.

He also noted that American freight railroad productivity and volumes have increased since the passage of the Staggers Rail Act in 1980, while freight rail revenues and unit prices have declined; adding that freight rail trends have shown a change from excess capacity historically to a situation of excess demand into the future. Burgel also explained how freight rail system velocity has improved through better customer service, more efficient fleet size, and improved cycle times, which have all led to a more advantageous rate structure. This future shortage of capacity has led freight rail executives like BNSF CEO Matt Rose to stipulate as he did before Congress on April 1, 2009 that, "... At sustained speeds in excess of 90 MPH, passenger train operations will need to be segregated from freight operations on separate tracks." Burgel concluded his look at freight rail issues, emphasizing that freight rail network capacity is going to be an issue into the future, influenced by public policy, shippers and the transportation community; and that freight railroads are enablers of economic wealth, while shippers are the real creators of it.

Burgel then went into High Speed Rail design factors, beginning with further explaining BNSF CEO Rose's position on separating high speed passenger services from freight tracks, pointing out that high-speed rail demands greater maintenance of tracks than freight railroads want to provide, and that high-

speed rail means more time devoted to track maintenance and less time for running freight trains over those tracks. He also noted the differences in horizontal and vertical alignments and other factors that very high-speed trains either require or enable versus freight trains.

He then covered what speeds make sense for various passenger train types and services, with Conventional diesel or electric trains running from 79-90mph over FRA Class 4-5 track, Higher-Speed diesel or electric trains running from 110-125mph over FRA Class 6-7 track, and Very High-Speed electric trains running at 150mph over FRA Class 8 track; reminding that Commercial Speed is 60-65% of Maximum Speed. Burgel noted that 110mph is a practical upper limit for most parts of the nation, for a variety of technical and practical reasons. There is also the issue of Practical Maximum Speed being limited by the distance or spacing between rail stations, and that to achieve higher speeds while still serving the most communities, a combination of Express and Local trains will be needed to meet both requirements.

Burgel then covered the issue of employing tilt trains versus developing new rail alignments, noting that tilt trains are only good for an extra 10mph in speed on most rail lines, and that to accomplish more than that, new alignments will be needed. He then visually profiled how a number of existing track curves in Washington State would need to be straightened for high speed rail use, basically pointing to the need for new rights-of-way in some cases.

He touched on the issue of upgrading existing track versus adding a new track, as well as FRA-mandated advanced train signaling requirements that are coming into force by 2015, and the level train boarding and gauntlet track mandates of the FRA and FTA, intended to meet ADA requirements. Burgel also profiled the railcar debate on Crash Survivability (the current US FRA 49 CFR policy) versus Crash Avoidance (the approach of the International Railway Union's railcar standards), which is influencing the US FRA's advanced signaling requirements, with the goal being to operate non-FRA compliant rail vehicles equipped with crash-management technology in corridors equipped with advanced signaling. The fencing of rail corridors may also become an issue that is not considered in rail project costs currently, but maybe required by TSA and other considerations.

Summarizing it all with a look at prospects for High Speed Rail in Washington State, Burgel noted that current WSDOT plans call for segments of 110mph running, as well as increases in service frequency, on-time performance and ridership. He then profiled how a full 110mph Higher Speed Rail segment running 120-miles between Lakewood and Vancouver, WA could be done with a single new track within BNSF's corridor with passing sidings, require advanced signaling and eventual elimination of grade crossings, and offer a 2-hour, 30-minute Seattle – Portland trip time.

Burgel closed recommending that all state DOTs should focus on developing dedicated passenger-only corridors, either purchased from freight railroads or built just outside of freight rail corridors, which would then use freight tracks in urban areas. He noted this would minimize the impact on freight railroads of coming FRA passenger train performance metrics and requirements, while allowing sufficient passenger train frequencies and speeds needed to capture significant ridership . . . adding that operating one train a day on time does not a ridership make.

STARTING HIGH SPEED RAIL SYSTEMS

Robert Doty ■ Peninsula Rail Program Director, California High Speed Rail Authority & Caltrain ■ San Jose, CA

Highlights

- *Developing Rail Projects successfully takes a good measure of Psychology*
- *With High Speed Rail, things take time . . . think in decades*
- *Do it right, say NO sometimes, and LISTEN*
- *Pay attention to the Four Questions: Will you go away? Why should I listen to you? Will you listen to me? What will this do to / for me?*

Doty began with the bold assertion that implementing rail projects successfully takes a good measure of psychology, and that things take time . . . usually decades. To illustrate this, he profiled his experience in building the Channel Tunnel between England and France, with his area of responsibility being between the tunnel and its initial London terminus at Waterloo Station, noting the agreement to build the tunnel between Britain and France was concluded in 1981 (with no money), but that the Channel Tunnel Rail Link Section 1 wasn't opened until 2003 . . . 22 years later. Doty noted how a host of challenges were faced, including such things as initial Xenophobia about French trains operating in England, project outreach facilities being vandalized, outreach documents assuming local knowledge and agreement, and more.

The basic lessons Doty emphasized were to create a dialogue between the project group and the public, as well as to act early to take local views into account, foster a community willingness to share information and ideas, and conduct a constructive, honest dialogue sensitive to affected areas. He emphasized that a consultation process should not be confused with information giving, and that an Information Period should take place *prior* to project designs and plans being submitted for final approval.

Doty then profiled the California High Speed Rail Authority project, noting it will be the largest infrastructure project in US history, featuring an 800-mile eventual system (with 500 miles in Phase I), operating at speeds of 110-125mph in urban areas and 220mph in rural areas using all-electric trains on grade-separated rights-of-way. Phase I will run from San Francisco to Anaheim via San Jose, Fresno, Bakersfield and Los Angeles, and be developed in seven project segments. The first discussions of the project started 30 years ago, capped by bond measure Proposition 1A being passed in November 2008. Environmental reviews are continuing, as are studies reflecting public input. Overall project cost is projected to be \$42.6 billion with approximately 42% coming from Federal Funds, 21% from California State Proposition 1A funds, 11% from Local and other sources, and 26% from Private Investors. Environmental reviews are expected to be completed in 2012, with testing of the first prototype trainsets set to occur in 2015, and service commencing sometime around 2018-20.

He then emphasized a main problem common to many rail projects: People like the concept, but they don't know the product or its impact.

This leads to what Doty characterized as 'The Four Questions', with Question 1 being, "Will you go away?" meaning, does your agency and rail project have staying power? This requires good sponsorship, namely a clear consistent message by political and project leaders, a depth of support for the rail project across the community or state, and executive focus by top relevant officials. He also noted that more projects die from time than anything else . . . namely more time, more hearings, etc. 'Scope creep', changing a project's scope and size, can also kill projects.

The second of Doty's Four Questions was "Why should I listen to you?" or building confidence with the public, which is accomplished by doing things right, as well as the proper application of resources, and the describing the project in terms people can relate and be comfortable with. He noted that one of the first mistakes the California High Speed Rail Authority made was to characterize its project as, "... the biggest infrastructure project in US history," and, "... designed to operate 10-12 trains an hour (eventually)," when what they should have said was, "We're gonna operate four trains an hour initially, and here's what it means for you ..."

Doty also emphasized that outreach programs should never be managed by an engineer as, "Engineers can't say NO!" He stated it is important for the project and its credibility for project leaders to sometimes say "NO!" It builds your credibility by telling people no. Say no sometimes, say no to the right things, and listen to the intent of the question ... otherwise your yeses could come to mean nothing. Doty also reminded that it is important for project outreach folks to "LISTEN" to the public.

This led to Question 3: "Will you listen to me?" which largely requires balancing What Is Desired against What Is Feasible against What Is Achievable. If all three are balanced with each other, this results in the Optimal Solution ... where everyone will say they didn't get something they wanted. Doty emphasized that was good. He also touched on Context Sensitive Solutions as an antidote to the standard Reaction to Technical Standards Driven Design, which emphasizes functional infrastructure over designs that can be more complementary to the surrounding environment. Doty noted that Technical Standards Driven Design can often lead to 'DEAD' or DEsign, Announce, Defend ... which can often lead to projects being delayed or halted ... dead.

Finally, Question 4 dealt with "What will this do to or for me?" He noted that this is often the most difficult area in the project, which can often best be addressed by getting businesses, labor, and other constituents to speak in favor of your project. This also involves clearly anticipating and dealing with impacts, operations, safety, funding, regulatory approvals, customer experiences, and many other issues.

In summary, Doty advised, it takes a strategy to manage the thought process in a rail project ... a factor not to be ignored.

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