

Reshaping Conrail in northern New Jersey

Railroad operations have been thriving in northern New Jersey for well over 150 years. Fallen flags like Lehigh Valley, Reading, and Pennsylvania Railroad all built lines into the area, all for different purposes in a different era. Now, a series of six engineering projects worth more than \$70 million is melding those lines



The Lehigh Line has been double-tracked.

and increasing capacity to handle double-digit traffic increases since the Conrail split. CSX and Norfolk Southern have been working with the Port Authority of New York and New Jersey (PA) to reconfigure and upgrade the Conrail Shared Assets northern New Jersey terminal areas.

The first project was the upgrading and separation of Conrail's main from the PA's marine terminal facilities. This included track rehabilitation, construction of interlockings, and signalization of Conrail's Chemical Coast Secondary. When completed, Conrail's Chemical Coast main will not be encumbered with the makeup or breakup of intermodal trains associated with the marine facilities and will provide increased capacity to support the large customer base that is dependent on this corridor.

The second project, in conjunction with the PA's Corbin Street Support Yard, was reconfiguration of PN Interlocking, allowing access to multiple 10,000-foot support tracks and providing a footprint that would allow for simultaneous train operation to and from the north and the west.

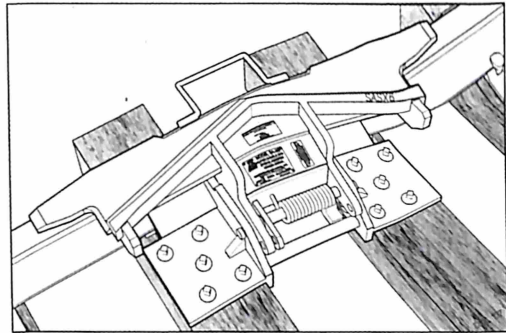
The third project created a signaled, dispatcher-controlled, double-track route from the port area to the Lehigh Line main, avoiding a slow, congested route through Oak Island Yard. This improved the efficiency of train operations and allows for overview and planning of train movements by the dispatch office while separating main track operations from the yard operations at Oak Island. Included with this was the construction of added capacity in Bayline Yard, which supports the majority of the freight franchise in and around the port area.

The fourth and fifth projects eliminated a single-track bottleneck connection between the Lehigh Line and the P&H main tracks. This involved building a second connecting track and signaling the P&H route between the Lehigh Line in Newark and Kearny, N.J. The elimination of this bottleneck created additional operating flexibility for the many overhead trains that operate through the North Jersey terminal area and for traffic to or from CSX's Kearny and NS's Croxton facilities.

The sixth and final project was restoration of double track on the Lehigh Line between CP Potter near Edison and CP Bound Brook in Bound Brook, N.J. This 10.5-mile project eliminated yet another bottleneck where trains often would wait to move over the single-track portion of the heavily traveled Lehigh Line.

—Tom Judge, Engineering Editor

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Reshaping Conrail in Northern New Jersey



CSXT and NS worked with the State of New Jersey and the Port Authority of New York and New Jersey to reconfigure and upgrade Conrail operations.

by Tom Judge, editor

Railroad operations have a long history in northern New Jersey, well over 150 years. Storied names in the railroad industry such as Lehigh Valley, Central Railroad of New Jersey, Reading and Pennsylvania all built lines into the area, all for different purposes in a different era. A renewed series of maintenance-of-way projects is melding those lines much more smoothly and increasing capacity to handle double-digit traffic increases since the acquisition of Conrail.

Before Conrail was split and merged into CSX Transportation and Norfolk Southern in the late 1990s, the New Jersey Department of Transportation and the Port Authority of New York and New Jersey experienced an era of rail network rationalization by Conrail. With NS and CSXT bringing competition into the area through the creation of Conrail Shared Assets Areas, both railroads knew that more capacity

would be required to handle the anticipated double-digit growth.

The new owners of Conrail approached the Port Authority of New York and New Jersey about a possible series of public-private partnerships that eventually grew into a cohesive package of projects that would benefit all transportation-oriented stakeholders in the designated port area. It eventually totaled in excess of \$70 million, with a near-equal split being accommodated among the two sectors.

Six capacity creation projects

To support projected growth in the northern New Jersey area and in conjunction with ongoing Port Authority of New York and New Jersey projects, six projects were initiated, with a focus on additional capacity and flexibility in Conrail's North Jersey terminal areas.

The first project, adjacent to the Port Authority's marine facilities, was the upgrading and separation of

Conrail's main track operation from the Port Authority marine terminal facilities. This upgrade included rehabilitation of tracks, construction of interlockings and signalization of Conrail's Chemical Coast Secondary adjacent to the port area.

When completed, Conrail's main track operation on the Chemical Coast will not be encumbered with the make up or break up of intermodal trains associated with the marine facilities and will provide increased capacity to support the large customer base that is dependent on this corridor.

The second project, in conjunction with the Port Authority's Corbin Street Support Yard, was the reconfiguration of PN Interlocking, allowing access to multiple 10,000-foot support

With double-digit container growth, the Port Authority of New York and New Jersey is adding tracks and Conrail is reshaping itself to better support the port.



Crews at work preparing for new track near the port.

tracks and a footprint that would allow for simultaneous train operation to and from the north and the west.

The third project's goal was to create a signaled, dispatcher-controlled, double-track route from the port area to the Lehigh Line main tracks, avoiding a slow and congested route through Oak Island Yard. This project improved the efficiency of train operations and allows for overview and

planning of train movement by the train dispatch office while separating main track operations from the yard operations at Oak Island.

Included with this phase of the project was the construction of added capacity in the Bayline Yard, which supports the majority of the freight franchise in and around the port area.

The fourth and fifth projects eliminated a single-track bottleneck

connection between the Lehigh Line and the P&H main tracks. This involved building a second connection track and TCS signaling the P&H route between the Lehigh Line in Newark, N.J., and Kearny, N.J. The elimination of this bottleneck created additional operating flexibility and efficiency for the many overhead trains that operate through the North Jersey terminal area and for traffic to or from the CSXT

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Kearny and the Norfolk Southern Croxton facilities.

The sixth and final project of the North Jersey Infrastructure Program was the restoration of the former double track on the Lehigh Line between CP Potter near Edison, N.J., and CP Bound Brook in Bound Brook, N.J. This 10.5-mile double-track restoration eliminated yet another bottleneck where trains quite often would wait their turn to move over the single-track portion of the heavily-traveled Lehigh Line.

Lehigh double-track restoration

A prerequisite to the North Jersey Infrastructure Program required that Conrail do a public outreach for the Lehigh Line double-tracking project. The railroad had to address concerns about adding a track by reaching out to all the communities along the project's right-of-way.

"Fortunately, we were restoring a track that had been removed in the 1980s," said Tim Tierney, vice president and chief engineer of Conrail. "The right-of-way and undergrade bridges were already in place, and we didn't need to acquire any additional property. In the outreach meetings, we explained the benefit to New Jersey of

adding capacity to existing freight corridors such as the Lehigh Line and how this project would mitigate local complaints regarding the idling of trains at each end of the single track that were waiting their turn. During these meetings, we passed out 'kitchen-style' magnets with an 800 number on them so that citizens and adjoining property owners could have direct contact with the railroad to report any problems associated with the construction of this project. During the construction, we didn't get a lot of complaints nor expressions of public concern about the project."

The New Jersey Department of Transportation was also involved with the double-track restoration due to the modifications of nine highway grade crossings in this segment. Conrail, NJDOT, and the local municipalities gathered and reached consensus on what was required at each grade crossing. In the end, while the railroad could not close any of these crossings, each crossing received substantial modifications and upgrades to the highway warning devices.

Quiet zones were also a topic of discussion during the implementation of this project, but were kept separate from the restoration of the double

track. Conrail stated that they would comply, as required, with quiet zones applications and work with municipalities as the process was carried out. However, Tierney noted, "Quiet zones must be driven by the municipalities, not the railroad."

The actual construction of the double track was pretty straightforward. A construction fence was placed between the live track and the new track being constructed over the entire 10.5-mile segment to act as a positive barrier to ensure that workers did not wander in the foul of live track. This served to enhance the level of comfort to the many construction workers engaged in simultaneous activities along the project path and for the train crews passing the work areas, as well.

"It really helped that the winter of 2006-2007 had relatively mild weather," Tierney said. "We lost no time due to weather, especially with site work and grading that usually would be impacted during the winter months in the Northeast. After 14 months of planning and construction, December 20, 2007, was the first day of revenue service over the new double-track Lehigh Main Line route."

While the normal track speed for this portion of the Lehigh Line is 50 mph, trains operated on the new double track at 30 mph for one month to condition the public to the new double-track operation.

There are roughly 40 freight trains daily on the Lehigh Main Line route section from CP Bound Brook to CP Aldene, where New Jersey Transit joins operations on Conrail for five miles to the Northeast Corridor. With their 70 passenger trains operating via Newark, this joint operation that Conrail dispatches delivers 97-percent on-time performance without any imposed curfews.

"New Jersey Transit is currently planning to build a new passenger tunnel to New York City, so we are anticipating considerable growth, with the number of commuter trains expected to double within a decade," Tierney said. "That, of course, means more passenger train demand on Conrail's Lehigh Line. Discussions are now under way with New Jersey Transit about future capacity options, including the possibility of adding a third track to

the Lehigh route and the separation of freight and passenger operations along the Lehigh Line corridor.”

Project challenges

“One thing that makes projects challenging from a scheduling perspective in New Jersey are environmental issues such as wetland mitigation and the handling of removed material,” Tierney noted. “An environmental assessment many times is required in most areas. Things are further complicated by the number and variety of underground utilities in New Jersey. Relocating underground utilities in a timely manner can be a significant hurdle,” he said. “Lots of preliminary work is required to deal with environmental issues and utility issues. The goal is to have the environmental and utility issues well in hand before letting contracts to avoid any delays and potential claims in getting the work done.”

For several reasons, Conrail could not build these projects in a linear fashion. As a large amount of the track



Conrail Shared Assets freight rolls over the recently double-tracked former Lehigh Valley Line near Bound Brook, N.J., powered by a locomotive from each of its parent companies.

work impacted active track, track outages had to be carefully planned and the work staged to ensure the track was restored on time. This was critical,

especially with the extensive modifications made to existing interlockings where the outages were mostly during weekends and off-peak hours.

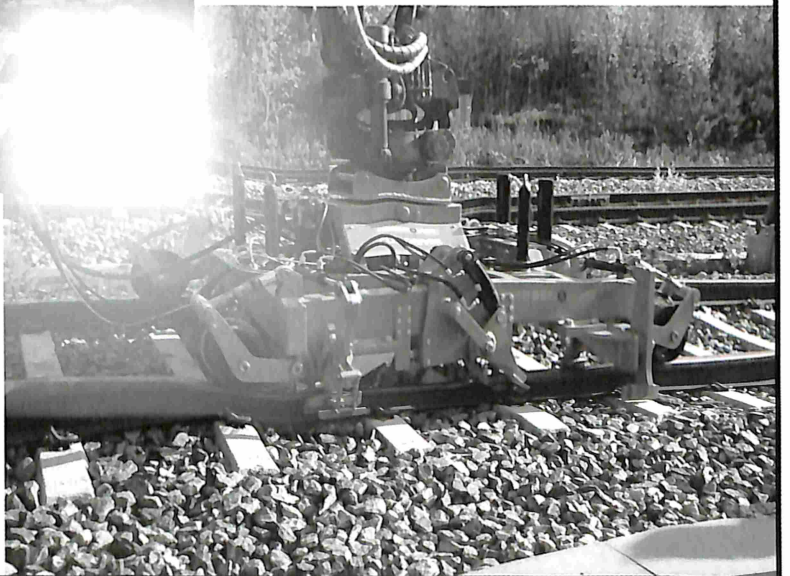


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"To ensure available material and to provide for delivery, we engaged R.J. Corman to buy and inventory the track material in advance," Tierney said. "Corman built a material yard and assigned a material manager to support the project. Jacobs Engineering handled the facets of engineering design services and project management. Southwest Signal handled signal design, along with signal material procurement to ensure the work crews would have materials as designed in a timely manner for actual installation. The three firms were partners and all did a good job both understanding and supporting this project," Tierney said. "Having material ordered in advance and stored helped keep the projects on schedule.

"With the extensive amount of track construction projects under way in the industry, competition for material procurement and delivery is often fierce," he said. "Having Corman and Southwest on board eliminated the risk of project delay and gave us the flexibility to accelerate different portions of the project as required without the

concern for material delay. Like any project of this magnitude, we had our share of non-planned and unforeseen issues, but no major ones, and none that threatened curtailment of work at any time.

"The signal construction on this project, I must add, was done entirely with Conrail signal forces, and they and their managers did an outstanding job of planning, maintaining construction schedules and performing signal cutovers as required to keep these projects on track," Tierney pointed out. "The effectiveness of our signal forces was aided by an excellent working relationship with The Brotherhood of Railway Signalmen."

More public-private partnerships

Several projects are being considered for a future Phase II of the New Jersey Infrastructure Program and some are already being funded as part of the Liberty Corridor Project authorization. One project would provide 20-foot, six-inch vertical clearance on Conrail's National Docks route, with significant

work in the Bergen and Waldo tunnels, which would open up an alternate route for double-stack trains through northern New Jersey.

Another is the redesign and expansion to a critical interlocking at CP Port Reading Junction in Manville, New Jersey. Completion of this project will eliminate another chokepoint where the CSXT Trenton Line and Norfolk Southern Lehigh Line converge onto the Conrail Lehigh Line in proximity to the newly-constructed double track.

"The demand on the New Jersey rail network is growing considerably," Tierney noted. "The North Jersey rail network is complex and very dense. There are no green fields and little vacant or suitable property to accommodate any wholesale expansion of railroad infrastructure. Suitable land boundaries are confined by major roads such as the New Jersey Turnpike, Newark Liberty Airport or the vast industrial base already being rail-served. The situation dictates a level of operational planning second to none." □



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