FREIGHT RAIL

EXECUTIVE SUMMARY

Pennsylvania’s 64 freight railroads operate on 5,604 miles of track across the state, ranking it the fifth largest rail network by mileage in the U.S. By 2035, 246 million tons of freight is expected to pass through the Commonwealth of Pennsylvania, an increase of 22% over 2007 levels. Pennsylvania’s railroad freight demand continues to exceed current infrastructure. Improvements such as double stacking or parallel tracks and larger transfer facilities would help improve capacity. Despite competing interests, the Pennsylvania Department of Transportation’s Freight Rail Bureau has continued to procure impressive levels of freight infrastructure funding, which directly or indirectly supports multi modal transportation projects throughout the Commonwealth. This public funding is in addition to all private support committed. It has further produced the most comprehensive state rail plan to date, with a strong emphasis on understanding stakeholders and their needs.
BACKGROUND
Since the mid-1800s, rail transportation has been a key transportation mode supporting industrial production and energy movement. Higher utilization of rail provides congestion mitigation benefits, air quality improvement, and enhancement of transportation safety, as a result of reducing truck traffic on highways. Pennsylvania has the 5th largest rail system in the United States and is one of the nation’s leaders in freight assessment, planning, and investment spurring from the Commonwealth’s industrial heritage. Today, most railroads are privately owned. The state network is made up of approximately 5,604 route-miles of freight railroad operated (Figure 1), and sixty-four freight railroads, more than any other state. They are summarized as follows:

- Three Class I Railroads: CSX, Norfolk Southern (NS), and Canadian National
- Two Class II Railroads: Buffalo and Pittsburgh Railroad, and Wheeling and Lake Erie Railroad
- Thirty-two Class III Railroads, also known as short line or local line haul railroads
- Twenty-seven local switching and terminal railroads.

CONDITION
The majority of Pennsylvania freight rail lines are privately owned, and publicly available information is limited. However, it is known that approximately 60% of the short line and regional railroad physical infrastructure is in need of extensive rehabilitation, including 170 bridges. Some lines, such as NS’s Crescent Corridor could benefit from the straightening of curves to allow for faster travel speeds, addition of passing tracks, improving signal systems and building new terminals. Additionally, excluding the Bessemer & Lake Erie (CN) and Delaware & Hudson Railroads (CP Rail), each of which has heavy load infrastructures, the short line and regional railroads are capable of handling the heavier 286,000 pound loads on only 70% of their infrastructure.

CAPACITY
Pennsylvania’s core or strategic rail lines include some of the highest volume routes in the nation, such as the NS (former Pennsylvania Railroad) main line connecting Philadelphia, Harrisburg and Pittsburgh, and extending ultimately to Chicago. This line carries over 120 million gross tons (MGT) annually. Other highly-trafficked rail lines in the Keystone State include CSX’s east-west line through Erie, at 113 MGT; CSX’s line through Connellsville, Pittsburgh and New Castle, 100 MGT; NS’s Reading-Bethlehem-Easton-New Jersey line, 100 MGT; NS’s Hagerstown, MD-Harrisburg line; and CSX’s line from Chester to Yardley.
In Pennsylvania, double stacking (freight containers that are stacked two high on rail cars) is used along with the retrofitting of more lines to address capacity needs. Notable existing double stacked lines include NS’s Central Corridor that runs the width of the state and the NS/CSX’s Erie Corridor around Lake Erie. There are lines identified where double stacking could support improved and competitive service including: the National Gateway Project (including the J&L Tunnel near Pittsburgh), expanding the length of double stacked lines along CSX’s I-95 Corridor in Southeastern Pennsylvania, and CSX’s Southwest corridor (Cumberland, MD through Pittsburgh to Ohio).

Issues where capacity impairs demand growth are generally within private yards or terminals. There are approximately forty-five rail traffic choke points throughout the state including Norfolk Southern’s Port Perry Branch and its Lemoyne Connector (linking NS’s Lurgan Branch with its Port Road / Enola Branch at Lemoyne).

An increase in capacity could also be used where passenger and freight lines share common trackage such as NS and Amtrak which share a portion of the NS-owned New York - Pittsburgh main route between Pittsburgh and Harrisburg. As a result of capacity constraints and heavy freight traffic only two services are provided in a day by Amtrak.

There are a number of rail lines in Pennsylvania considered at risk of abandonment because of low traffic density. With annual traffic less than 5 MGT, 124 Pennsylvania rail lines are considered somewhat at risk of abandonment. Ninety six rail lines are considered especially at risk with less than 1 MGT. To increase the amount of traffic, marketing the existing rail lines to area industries as an efficient form of transportation could be done.

**FUNDING & FUTURE NEED**

It is anticipated that between 2010 and 2035, the state rail volume and state through rail freight will grow at 1.2% and 1.5% annually.

In addition to anticipated volume growth, there is continued desire to grow the economy. Figure 2 shows the number of jobs that have been created as a result of PennDOT grants over the past four years that have been applied towards freight rail projects, typically for Class II and III rail lines.

**FIGURE 2. BENEFITS OF INVESTMENT IN FREIGHT RAIL**

<table>
<thead>
<tr>
<th>FISCAL YEAR</th>
<th>GRANT TYPE</th>
<th>STATE INVESTMENT</th>
<th>TOTAL PROJECT COST</th>
<th>NUMBER OF PROJECTS FUNDED</th>
<th>NUMBER OF JOBS CREATED</th>
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<tr>
<td>2014</td>
<td>RFAP</td>
<td>$12,379,314</td>
<td>$17,684,739</td>
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<td>2014</td>
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<td>2014</td>
<td>Act 13</td>
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<td>$1,358,999</td>
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<td>$36,632,575</td>
<td>$52,332,255</td>
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<td>2015</td>
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Key: Capital Budget (CB) - Portion Specifically for Rail Freight

Source: PA Freight Rail Bureau
PennDOT grants include the Rail Freight Assistance Program (RFAP) Capital Budget Grants. Since the passing of Act 89 in 2013, PennDOT has provided a consistent funding source for future RFAP projects. In addition to Act 89, Act 13 from 2012 appropriates $1 million annually for rail projects located in the Marcellus Shale Regions.

RFAP grants have ranged in size from $250,000 to nearly $4 million. These grants have been used for new construction of private facilities to spur economic development to improving capacity. See below for a few examples:

- **HAZLETON SHAFT CORPORATION** - $250,000 to construct a rail spur for access to an existing and proposed anthracite coal thermal drying and processing facility.
- **CSX** - $3 million for construction of a new lead track in McKees Rocks to serve a new intermodal rail facility.
- **D HOLDINGS** - $700,000 to rehabilitate about 3,200’ of track and five turnouts and pave a 16,000-square foot existing dock at a Blair County transload facility.
- **SHELL CHEMICAL APPALACHIA LLC** - $3.8 million to construct 10 miles of track to be used for the inbound transport of construction materials for Shell’s plant and for the shipment of outbound product from the completed plant.

PennDOT has also established the Pennsylvania Infrastructure Bank (PIB) to provide low-interest loans to railroads and shippers for rail freight projects to help spur economic development. PennDOT is also beginning to utilize other funding programs to complement their RFAP and capital budget programs, including Congestion Mitigation Air Quality (CMAQ), TIGER funding and various grants through the Federal Railroad Administration (FRA). Additionally, Pennsylvania’s Department of Community and Economic Development (PADCED) administers economic development loan and grant programs that assist rail infrastructure expansions.

The larger Class I railroads are more able to cover their capital funding needs both for state of good repair/replacement projects and capacity expansion projects. Smaller railroads are not as affluent and need the most assistance. State funding is particularly useful to preserve and support competitive rail access to local sites that have local economic impacts.

**PUBLIC SAFETY & RESILIENCY**

There are 75 oil trains and numerous chemical trains that pass through the Commonwealth every week. Derailments and collisions at grade crossings are of the greatest concern. Train travel times of day, as well as speed through urbanized areas are carefully coordinated and controlled. In general, private railroads do not provide public information regarding train “consists” (a makeup or arrangement of cars contents).

In the event of a major incident, various agencies respond similarly to a plane crash. If it is an accident involving chemicals or oil, efforts to contain the material will be carried out by specialty contractors and by railroad personnel. Track upgrades and armored communications could help existing facilities be brought back online more quickly after an incident.

**INNOVATION**

LED light fixtures on the tracks signals are being upgraded to save energy and to be more visible to both railroad personnel and to the general public. GPS technology has been used and continues to be more fully integrated with complex logic computer tracking systems to monitor train operations. Grade crossings are being eliminated whenever possible to reduce the risk of collision accidents. Trains are becoming more and more automated such that in the future, only one human will be needed to safely operate the train. Advanced safety braking systems such as Electronically Controlled Pneumatic brakes may also be applied to freight trains, though industry acceptance of this technology is lagging. PTC has been mandated by the FRA to be implemented to all railroads meeting specific requirements as a safety standard. Although innovative, it is not a cost saving measure based on efficiency. Instead, the costs saved are in accident reduction. PTC is of particular value in heavy freight traffic locations or where passenger and freight trains share the track.
RECOMMENDATIONS TO RAISE THE GRADE

- Improve capacity to keep up with the anticipated increase of freight expected to pass through PA.
- Implement recommended changes that result from the suggested passenger rail study when it relates to shared common tracks.
- Seek to continuously increase the resiliency of the state rail network. Identify weak points and fund projects to systematically address these weaknesses.
- Support more double-stack intermodal clearance projects.
- Modernize and/or remove at-grade crossings.
- Support innovative, public-private financing agreements for freight projects.
- Seek new, innovative sources of federal and state funding for rail freight investment to specifically reduce highway congestion and improve the overall level of transportation safety in the Commonwealth and to fund larger projects supported over multiple contract years.
- Inventory and aggressively market freight connections in land packages to prospective business owners looking to bring business to Pennsylvania.
SOURCES

- Pennsylvania Department of Transportation, Conversation with Agency Staff, April 12, 2018.
- Go Rail, Pennsylvania Stats, 2015. Available at http://gorail.org/state/pennsylvania