3. Proposed Passenger Rail Improvements and Investments

This chapter of the 2015 Pennsylvania State Rail Plan presents a summary of 230 proposed passenger rail improvements and investments across Pennsylvania for the years 2015 to 2040, including high-speed, inter-city, and commuter rail service. Information for potential projects was gathered through extensive outreach with railroads and regional planning organizations via phone interviews, e-mail messages, two stakeholder meetings, and three open houses. This chapter incorporates projects from Amtrak’s and SEPTA’s capital plans for the five-year period 2015 to 2019 and, when information is available, for the years 2020 and beyond. The presentation is organized by three rail corridors: Amtrak’s Keystone Corridor, Amtrak’s Northeast Corridor (NEC), and SEPTA’s Regional Rail system in Southeast Pennsylvania.
3.1 Amtrak

Amtrak has plans for 136 intercity passenger rail capital projects along the two lines that it owns in Pennsylvania as part of its Five Year Plan. The two Amtrak-owned corridors, the Keystone Corridor and Northeast Corridor, are shown in Figure 3-1. Amtrak service in the State beyond these two corridors is provided on rails belonging to privately owned railroads which are responsible for their own infrastructure.

Figure 3-1: Amtrak-Owned Rail Corridors

![Amtrak-Owned Rail Corridors](image)

3.1.1 Keystone Corridor

The Keystone Corridor between Harrisburg and Philadelphia has seen substantial improvements in train performance thanks to a successful partnership between Amtrak and PennDOT, as explained in Chapter 2. Table 3-1 summarizes 51 planned Amtrak projects for the corridor, including projects to maintain the corridor in a state of good repair for preservation and safety purposes and to improve operations and station facilities. This work benefits Amtrak’s Keystone and Pennsylvanian services that use the corridor. Improvements east of Thorndale also benefit the SEPTA Paoli/Thorndale Line that uses the corridor.
Table 3-1: Summary of Amtrak’s Keystone Corridor Five Year Plan (2015-2019)

<table>
<thead>
<tr>
<th>Number of Projects</th>
<th>Estimated Cost of Projects (millions of 2015 dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>State of Good Repair Projects</td>
<td>30</td>
</tr>
<tr>
<td>System and Station Improvements</td>
<td>19</td>
</tr>
<tr>
<td>Safety Focused Projects</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
</tr>
</tbody>
</table>

Source: Amtrak Five Year Capital Plan and PennDOT

State of good repair projects include basic infrastructure work such as track replacement and repair of overhead catenary systems necessary to enable reliable train service.

System improvements include high-speed switches and a modern in-cab signal system to allow for improved train performance along the corridor.

Station improvements include upgrades at Exton, Mount Joy, and Paoli, which will improve customer experience and provide ADA handicapped accessibility. The Middletown station, which is problematic due to its location in the middle of a segment of super-elevated curved track, will be replaced by a new station to the west, which will feature improved amenities. The new location on a straight portion of track will allow for high level platforms in full compliance with ADA handicapped accessibility guidelines to be built.
Rendering of proposed Mount Joy Station
Source: PennDOT

Rendering of proposed Middletown Station
Source: PennDOT
3.1.2 Northeast Corridor

The NEC, which provides service to major destinations such as Boston, New York, Philadelphia, and Washington DC is the most heavily traveled intercity passenger railroad corridor in North America. Much of the corridor’s infrastructure is past its expected useful life and requires significant improvements in order to provide faster, more reliable service.

3.1.2.1 NORTHEAST CORRIDOR FIVE YEAR PLAN

The Amtrak Five Year Capital Plan for the NEC, as summarized in Table 3-2, primarily focuses on state of good repair work required in order to provide safe and reliable transportation on this heavily used route. This work benefits the numerous Amtrak services that operate along the corridor as well as SEPTA’s Wilmington/Newark and Trenton lines. In addition, over $160 million (2015 dollars) are budgeted for station improvements at Amtrak’s 30th Street Station in Philadelphia.

Improvements to the NEC beyond the Five Year Plan are currently being analyzed by the NEC FUTURE study, as explained in the next section. A detailed list of the NEC Five Year Capital Plan projects is included in Appendix C.
3.1.2.2 NEC FUTURE

An ongoing study, sponsored by the FRA entitled *NEC FUTURE: A Rail Investment Plan for the Northeast Corridor*, is currently analyzing opportunities to increase travel speeds along the NEC through phased “Stair Step” improvements to the existing alignment. In addition, the study is examining opportunities to create a “NextGen” new alignment that would allow for dramatically higher speeds. This study will not be completed before 2016, therefore, the most up to date source of information for these proposals is the *NEC FUTURE* website at www.necfuture.com.

Stair Step improvements would address current constraints on the existing NEC alignment by improving signals, interlockings, and power systems, as shown in Figure 3-2.

Table 3-2: Summary of Amtrak’s Northeast Corridor Five Year Plan (2015-2019)

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of Projects</th>
<th>Estimated Cost of Projects (millions of 2015 dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>State of Good Repair Projects</td>
<td>76</td>
<td>$1,008.3</td>
</tr>
<tr>
<td>System and Station Improvements</td>
<td>7</td>
<td>$160.5</td>
</tr>
<tr>
<td>Safety Focused Projects</td>
<td>2</td>
<td>$0.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>85</strong></td>
<td><strong>$1,169.6</strong></td>
</tr>
</tbody>
</table>

*Source: Amtrak Five Year Capital Plan and PennDOT*

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*Proposed Amtrak high performance locomotive*

*Source: Amtrak*
The NextGen new alignment would allow for higher speed passenger rail travel that would avoid existing constraints imposed by geography and shared track arrangements with freight and commuter rail services. Potential NextGen new alignments in Pennsylvania would include a station at the Philadelphia International Airport that would provide a direct connection for air travelers, as well as a new north-south tunnel through Center City Philadelphia that would include a new train station near SEPTA’s Jefferson Station (formerly known as Market East). The study is also examining high performance locomotives to increase travel speeds on the corridor in conjunction with improved infrastructure. Potential phasing for the new alignment is shown in Figure 3-3.
The NEC FUTURE study is also examining potential “Metropolitan” service that would provide seamless commuter-style service along the corridor. This would address concerns identified in the 2008 P.R.I.I.A. Section 224 Pennsylvania Feasibility Studies Report about the loss of connectivity between local NEC stations such as Cornwells Heights, Princeton, and New Brunswick which were formerly served by Clocker service between Philadelphia and New York.
### 3.1.3 Capitol Limited

There have been two improvements to Capitol Limited service (a daily long train between Chicago and Washington DC) proposed through PRIIA-related studies. The first would restructure service to allow passengers travelling on the Capitol Limited from the midwest to reach destinations such as Harrisburg and New York without changing trains at Pittsburgh. The second would add a new station in Rockwood, PA along the existing Capitol Limited route.

The 2010 PRIIA Section 210 FY10 Performance Improvement Plan: Capitol Limited recommended providing through service between the route of the Capitol Limited and the route of the Pennsylvanian by splitting Capitol Limited trains at Pittsburgh. A portion of the train would continue along the Capitol Limited route to Washington DC and the remainder of the train would proceed along the route of the Pennsylvanian to serve Harrisburg, Philadelphia, and New York. The through-routing option would require the construction of a new switch and other related capital improvements at the Pittsburgh train station.

The 2008 P.R.I.I.A. Section 224 Pennsylvania Feasibility Studies Report proposed a new station along the Capitol Limited route at Rockwood, PA, located between existing stations at Connellsville and Cumberland, MD. The 2008 report was followed by a more detailed study of the potential station in the 2012 Rockwood AMTRAK Train Station Feasibility Study, sponsored by Somerset County, which estimated station construction costs at $3.6 million.¹

### 3.2 SEPTA

The SEPTA Regional Rail system, shown in Figure 3-4, serves the greater Philadelphia area, including cities in New Jersey and Delaware. SEPTA’s twelve year capital plan includes billions of dollars of projects that will improve the Regional Rail system. Much of the capital plan is focused on state of good repair projects to bring the SEPTA Regional Rail system up to modern operating and safety standards. These projects are critically important in order to address work previously deferred due to limited capital funding availability. Table 3-3 lists a summary of planned spending for Regional Rail capital plan projects.

Table 3-3: Summary of SEPTA’s Regional Rail Twelve Year Capital Plan (2015-2026)

<table>
<thead>
<tr>
<th>Number of Projects</th>
<th>Estimated Cost of Projects (millions of 2015 dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>State of Good Repair</td>
<td>53</td>
</tr>
<tr>
<td>System and Station Improvements</td>
<td>36</td>
</tr>
<tr>
<td>Expansion Projects</td>
<td>3</td>
</tr>
<tr>
<td>Safety Focused Projects</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>94</strong></td>
</tr>
</tbody>
</table>

Source: SEPTA Capital Plan, DVRPC

Note: Some projects include agency-wide improvements that cover both Regional Rail and other transportation modes within the SEPTA network.

Figure 3-4: SEPTA Annual Ridership, by Regional Rail Station, 2014

Source: SEPTA
State of good repair work includes track work, signal system replacement, and electric substation work to ensure reliable train service. Station improvements include work such as restoring historic station buildings, installing high level platforms that allow for handicapped access and reduced dwell times, and providing additional parking at suburban stations.

The capital plan also includes projects to expand the capacity of the regional rail system by acquiring multi-level rolling stock with additional seating capacity, building additional suburban parking garages, and extending the Media/Elwyn line to Wawa. The $127 million Wawa extension includes three miles of new track along the Media/Elwyn line and the construction of a new train station and parking garage at Wawa.

Rolling stock improvements include replacement of SEPTA’s oldest passenger cars with new Silverliner V cars, rehabilitating select older vehicles, and purchase of multi-level train cars. Multi-level train cars would be similar to models used by NJ Transit, the Long Island Rail Road, and the Maryland Area Regional Commuter system and would allow SEPTA to significantly increase seating capacity on existing train service.

System improvements include adding new track to the system to improve train performance, such as new tracks on the Norristown and West Trenton lines and electronic fare payment through the New Payment Technology (NPT) project. Improvement also include resiliency projects that are funded with Post-Sandy recovery funding, designed to help rail systems meet the challenge of climate change adaptation, including rail bed slope stabilization projects and a back-up control center.

Further details of SEPTA capital plan projects are included in Appendix C.
3.3 Vision Projects

In addition to the 230 Amtrak and SEPTA projects described in this chapter of the 2015 *Pennsylvania State Rail Plan*, there are more than twenty unfunded long-term concepts to expand passenger rail service to areas of Pennsylvania that do not currently have service. These concepts are either currently under review or have already been studied, but none have advanced to the design or funding stages and, thus, are considered “Vision” projects in this plan.

Among these projects are eight in the greater Philadelphia region. If eventually funded, they would extend SEPTA’s Regional Rail service to Quakertown, West Chester, Coatesville, and Pottstown or Reading. They would create intermodal connections at the Ivy Ridge and Radnor Regional Rail stations, introduce trolley service on Delaware Avenue in Philadelphia, and implement a 30th Street Station District Plan that would coordinate transportation and economic development efforts of Amtrak, SEPTA, Drexel University, PennDOT, and other organizations.

*SEPTA track work*

*Source: SEPTA*
In Southwestern Pennsylvania, Vision projects include the reintroduction of commuter rail service in the Pittsburgh metropolitan area to connect the region’s core to Butler County, Greenburg, Westmoreland County, and Morgantown, West Virginia. Another Southwest Pennsylvania proposal would create a multimodal hub to connect transit stations in downtown Pittsburgh.

In addition, studies have proposed the construction of new intercity passenger rail stations in Rockwood (along Amtrak’s Capitol Limited route) and Paradise Township (along the Keystone Corridor) and the development of commuter rail services from Scranton to New York City, between High Bridge, New Jersey and Allentown, and within the greater Harrisburg area.

Significant improvements to the Amtrak Keystone West service between Harrisburg and Pittsburgh have also been studied, as have service changes to the Capitol Limited route that would directly connect Chicago to New York via Pittsburgh, Harrisburg, and Philadelphia.

The ongoing *NEC Future* study (described above), when completed, will identify additional projects along Amtrak’s Northeast Corridor.

The challenges to moving these projects from the “Vision” list to implementation are significant. Many of them would require the use of existing freight lines. Potential scheduling conflicts between freight and passenger service would need to be addressed in order to provide reliable passenger service without disrupting existing freight railroad traffic. Most of these projects would also require substantial physical upgrades to the existing rail infrastructure networks in order to carry passenger trains at speeds competitive with trip times for driving.
While the hurdles to changing the status of these projects from *proposed* to *funded and scheduled* are high (not least of which are the very large capital costs associated with them), the concepts all enjoy strong support and ongoing interest of local stakeholders. Though not part of the official funded project lists of this 2015 *State Rail Plan*, they represent a vision of expanded passenger rail service within Pennsylvania and between Pennsylvanian metropolitan areas and cities in neighboring states. For a detailed list of these projects, including references to the studies and reports that have been conducted, see Chapter 5 of this 2015 *State Rail Plan*.

### 3.4 Potential Operating Subsidies and Sources

Operations costs are recurring financial needs that continue throughout the life of a passenger rail service and include substantial expenses such as energy costs and the salaries of railroad operations workers. Unlike capital costs, operations costs are generally not eligible for long-term federal surface transportation funding. (Under PRIIA, Amtrak routes longer than 750 miles continue to be subsidized through the federal budget, but operating costs for routes less than this distance are required to transition to state support.)

Revenue from ticket sales generally covers only a portion of operations costs, while the remainder must be made up through state and local subsidies. For example, train ticket revenue covers 47 percent of SEPTA’s Regional Rail operating costs. Only a few passenger railroad routes have sufficient passenger revenue to cover or exceed their operating costs, such as Amtrak’s Acela Express and Northeast Regional service (detailed information on Amtrak operating budgets by individual train service can be found in Chapter 2).

State operating funding is available through the Section 1513 program. Funding is determined through a formula that takes into account a service’s percentage of statewide passengers, senior citizens, number of revenue vehicle miles, and number of revenue vehicle hours. Additional funding for operations may also need to be established in order to create any new financially sustainable transportation service.

### 3.5 Conclusion

This chapter presents a high level summary of proposed passenger rail service projects in Pennsylvania. While the majority of currently funded capital plan projects are dedicated to bring Pennsylvania’s passenger rail network to a state of good repair, there are also projects to enhance and expand passenger rail service. Beyond current funded projects, there are a number of vision projects to bring passenger rail service to more areas of the State, as well as proposals for substantial increases in train speed. A more detailed list of planned and proposed Amtrak and SEPTA capital projects is available in Appendix C. Further details on investment alternatives to move selected projects ahead are contained in Chapter 5.