



Pennsylvania  
State Rail Plan

# 2015 PENNSYLVANIA STATE RAIL PLAN

*December 2016*



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# List of Abbreviations

AAR	American Association of Railroads	EBT	East Broad Top Preservation Association
Act 89	Comprehensive Transportation Funding Plan of 2013	EIS	Environmental Impact Statement
ACTPO	Adams County Transportation Planning Organization	EMU	Electric multiple units
ADA	Americans with Disabilities Act of 1990	Erie MPO	Erie Area Transportation Study Metropolitan Planning Organization
AVR	Allegheny Valley Railroad	ESPN	East Penn Railroad
BHP	Bureau for Historic Preservation	EV	Everett Railroad Company
BLE	Bessemer & Lake Erie Railroad	FCRPO	Franklin County Rural Planning Organization
BPRR	Buffalo & Pittsburgh Railroad	FHWA	Federal Highway Administration
BVRY	Brandywine Valley Railroad	FRA	Federal Railroad Administration
C&S	Communications & Signals	FTA	Federal Transit Administration
CB	Capital Budget	G&N	Gettysburg & Northern Railroad
CCMPO	Centre County Metropolitan Planning Organization	G&W	Genesee & Wyoming Railroad
CMAQ	Congestion Mitigation and Air Quality	GIS	Geographic Information System(s)
CN	Canadian National	HEPMPO	Hagerstown/Eastern Panhandle Metropolitan Planning Organization
CNYK	Central New York Railroad (service operated on CNYK line by NYS&W)	JVRR	Juniata Valley Railroad
CP	Canadian Pacific Railway	KJR	Kinski Junction Railroad
CRCOG	Centre Region Council of Governments	L RTP	Long Range Transportation Plan
CRGIS	Cultural Resources Geographic Information System	LTAP	Local Technical Assistance Program
CSX/CSXT	CSX Corporation	LVPC	Lehigh Valley Planning Commission
D&H	Delaware & Hudson Railway Co.	LVR	Landisville Railroad, LLC
DCED	Department of Community and Economic Development	LVRM	Lehigh Valley Rail Management Railroad
DLRR	Delaware-Lackawanna Railroad (Contracted to operate PNRRA-owned lines)	LVR	Lycoming Valley Railroad
DVRPC	Delaware Valley Regional Planning Commission	MAD DIV	Mid-Atlantic Division
EATS	Erie Area Transportation Study	MAP-21	Moving Ahead for Progress in the 21st Century Act
		MAS	Maximum Allowable Speed
		MCIDC	Mifflin County Industrial Development Corporation
		MPO	Metropolitan Planning Organization

NBER	Nittany & Bald Eagle Railroad Co.	RBMN	Reading Blue Mountain & Northern Railroad
NCHRP	National Cooperative Highway Research Program	RFAP	Rail Freight Assistance Program
NEC	Northeast Corridor	RJCP	R.J. Corman Railroad Co./Pennsylvania Lines Inc.
NHSL	Norristown High Speed Line	RPO	Rural Planning Organization
NHTSA	National Highway Safety Administration	RR	Railroad
NJ Transit	New Jersey Transit	RRIF	Railroad Rehabilitation & Improvement Financing
NPT	New Payment Technology	RRX	Railroad crossing
NPV	Net present value	RSIP	Rail Service Investment Program
NS	Norfolk Southern	RTAP	Rail Transportation Assistance Program
NSRR	North Shore Railroad Company	SBRR	Stourbridge Railroad
NY DIV	New York Division	SEDA-COG	Susquehanna Economic Development Corporation Council of Governments
O&M	Operations & Maintenance	SEDA JRA	Susquehanna Economic Development Corporation Council of Governments Joint Rail Authority
OCTL	Oil Creek & Titusville Lines	SEPTA	Southeastern Pennsylvania Transportation Authority
P3	Public Private Partnership	SHRR	Steelton & Highspire Railroad
PAAC	Port Authority of Allegheny County	SHPO	State Historic Preservation Office
PAB	Private Activity Bond	SPC	Southwestern Planning Commission
PBL	Philadelphia Belt Line Railroad Company	SR	State road
PennDOT	Pennsylvania Department of Transportation	SRC	Strasburg Railroad Company
PIB	Pennsylvania Infrastructure Bank	SRP	Pennsylvania State Rail Plan
PN	Pennsylvania Northeastern Railroad	SRPAA	State Rail Plan Approval Authority
PNRRA	Pennsylvania Northeast Regional Railroad Authority	SRTA	State Rail Transportation Authority
POHC	Pittsburgh & Ohio Central Railroad	STB	Surface Transportation Board
PRIIA	Passenger Rail Investment and Improvement Act	STIP	State Transportation Improvement Program
PRRIA	Passenger Rail Reform and Investment Act	SVRR	Shamokin Valley Railroad Corp.
PSOP	Public and Stakeholder Outreach Plan	SWP	Southwest Pennsylvania Railroad
PSWR	Pennsylvania Southwestern Railroad	TBD	To be determined
PTC	Positive Train Control	TIFA	Trade & Investment Framework Agreement
PUC	Public Utility Commission		
RATS	Reading Area Transportation Study		



TIFIA	Transportation Infrastructure Finance and Innovation Act)
TIGER	Transportation Investment Generating Economic Recovery
TIP	Transportation Improvement Program
TMA	Transportation Management Agency
TOD	Transit Oriented Development
TYP	PennDOT Twelve Year Program
UMP	Upper Merion and Plymouth Railroad
USDOT	US Department of Transportation
VMT	Vehicle miles traveled
WLE	Wheeling & Lake Erie Railroad
WNYP	Western New York and Pennsylvania Railroad
YAMPO	York Area Metropolitan Planning Organization
YOE	Year of Expenditure
YRC	York Railway

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TIFIA	Transportation Infrastructure Finance and Innovation Act)
TIGER	Transportation Investment Generating Economic Recovery
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USDOT	US Department of Transportation
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WLE	Wheeling & Lake Erie Railroad
WNYP	Western New York and Pennsylvania Railroad
YAMPO	York Area Metropolitan Planning Organization
YOE	Year of Expenditure
YRC	York Railway

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The plan will define key rail initiatives necessary to serve growth in freight markets, promote economic growth across the Commonwealth, and improve passenger rail travel.



#### Doublestack intermodal freight trains in Bethlehem, PA

Source: Lehigh Valley Planning Commission

## 1. Overview: The Role of Rail in Statewide Transportation

Now is a critical time in the Commonwealth of Pennsylvania's transportation history: both passenger and freight rail systems have seen substantial increases in usage; recent investments in the state's rail transportation network have resulted in improved service; and Act 89 state transportation revenue will provide necessary funding to enable more improvements to help move Pennsylvania forward. The *Pennsylvania State Rail Plan (SRP)* creates a vision for the future of rail service throughout Pennsylvania, including high-speed, intercity, commuter, and freight railroads.

This vision takes into consideration increased demand of both passenger and freight rail, while assessing capital needs to meet the projected growth in these areas. The plan will define key rail initiatives necessary to serve growth in freight markets, promote economic growth across the Commonwealth, and improve passenger rail travel.

The SRP meets the requirements of the federal Passenger Rail Investment and Improvement Act (PRIIA) of 2008 and the Final SRP Guidance provided by the Federal Railroad Administration (FRA) in September 2013.



## 1.1 Pennsylvania's Goals for a Multimodal Transportation System

---

The recent *PA On-Track Long Range Transportation Plan* emphasizes four overarching goals for the state's transportation network:

1. System Preservation
2. Safety
3. Personal and Freight Mobility
4. Stewardship

These goals guide state and local decision making, leading to an improved transportation network for all of Pennsylvania. Building on these overarching goals, the specific **goals and objectives** for the SRP are listed below and on the following pages.

Goal 1: Bring the priority rail system to a state of good repair and maintain it.

Goal 2: Develop an integrated rail system.

Goal 3: Support the future needs of residents and businesses.

Goal 4: Enhance the quality of life in Pennsylvania.

Goal 5: Support personal safety and infrastructure security.

Goal 6: Support energy efficiency and environmental sustainability.

Goal 7: Identify stable and predictable funding.

Goal 8: Build public support for rail system services and assets.

# Goal 1

## Bring the Priority Rail System to a State of Good Repair & Maintain It.



### Objectives:

1. Preserve rail rights-of-way for future railroad use.
2. Invest in rail system infrastructure to bring the system to a state of good repair.
3. Upgrade the rail system infrastructure and equipment to meet current standards.
4. Maintain Pennsylvania's rail system infrastructure in a state of good repair.



# Goal 2

## Develop an Integrated Rail System.

### Objectives:

1. Develop core rail infrastructure.
2. Balance passenger and freight rail needs in the same corridor.
3. Improve coordination among freight, passenger, and commuter rail systems.
4. Provide seamless connections between passenger modes.
5. Provide seamless connections between freight modes.
6. Increase intermodal freight traffic.
7. Complete links to connect the state's major urban areas.
8. Integrate Pennsylvania's rail system with the national rail system.
9. Provide access to large cities and gateways in the U.S. and Canada.
10. Improve access to the commuter and intercity rail system.

# Goal 3

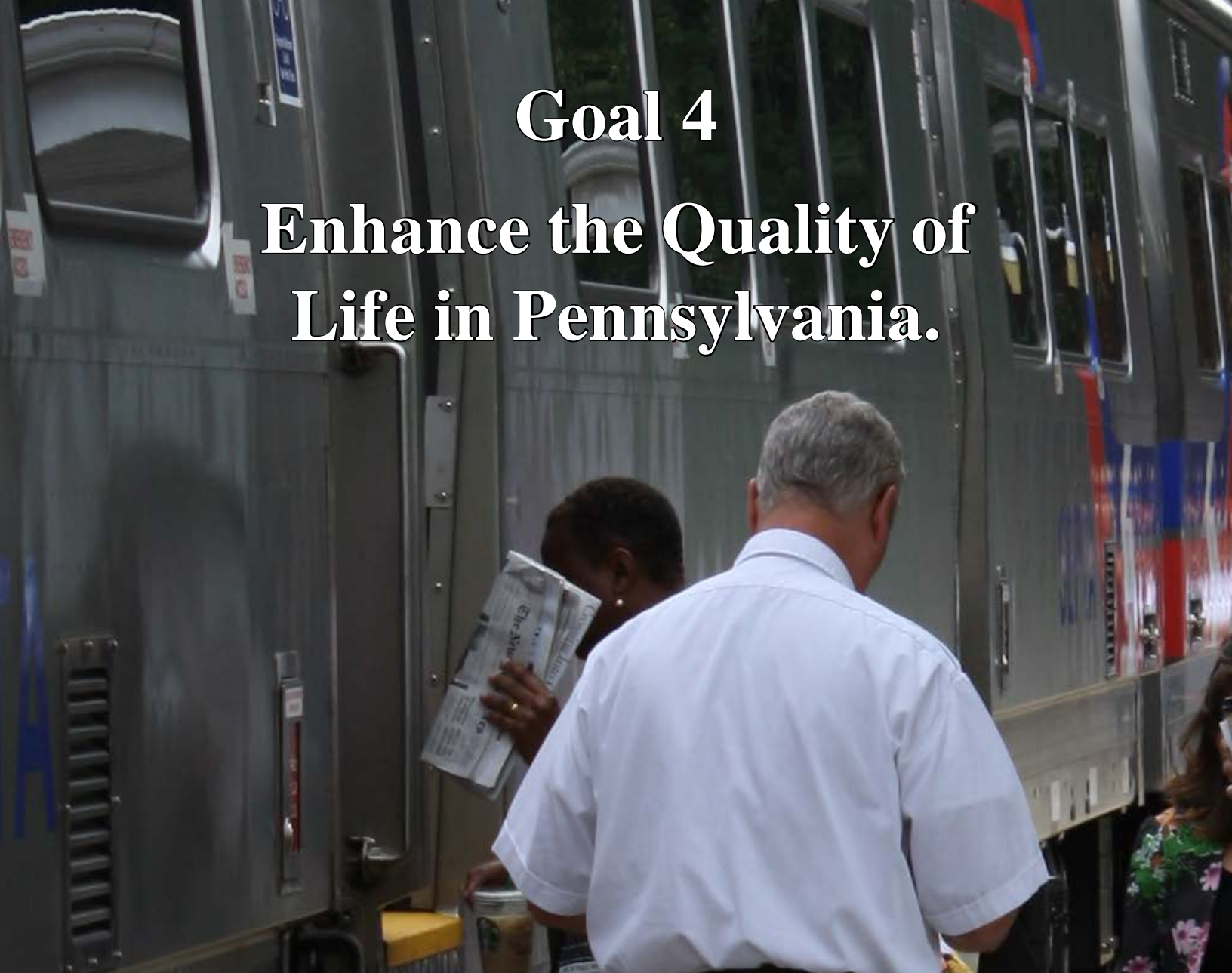
## Support the Future Needs of Residents & Businesses.



### Objectives:

1. Increase the capacity of rail infrastructure to move passenger and freight traffic.
2. Develop an equitable use of rail infrastructure by passenger and freight rail.
3. Enhance rail access to increase the competitiveness of the state's ports and airports.





# Goal 4

## Enhance the Quality of Life in Pennsylvania.

### Objectives:

1. Mitigate highway congestion.
2. Develop compatible land uses along rail lines that are consistent with smart growth and supportive of rail use.
3. Increase economic development opportunities in communities by advancing investments in rail.
4. Enhance the competitiveness of the rail system compared to other modes.

## Goal 5

# Support Personal Safety & Infrastructure Security.

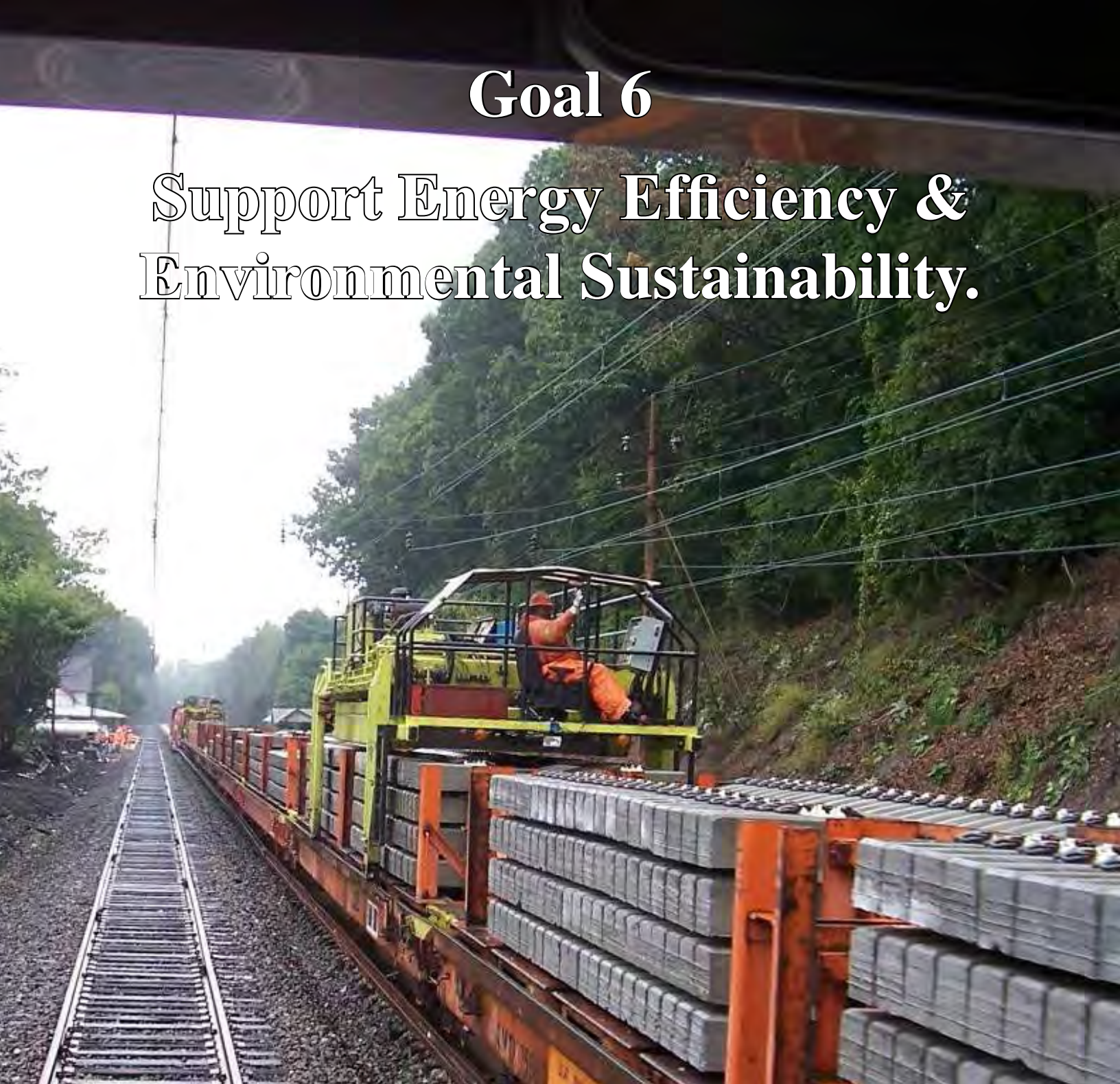
### Objectives:

1. Improve the safety of pedestrians and vehicles where there are at-grade crossings.
2. Improve the security of rail passengers on rail vehicles and at stations, consistent with federal and state policy.
3. Enhance the security of rail rights-of-way and rail infrastructure.



# Goal 6

## Support Energy Efficiency & Environmental Sustainability.



### Objectives:

1. Improve air quality through reduced emissions by investing in rail transportation.
2. Reduce energy use.

# Goal 7

## Identify stable and predictable funding.

### Objectives:

1. Pursue funding for increased investments to the rail system.
2. Create greater funding balance between rail and highway modes.
3. Enact legislation that supports the development and financing of the state's rail system.



# Goal 8

## Build public support for rail system services and assets.

### Objectives:

1. Educate the public about the railroad system and operations.
2. Garner support and cooperation for rail operations through metropolitan planning organizations, rural planning organizations, and regional/local governments.
3. Demonstrate the benefits of moving people and goods by rail.
4. Advocate for a national rail transportation policy and plan.



### Pennsylvania Railroad car shops in Altoona, PA, 1895

Source: Library of Congress

## 1.2 The Role of Rail Transportation in Pennsylvania

Pennsylvania has one of the largest rail networks of any state in the United States, with over 5,000 route miles of railroad. The rail system is as diverse as the Commonwealth itself, ranging from high speed intercity service to small short line railroads serving rural areas of the state. The over 50 railroad companies that serve the Commonwealth represent the most railroads in any state in the nation.

The history of rail in Pennsylvania stretches back to the 19th century with the 1834 Pennsylvania Main Line of Public Works (inspired by New York State's Erie Canal). Significant events in Pennsylvania's railroad history include direct rail service from Pittsburgh to Philadelphia in 1854, which reduced travel time between the two major cities from three days to 13 hours and initiated the rise of the Pennsylvania Railroad to become one of the largest railroads in the world. Examples of major projects constructed by the Pennsylvania Railroad include the Altoona Rail Works and improvements in Philadelphia. More recent events include the revival of railroads in the Commonwealth through publically owned passenger service and privately owned freight companies.



## 1.2.1 Freight Rail

Pennsylvania's freight rail system is comprised of over 5,000 miles of track operated by more than 50 railroads. The Pennsylvania freight rail network carried an estimated 209 million tons of freight in 2013 (see **Table 1-1** below). Inbound and outbound traffic accounted for 24 percent and 23 percent, respectively, of the state freight rail tonnage. Through freight rail movements comprised 48 percent of the total freight rail tonnage shipments in Pennsylvania, indicating the relative significance of Pennsylvania as an important link between the east coast and the midwest. More than ten million tons of freight were shipped internally in the state, accounting for five percent of the state's total tonnage.<sup>1</sup>

**Table 1-1** and **Figure 1-1** describe freight rail movements in Pennsylvania in 2013.

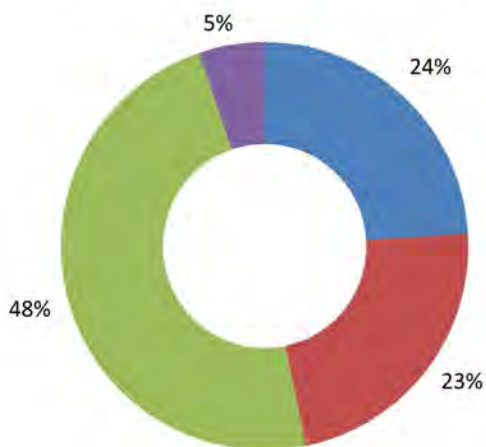
**Table 1-1: Pennsylvania Freight Rail Traffic Movements, 2013**

	Inbound	Outbound	Through	Internal	Total
Tons	50,222,426	47,590,479	100,571,132	10,881,531	<b>209,265,568</b>
Percentage of Rail Tonnage	24%	23%	48%	5%	<b>100%</b>
Units	1,113,571	915,752	2,459,381	108,090	<b>4,596,794</b>
Percentage of Rail Units	24%	20%	54%	2%	<b>100%</b>

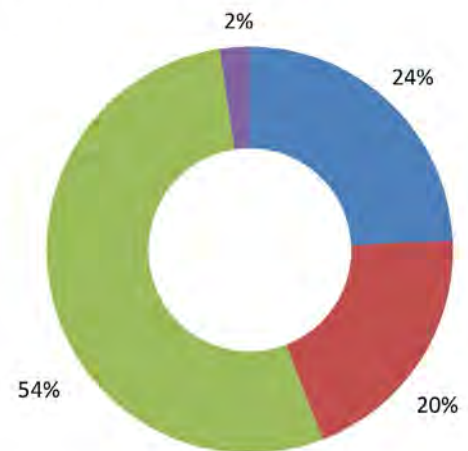
Source: STB 2013 Waybill data processed by HNTB

**Figure 1-1: Percentage of Rail Tonnage and Rail Unit Movement in Pennsylvania, 2013**

### Percentage of Rail Tonnage



### Percentage of Rail Units



- Inbound Tons
- Outbound Tons
- Through Tons
- Internal Tons

Source: STB 2013 Waybill data processed by HNTB

More detail regarding freight rail movements can be found in **Chapter 2**.

<sup>1</sup> STB 2013 Waybill data processed by HNTB



PA 6093 Pennsylvania Railroad Bridge, Coatesville, Pa.

### Railroad trestle, Coatesville

Source: PennDOT

As of 2012, Pennsylvania ranked first in the number of railroads operating in a state, fifth in total railroad mileage, eighth in the amount of tons originating in the state, twelfth in tons terminating in the state, eighth in the number of carloads originating in the state and seventh in the number of carloads terminating within the state. In comparison to other states, Pennsylvania also ranked 8th in total railroad employment (7,056) and rail wages (\$501.5 million) in 2012.<sup>2</sup>

Freight railroads in Pennsylvania move raw materials, such as coal, crude oil, and agricultural products, and industrial output, such as steel and iron ore in the southwest and cement in the northeast. Railroads in the state also move significant volumes of through freight between the East Coast and the rest of the nation.

*Compared to other states*  
**Pennsylvania ranks as:**  
**1<sup>st</sup> in number of operating railroads**  
**5<sup>th</sup> in total rail mileage**  
**8<sup>th</sup> in amount originating in-state tons**  
**8<sup>th</sup> in the number of carloads originating in-state**  
**12<sup>th</sup> in tons terminating**  
**7<sup>th</sup> in the number of terminating carloads**  
**8<sup>th</sup> total railroad employment (7,056 jobs\*)**  
**8<sup>th</sup> in highest rail wages (\$501.5 million\*)**

\* 2012, AAR data

<sup>2</sup> Association of American Railroads ([www.aar.org/Style%20Library/railroads\\_and\\_states/dist/data/pdf/State%20rankings.pdf](http://www.aar.org/Style%20Library/railroads_and_states/dist/data/pdf/State%20rankings.pdf))

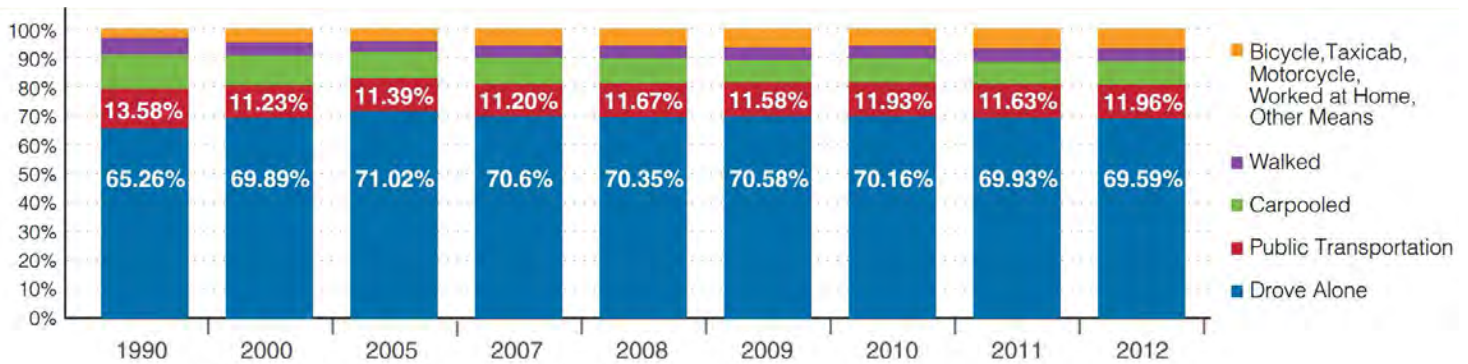


## 1.2.2 Passenger Rail

Intercity service in Pennsylvania is provided by Amtrak, the national passenger railroad corporation, which provides 21,300 route miles of service in 46 states. Commuter rail service is provided in the greater Philadelphia region primarily through SEPTA's Regional Rail system (SEPTA is the Southeastern Pennsylvania Transportation Authority), with 280 route miles served by 13 rail lines, as well as NJ Transit's Atlantic City line (NJ Transit is New Jersey's public transportation corporation), which connects 30<sup>th</sup> Street Station to eight stations in southern New Jersey.

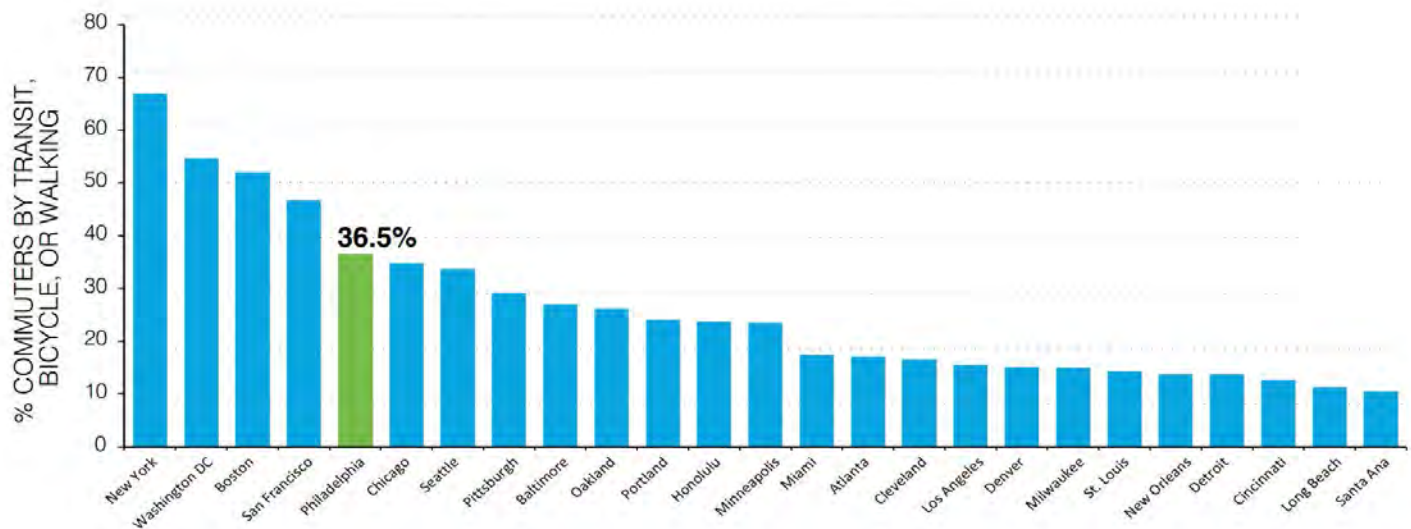
The Philadelphia metropolitan area has an extensive commuter rail and transit network. This contributes to a transit mode share of approximately 12 percent for journey to work trips, as shown in **Figure 1-2**. Combined with other non-auto modes of transport, Philadelphia has the fifth highest rate of non-auto mode share of major cities in the United States, as shown in **Figure 1-3**.

**Figure 1-2: Commute-to Work Mode Share, Southeastern Pennsylvania, 2014**



Source: SEPTA Annual Report 2014

**Figure 1-3: Non-Auto Mode Share, 25 Largest U.S. Cities, 2014**



Source: SEPTA Annual Report 2014, US Census Bureau, American Community Survey

## 1.3 State Governance Structure for Rail in Pennsylvania

### 1.3.1 State Agencies

The following state level agencies play an important role in the planning, regulation and finance of railroads in Pennsylvania. These agencies work closely with local governments, railroads, federal agencies, and other key stakeholders to ensure the improvement of the state's rail services and infrastructure.

#### PENNSYLVANIA DEPARTMENT OF TRANSPORTATION

The Pennsylvania Department of Transportation (PennDOT) was created in 1970 to assume the powers and responsibilities of the former Pennsylvania Department of Highways and other transportation related functions of multiple state agencies. PennDOT is responsible for the Commonwealth's multimodal transportation network. Units within PennDOT that are involved in rail planning efforts include:

1. **Bureau of Public Transportation:** The Bureau seeks to improve public transportation by providing oversight, funding and technical assistance to transit systems across the state.
2. **Bureau of Rail Freight, Ports and Waterways:** The Bureau works to improve rail and maritime freight systems throughout the Commonwealth. In 2013, the Bureau's responsibilities were expanded to include the improvement of port infrastructure, formerly the role of the Department of Community and Economic Development.
3. **Bureau of Planning and Research:** Performs transportation planning, research, maintains Geographic Information Systems (GIS) data, and develops transportation statistics for all modes of transportation within the state.
4. **Office of Public Private Partnerships and Public Private Transportation Partnership Board:** The office and board were created in 2012 to implement Public Private Partnerships (P3's). P3 opportunities currently being pursued include station improvements along the Keystone Line.
5. **Rail Freight Advisory Committee:** Provides input to improve the state's freight rail network. The committee includes representatives from government agencies, elected officials, railroad companies, and companies that make use of the state's rail freight system.
6. **Grade Crossing Unit:** This unit improves the safety of at-grade crossings by coordinating work between PennDOT's eleven district grade crossing engineers, the Public Utility Commission, and the numerous railroads that operate in the state.

PennDOT is authorized to plan and fund rail service. The agency has responsibility for “...*coordinating and developing transportation policy; assisting in the development and operation of transportation facilities and services such as highways, rail mass transit systems, and airports; formulation and revision of a long-range master plan for the development of commuter and general transportation facilities, both public and private; appearing or intervening as a party before the Public Utility Commission when transportation problems are being considered; and representing the transportation interests of the Commonwealth before any Federal agency or Commission which determines national or regional transportation rates, routes or policies*” (PA Public Law 356).





### NS locomotive exiting a Philadelphia port terminal

Source: HNTB

PennDOT is the designated State Rail Transportation Authority (SRTA) and State Rail Plan Approval Authority (SRPAA), which provides the agency the power to create and approve the SRP.

PennDOT complies with all federal Section 22102 requirements to maintain eligibility for federal transportation funding as per the following requirements:

*“(1) the State has an adequate plan for rail transportation in the State and a suitable process for updating, revising, and modifying the plan;*

*(2) the State plan is administered or coordinated by a designated State authority and provides for a fair distribution of resources;*

*(3) the State authority –*

- a. is authorized to develop, promote, supervise, and support safe, adequate, and efficient rail transportation;*
- b. employs or will employ sufficient qualified and trained personnel;*
- c. maintains or will maintain adequate programs of investigation, research, promotion, and development with opportunity for public participation; and*
- d. is designated and directed to take all practicable steps (by itself or with other State authorities) to improve rail transportation safety and reduce energy use and pollution related to transportation.*

*(4) the State has ensured that it maintains or will maintain adequate procedures for financial control, accounting, and performance evaluation for the proper use of assistance provided by the United States Government.”*

## PENNSYLVANIA PUBLIC UTILITY COMMISSION

The Pennsylvania Public Utility Commission (PUC) is a regulatory agency formed in 1937 to regulate public utilities in the state. The Rail Safety Section of the Commission has jurisdiction over the safety of railroad crossings, both at-grade and grade-separated. The PUC also includes the Railroad Inspection Program, which consists of a team of safety inspectors to ensure compliance with state and federal railroad safety rules, as authorized by the Federal Railroad Safety Act of 1970. The Commission works with PennDOT to ensure the safety of railroads in the Commonwealth.

## PENNSYLVANIA DEPARTMENT OF COMMUNITY AND ECONOMIC DEVELOPMENT

The Pennsylvania Department of Community and Economic Development (DCED) is an economic development agency formed in 1996. In cooperation with PennDOT and the Commonwealth Financing Authority, DCED provides grants for railroads through the DCED Multimodal Transportation Fund (separate from the PennDOT Multimodal Transportation Fund).

### 1.3.2 Local Passenger Commuter Rail Agencies

The Federal Transit Administration (FTA) defines commuter rail as “short-haul rail passenger service operating in metropolitan and suburban areas, whether within or across the geographical boundaries of a state, usually characterized by reduced fare, multiple ride, and commutation tickets and by morning and evening peak period operations. This term does not include light or rapid rail transportation.” Pennsylvania is served by two commuter rail agencies. SEPTA’s Regional Rail network provides extensive service in greater Philadelphia. New Jersey Transit (NJ Transit) provides commuter rail service in the Commonwealth via one of its lines, the Atlantic City Line, which terminates at Philadelphia’s 30th Street Station.

## SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY

SEPTA was created in 1963 and provides commuter rail service as well as light rail, rapid transit, and bus service throughout the Philadelphia metropolitan area. In Fiscal Year 2013, the agency provided over 330 million trips. **Chapter 2** provides detailed information about the physical infrastructure and operating characteristics of the SEPTA system.

## NEW JERSEY TRANSIT

NJ Transit was created in 1979 and provides commuter rail, light rail, and bus service throughout New Jersey, as well as commuter rail into Manhattan and Philadelphia. In Fiscal Year 2013, the agency provided over 263 million trips. (Note: Though mentioned in this section of the SRP for the commuter service it provides to Philadelphia, NJ Transit is not included in subsequent SRP analysis because the agency’s lines do not share tracks with freight railroads and, consequently, the agency does not fall under FRA jurisdiction.)





**New SEPTA Silverliner V Regional Rail car**

*Source: HNTB*

### 1.3.3 Metropolitan Planning Organizations

Federal law requires urbanized areas with populations of 50,000 or greater to establish Metropolitan Planning Organizations (MPOs). The organizations are responsible for developing and maintaining a regional Long Range Transportation Plan as well as a four year Transportation Improvement Program (TIP). These plans form the basis for the distribution of federal transportation funds. **Table 1-2** includes a list of the MPOs in Pennsylvania.

**Table 1-2: Pennsylvania Metropolitan Planning Organizations**

Name	Counties Served
Adams County Transportation Planning Organization (ACTPO)	Adams
Altoona Metropolitan Planning Organization	Blair
Centre County Metropolitan Planning Organization (CCMPO)	Centre
Delaware Valley Regional Planning Commission (DVRPC)	Bucks, Chester, Delaware, Montgomery and Philadelphia in Pennsylvania and Burlington, Camden, Gloucester and Mercer in New Jersey
Erie Area Transportation Study Metropolitan Planning Organization (Erie MPO)	Erie
Franklin County Metropolitan Planning Organization (FCMPO)	Franklin
Hagerstown/Eastern Panhandle Metropolitan Planning Organization (HEPMPO)	A portion of Franklin County, Pennsylvania Berkeley and Jefferson Counties, West Virginia, Washington County, Maryland
Johnstown Area MPO	Cambria
Lancaster County Metropolitan Planning Organization	Lancaster County
Lebanon County Metropolitan Planning Organization	Lebanon
Lehigh Valley Planning Commission	Lehigh and Northampton
Northeastern Pennsylvania Alliance	Carbon, Monroe, Pike, and Schuylkill
Reading Area Transportation Metropolitan Planning Organization	Berks
Scranton/ Wilkes-Barre Metropolitan Planning Organization	Lackawanna and Luzerne
Susquehanna Economic Development Corporation Council of Governments (SEDA-COG)	Clinton, Columbia, Juniata, Mifflin, Montour, Northumberland, Snyder and Union
Shenango Valley Area Metropolitan Planning Organization	Mercer
Southwestern Pennsylvania Commission	Allegheny, Armstrong, Beaver, Butler, Fayette, Greene, Indiana, Lawrence, Washington and Westmoreland
Tri-County Regional Planning Commission/ Harrisburg Area Transportation Study	Cumberland, Dauphin, and Perry
Williamsport Area Transportation Study Metropolitan Planning Organization	Lycoming
York Area Metropolitan Planning Organization (YAMPO)	York





### Loading intermodal freight at Colebrookdale Railroad

Source: Berks County Planning Commission

## 1.3.4 Rural Planning Organizations

Though federal regulations do not require a formal planning process for rural areas of the state, Pennsylvania has established Rural Planning Organizations (RPOs) to play a role similar to MPOs in rural areas. RPOs must also develop a Long Range Transportation Plan and the TIP for the rural areas of the state. Projects from these plans are eligible for federal and state funding. The Commonwealth’s RPOs are described in **Table 1-3**. In addition to these RPOs, Wayne County is an independent county for purposes of transportation planning.

**Table 1-3: Pennsylvania Rural Planning Organizations**

Name	Counties Served
North Central Pennsylvania Regional Planning and Development Commission	Cameron, Clearfield, Elk, Jefferson, McKean and Potter
Northern Tier Regional Planning and Development Commission	Bradford, Sullivan, Susquehanna, Tioga and Wyoming
Northwest Pennsylvania Regional Planning and Development Commission	Clarion, Crawford, Forest, Venango, and Warren
Southern Alleghenies Planning and Development Commission	Bedford, Fulton, Huntingdon, and Somerset

Source: PennDOT

### 1.3.5 Regional Rail Authorities

There are two major public regional rail authorities in Pennsylvania, both of which own local short line railroads and contract out operations responsibilities to privately owned railroads companies. The Susquehanna Economic Development Association-Council of Governments (SEDA-COG) Joint Rail Authority was created in 1984 and owns five short line railroads in central Pennsylvania, for a total of approximately 180 miles of railroad. The Pennsylvania Northeast Regional Railroad Authority (PNRRA) was created in 2006 and owns a system of approximately one hundred miles of short line railroad. The network is a combination of the former assets of the Monroe County Railroad Authority and the Lackawanna County Railroad Authority which date back to 1982.

### 1.3.6 Ports

Pennsylvania's ports play an important role in intermodal freight traffic. The Commonwealth has three major ports (described below), all with excellent rail connections. Philadelphia provides access to international shipping through its proximity to the Atlantic Ocean, Pittsburgh provides access to the nation's inland waterway system, and Erie provides access to Great Lakes shipping routes. PennDOT coordinates port planning through its Bureau of Rail Freight, Ports, and Waterways.

#### PORT OF PHILADELPHIA

The Port of Philadelphia offers access to the Atlantic Ocean via the Delaware River. The port transported 28,539,476 tons of cargo in 2012 and is under the jurisdiction of the Philadelphia Regional Port Authority.

#### PORT OF PITTSBURGH

The Port of Pittsburgh offers access to the Ohio River, a major inland maritime transport route. The port moved 35,154,800 tons of freight in 2012, and is under the jurisdiction of the Port of Pittsburgh Commission.

#### PORT OF ERIE

The Port of Erie offers access to the Great Lakes and the Saint Lawrence Seaway. The port moves an average of 550,000 tons of cargo annually, and is under the jurisdiction of the Erie-Western Pennsylvania Port Authority.<sup>3</sup>

## 1.4 Description of State's Authority for Grant, Loan, and Public Private Partnership Funding

PennDOT has the authority to “... *provide financial assistance for an efficient and coordinated intercity common carrier surface transportation program, consisting of both intercity passenger rail service and intercity bus service transportation, with the intent of sustaining strong intercity connections...*” (Chapter 15, Section 1516, Part C of the Pennsylvania Consolidated Statutes).

Within the agency, the Bureau of Rail Freight, Ports, and Waterways administers funds for freight rail and the Bureau of Public Transportation is responsible for administering passenger rail funds. **Table 1-4** presents the state's allocation of funds to rail programs over the past five years.

<sup>3</sup> PA Department of Community & Economic Development, Pennsylvania Ports 2015 Fact Sheet



**Table 1-4: PennDOT Funding for Rail, Fiscal Years 2010-2014**

	FY09-10	FY10-11	FY11-12	FY12-13	FY13-14
Freight Capital Grants	\$85,610,182	\$60,085,345	\$50,416,910	\$43,894,354	\$27,442,141
SEPTA Capital	\$202,300,000	\$238,800,000	\$124,100,000	\$120,200,000	\$122,400,000
SEPTA Regional Rail Operating	\$57,810,000	\$61,650,000	\$52,310,000	\$39,960,000	\$31,630,000
Amtrak Capital	\$9,094,346	\$9,275,395	\$8,818,000	\$8,909,601	\$15,534,000
Amtrak Operating	\$2,000,000	\$4,029,000	\$5,783,000	\$4,244,000	\$13,180,000
<b>TOTAL</b>	<b>\$356,814,528</b>	<b>\$373,839,740</b>	<b>\$241,427,910</b>	<b>\$217,207,955</b>	<b>\$210,186,141</b>

Notes: Increased Amtrak capital spending in FY13-14 was to support further improvements to the Keystone Corridor. Increased operating spending in FY13-14 was to cover PRIIA mandated Amtrak operating costs.

Source: PennDOT; SEPTA Capital and Operating Budgets

Act 89, signed into law in November 2013, provides for a significant, long-range source of new funding for transportation projects. The act will supplement current transportation funding, which is primarily based upon gas tax and user fees. The new plan provides over \$2 billion in additional revenue over the next five years by eliminating the cap on the wholesale gas tax and increasing a range of user fees. Act 89 funding includes a set-aside for freight rail, which begins at \$8 million annually and increases to \$10 million. The legislation also includes a set-aside for passenger rail that begins at \$6 million annually and increases to \$8 million annually. The projected annual impacts of Act 89 funding are shown in **Figure 1-4**.

**Figure 1-4: Annual Awarded Contracts, 2007 - 2020**



Source: 2014 Benefits from Pennsylvania's Transportation Plan, PennDOT

State funding for public transportation, including SEPTA's Regional Rail system, is provided through the Public Transportation Trust Fund, which includes six major programs:

1. Operating Program (Section 1513)
2. Asset Improvement Program for Capital projects (Section 1514)
3. Capital Improvement Program (Section 1517)
4. Alternative Energy Program (Section 1517.1)
5. New Initiatives Program (Section 1515)
6. Programs of Statewide Significance (Section 1516)

#### 1.4.1 Pennsylvania Rail Freight Preservation and Improvement Act

The Pennsylvania Rail Freight Preservation and Improvement Act of 1984 (Public Law 587-119) provides for Rail Freight Assistance Program (RFAP) and Rail Transportation Assistance Program (RTAP) grants. These programs provide funding for railroads to maintain and improve their infrastructure, and awarded grants totaling \$41.7 million in 2014. Funding for freight rail improvements in the Marcellus Shale region is also available through Act 13 unconventional well fees. This program was started in 2012, and provides approximately one million dollars annually in the same manner as the RFAP program.

#### 1.4.2 The Pennsylvania Infrastructure Bank (PIB)

The Pennsylvania Infrastructure Bank (PIB), within PennDOT, has provided low-interest loans for infrastructure improvements, including transit and freight rail infrastructure, since 1998. The PIB has an annual loan program of \$30 million and makes loans to both public and private entities for infrastructure upgrades. Of this amount, an average of \$2 million annually is used for freight rail infrastructure improvement projects.

#### 1.4.3 Public Private Partnerships

Much of America's rail network was built through cooperation between public and private entities, and this collaboration between the public and private sectors continues through today. Pennsylvania Act 88 of 2012 allows the state to enter into P3s and created the Public Private Transportation Partnership Board to guide these investments. PennDOT is currently exploring partnership opportunities for improvements to the Keystone Corridor.

#### 1.4.4 Federal Funding

Federal funding for railroad infrastructure improvements is available through a variety of sources. The US Department of Transportation (USDOT) Office of Infrastructure Finance and Innovation provides Transportation Investment Generating Economic Recovery (TIGER) grants for multimodal transportation improvements, including railroad improvement projects. The FRA administers grants for projects such as high-speed rail infrastructure improvements. The Federal Highway Administration (FHWA) provides grants such as Congestion Mitigation and Air Quality (CMAQ) for rail projects that reduce motor vehicle pollution, and Section 130 grants to improve the safety of at-grade railroad crossings. The FTA provides funding for improvements such as new starts for building new rail lines, and Section 5309 grants for improving existing passenger rail systems. Past sources of federal funding have also included high-speed rail grants and stimulus funding. As of the time of this report, future federal funding levels are unclear due to the lack of a long-range transportation bill.





**Bridge over the Juniata River, near Lewistown, PA**

*Source: Library of Congress*

## **1.5 Summary of Existing Network and Plans**

### **1.5.1 Existing Network**

Pennsylvania's existing passenger rail network consists of intercity and commuter rail services. Intercity rail in Pennsylvania includes Amtrak's Keystone Corridor (Harrisburg to Philadelphia), Pennsylvanian (Pittsburgh to Harrisburg), Northeast Corridor (Washington DC to Boston through Philadelphia), Lake Shore Limited (Chicago to New York through Erie, PA), and the Capitol Limited (Washington DC to Chicago through Pittsburgh). Commuter rail consists of SEPTA's 13 Regional Rail lines that serve the five-county Philadelphia region; Trenton, New Jersey; West Trenton, New Jersey; Newark, Delaware; and Wilmington, Delaware.

Amtrak intercity service serves over 6.3 million riders in Pennsylvania annually, via over 120 daily trains. Service ranges from high speed service along the Northeast Corridor (NEC) to daily service along the Capital Limited route. Over 4 million Amtrak passengers use Philadelphia’s 30<sup>th</sup> Street Station annually, making it the third busiest Amtrak station in the country.

SEPTA commuter rail service serves over 35 million passengers per year via 13 Regional Rail lines, which serve more than 150 stations. Regional Rail operations have continued to improve, achieving an on-time performance rate of 93 percent in 2013.

Recent environmental reviews for improved passenger rail service infrastructure in Pennsylvania are shown in **Table 1-5**.

**Table 1-5: Recent Environmental Reviews for Passenger Rail Improvements**

Projects
30th Street Station Signage
Automatic Block Signal
Bailey Interlocking
Coatesville Train Station Relocation
Downingtown Train Station
Eby Chiques Road At-Grade Crossing Elimination
Elizabethtown Overflow Parking Area Construction
Elizabethtown Path, Footbridge, and Drainage Improvements
Exton ADA Compliance and Parking Expansion
Harrisburg Train Station Passenger Access Reconfiguration
Irishtown Road At-Grade Crossing Elimination
Keystone Corridor East High Speed Rail Program
Middletown Train Station Relocation
Mount Joy Train Station Improvement
Newcomer Road At-Grade Crossing Elimination
Paoli Interlocking
Paoli Train Station ADA Improvements
Potts Interlocking
State Interlocking Final Design/Construction
Villanova Interlocking
Wynnefield Interlocking
Zoo Interlocking
Zoo to Paoli Transmission Line

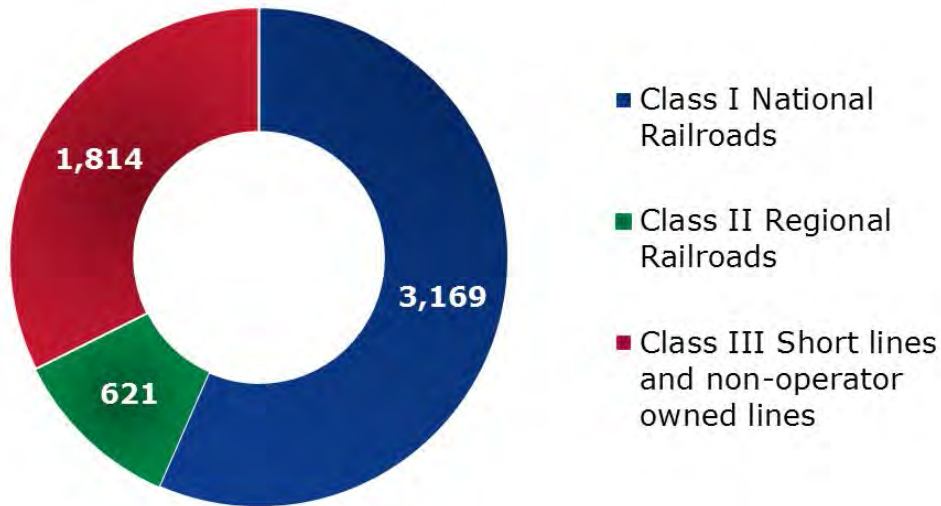
Source: PennDOT



## 1.5.2 Freight Rail

The state's freight network consists of three large Class I carriers, CSX, Norfolk Southern, and Canadian National; two mid-sized Class II carriers, Buffalo & Pittsburgh and Wheeling & Lake Erie; and over 50 short line Class III carriers. Together, these freight railroads operate over 5,000 miles of track and carried over 209 million tons of freight in 2013. Mileage for the types of freight railroad in Pennsylvania is shown in **Figure 1-5**.

**Figure 1-5: Route Miles of Active Freight Railroad in Pennsylvania**



Source: PennDOT

## 1.6 Current Studies

### 1.6.1 Northeast Corridor

Amtrak's NEC is a critically important route connecting major destinations including Boston, New York, Philadelphia, Baltimore, and Washington DC with frequent, high speed train service carrying approximately 260 million passengers annually.

Two complimentary strategies are currently being pursued to improve the NEC service: incremental "stair step" infrastructure improvements along the existing alignment of the corridor, and a new "NextGen" alignment that would allow trains to travel at much higher speeds. Incremental "stair step" improvements such as improved electrical and signaling systems can allow for near-term gains in speed and reliability. This approach is shown in **Figure 1-6**. It includes projects such as the improvements to the heavily used Zoo interlocking (adjacent to the Philadelphia Zoo) north of 30<sup>th</sup> Street Station in Philadelphia.

**Figure 1-6: Needed Projects to Support Stair Steps 3 & 4 for Amtrak's NEC**



Source: Amtrak

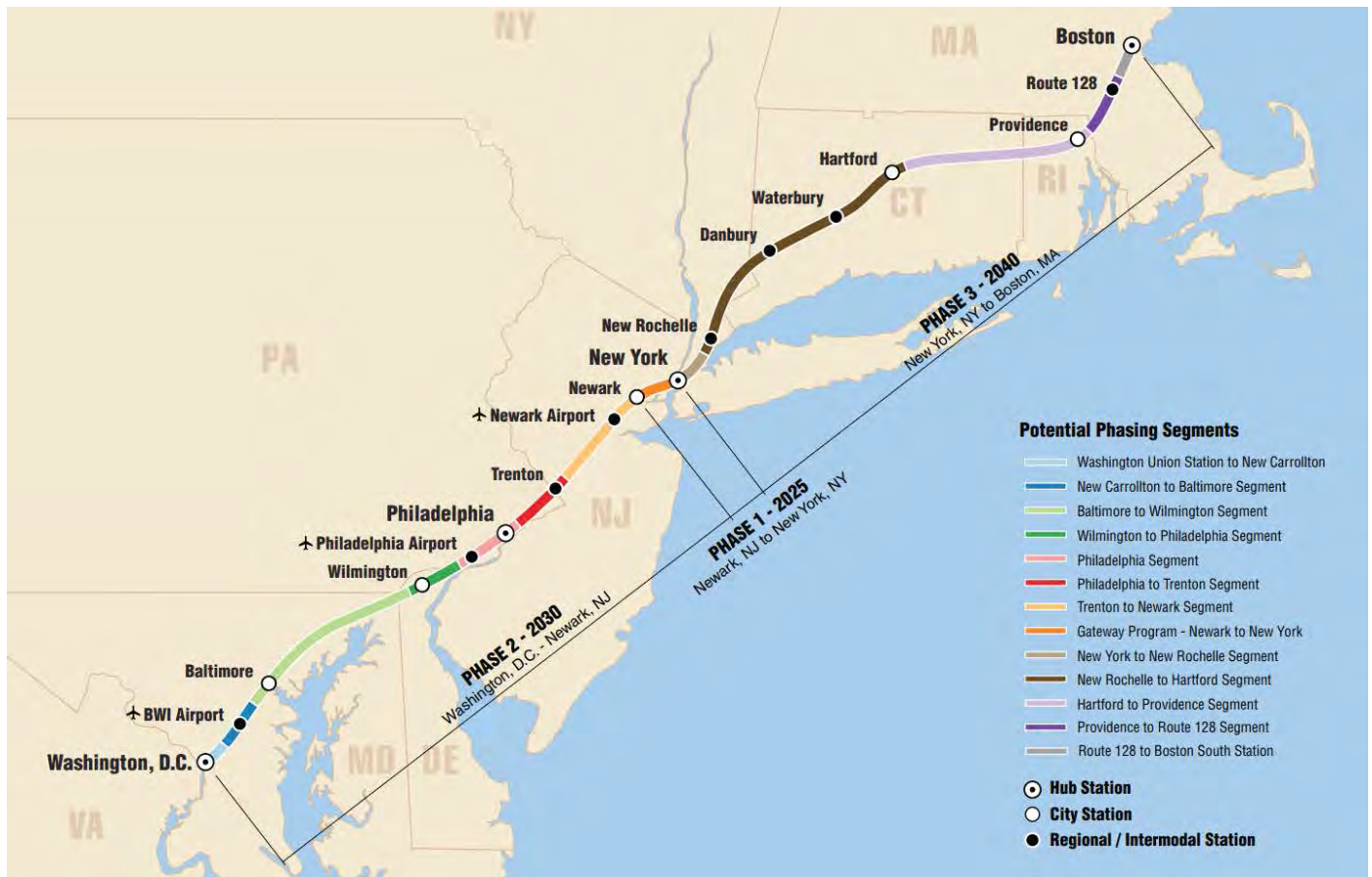
The “NextGen” new alignment alternatives would benefit NEC passengers by allowing much greater speed and efficiency, and could be constructed with minimal disturbance to rail traffic on the existing corridor. This approach is shown in **Figure 1-7**. However, construction of a new alignment for the NEC would require a new large-scale funding initiative, which has yet to be identified. Options for improving the NEC are being examined by the *NEC FUTURE* study and the NEC Commission.

## NEC FUTURE

The *NEC FUTURE* study was launched by the FRA in 2012 to consider the future of the NEC through 2040. The study consists of both a Phase I Environmental Impact Statement (EIS) and a Service Development Plan. The study is examining the feasibility of the previously mentioned NEC infrastructure upgrades and will include a market conditions analysis, development of investment alternatives, a study of the environmental impact of these alternatives, and a recommended path for continuing progress on the corridor.



Figure 1-7: Potential Phasing for Northeast Corridor “NextGen” alignment



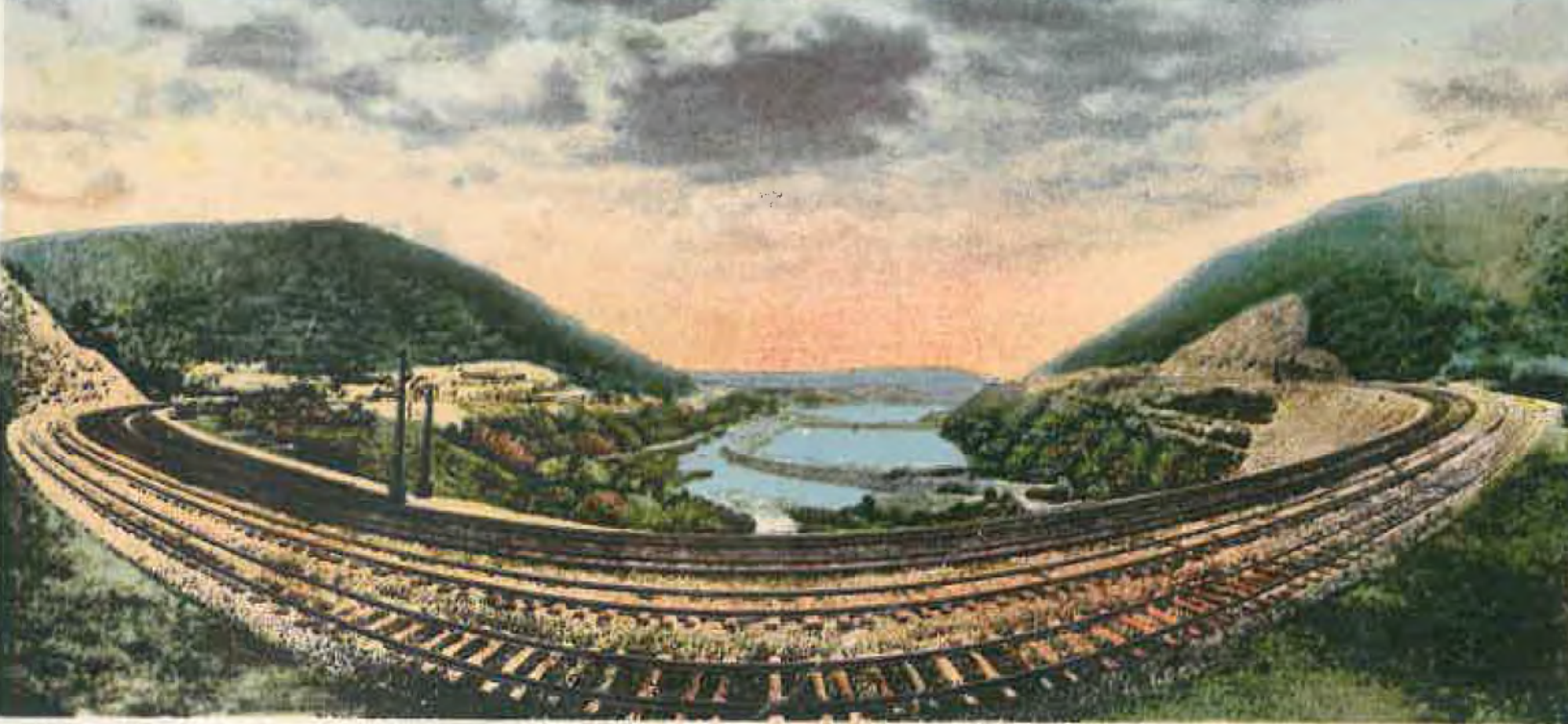
Source: Amtrak

## 1.6.2 Keystone East Corridor

The Keystone East Corridor is an Amtrak owned high-speed rail line between Harrisburg and Philadelphia. Improvements to the Keystone East corridor have been the result of a successful partnership between Amtrak and PennDOT, bringing substantial enhancements in train speed and reliability. This partnership is a continuing effort, with the recent completion of a sealed corridor project to eliminate all public grade crossings on the route, and signaling and switch improvements planned for the near future. A number of stations on the route have also been rebuilt to improve the passenger experience and help economic development. An ongoing *Access the Keystone* study is examining ways of improving local access to Amtrak stations along the corridor.

### NEC Commission

The NEC Commission (Northeast Corridor Infrastructure and Operations Advisory Commission) was created by the Passenger Rail Investment and Improvement Act (PRIIA) of 2008 to shape the future of the NEC through cooperation between federal and state representatives. The Commission works to address funding and operations issues that arise when planning transportation project across multiple governmental bodies and various transportation authorities. NEC Commission members include representatives from each of the NEC states, Amtrak, and the USDOT. PennDOT also plays an active role as a voting member of the NEC Commission.



HORSESHOE CURVE, PENNA. R. R.

### Horseshoe Curve, Altoona

Source: PennDOT Historic Postcard

## 1.6.3 Keystone West Corridor

The Keystone West corridor from Harrisburg to Pittsburgh differs in many ways from the eastern portion of the corridor. The corridor is characterized by challenging topography (such as the Horseshoe Curve in Altoona), a high level of freight traffic, and numerous at-grade highway crossings. Furthermore, the corridor is not owned by Amtrak. These factors ultimately contribute to lower travel speeds.

Low population densities and low levels of highway congestion along the corridor also make attracting ridership and investment difficult. Current Amtrak Pennsylvanian trip duration between Pittsburgh and Harrisburg takes approximately 5.5 hours, while driving takes approximately 3.5 hours.

The recently completed *Keystone West Feasibility Report and Preliminary Service Development Plan* evaluated potential improvements to the corridor. Overcoming the challenging topography of the corridor means a cost of approximately \$1.5 billion to reduce travel time by less than ten minutes in each direction, while an investment of \$9.9 billion yields time savings of approximately 30 minutes in each direction. A true high-speed corridor would require a new alignment that would bypass all existing stations between Harrisburg and Pittsburgh, and would have an estimated cost of \$38.3 billion.

## 1.6.4 PA On-Track

The *PA On-Track* study, Pennsylvania's Long Range Transportation Plan (LRTP), addresses the long-term future of Pennsylvania's multimodal transportation network including highways, transit and railroads. The *PA On Track* study includes a new prioritized list of projects using PennDOT's new Transportation Asset Management system, with a focus on maintaining critical infrastructure and promoting economic growth. The SRP was written to be consistent with the goals and objectives of the *PA On Track* project.



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### NS Locomotive on the Philadelphia & Reading Bridge over the Susquehanna River

Source: Tri-County Regional Planning Commission

## 2. The State's Existing Rail System

### 2.1 Description and Inventory

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#### 2.1.1 Passenger and Freight Rail Systems

In order to develop a plan that defines the future needs of the rail system in Pennsylvania, it is important to first understand the existing conditions. For the purpose of this study, an evaluation of the physical and operational characteristics of the existing passenger and freight rail systems, services and facilities in the state of Pennsylvania was performed and is documented in the following sections.

##### 2.1.1.1 PASSENGER RAIL

Passenger rail services in Pennsylvania are provided by Amtrak and the Southeastern Pennsylvania Transportation Authority (SEPTA). Amtrak provides intercity passenger rail services across the state and beyond, while SEPTA provides commuter rail services throughout the Philadelphia metropolitan region. New Jersey Transit (NJ Transit) also operates the Atlantic City Line between Atlantic City, NJ and Philadelphia's 30<sup>th</sup> Street Station. The following sections provide additional detail on each of these systems.



# AMTRAK OVERVIEW

## Service Details

Amtrak runs approximately 120 trains a day through the state. The majority of daily trains are from the Acela Express Service, Northeast Regional Service and the Keystone Service. Additionally, three medium-distance trains and seven long distance trains operate through the state. Each of these routes are briefly described below and illustrated in **Figure 2-1**.

**Figure 2-1: Amtrak Rail System in Pennsylvania**



Brief details of the different Amtrak services are as follows:

**Acela Service:** High speed service between Boston and Washington, D.C.

**Northeast Regional Service:** Service between Boston and Washington, D.C.

**Keystone Service:** State supported service between New York and Harrisburg via Philadelphia

**Pennsylvanian:** State supported medium-distance service between New York and Pittsburgh via Philadelphia.

**Carolinian:** State supported medium-distance service between New York and Charlotte, NC via Philadelphia.

**Vermont:** State supported medium-distance service between St. Albans, VT and Washington, D.C. via Philadelphia.

**Crescent:** Long distance service operating between New Orleans, LA and New York via Philadelphia.

**Palmetto:** Long distance service operating between Savannah and New York via Philadelphia.

**Silver Meteor:** Long distance service operating between Miami and New York via Philadelphia and Charleston, SC.

**Silver Star:** Long distance service operating between Miami and New York via Philadelphia and Raleigh, NC.

**Capitol Limited:** Long distance service operating between Washington, D.C. and Chicago via Pittsburgh.

**Lake Shore Limited:** Long distance service operating between New York and Chicago with a stop in Erie, PA.

**Cardinal:** Long distance service operating between New York and Chicago with a stop at 30<sup>th</sup> Street Station.

## KEY CORRIDORS

The **Northeast Corridor** (NEC) runs between Washington, D.C. and Boston and passes through some of the most populous and economically significant cities along the east coast including Baltimore, Wilmington, Philadelphia, New York, New Haven and Providence. A total of 2,220 passenger trains operate on the NEC each weekday. In Pennsylvania, the corridor has stops at Philadelphia's 30<sup>th</sup> Street Station, North Philadelphia and Cornwells Heights. Within Pennsylvania, Amtrak and SEPTA operate train service on the Amtrak owned NEC. (New Jersey Transit uses small portions of the corridor in the state as well.)

The **Keystone Corridor** runs between Philadelphia and Harrisburg. The line is owned by Amtrak and is approximately 104 miles long, and is utilized by 26 Keystone trains per weekday, as well Pennsylvania service, which provides one trip in each direction daily. SEPTA also operates its commuter trains on a portion of this line (between 30<sup>th</sup> Street Station and the Thorndale Station on the Paoli/Thorndale Regional Rail line). Almost all trains running along this corridor continue an additional 91 miles to New York City, with the exception of a few for which a transfer is necessary to access Northeast Regional trains.

Amtrak's **Capitol Limited** runs between Washington, D.C. and Chicago with a 195 mile stretch of the route passing through Pennsylvania with stops at Connellsville and Pittsburgh. The Capitol Limited provides one train daily in each direction. In Pittsburgh, a non-schedule coordinated connection can be made to the Pennsylvanian which runs between Pittsburgh and New York City. East of Pittsburgh the service runs on tracks owned by CSX Transportation (CSX) and west of Pittsburgh the service runs on tracks owned by Norfolk Southern (NS).



The **Lake Shore Limited** provides a connection between Chicago and Boston/ New York City. The Lake Shore Limited provides one train daily in each direction. For eastbound trains the dividing point for the service is at Albany-Rensselaer station, with one section heading south to New York City and the other heading east to Boston. Only a small section of approximately 45 miles passes through Pennsylvania, with Erie the only stop in the state. The service operates on tracks owned by CSX.

The **Pennsylvanian** runs between New York City and Pittsburgh, via Philadelphia and Harrisburg, with one train daily in each direction. The entire route length is approximately 444 miles, of which 353 miles is west of Philadelphia. West of Harrisburg the service runs on NS tracks whereas east of Harrisburg the service follows the Keystone Corridor and the NEC on Amtrak-owned rights-of-way.

## RIDERSHIP & STATIONS

There are a total of 24 stations within the state of Pennsylvania served by Amtrak. Philadelphia’s 30<sup>th</sup> Street Station, with a total number of trips slightly in excess of four million, serves almost 66 percent of all trips. The station with the lowest ridership is North Philadelphia, with a total number of trips at less than one thousand (644). Total boardings for all 24 stations for fiscal year 2014 were 3.04 million and alightings were 3.02 million for a total of 6.06 million trips.

**Figure 2-2** illustrates the ridership rates for each segment along Amtrak lines in Pennsylvania. Additionally, **Table 2-1** details the trips at all 24 Amtrak stations within Pennsylvania and **Table 2-2** details compound growth in ridership by station over a 10 year span from 2004 to 2013.

**Figure 2-2: Amtrak Ridership**



**Table 2-1: Annual Amtrak Ridership by Station**

Code	Station	FY2014 Ridership		
		Boardings	Alightings	Total
ALT	Altoona	12,901	13,605	26,506
ARD	Ardmore	28,719	28,224	56,943
COT	Coatesville	7,091	8,475	15,566
COV	Connellsville	2,424	2,501	4,925
CWH	Cornwells Heights	1,084	1,009	2,093
DOW	Downingtown	29,710	30,395	60,105
ELT	Elizabethtown	55,413	53,309	108,722
ERI	Erie	9,103	9,209	18,312
EXT	Exton	52,328	54,687	107,015
GNB	Greensburg	7,686	7,337	15,023
HAR	Harrisburg	245,536	253,459	498,995
HGD	Huntingdon	3,608	3,193	6,801
JST	Johnstown	12,159	11,133	23,292
LAB	Latrobe	2,340	2,291	4,631
LEW	Lewistown	4,630	4,745	9,375
LNC	Lancaster	265,886	263,523	529,409
MID	Middletown	34,049	33,426	67,475
MJY	Mount Joy	24,509	21,882	46,391
PAO	Paoli	86,656	84,013	170,669
PAR	Parkesburg	25,156	24,486	49,642
PGH	Pittsburgh	74,358	74,866	149,224
PHL	Philadelphia	2,047,561	2,036,143	4,083,704
PHN	North Philadelphia	282	362	644
TYR	Tyrone	1,657	1,689	3,346
<b>TOTAL</b>		<b>3,034,846</b>	<b>3,023,962</b>	<b>6,058,808</b>

Note: Due to Amtrak's change to electronic ticket collection, FY14 station boarding data numbers are not directly comparable to ridership statistics from previous years which were partially based on estimates rather than exact counts.

Source: Amtrak Ridership Data

**Table 2-2: Annual Amtrak Ridership Growth by Station (FY2004 to FY2013)**

Code	Station Name	FY 2004 Total	FY 2013 Total	Compound Growth
MID	Middletown	24,257	81,030	12.82%
COT	Coatesville	5,134	16,626	12.47%
TYR	Tyrone	1,033	3,215	12.02%
MJY	Mount Joy	23,415	69,848	11.55%
EXT	Exton	39,277	113,499	11.20%
ELT	Elizabethtown	43,902	123,153	10.87%
DOW	Downingtown	25,403	68,918	10.50%
PAO	Paoli	67,784	175,299	9.97%
PAR	Parkesburg	22,375	55,290	9.47%
ERI	Erie	8,254	18,108	8.17%
LNC	Lancaster	305,503	578,731	6.60%
HAR	Harrisburg	317,485	571,940	6.06%
ARD	Ardmore	38,108	67,942	5.95%
HGD	Huntingdon	4,822	6,392	2.86%
COV	Connellsville	3,778	4,815	2.46%
LAB	Latrobe	3,548	4,447	2.28%
JST	Johnstown	20,126	23,615	1.61%
PHL	Philadelphia	3,690,620	4,125,503	1.12%
PGH	Pittsburgh	123,101	135,137	0.94%
GNB	Greensburg	13,346	14,248	0.66%
LEW	Lewistown	9,762	9,102	-0.70%
ALT	Altoona	31,194	26,025	-1.80%
PHN	North Philadelphia	827	590	-3.32%
CWH	Cornwells Heights	25,968	3,215	-18.85%
<b>TOTAL</b>		<b>4,849,022</b>	<b>6,296,688</b>	<b>2.65%</b>

Source: Amtrak Ridership Data



**2. THE STATE'S EXISTING RAIL SYSTEM**

There is a wide range in the amount of service provided at Amtrak’s 24 Pennsylvania stations. **Table 2-3** provides daily route service for Pennsylvania’s Amtrak stations. Philadelphia’s 30th Street Station, by virtue of being a key node on the busy NEC, has the highest level of service, and is serviced by nearly all Amtrak service in the state.

**Table 2-3: Amtrak Stations, Daily Weekday Service**

Code	Station	Amtrak Service	Total Daily Service
ALT	Altoona	Pennsylvanian	2
ARD	Ardmore	Keystone	15
COT	Coatesville	Keystone	13
COV	Connellsville	Capitol Limited	2
CWH	Cornwells Heights	Northeast Corridor, Keystone	3
DOW	Downingtown	Keystone	22
ELT	Elizabethtown	Keystone	27
ERI	Erie	Lake Shore Limited	2
EXT	Exton	Keystone, Pennsylvanian	26
GNB	Greensburg	Pennsylvanian	2
HAR	Harrisburg	Keystone, Pennsylvanian	28
HGD	Huntingdon	Pennsylvanian	2
JST	Johnstown	Pennsylvanian	2
LAB	Latrobe	Pennsylvanian	2
LEW	Lewistown	Pennsylvanian	2
LNC	Lancaster	Keystone, Pennsylvanian	29
MID	Middletown	Keystone	24
MJY	Mount Joy	Keystone	16
PAO	Paoli	Keystone, Pennsylvanian	29
PAR	Parquesburg	Keystone	21
PGH	Pittsburgh	Capitol Limited, Pennsylvanian	4
PHL	Philadelphia	Acela, Northeast Corridor, Keystone, Pennsylvanian and other Medium and Long Distance Trains*	94
PHN	North Philadelphia	Northeast Corridor, Keystone	10
TYR	Tyrone	Pennsylvanian	2

*\*Medium and Long Distance Service includes the Carolinian, Vermonter, Crescent, Palmetto, Silver Star and Silver Meteor*  
 Source: Amtrak

Stations on the Keystone route have a moderate level of service. Exton, Harrisburg, Lancaster, and Paoli are all served by both the Keystone Service and Pennsylvanian with service ranging from 26 to 29 trains per day. Stations west of Harrisburg on the Pennsylvanian have only one trip in each direction daily.



### 30<sup>th</sup> Street Station

Source: NEC Commission

**Table 2-4** describes total number of trips and total passenger miles for Amtrak lines in Pennsylvania. The Acela Express, Keystone, Northeast Regional and the Pennsylvanian lines account for more than 95 percent of the trips and slightly less than 85 percent of the total passenger miles.

**Table 2-4: Amtrak Route Ridership**

Amtrak Service	Total Number of Trips		Total Passenger Miles		Average Length of Trip (Miles)
	Number	Percentage	Number	Percentage	
Acela	690,987	11.4	79,047,305	10.8	114
Capitol Ltd.	58,687	1.0	22,200,460	3.0	378
Cardinal	6,621	0.1	4,000,471	0.5	604
Carolinian	24,296	0.4	10,039,311	1.4	413
Crescent	23,432	0.4	15,776,743	2.2	673
Keystone	2,235,925	36.9	173,274,042	23.6	77
Lake Shore Ltd.	18,312	0.3	7,447,090	1.0	407
Northeast Regional	2,535,396	41.9	286,066,335	39.0	113
Palmetto	21,592	0.4	10,072,935	1.4	467
Pennsylvanian	378,786	6.3	82,600,580	11.3	218
Silver Meteor	25,600	0.4	21,279,288	2.9	831
Silver Star	23,971	0.4	18,053,756	2.5	753
Vermont	7,687	0.1	2,808,350	0.4	365
<b>TOTAL</b>	<b>6,051,292</b>	<b>100.0</b>	<b>732,666,666</b>	<b>100.0</b>	

Source: Amtrak



Approximately 1.06 million trips (17.5 percent) of the total number of trips are intrastate in nature, with both the origin and destination within the state. The remaining 5 million trips (82.5 percent) are considered interstate trips, where either the origin or the destination of the trip is outside the state boundary. Intrastate trips tend to be much shorter with an average trip length of 78 miles, while the average length of the interstate trips is 130 miles.

**Table 2-5** and **Table 2-6** provide ridership details for the top five station pairs for interstate and intrastate trips, respectively. Philadelphia 30<sup>th</sup> Street Station to New York Penn Station is the top station pair for interstate trips whereas Philadelphia-Lancaster has the top ridership in the intrastate travel market.

**Table 2-5: Interstate Trips - Top 5 City Pairs**

Station Pair			2014 Ridership	Passenger Miles	Trip Length
Philadelphia	to	New York City	1,644,346	149,776,052	91
Philadelphia	to	Washington, DC	697,263	93,588,225	134
Philadelphia	to	Baltimore, MD	139,450	13,124,570	94
Harrisburg	to	New York City	115,436	21,576,069	179
Lancaster	to	New York City	105,328	16,022,803	146
<b>TOTAL</b>			<b>2,701,823</b>	<b>294,087,719</b>	

Source: Amtrak

**Table 2-6: Intrastate Trips - Top 5 City Pairs**

Station Pair			2014 Ridership	Passenger Miles	Trip Length
Philadelphia	to	Lancaster	267,389	17,915,313	67
Philadelphia	to	Harrisburg	143,520	14,917,391	104
Lancaster	to	Harrisburg	62,346	2,307,860	37
Philadelphia	to	Exton	42,714	1,158,967	27
Elizabethtown	to	Harrisburg	39,435	710,874	18
<b>TOTAL</b>			<b>555,404</b>	<b>37,010,405</b>	

Source: Amtrak

### *Operating Agreements and Working Relationships*

As mentioned in the descriptions of services, Amtrak has operating agreements with commuter and freight rail operations in the state of Pennsylvania. Commuter rail service provided by SEPTA and NJ Transit operates on Amtrak’s tracks and Amtrak operates on several freight-owned tracks to provide intercity service.

Amtrak owns the entire portion of the NEC in Pennsylvania and the 104-mile portion of the Keystone corridor between Philadelphia and Harrisburg. SEPTA and NJ Transit operate on portions of Amtrak’s NEC. SEPTA also operates on portions of Amtrak’s Keystone Corridor. The Capitol Limited runs on tracks owned by CSX and NS near Pittsburgh. The Pennsylvanian runs on a portion of track owned by NS near Harrisburg. The Lake Shore Limited operates on tracks owned by CSX.



### Amtrak train at the Lancaster Station

Source: Tri-County Regional Planning Commission

### Amtrak Service Improvements

Since the release of *The Northeast Corridor Infrastructure Master Plan* and *A Vision for High-Speed Rail in the Northeast Corridor*, Amtrak continues to advance NEC program planning and stakeholder outreach along the Corridor. A report updated in 2012, *The Amtrak Vision for the Northeast Corridor*, details goals and objectives for expanding service along this Corridor. The report provides a vision for improving existing service to 2025 and beyond with the *Next-Generation High-Speed Rail Program* from 2025-2040. Further details on this report can be found in **Section 2.1.6**.

The Keystone Corridor Improvement Project, a joint partnership of Amtrak, PennDOT and SEPTA, started in October 2006. This project led to reestablishing electrical operation between Thorndale and Harrisburg, rail infrastructure rehabilitation programs and curve civil modifications to increase top speed to 110mph, a significant reduction in trip time, increased passenger comfort, addition of eight daily trains, as well as implementation of express service for selected trips.

A variety of improvements have also been undertaken by PennDOT and funded through the American Recovery and Reinvestment Act (ARRA). PennDOT has recently closed the three remaining public at-grade crossings on the Keystone Line, resulting in a sealed corridor for improved safety. Currently, PennDOT is completing preliminary engineering and final design of seven interlockings on the eastern end of the line between Thorndale and Philadelphia, PA as well as a new high density Automatic Block Signaling (ABS) project between Paoli and Philadelphia, PA. Additionally, the reconstruction of tracks, traction power, catenary systems, and signaling of State Interlocking at Harrisburg Transportation Center is scheduled to be completed before the end of 2016.

Additional improvements to the Amtrak service include the continued rollout of the American Cities Sprinter 64 (ACS 64) locomotive which will help in providing more reliable service along the Keystone line.



## Amtrak Station Improvements

Recent station improvement projects have been funded through a variety of federal, state, and local programs. **Table 2-7** describes planned and recently completed Amtrak station improvements.

**Table 2-7: Planned and Recently Completed Improvements at Amtrak Stations**

Amtrak Station Name	Improvements	Amtrak Partner(s)	Timeline
Ardmore	SEPTA-led improvements include a new station building, new 500 foot long high-level platforms, ADA access across tracks via renovated tunnel and design of a new multi-level parking garage (construction of garage at a later date pending funding).	PennDOT/ SEPTA	Construction expected to begin in 2015
Coatesville	New station facility with high level platforms, lighting improvements, signage improvements and ADA accessibility improvements.	PennDOT	Construction expected to complete by 2016
Connellsville	New ADA compliant high level platform and new passenger shelter building.	Fayette County	Completed early 2011
Downingtown	New relocated station that will emphasize multimodal transportation elements inclusive of pedestrian and bicycle access to minimize traffic impact. ADA compliant high level platforms, signage, lighting improvements, increased parking and connectivity.	PennDOT/ Borough of Downingtown	Planning phase underway
Elizabethtown	New ADA-compliant high level platforms, historic building renovation, parking expansion and ADA accessibility improvements.	PennDOT/ Elizabethtown Borough	Completed May 2011
Exton	Construction of 500 foot long ADA compliant high level platforms on either side of the tracks, new canopies, covered passenger waiting areas, and windscreens. Site upgrades include lighting, signage, expanded bicycle racks, improved pedestrian access and circulation, and ADA access improvements.	PennDOT/ SEPTA	Construction expected 2015 to 2017
Huntingdon	New ADA compliant shelter, platform and parking area.	Huntingdon County	Planning phase underway
Johnstown	New ADA compliant platforms, new elevators and new restrooms.	City of Johnstown	Construction expected in 2015
Lancaster	New taxi area, new intercity bus area, new heating and air conditioning systems, improved landscaping, new retail and meeting space and improvements to the main waiting area and passenger concourse, ADA accessibility improvements.	Lancaster County	Completed December 2013
Middletown	A new, relocated station developed with an emphasis on multimodal connectivity accommodating a Capital Area Transit bus stop, airport shuttle, freight and passenger rail infrastructure improvements, improved parking, security enhancements, covered bicycle racks and ADA accessibility improvements.	PennDOT	Planning phase underway
Mount Joy	Walkway improvements from the station to the central business district, ADA compliant high level platforms with canopies, platform elevators, expanded parking, high level platforms, and ADA accessibility improvements.	PennDOT/ Borough of Mount Joy	Construction expected to begin in 2015



### Allegheny Valley Railroad in Monongahela Valley

Source: Southwestern Planning Commission

**Table 2-7: Planned and Recently Completed Improvements at Amtrak Stations, cont.**

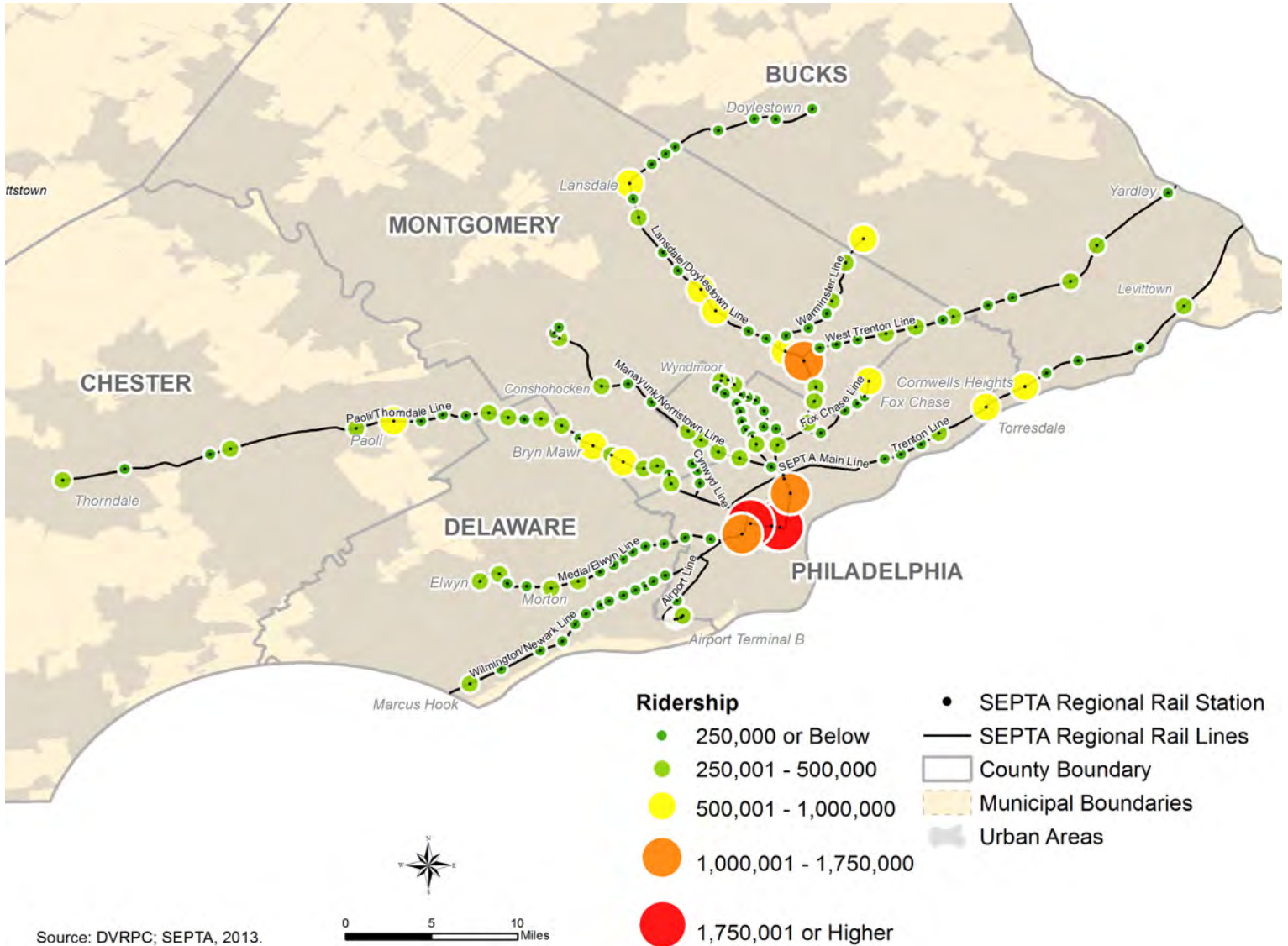
Amtrak Station Name	Improvements	Amtrak Partner(s)	Timeline
Paoli	Improved ADA accessibility, accommodation of local and regional buses, taxis, pedestrians, bicyclists and motorists as part of overall development of Paoli Intermodal Transportation Center, new ADA compliant high level platforms and associated track work, elevators, ramps, pedestrian overpass and parking lot improvements and ADA improvements to station building.	PennDOT/ SEPTA	Phase 1 construction 2015 to 2018
Philadelphia 30 <sup>th</sup> Street Station	Façade restoration projects, new signage, elevator replacement and west plaza improvements designed to improve circulation, provide better connectivity, weather-proof station access, provide better security and visibility, expand parking and increase walking and driving safety.	PennDOT, University City District	Construction in progress



### 2.1.1.2 SEPTA OVERVIEW

SEPTA operates a commuter rail network, referred to as Regional Rail. SEPTA's Regional Rail offers 13 lines with 154 stations serving Philadelphia, Bucks, Chester, Delaware and Montgomery Counties, as well as service to Newark, Delaware and both Trenton and West Trenton, New Jersey. The variety of destinations and frequent service throughout the week allows passengers to use the system for leisure, shopping, recreation, and other purposes in addition to commuting. See the SEPTA commuter rail system depicted in **Figure 2-3**.

**Figure 2-3: SEPTA Regional Rail System and Annual Ridership**



## OPERATIONS

Each weekday, SEPTA operates with a fleet of 412 trains on 13 lines over 280 route miles. The majority of route miles (151) are over SEPTA right-of-way. Other right-of-way ownership for routes used by SEPTA includes 108 miles of Amtrak lines (used by the Newark, Paoli/Thorndale, and Trenton Lines), 15 miles of CSX line (used by the West Trenton Line), and 8 miles owned by the City of Philadelphia (used by the Airport Line). In 2014, SEPTA operated 20,297,400 train miles. The system operates frequent peak-period service, with trains running approximately every 30 minutes on various lines. During off-peak periods, including weekends, the majority of the trains operate approximately every 60 minutes.

## RIDERSHIP

In July 2013, SEPTA reported a new Regional Rail ridership record, with 36,023,000 trips taken during the 2013 Fiscal Year. This is a ridership increase of 2.2 percent compared to the previous year. In 2013, weekday ridership averaged 128,000 trips. **Figure 2-3** illustrates ridership on the entire SEPTA Regional Rail system.

## FLEET

SEPTA has approximately 400 Regional Rail vehicles. Almost all of these vehicles are electric multiple-units (EMU), which are self-propelled cars that do not require a locomotive. These cars are called “Silverliners.” In 2012 SEPTA purchased 120 new Silverliner V EMU rail cars to replace existing Silverliner III and IV rail cars that were 46 to 50 years old and had exceeded their useful life. The Silverliner V’s have many passenger-friendly features including larger windows, wider aisles, electronic destination signs and 2-by-2 seating arrangement for some sections of the car. Silverliner V’s have the ability to hold up to 109 passengers and can reach speeds up to 100 mph. The Silverliner V’s also come equipped with a video security system and a passenger assistance intercom. It is anticipated that this new fleet will consume one percent less electricity or approximately two million kilowatt-hours (kWh) annually than the older vehicles. At \$0.07/kWh, savings from electricity conservation amounts to \$140,000 of savings per year. Rail car replacement is also expected to reduce operational costs due to a reduction in labor and materials required for maintenance.

## SEPTA REGIONAL RAIL LINES

The 13-line Regional Rail system operates on 12 branches, a few of which are shared. **Table 2-8** identifies the maximum allowable speed (MAS) and annual vehicle miles traveled (VMT) for each line on the Regional Rail system. The Wilmington/Newark Line and the Trenton Line are run on Amtrak’s NEC and are not included in the table.

**Table 2-8: SEPTA MAS and VMT**

Regional Rail Line	MAS (mph)	VMT	Annual Vehicle Hours
Airport Line	79	829,849	38,243
Chestnut Hill East Line	40	715,617	33,056
Chestnut Hill West Line	50	688,546	32,213
Lansdale/Doylestown Line	50	3,167,589	119,376
Fox Chase Line	60	586,684	27,556
Paoli/Thorndale Line (Amtrak Keystone Corridor)	60	3,351,433	124,783
Cynwyd Line (Ivy Ridge Line)	20	35,912	1,594
West Trenton Line (CSX Trenton Subdivision)	70	2,248,590	76,416
Manayunk/Norristown Line	60	1,021,411	36,978
Warminster Line	60	1,251,873	49,426
Media/Elwyn Line	60	1,050,870	48,252
Wilmington/Newark Line (Amtrak NEC Corridor)	70	2,143,420	68,466
Trenton Line (Amtrak NEC Corridor)	70	2,898,422	84,019

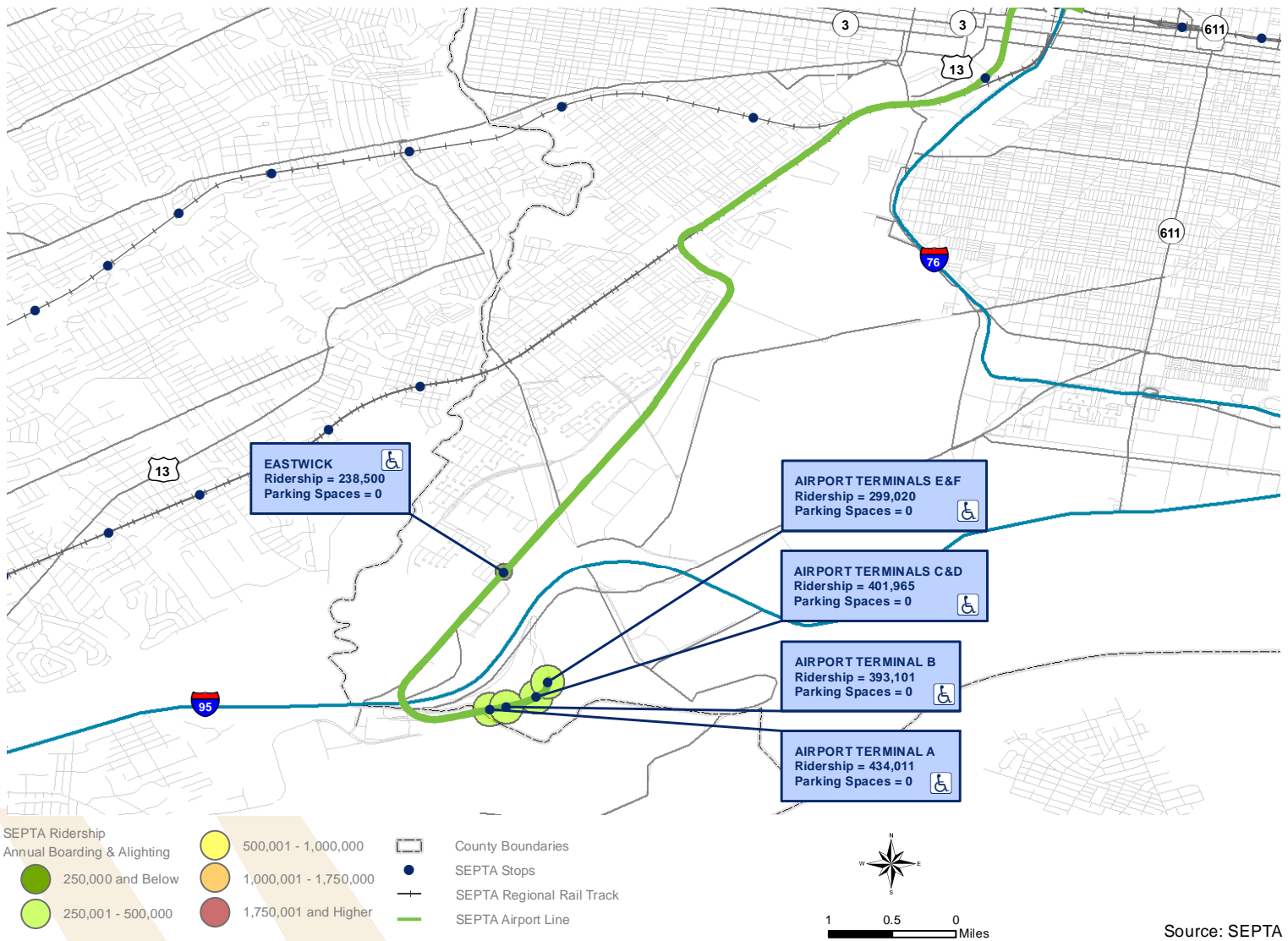
Source: SEPTA



## Airport Line

The Airport Line operates from Temple University to the Philadelphia International Airport. SEPTA offers 78 trips daily, with service running from 4:18 am to 12:44 am. Service on weekdays, Saturdays and Sundays is offered every 30 minutes and trains make stops at ten stations along the line. The Airport line is approximately 11.6 miles one-way, with ten vehicles in operation at peak time service. Daily average ridership is approximately 6,550 passengers, making this line the ninth busiest line in the system. **Figure 2-4** illustrates SEPTA's Airport Line.

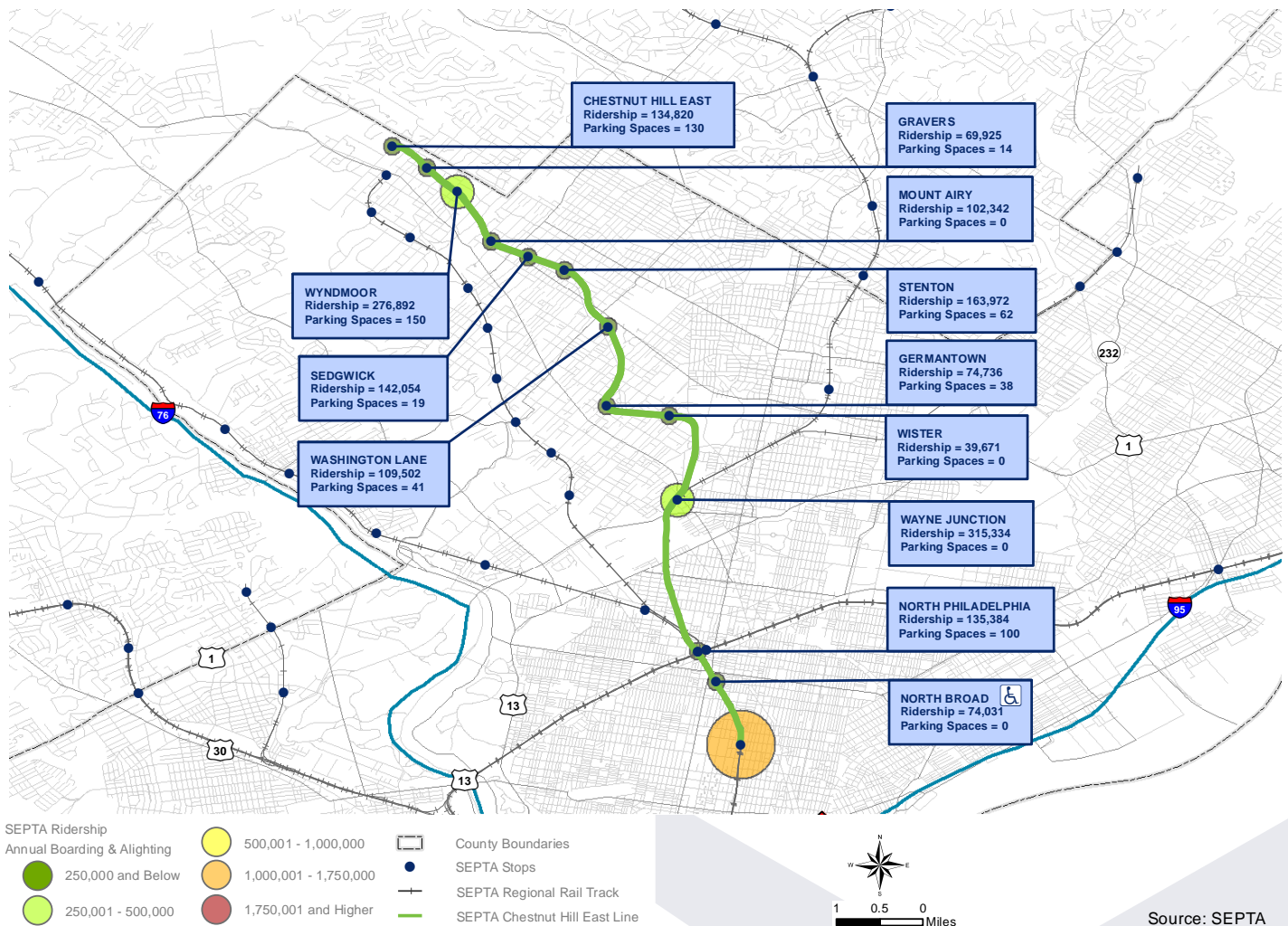
**Figure 2-4: SEPTA Airport Line**



## Chestnut Hill East Line

The Chestnut Hill East Line operates from 30<sup>th</sup> Street Station to the Chestnut Hill neighborhood in northwest Philadelphia. There are 48 weekday trips with service running from 5:55 am to 1:42 am daily; 35 Saturday trips with service from 6:37 am to 12:20 am; and 34 Sunday trips with service running from 6:11 am to 12:20 am. There are 14 stops along the line with weekday service offered every 25 minutes and weekend service every 60 minutes. The Chestnut Hill East Line is approximately 12.2 miles one way, with 11 vehicles in operation at peak time. Daily average ridership is 5,490 passengers, ranking this line eleventh in passenger ridership. **Figure 2-5** illustrates SEPTA's Chestnut Hill East Line.

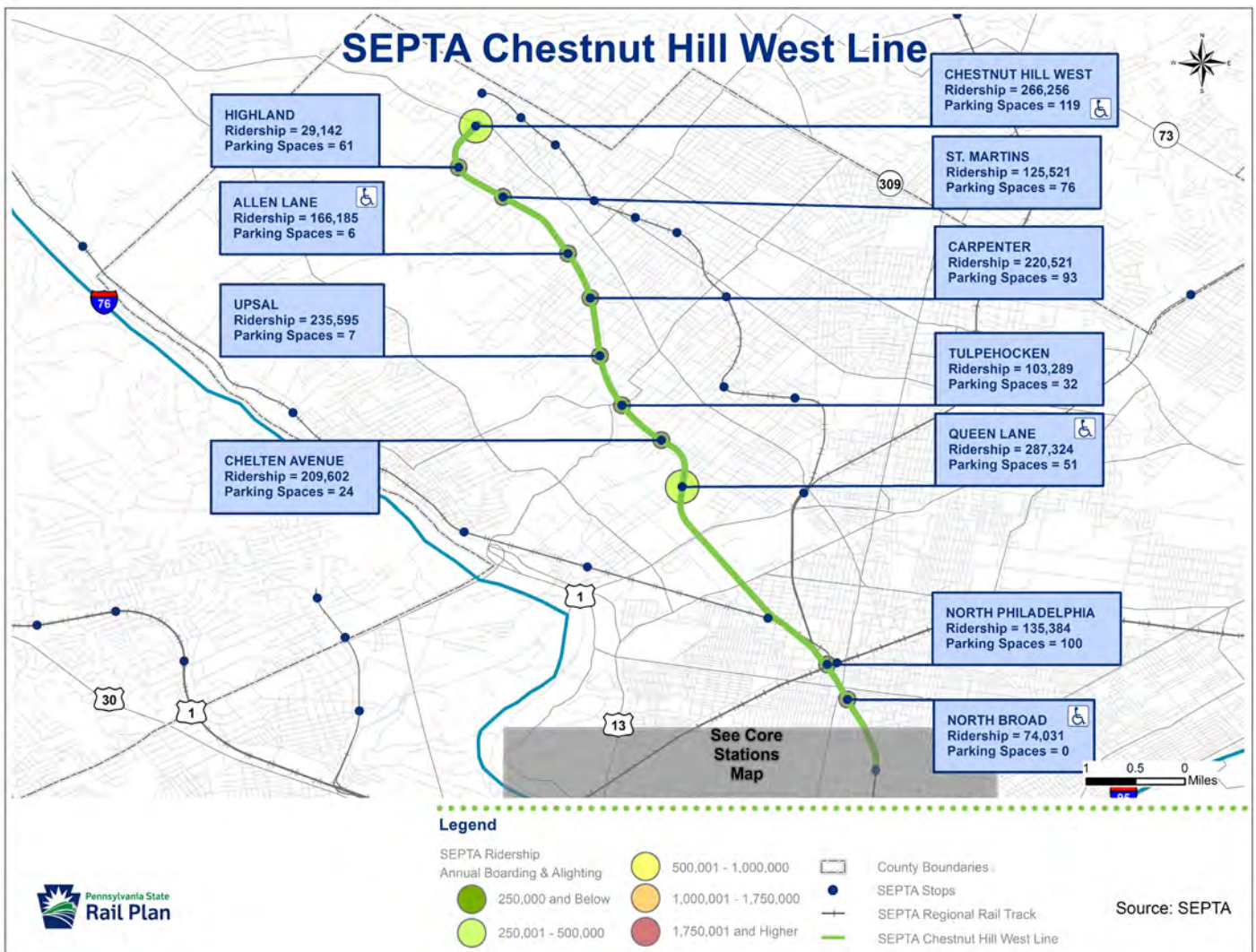
**Figure 2-5: SEPTA Chestnut Hill East Line**



## Chestnut Hill West Line

The Chestnut Hill West Line operates from Temple University to the west side of the Chestnut Hill neighborhood in northwest Philadelphia. There are 50 weekday trips running from 5:44 am to 12:23 am; 33 trips from 7:08 am to 11:34 pm Saturdays; and 22 trips running from 6:38 am to 11:34 pm Sundays. The line is approximately 14.7 miles one way, with 14 vehicles in operation at peak times. The Chestnut Hill West Line makes stops at 14 locations. Daily average ridership is 5,505 passengers, ranking tenth out of the 13 lines on the Regional Rail system. **Figure 2-6** illustrates SEPTA's Chestnut Hill West Line.

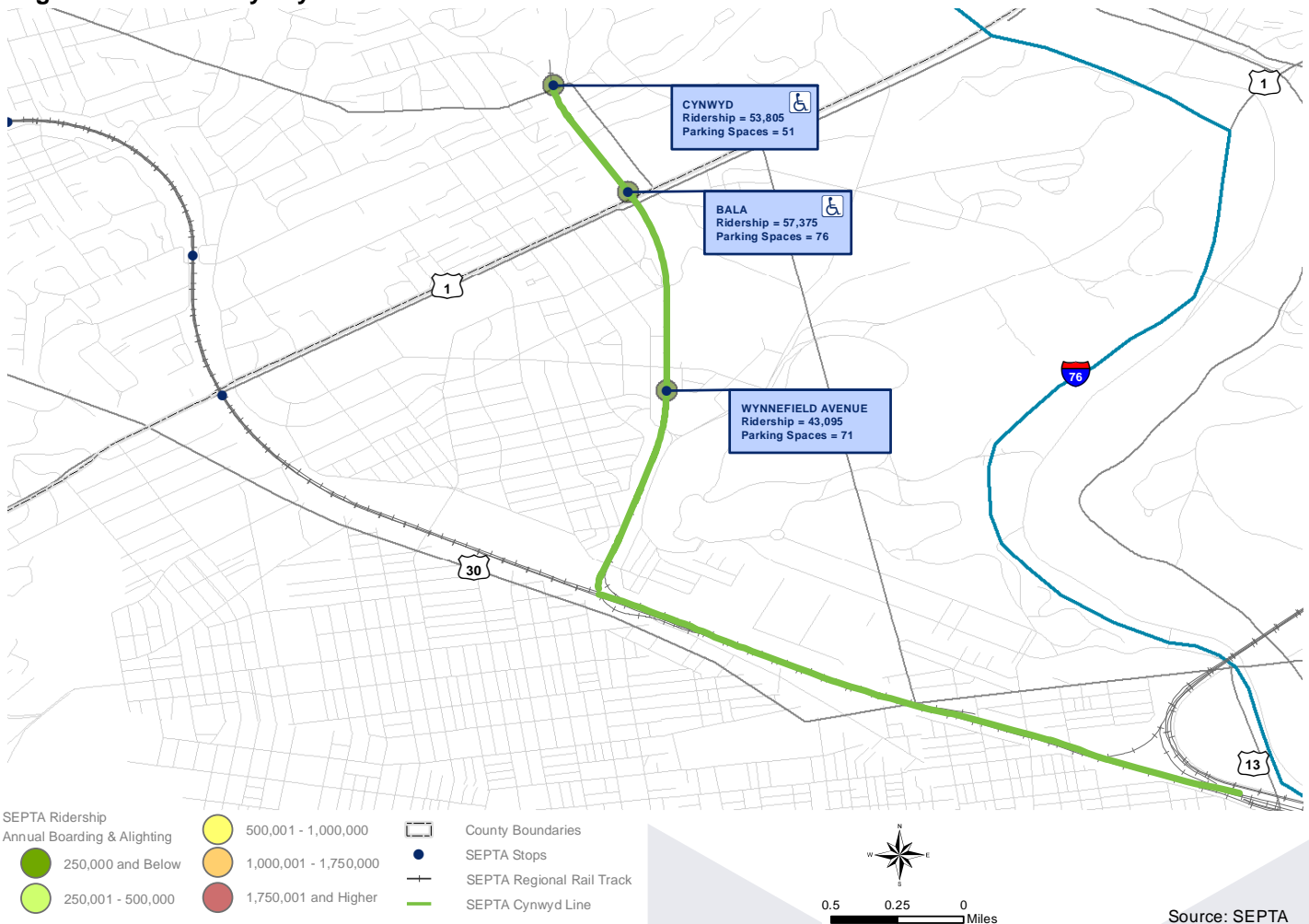
**Figure 2-6: SEPTA Chestnut Hill West Line**



## Cynwyd Line

The Cynwyd Line operates from Center City Philadelphia to Bala Cynwyd, Montgomery County. This line offers 21 daily weekday trips from 6:29 am to 8:19 pm. There is no Saturday or Sunday service. The Cynwyd Line is approximately 6.1 miles one way, with two vehicles in operation at peak times making stops at five locations. This line has the lowest average daily ridership on the Regional Rail Line, with 661 passengers. **Figure 2-7** illustrates SEPTA's Cynwyd Line.

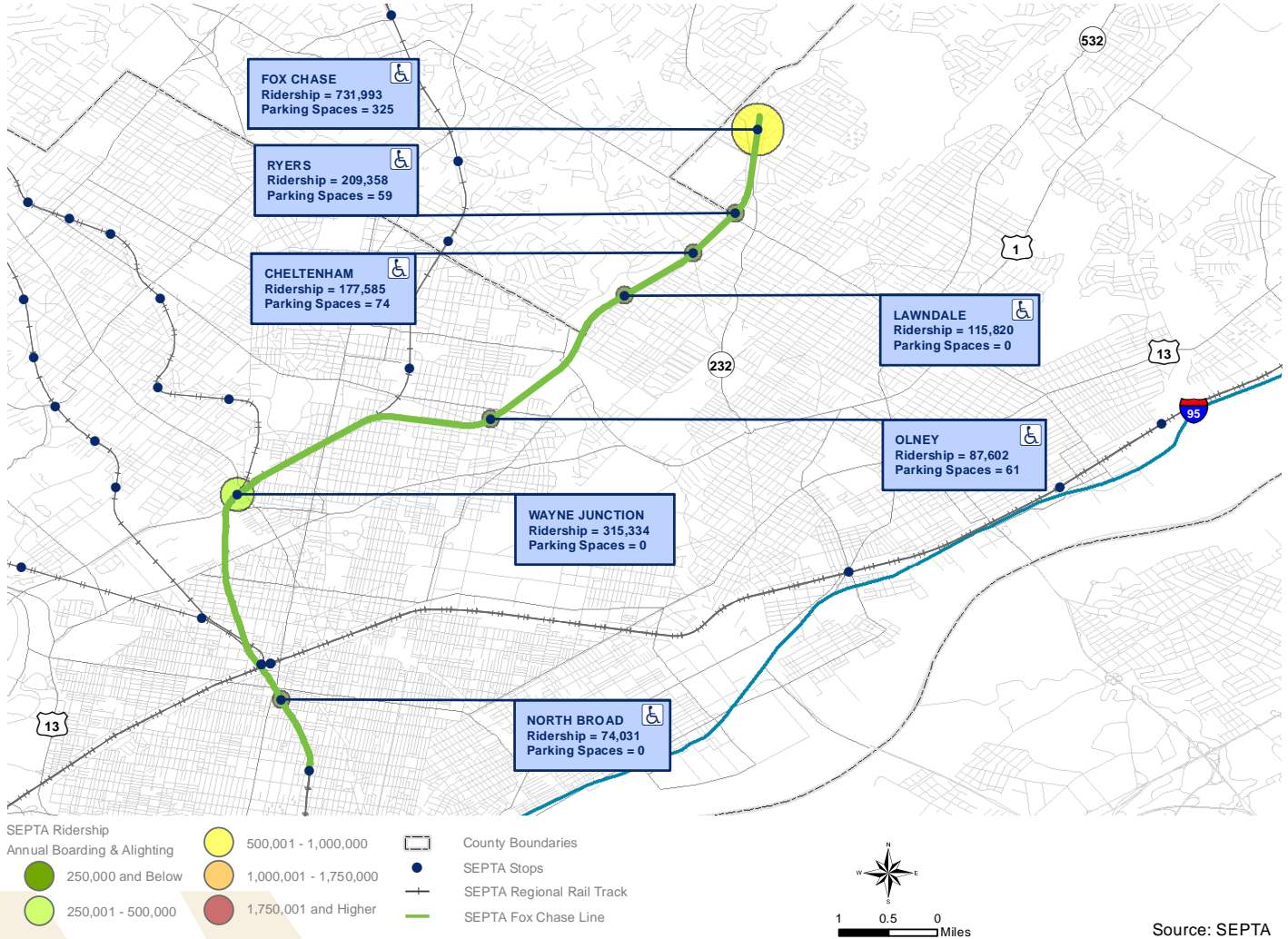
**Figure 2-7: SEPTA Cynwyd Line**



## Fox Chase Line

The Fox Chase Line operates from 30<sup>th</sup> Street Station to northeast Philadelphia. The Fox Chase Line offers 45 daily trips on weekdays from 5:49 am to 11:56 pm; 32 trips on Saturdays from 6:49 am to 11:10 pm; and 20 trips on Sundays from 7:49 am to 10:23 pm. In peak times, 14 trains are in operation, and the route stops at ten locations along its route. The line is approximately 12.5 miles one way, and has an average daily ridership of 5,496 passengers, the second-fewest on the Regional Rail system. **Figure 2-8** illustrates SEPTA's Fox Chase Line.

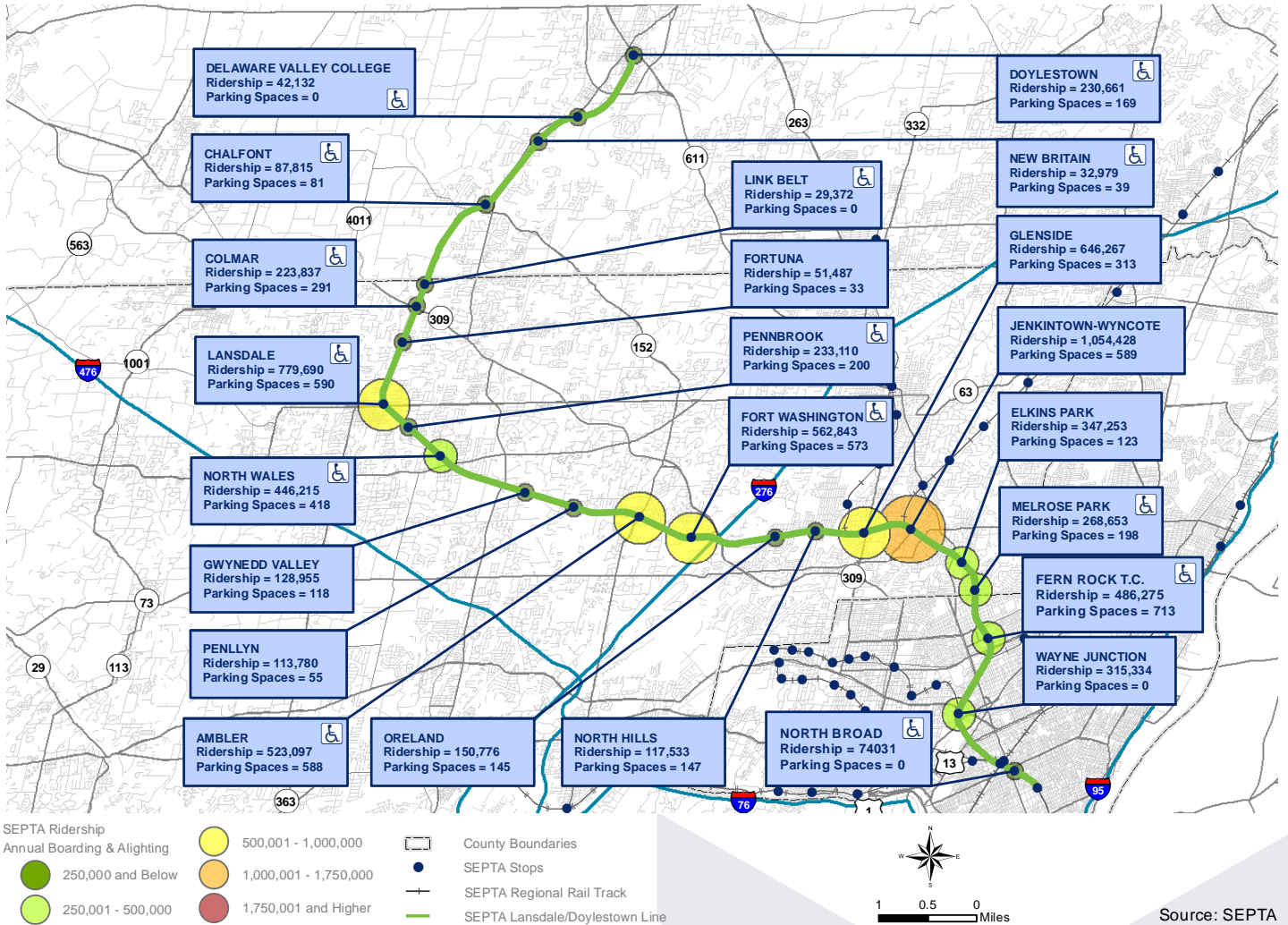
**Figure 2-8: SEPTA Fox Chase Line**



## Lansdale/Doylestown Line

The Lansdale/Doylestown Line operates from Center City Philadelphia to Doylestown, Bucks County. The line offers 75 daily trips on weekdays from 5:17 am to 1:16 am, with 34 trips on Saturdays and Sundays from 6:28 am to 12:49 am. Lansdale/Doylestown Line is approximately 35.8 miles one way. With an average daily ridership of 16,343 passengers, it is the second most popular line on the Regional Rail system. The Lansdale/Doylestown Line stops at 27 locations along its route and has 40 vehicles in operation at peak times. **Figure 2-9** illustrates Lansdale/Doylestown Line.

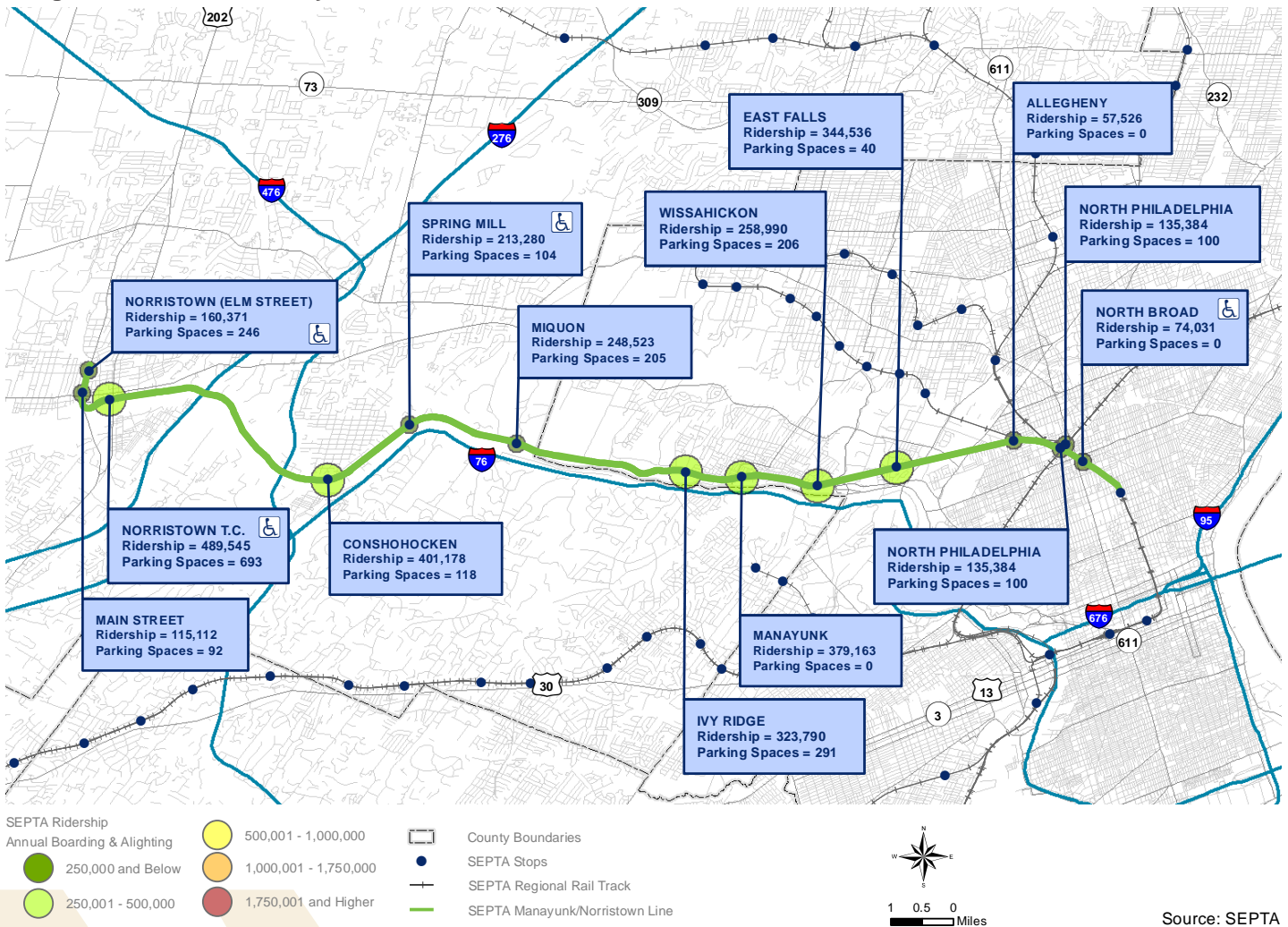
**Figure 2-9: SEPTA Lansdale/Doylestown Line**



## Manayunk/Norristown Line

The Manayunk/Norristown Line operates from Center City Philadelphia to Norristown, Montgomery County. The line offers 51 daily trips on weekdays from 5:43 am to 1:26 am; 38 trips on Saturdays from 6:46 am to 2:31 am; and 34 trips on Sundays from 6:46 am to 12:09 am. In peak times, 22 vehicles are used and the line makes stops at 15 locations. The Manayunk/Norristown Line is approximately 19.5 miles one way with an average daily ridership of 10,478 passengers, making this line the 6th most popular. **Figure 2-10** illustrates SEPTA's Manayunk/Norristown Line.

**Figure 2-10: SEPTA Manayunk/Norristown Line**

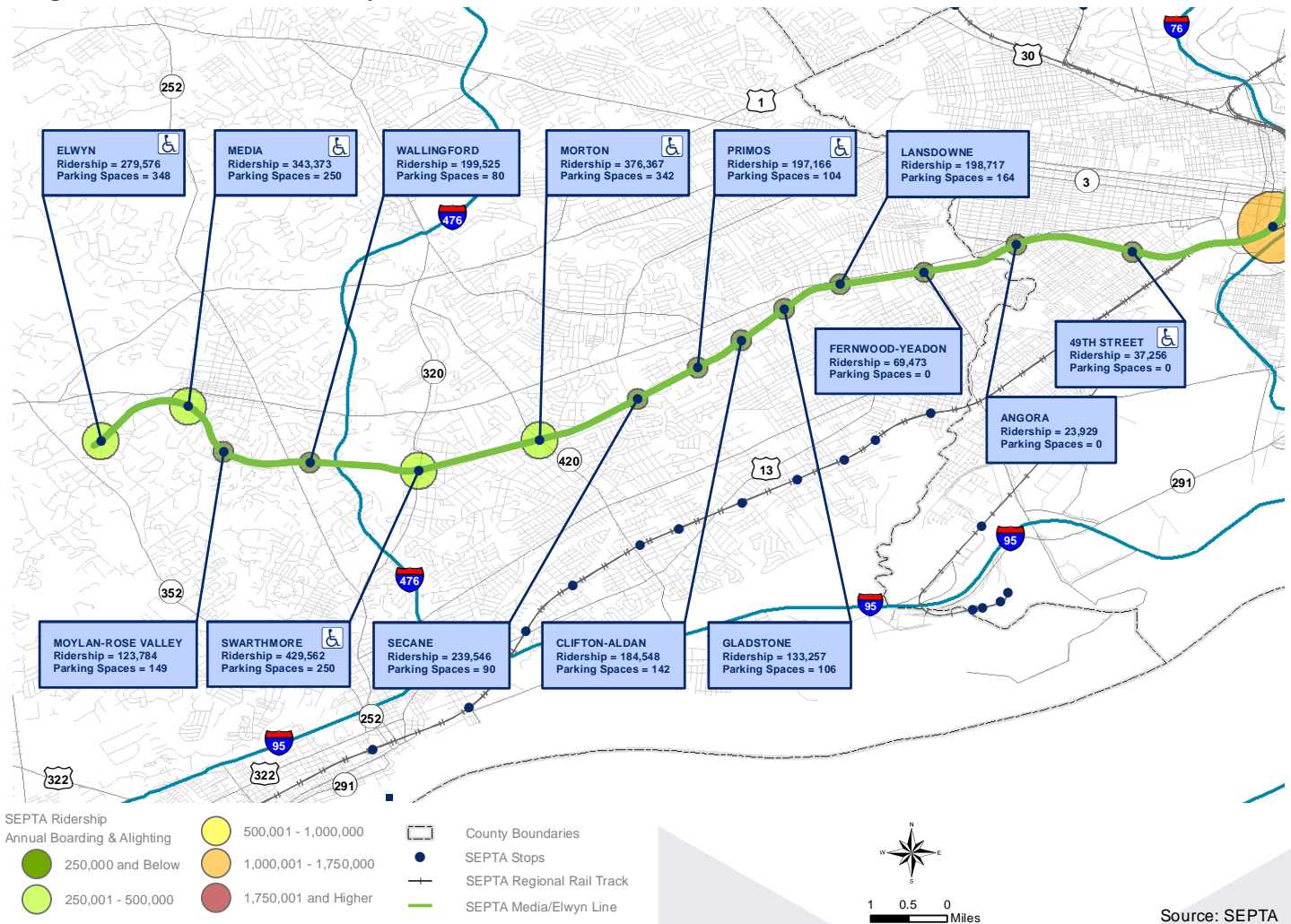


Source: SEPTA

## Media/Elwyn Line

The Media/Elwyn Line operates from Center City Philadelphia to Elwyn, Delaware County. The line offers 55 daily weekday trips from 5:35 am to 12:44 am; 34 trips on Saturdays from 6:05 am to 11:49 pm; and 28 trips on Sundays from 8:05 am to 11:49 pm. The Media/Elwyn Line is approximately 16.5 one way route miles and has an average daily ridership of 10,867, making the Media/Elwyn Regional Line the fifth most popular line. The line stops at 19 locations and operates 23 vehicles at peak times. **Figure 2-11** illustrates SEPTA's Media/Elwyn Line.

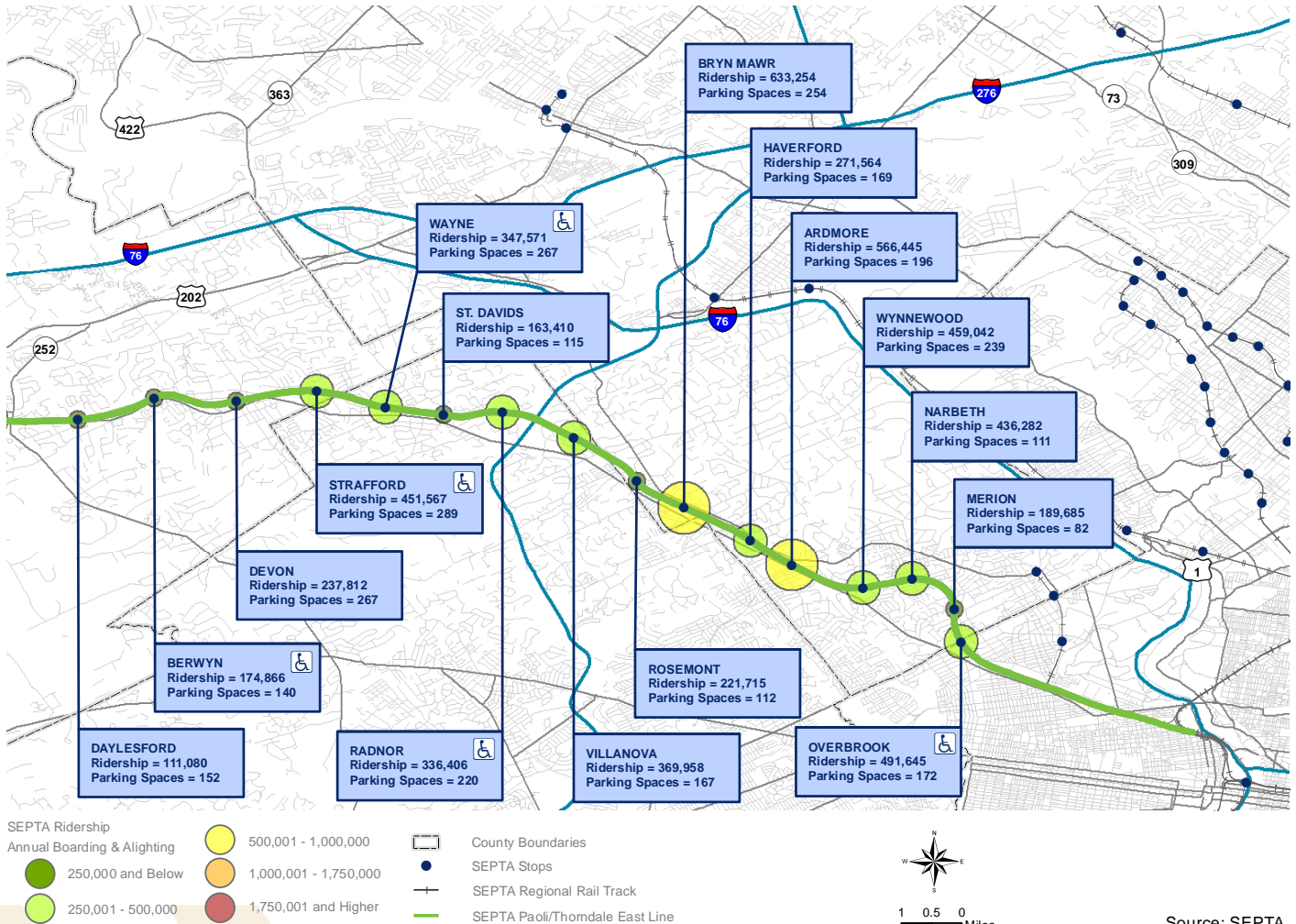
**Figure 2-11: SEPTA Media/Elwyn Line**



## Paoli/Thorndale Line

The Paoli/Thorndale Line operates from Center City Philadelphia, to Thorndale, Chester County. The line offers 87 daily weekday trips from 4:58 am to 1:03 am; 60 Saturday trips from 6:09 am to 2:33 am; and 34 Sunday trips from 6:26 am to 1:33 am. The Paoli/Thorndale Line is approximately 37.9 one way route miles, and has an average daily ridership of 21,618 passengers. **Figure 2-12** and **Figure 2-13** describe SEPTA's Paoli/Thorndale Line.

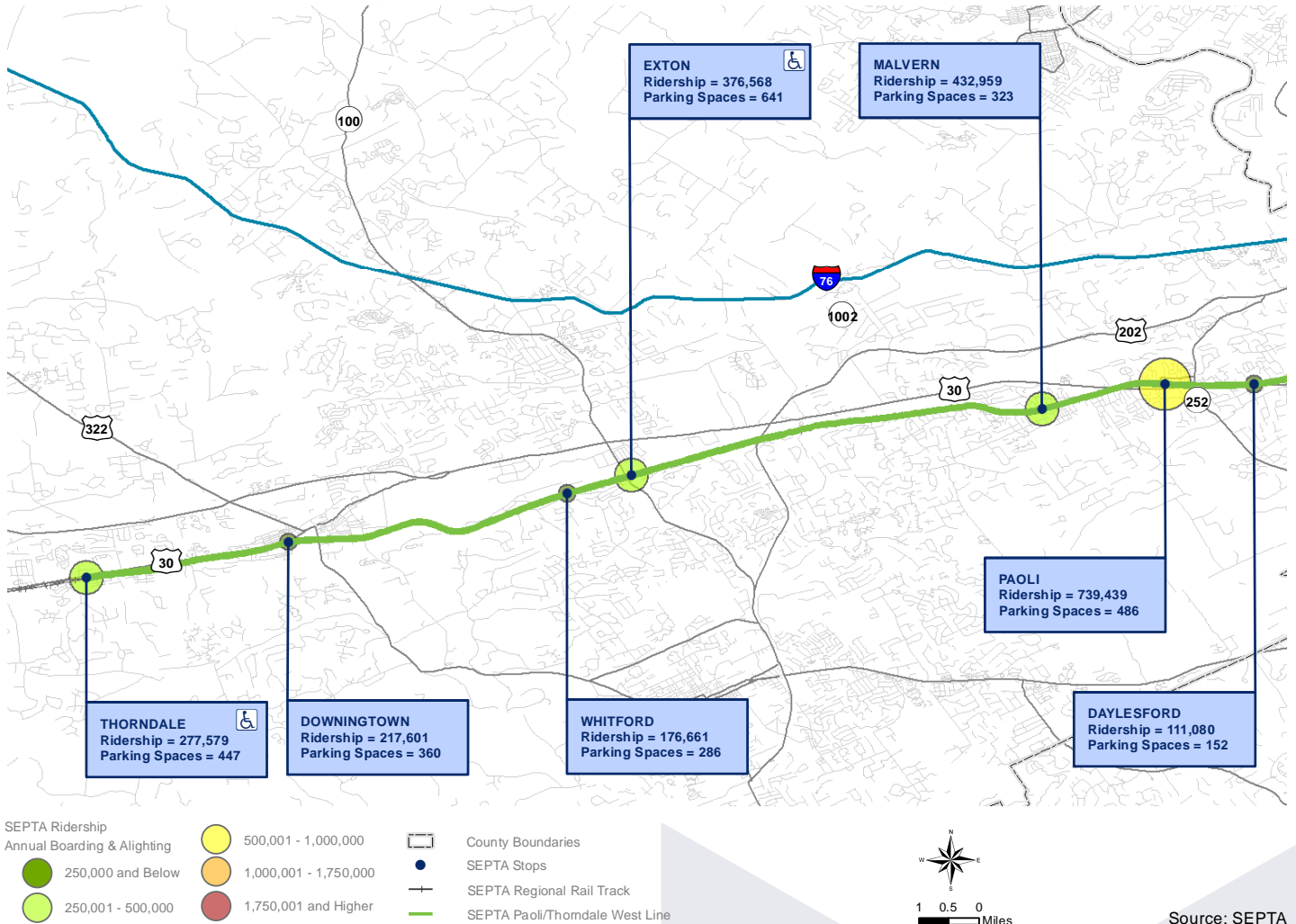
**Figure 2-12: SEPTA Paoli/Thorndale Line (East)**



Source: SEPTA

Making stops at 26 locations and operating 66 vehicles at peak times, the line has the highest number of passengers in the Regional Rail system. This line also shares operations with Amtrak's Keystone and Pennsylvanian Services. The Keystone Service has 14 weekday trips for between New York and Harrisburg while one train per day continues westward from Harrisburg connecting Pittsburgh to New York's Penn Station.

**Figure 2-13: SEPTA Paoli/Thorndale Line (West)**

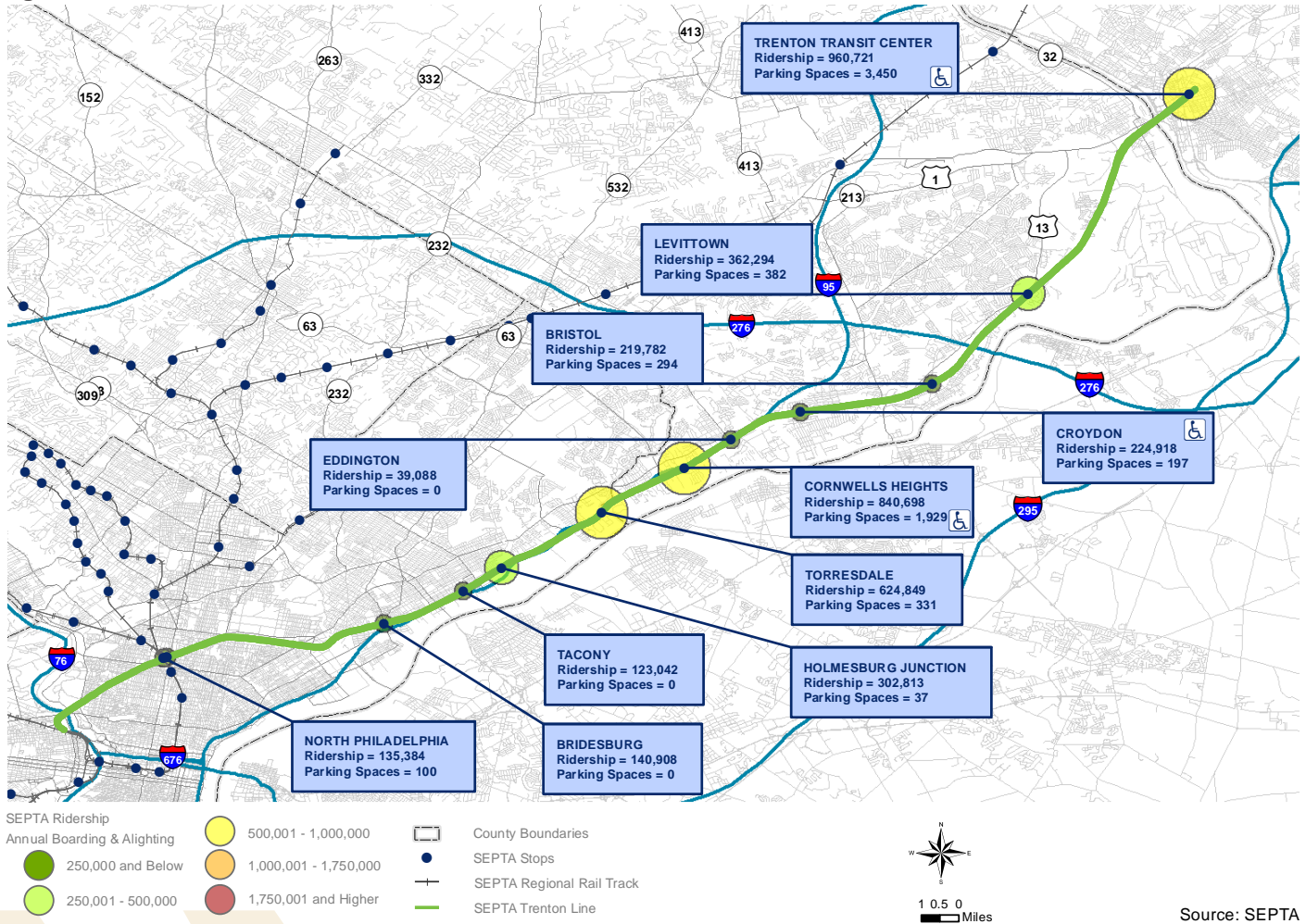


## 2. THE STATE'S EXISTING RAIL SYSTEM

## Trenton Line

The Trenton Line operates from Center City Philadelphia to Trenton, New Jersey. The line offers 60 daily weekday trips from 4:15 am to 1:20 am; 38 Saturday trips from 5:34 am to 2:47 am; and 37 Sunday trips from 5:34 am to 1:00 am. The Trenton Line averages 36.4 miles one way, and has an average daily ridership of 12,157 passengers, making it the fourth busiest line on the Regional Rail system. The line operates on a shared section of Amtrak's NEC, making 15 local stops between Philadelphia and Trenton. During peak times, 36 vehicles are in operation on the Trenton Line. **Figure 2-14** illustrates SEPTA's Trenton Line.

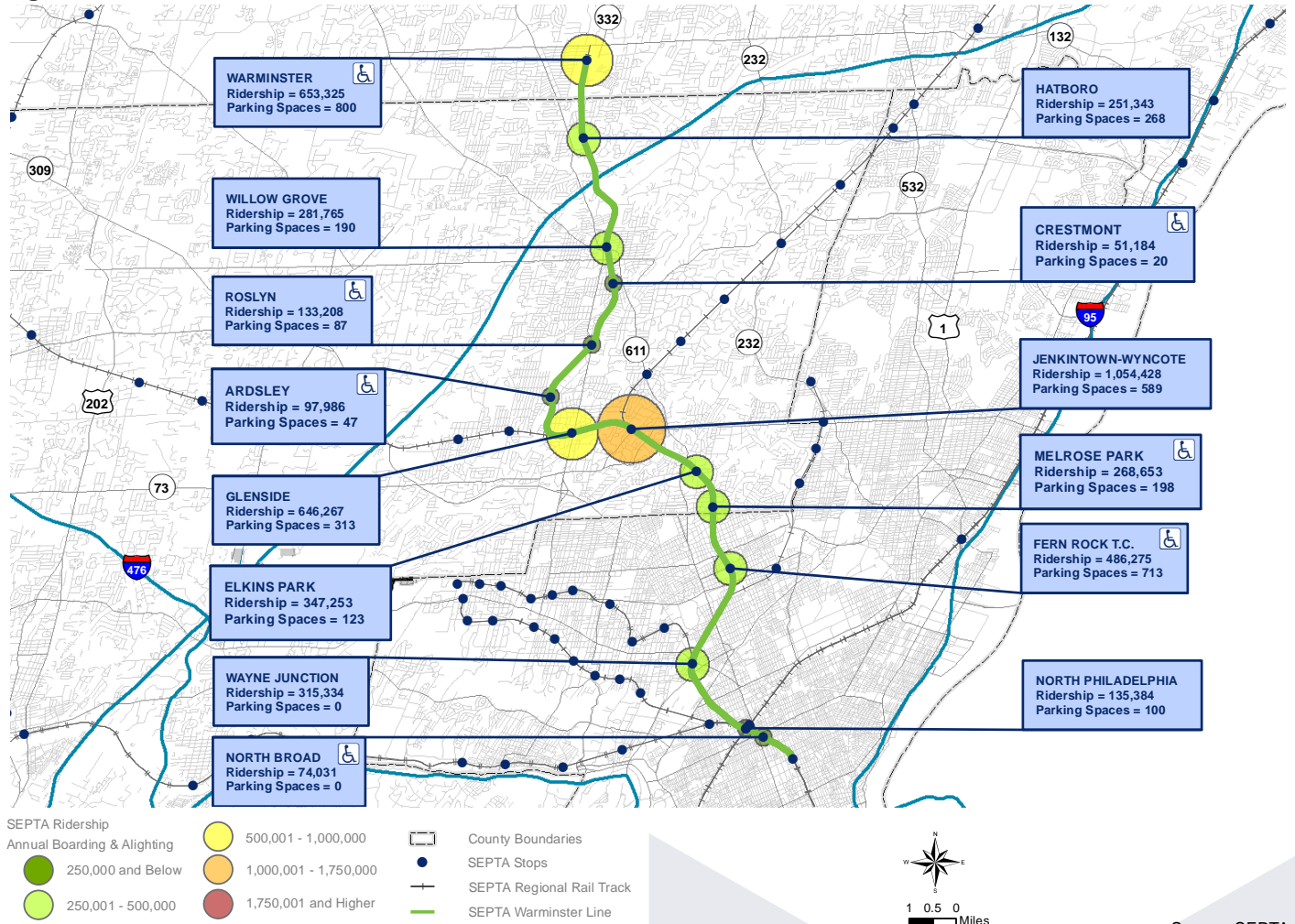
**Figure 2-14: SEPTA Trenton Line**



## Warminster Line

The Warminster Line operates from Center City Philadelphia to Warminster, Bucks County. The line provides 57 daily weekday trips from 4:08 am to 1:03 am and 42 trips from 4:08 am to 1:05 am on Saturdays and Sundays. This line is approximately 22.3 one way miles with a daily average ridership of 8,580 passengers. At peak time, 20 vehicles are in operation, and the line makes stops at 18 locations. The Warminster Line is the eighth busiest line on the Regional Rail system. **Figure 2-15** illustrates SEPTA's Warminster Line.

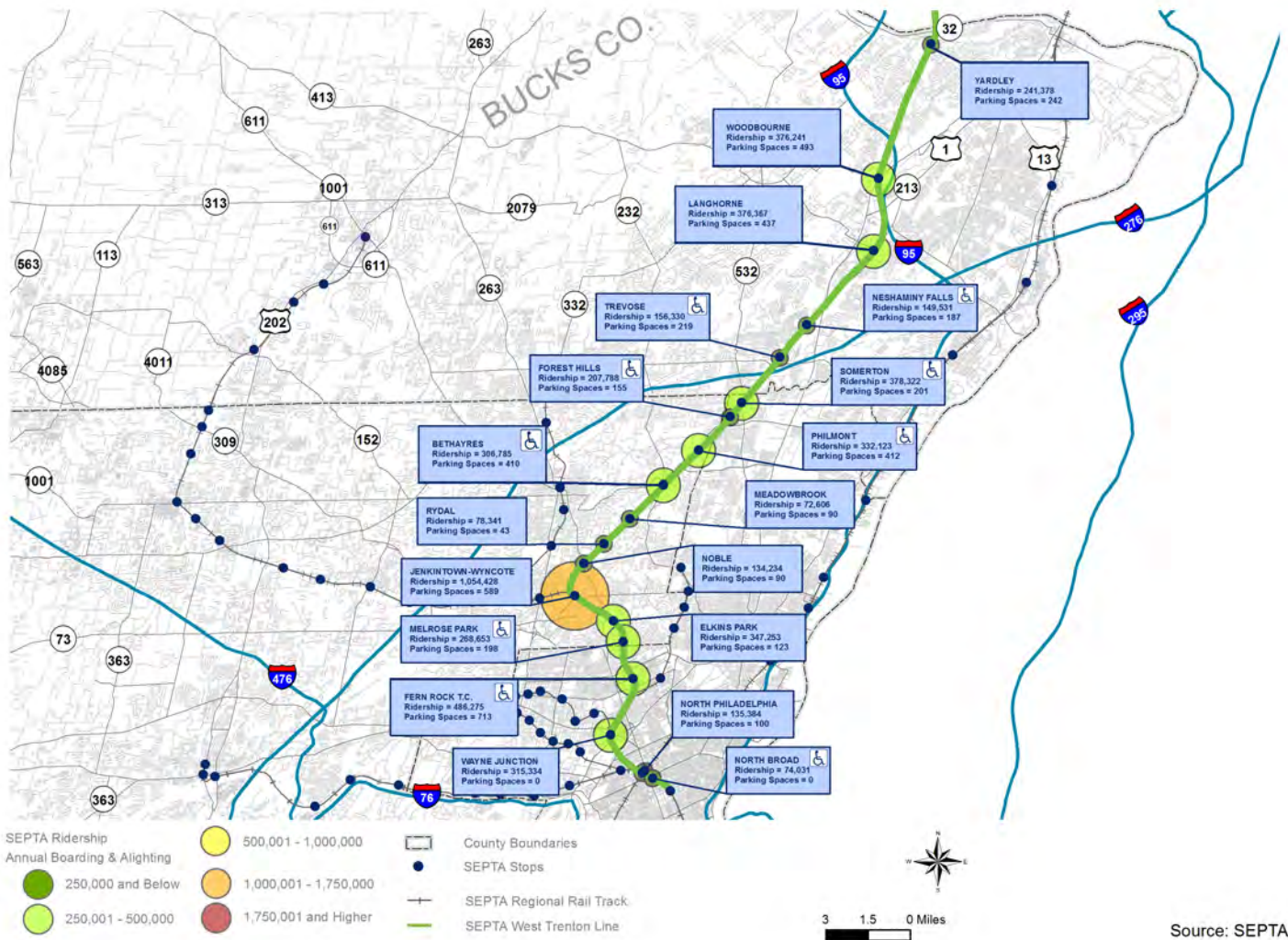
**Figure 2-15: SEPTA Warminster Line**



## West Trenton Line

The West Trenton Line operates from Center City Philadelphia to West Trenton, Mercer County, NJ. The line provides 55 daily weekday trips from 5:12 am to 12:47 am are 36 trips from 5:58 am to 1:04 am on Saturdays and Sundays. The West Trenton Line is approximately 34.7 one way miles, with an average daily ridership of 12,569 passengers. The line has 36 vehicles in service at peak times and makes stops at 23 locations along the route. **Figure 2-16** illustrates SEPTA's West Trenton Line.

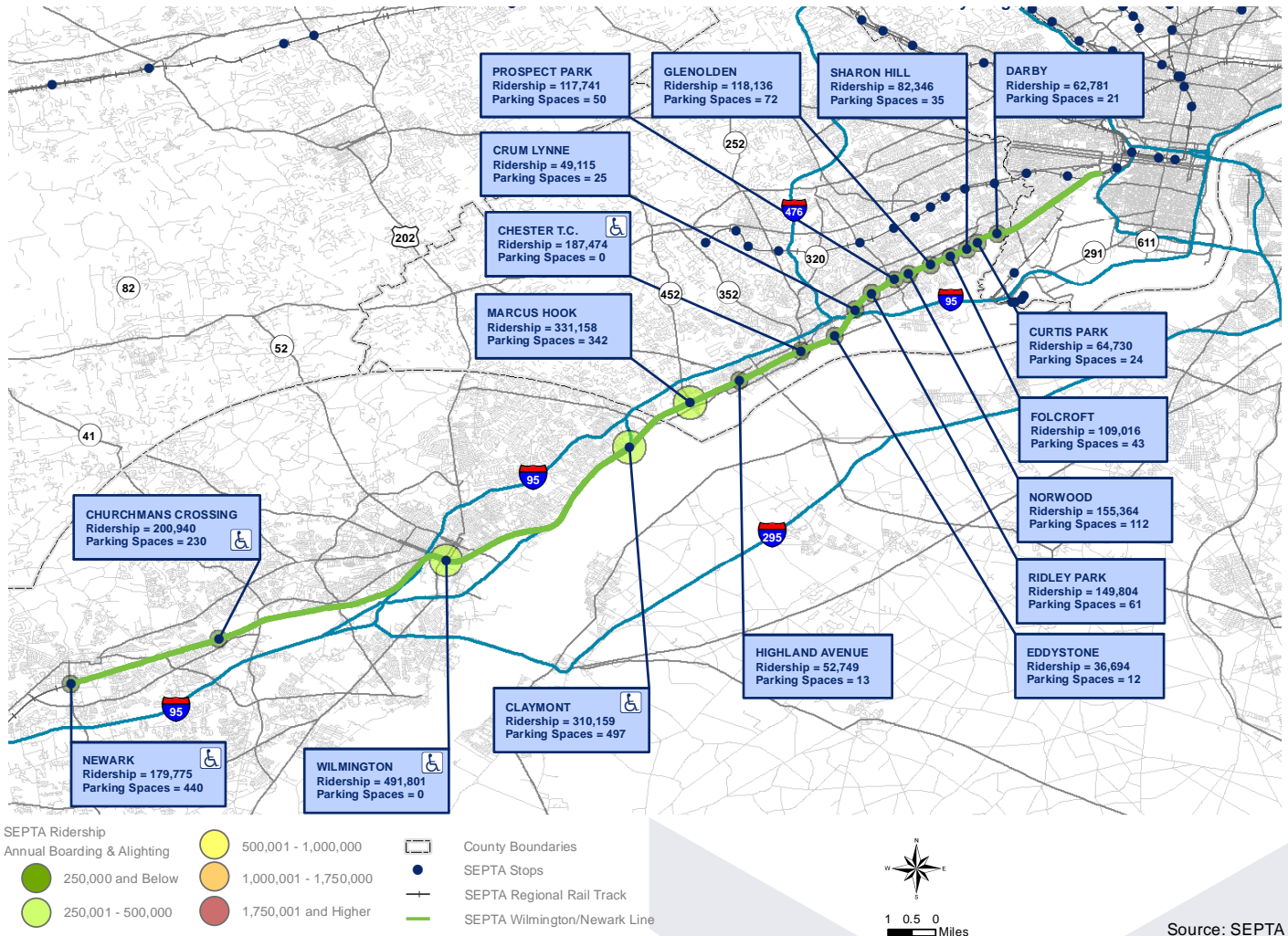
**Figure 2-16: SEPTA West Trenton Line**



## Wilmington/Newark Line

The Wilmington/Newark Line operates from Center City Philadelphia to Newark, New Castle County, Delaware. The line provides 56 daily weekday trips from 4:51 am to 1:22 am; 34 trips on Saturdays from 5:43 am to 12:11 am; and 28 trips on Sundays from 7:23 am to 10:30 pm. At peak times, 33 vehicles are in operation making stops at 21 locations along the route. The Wilmington/Newark Line is approximately 41.1 one way miles and has daily average ridership of 9,654 passengers, making this the seventh busiest line in the Regional Rail system. **Figure 2-17** illustrates SEPTA's Wilmington/Newark Line.

**Figure 2-17: SEPTA Wilmington/Newark Line**





### Wilmington Station

Source: US Recovery Board

## SEPTA MAJOR STATIONS

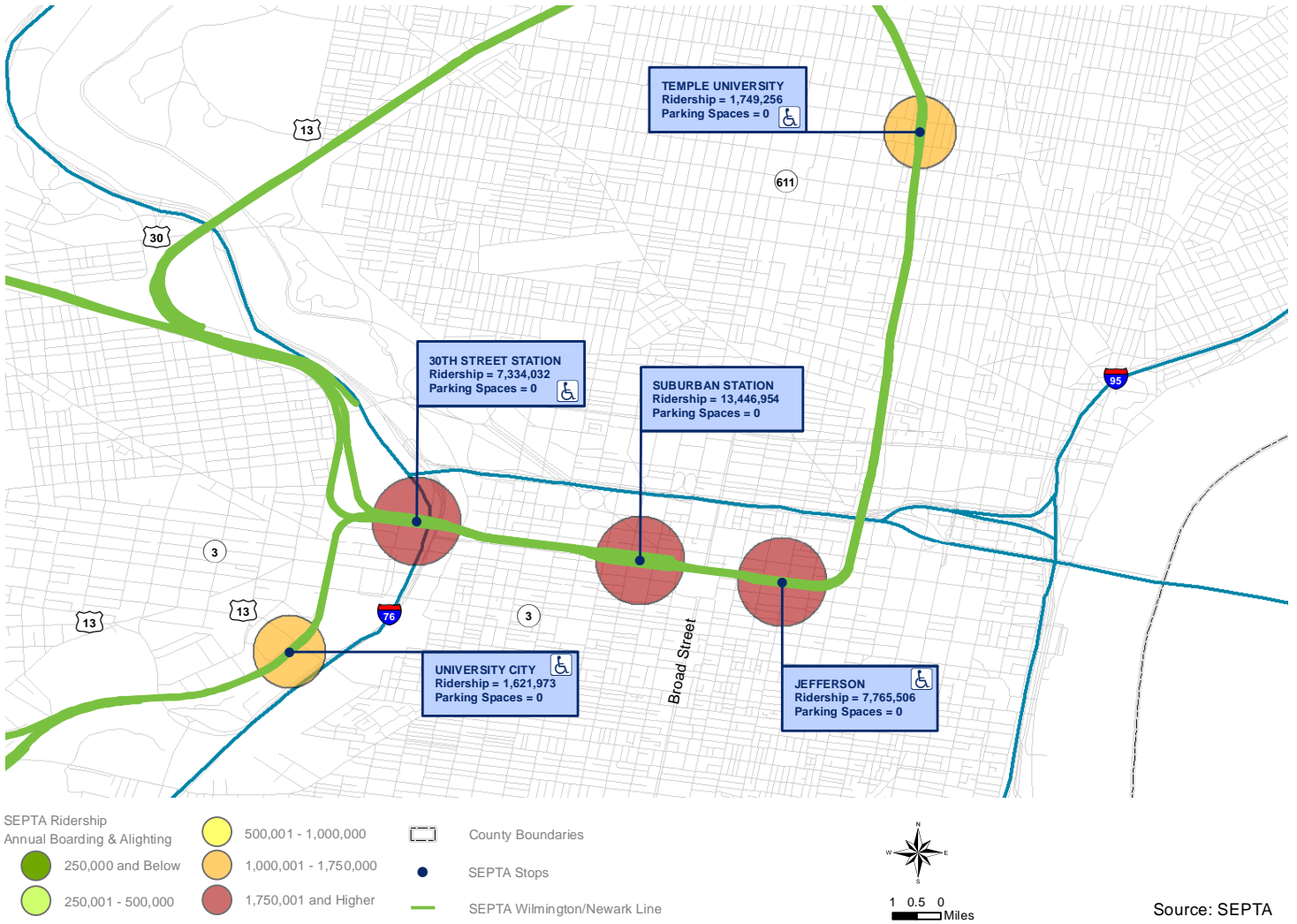
**Table 2-9** provides average weekday and weekend boarding and alighting information for SEPTA’s major stations. **Figure 2-18** illustrates SEPTA’s core stations.

**Table 2-9: SEPTA Major Station Boardings and Alightings for 2013**

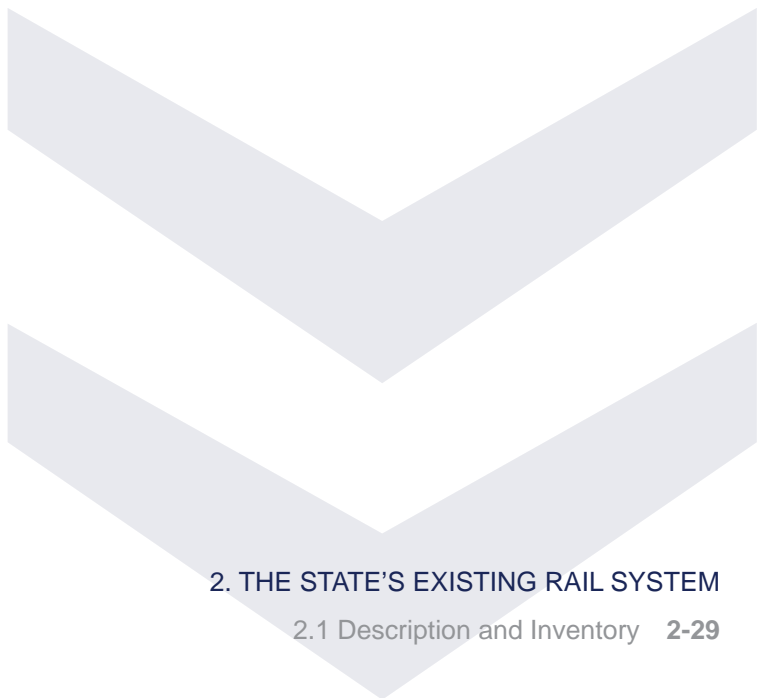
Major Station	Weekday Average		Weekend Average		Weekly Average (Weekday + Weekend)		
	Boardings	Alightings	Boardings	Alightings	Boardings	Alightings	
Suburban Station	24,775	24,775	7,470	7,470	32,245	32,245	
Jefferson Station	13,365	13,365	8,715	8,715	22,080	22,080	
30 <sup>th</sup> Street Station	12,316	12,316	9,581	9,581	21,897	21,897	
Temple University Station	3,028	3,018	2,019	1,777	5,047	4,795	
University City Station	3,091	2,950	709	781	3,800	3,731	
SEPTA Airport Terminal Stations	Terminal A	686	617	951	892	1,637	1,509
	Terminal B	561	592	897	905	1,458	1,497
	Terminal C&D	756	431	1,187	611	1,943	1,042
	Terminal E&F	450	454	694	543	1,144	997
Jenkintown-Wyncote Station	1,998	1,660	1,114	1,124	3,112	2,784	
Trenton Transit Center	1,251	1,394	2,344	2,811	3,595	4,205	
Cornwells Heights	1,657	1,545	223	223	1,880	1,768	
Lansdale Station	1,396	1,272	922	892	2,318	2,164	

Source: SEPTA. Average Weekday and Weekend Station Board and Alighting.

**Figure 2-18: SEPTA Core Stations**



Source: SEPTA





### *Suburban Station*

Source: HNTB Corporation

### *Suburban Station*

Suburban Station is owned and operated by SEPTA. Suburban Station provides access to all 13 Regional Rail branches. Additionally, the station provides access to the Market-Frankford and Broad Street subway lines, 14 bus routes, and five trolley routes. Suburban Station serves 13,446,954 passengers on an annual basis, making this SEPTA's busiest station.

The extensive concourse encompasses an underground network offering access to Regional Rail platforms one level below, about 50 feet below street level. The concourse provides SEPTA ticket sales offices, restaurants and retail shops. Suburban Station is also a point of access to other SEPTA stations and connections to several Center City buildings. The station is fully ADA accessible with elevators and escalators available to reach the Regional Rail platforms. Non-SEPTA operated vehicle parking is available on the surface level as on-street parking and private parking garages. There is no dedicated bicycle parking for Suburban Station, but there are numerous at-grade bicycle racks maintained by surrounding businesses and the City of Philadelphia within a few blocks of the station.



### *Jefferson Station*

Source: HNTB Corporation

### *Jefferson Station*

The newly-renamed Jefferson Station (formerly Market East Station) is a core Center City station in SEPTA's Regional Rail system. Passengers at this station have access to 12 of 13 Regional Rail lines, excluding the Cynwyd Line. In addition to Regional Rail, passengers also have access to the Market-Frankford subway line, the Broad-Ridge subway spur, and ten bus routes. Passengers using this underground station can directly reach the Philadelphia Convention Center located one level above and the Gallery Mall's retail shops, services, and restaurants connected by the many underground entranceways which provide access to the station. Passengers are also within short walking distance to Reading Terminal Market, a historic public market housed in the former Reading Terminal building.

There are two SEPTA ticket sales offices with waiting areas in this ADA-accessible station where passengers may reach the below-grade train lines via escalator, stair, or elevator. There is no vehicle or bicycle parking at this station; passengers may use on-street parking, private parking garages, and bicycle racks maintained by local businesses and the City of Philadelphia. Jefferson Station serves 7,765,506 passengers on an annual basis, making it the second busiest Regional Rail station.





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### 30th Street Station in Philadelphia, PA

Source: HNTB Corporation

#### *30<sup>th</sup> Street Station*

Located just beyond the west bank of the Schuylkill River, 30<sup>th</sup> Street Station is in the University City neighborhood of Philadelphia. The station's convenient location provides easy access to both West Philadelphia and to Center City. Built during the Great Depression, this station was once used as the headquarters to the Pennsylvania Railroad and is listed on the National Register of Historic Places.

The station provides access to all 13 Regional Rail lines, SEPTA's Market-Frankford subway line, eight SEPTA bus routes, five SEPTA trolley routes, NJ Transit's Atlantic City Line and access to intercity bus carriers Megabus and BoltBus. 30<sup>th</sup> Street Station is also a major hub for Amtrak, and a prominent stop along the Northeast and Keystone Service Corridors. Other Amtrak lines that make stops at 30<sup>th</sup> Street Station include the Acela Express, Cardinal, Carolinian, Crescent, Silver Service/Palmetto, Pennsylvanian, and Vermonter.

A glass skyway at the mezzanine level near SEPTA Regional Rail platforms connects the station with the Circa Centre, a 29-story office high-rise building. 30<sup>th</sup> Street Station boasts a large enclosed concourse/waiting area that includes SEPTA, Amtrak, and NJ Transit ticket offices with a number of dining options and services located within the station. There are three elevated Regional Rail platforms and six below-grade platforms for Amtrak and NJ Transit passenger access. There are 22 outdoor bicycle racks available at 30<sup>th</sup> Street Station, accommodating 100 bicycles as well as additional bicycle parking at the Circa Centre. Amtrak owns and operates passenger parking, providing 155 short-term spaces and 1,700 long term parking spaces. Rental car and car share options are available in the controlled-access parking lot. The station serves over 7.3 million SEPTA passengers annually and is the third busiest station in the Regional Rail system.

### *Temple University Station*

Temple University Station is the fourth busiest station in the Regional Rail system with over 1.7 million passengers annually. Located at the eastern edge of Temple University, this above-grade sheltered platform provides service to 12 of 13 Regional Rail lines, excluding the Cynwyd Line which terminates at Suburban Station. The station is bounded by Temple University to the east and residential neighborhoods to the north, west and south.

The closest transit connection to Temple University Station is provided by SEPTA bus routes 23 or 47, approximately two blocks from the station. Temple University Station has one small kiosk, which serves as the ticket office, operating Monday to Friday from 9:30 am to 7:00 pm. There are two covered bicycle racks at the surface level of the station, accommodating a total of 28 bicycles.

### *University City Station*

University City Station is in the University City neighborhood of Philadelphia. This station is served by five Regional Rail Lines: Airport Line, Warminster Line, Wilmington/Newark Line, West Trenton Line, and Media/Elwyn Line. Despite serving only five lines, University City station is the fifth busiest station, serving over 1.6 million passengers annually. Passengers can reach Regional Rail Lines by using stairs or an elevator to a sheltered platform below grade.

The station is located approximately one block from the University of Pennsylvania's Franklin Field and the Palestra, a historic arena that is home to the University of Pennsylvania sports program. University City Station is also conveniently located within approximately one-quarter mile from the Children's Hospital of Pennsylvania. The station offers access to SEPTA bus routes 12, 40, and the LUCY (Loop through University City). There is a ticket office located inside of the station that is open from 6:00 am to 6:00 pm Monday through Friday. There are bicycle racks available on the street level, accommodating five bicycles. While there is no SEPTA operated parking at the station, parking garages are located across the street from the station.

### *SEPTA Airport Terminal Stations*

SEPTA Regional Rail Airport line serves public transit to the Philadelphia Airport. SEPTA Regional Rail Airport line includes four stations with stops that are designed to connect to six terminals at the Philadelphia International Airport. Inbound passengers to the Philadelphia International Airport may arrive at Terminal A, Terminal B, Terminals C & D, and arrive last at Terminals E & F, where the line terminates. All stations are sheltered island platforms at the surface level with the exception of Terminal E & F station, which operates as a side platform.

Each of the four stations is equipped with stairs; an escalator and an elevator that provides access to the terminal sky bridge and is located next to each terminal's respective baggage claim. All four terminals have access to SEPTA bus routes 37 and 108, in addition to private shuttle services. Vehicle parking is provided through Philadelphia International Airport. More than 19,000 parking spaces are available through garages, short term surface lots, and economy lots. There is no bicycle parking available at any terminal station. Altogether, the Airport Terminal stations provide service to over 1.5 million passengers on an annual basis, making this the sixth busiest station complex in the Regional Rail system.



### *Jenkintown-Wyncote Station*

Jenkintown-Wyncote station is located on the border of Jenkintown Borough and Wyncote neighborhood of Cheltenham Township, Montgomery County. The station is the busiest suburban station outside of the city of Philadelphia, serving approximately 1,054,438 passengers annual. Jenkintown-Wyncote station is served by the Airport Line, the Lansdale/Doylestown Line, the Warminster Line, and the West Trenton Line as well as the SEPTA bus route 77.

The Jenkintown-Wyncote ticket office is open 5:15 am to 7:15 pm Monday through Friday, and 8:00 am to 2:00 pm Saturday. The station provides both indoor and outdoor sheltered seating areas and eight bicycle racks accommodating a total of 16 bicycles. The existing station building is included in SEPTA's Fiscal Year 2015 Capital Budget proposal to receive new ADA-compliant high-level platforms, new passenger shelters, accessible stairs, ramps, sidewalks and handrail/guardrail, new signage, new lighting, stormwater management systems and landscaping. There are 589 parking spaces available, consisting of 492 daily and 97 permit parking spaces which are often at capacity.

### *Trenton Transit Center*

Trenton Transit Center is located in the City of Trenton, Mercer County, NJ. The station is the eighth busiest station on the Regional Rail system, and the busiest station outside of Pennsylvania, serving 960,721 SEPTA passengers annually. This transit center acts as an intermediate station for Amtrak trains traveling on the NEC. Amtrak's Acela Express, Cardinal/Hoosier State, Carolinian/Piedmont, Crescent, Keystone Service, Palmetto/Silver Service, Pennsylvanian, Northeast Regional, and Vermonter routes all make stops at Trenton Transit Center. SEPTA's Trenton Line Regional Rail terminates at this station, along with NJ Transit's NEC commuter line to New York City, and the light rail River Line to Camden, NJ. Bus service at this station includes SEPTA bus route 127 and ten NJ Transit bus routes.

Trenton Transit Center has two levels. The upper level consists of ticket offices open seven days a week, ticket machines, several dining options and restrooms. The lower level can be accessed by stair or elevator to the two center island platforms for SEPTA, Amtrak, and NJ Transit train lines. There are two bicycle racks accommodating a total of ten bicycles. NJ Transit recently completed a \$54 million renovation of the Trenton Transit Center, adding restaurant space, retail shops, a new waiting area, bus shelter and public plaza. The renovation also replaced all elevators and escalators. There are 3,450 available parking spaces at Trenton Transit Center with 1,900 spaces owned by NJ Transit and 1,550 privately owned spaces.

### *Cornwells Heights*

Cornwells Heights station is in the Cornwells Heights neighborhood of Bensalem Township, Bucks County, located in the northeast suburbs of Philadelphia. This station is served by the SEPTA Trenton Line as well as limited Amtrak service on the Keystone and Northeast Regional routes. SEPTA bus routes 78, 129, and 304 are accessible at this station. Passengers may use an enclosed waiting room to get tickets. Two bicycle racks are available to accommodate a total of four bicycles. SEPTA maintains 329 parking spaces, with an additional 1,279 Amtrak and privately maintained parking spaces for a total of 1,600 parking spaces. The large park-and-ride facility, along with easy access to Interstate 95, contribute to making the Cornwells Heights station the ninth busiest station on the Regional Rail system, with 840,698 passengers served annually.



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### Lansdale train station

Source: HNTB Corporation

### Lansdale Station

Lansdale Station is located in Lansdale Borough, Montgomery County. It is located approximately 34 miles northwest of Center City Philadelphia. The station is served by the Lansdale/Doylestown Regional Rail Line and is accessible to SEPTA bus routes 96 and 132. The Lansdale Station is the tenth busiest in the Regional Rail system, with 779,690 annual passengers. Lansdale station is located in the heart of downtown Lansdale. Abundant parking and easy access from surrounding municipalities make the station a popular stop in Montgomery County.

The historic station built in 1902 houses an ample-sized waiting area, restrooms, and a ticket office open from 5:00 am to 5:30 pm Monday through Friday, and 8:00 am to 2:00 pm Saturday. Most of the surface level platforms are sheltered by an extended roof. The station provides four bicycle racks that accommodate eight bicycles. The SEPTA-maintained parking lot to the northwest of the station has 497 parking spaces available while the Borough of Lansdale provides another 93 parking spaces, all often full. SEPTA is presently collaborating with Lansdale Borough and private developers to construct a parking garage on a portion of the existing SEPTA-owned parking lot in order to increase parking, as ridership continues to grow along the Lansdale/Doylestown line.



## NEW JERSEY TRANSIT

New Jersey Transit (NJ Transit) is the primary public transportation system serving the state of New Jersey, and also connects New Jersey to Philadelphia, New York City, as well as Orange and Rockland counties in New York. NJ Transit operates commuter rail, light rail, and bus services statewide.

NJ Transit operates the Atlantic City Line between Atlantic City, NJ and Philadelphia's 30<sup>th</sup> Street Station. Along with SEPTA, the Atlantic City Line shares Amtrak's Northeast Corridor track between 30<sup>th</sup> Street Station and the Delair Bridge, where it crosses the Delaware River into New Jersey and operates on NJ Transit owned right-of-way to Atlantic City.

NJ Transit runs 23 weekday daily trains from 4:33 am to 2:28 am. On Saturdays, Sundays, and holidays the Atlantic City Line runs from 5:38 am to 11:29 pm. Trains operate evenly throughout the day with no peak-period commuter orientation to its schedules. Travel from Atlantic City to 30<sup>th</sup> Street Station is approximately 95 minutes.

Atlantic City Line operates at an on-time performance of 95.2 percent for Fiscal Year 2014. Average weekday boardings for Atlantic City's nine stations for Federal Year 2012 appear in **Table 2-10**.

**Table 2-10: NJT Atlantic City Line Station Boardings**

Station	Weekday Boardings
Atlantic City	944
Absecon	238
Egg Harbor City	186
Hammonton	176
Atco	120
Lindenwold	445
Cherry Hill	262
Pennsauken Transit Center	N/A*
Philadelphia 30 <sup>th</sup> Street Station	580

\*Pennsauken Transit Center opened in October 2013, ridership information not available.

Source: NJ Transit Quarterly Ridership Trends Analysis, November 2012.

## OTHER PASSENGER RAIL SYSTEMS

The Federal Transit Administration (FTA) defines commuter rail as “*short-haul rail passenger service operating in metropolitan and suburban areas, whether within or across the geographical boundaries of a state, usually characterized by reduced fare, multiple ride, and commutation tickets and by morning and evening peak period operations. This term does not include light or rapid rail transportation.*” Pennsylvania is served by two commuter rail agencies, which serve the greater Philadelphia metropolitan area. SEPTA's Regional Rail network provides extensive service in greater Philadelphia. NJ Transit provides commuter rail service in the state via one of its lines, the Atlantic City Line, which terminates at Philadelphia's 30<sup>th</sup> Street Station.

### SEPTA

SEPTA operates a 23 mile heavy rail transit network that provides 300,000 daily rides, including the Broad Street and Market Street subway lines. SEPTA also operates a network of eight trolley lines over a network of 68 route miles, as well as the 13 mile long Norristown High Speed Line.

### PATCO

PATCO is a rapid transit line operating between Center City Philadelphia, PA and Lindenwold, NJ, serving 10.6 million passengers annually. The line traverses the Delaware River via the Ben Franklin Bridge, and is owned and operated by the Delaware River Port Authority.



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**Railroad bridge along I-376 Parkway West,  
Allegheny County**

*Source: Southwestern Planning Commission*

*Port Authority*

**Port Authority of Allegheny County Light Rail System**

The Port Authority of Allegheny County (Port Authority) operates a 28 mile light rail system, known as the “T”, which includes the recently opened North Shore Connector. The light-rail system carries 8 million riders annually.

**Monongahela and Duquesne Incline**

The Port Authority also owns a pair of inclines. The Monongahela Incline is operated by PAAC. The Duquesne Incline is operated by the Society for the Preservation of the Duquesne Heights Incline.

*Cambria County Transit Authority*

**Johnstown Incline**

This historic incline is the steepest in the world, and provided 70,761 rides in 2013. It is owned and operated by the Cambria County Transit Authority, also known as CamTran.



### 2.1.1.3 FREIGHT RAIL NETWORK INVENTORY

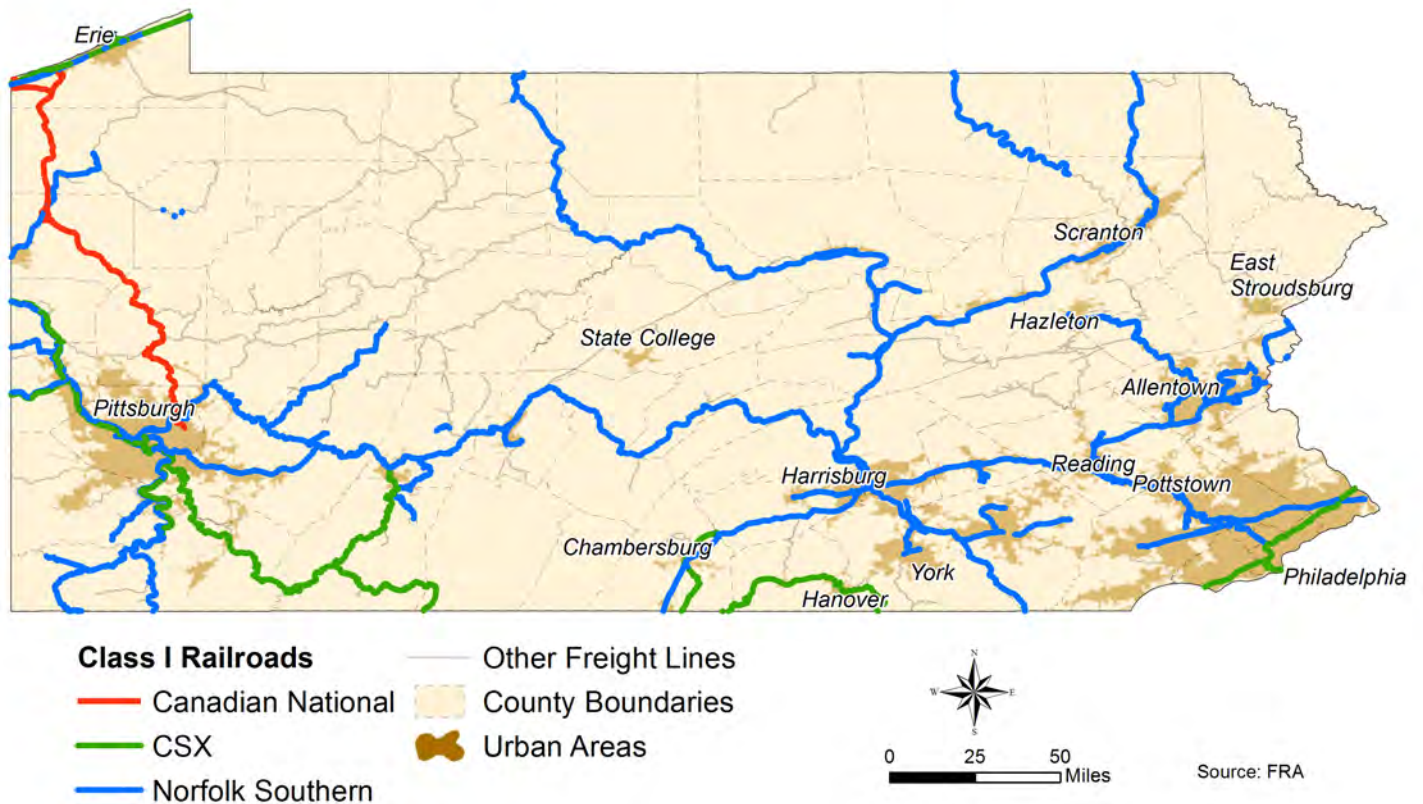
Pennsylvania is home to a robust and far-reaching freight rail network that is made up of Class I, Class II, and Class III Railroads. **Figure 2-19** shows Pennsylvania's freight rail network.

According to the Association of American Railroads, Pennsylvania has the highest number of freight railroad companies in the United States. Freight railroads are operated much differently than passenger service in that they are generally run by for-profit companies, and are often characterized by greater variance in scheduling and operations than passenger railroads.

Freight railroads are classified by the Surface Transportation Board by inflation-adjusted revenue:

1. Class I Railroads have more than \$452.6 million of annual carrier operating revenue. They primarily operate long-haul service over high-density intercity traffic lanes.
2. Class II or Regional railroads operate over at least 350 miles of track and/or have annual revenue greater than \$36.2 million.
3. Class III or Short line railroads operate over less than 350 miles of track and have annual revenue of less than \$36.2 million per year.

**Figure 2-19: Pennsylvania's Freight Rail Network**



Pennsylvania has nearly 6,000 active freight route miles and is made up of a variety of different railroad types as shown in **Table 2-11**.

**Table 2-11: Freight Route Mileage**

Route Type	Route Mileage	Percent of Total Mileage
Class I Railroads (3)	3,169	56.5
Class II Regional Railroads (2)	621	11.1
Class III Railroads (56)	1,814	32.4
<b>Total Freight Route Miles</b>	<b>5,604</b>	<b>100.0</b>

Source: PennDOT

## CLASS I RAILROADS

Class I railroads generally function as line-haul carriers, predominantly moving freight long distances between terminals. There are three Class I Railroads operating in Pennsylvania: NS, CSX, and Canadian National (CN). These railroads comprise over 3,100 route miles, or 56.5 percent of the miles of railroad operated within Pennsylvania (**Figure 2-19**).

### *Norfolk Southern (NS)*

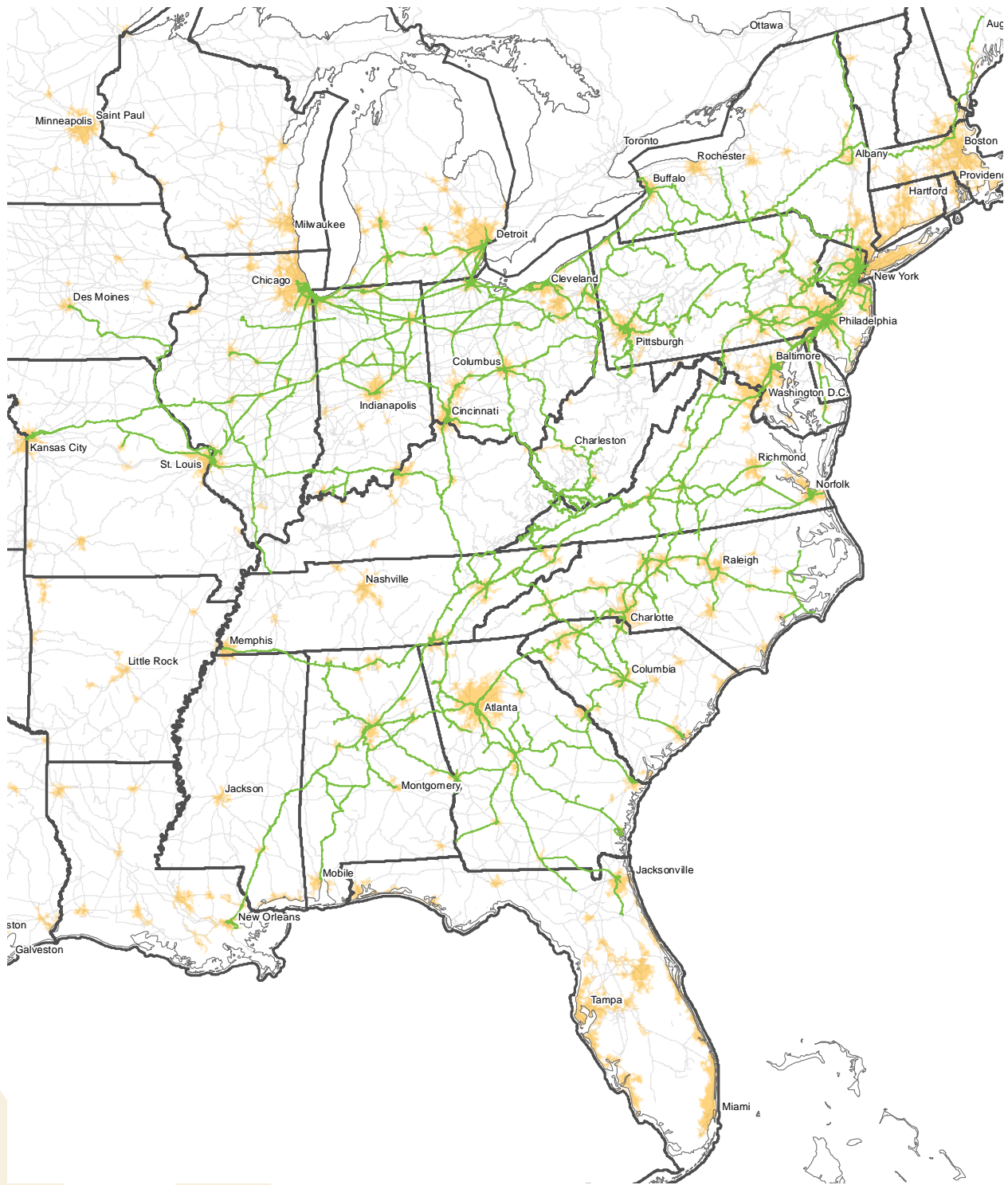
NS has significant operations east of the Mississippi River serving nearly all metropolitan areas (**Figure 2-20**). Its gateways to the west are Chicago, Kansas City, St. Louis, Memphis, New Orleans, and through haulage rights, Dallas. NS focuses its international operations at the Port of Norfolk.

NS freight movements in Pennsylvania are conducted primarily over eight corridors through the state:

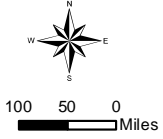
1. NS Mainline/Crescent corridor between Philadelphia-Harrisburg-Pittsburgh which provides access between Mid-Atlantic ports and Chicago and other Midwest destinations (Harrisburg, Pittsburgh, and Youngstown Lines);
2. The Morrisville Line between Glenloch and Morrisville, PA;
3. A corridor between Reading-Bethlehem-Easton which extends into New Jersey (Reading and Lehigh Lines);
4. A corridor extending from Delaware and Maryland (Perryville) to Harrisburg (Port Road Branch);
5. A corridor extending NS Mainline to Maryland via Harrisburg-Chambersburg-Hagerstown (Lurgan Branch);
6. A corridor between southwest Pennsylvania and West Virginia via Pittsburgh-Brownsville-Waynesville (Mon Line);
7. A corridor connecting Harrisburg and Buffalo, NY via Harrisburg-Lock Haven-Emporium-Port Allegheny (Buffalo Line); and,
8. A corridor connecting Buffalo, NY to Ohio via Erie (Lake Erie District).



Figure 2-20: NS Rail Network



- Norfolk Southern Railway
- Other Railways
- Urban Areas
- State Boundaries



Source: FRA GIS data

In Pennsylvania, NS currently operates over 2,300 miles of track comprised of more than 1,700 miles of NS owned track, five miles operated under contract, and 637 miles operated via trackage rights.

A recent agreement (November 2014) between NS and the Delaware & Hudson Railway Co. (D&H) allowed NS to acquire 282.55 miles of D&H rail line between Sunbury, PA and Schenectady, NY for \$217 million. D&H was a subsidiary of Canadian Pacific Railway.

This acquisition assisted in the consolidation of freight operations along the northeastern United States, connecting businesses in central Pennsylvania, upstate New York and New England with domestic and international markets.<sup>1</sup>

NS operates classification yards in Allentown, Conway, Enola and Harrisburg. NS serves intermodal facilities in Bethlehem, Harrisburg (Rutherford Yard), Morrisville, Pittsburgh, Sayre, and Scranton (Taylor Yard), and recently opened a new intermodal facility in Greencastle.

NS also serves port terminals including the West Elizabeth Monongahela River Terminal Cluster, Donora Industrial Park Terminal, Tioga Marine Terminal in South Philadelphia, South Philadelphia Port Complex, and Novolog Port Facility.

NS is currently working on the Crescent Corridor Project, a \$2.5 billion rail infrastructure project that spans 11 states.<sup>2</sup> The project, which is building an efficient route between the Southeast and Northeast United States, is anticipated to reach Phase I completion by 2016.

### *CSX Transportation (CSX)*

CSX has an extensive rail network that covers 23 states east of the Mississippi River as shown in **Figure 2-21**. It serves nearly every major economic and population center east of the Mississippi River and provides connectivity to western U.S. markets at Chicago, St. Louis, Memphis, and New Orleans. CSX serves all major Atlantic ports with major intermodal (container on flat car and trailer on flat car) operations connecting the Ports of New York and New Jersey, Philadelphia, Baltimore and Norfolk with Midwest markets.

Within Pennsylvania, CSX operates primarily over three major corridors:

1. A corridor extending from New York State to Chicago via Erie (Lake Shore and Erie West Subdivisions).
2. A corridor extending from Maryland to Ohio via the southwest portion of Pennsylvania from the Pennsylvania-Maryland border near Cumberland, Maryland north through Pittsburgh to New Castle (Keystone, Pittsburgh, and New Castle Subdivisions).
3. A corridor extending from Delaware to New Jersey via Philadelphia which parallels Amtrak' NEC line (Philadelphia, Harrisburg, and Trenton Subdivisions).
4. Within Pennsylvania, CSX operates over 1,040 miles of track comprised of 428 miles owned, 76 miles of proprietary railroads or lines operated under lease or contract, and 536 miles operated via trackage rights.<sup>3</sup>

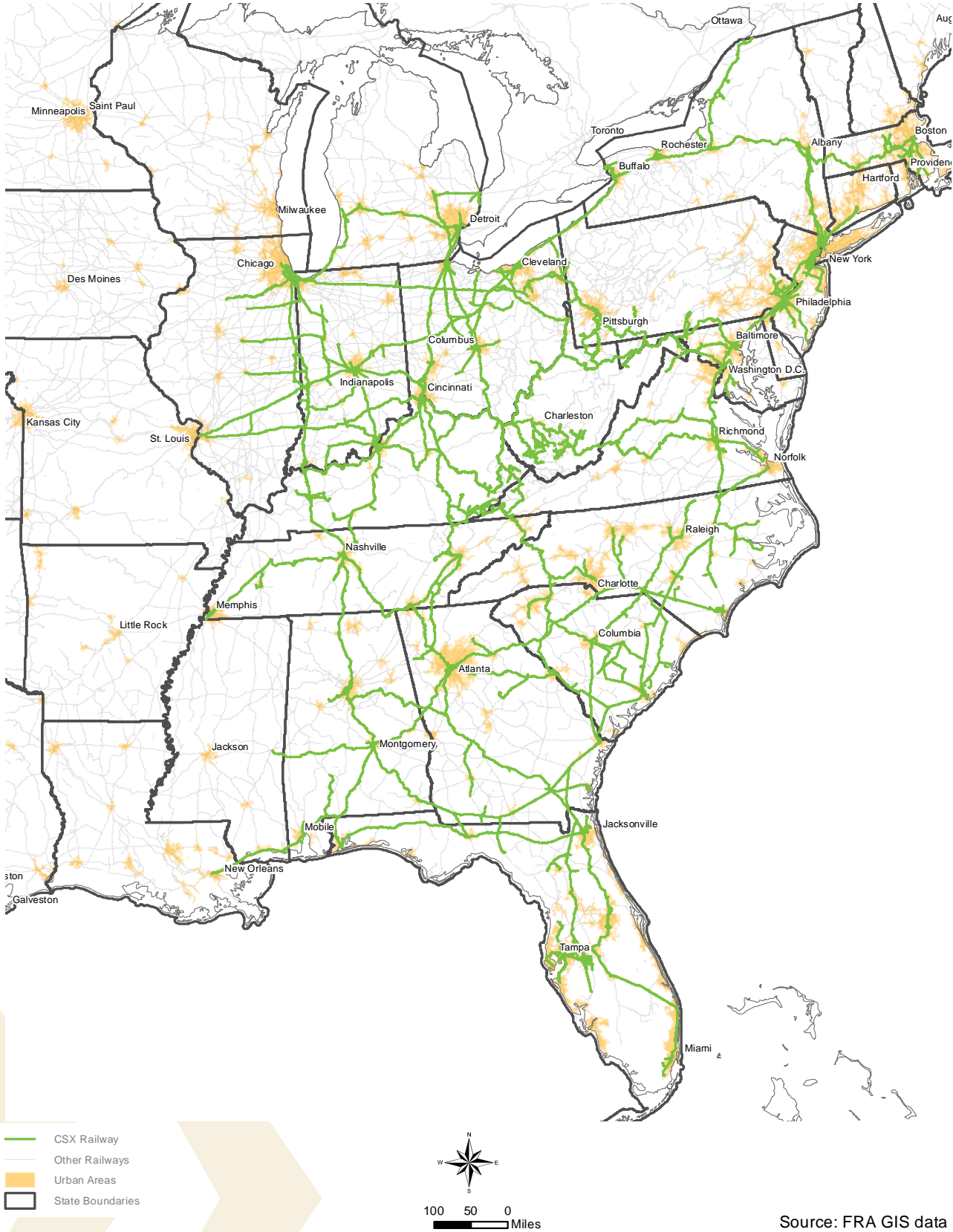
<sup>1</sup> Norfolk Southern Website, [nscorp.com](http://nscorp.com)

<sup>2</sup> <http://www.nscorp.com/content/nscorp/en/shipping-options/corridors/crescent-corridor.html>

<sup>3</sup> CSX Transportation Class I Annual Report, Year ending December 31, 2012



**Figure 2-21: CSX National Rail Network**





### CSX locomotive

Source: Southwest Planning Commission

CSX operates a number of facilities within Pennsylvania, including major rail yards in Philadelphia (Greenwich) and Pittsburgh (Demler), intermodal terminals in Chambersburg and Philadelphia, TRANSFLO Terminals in Butler, Chester, Philadelphia (two) and Pittsburgh, and an automotive distribution center in Aston (Twin Oaks).

CSX serves port terminals including the Tioga Marine Terminal in South Philadelphia and the South Philadelphia Port Complex. CSX also serves the Port of Pittsburgh including privately owned terminals like Three Rivers Marine & Rail Terminals.

CSX is in the second phase of the National Gateway project that is being implemented to improve the flow of rail traffic by expanding the use of double-stack trains. Phase 1 of the project, completed in 2013, allows for double-stack clearance between Chambersburg, PA and Northwest Ohio. Phase two of this double-stack project is focusing on areas outside of Pennsylvania. CSX also plans to build a terminal in McKeesport.

### Canadian National

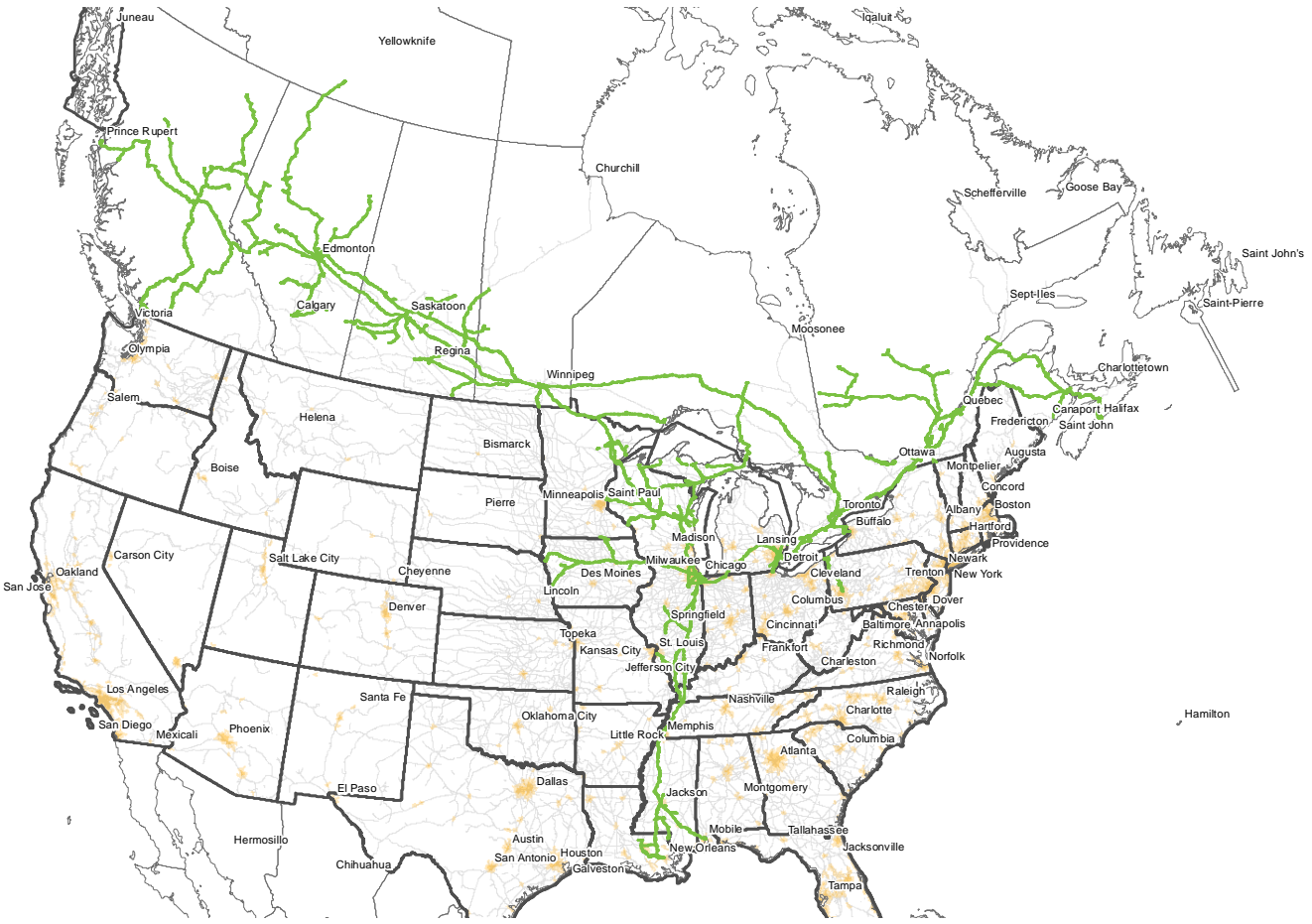
Canadian National Railroad (CN) railway is the largest railway in Canada. CN's purchase of the Illinois Central and a number of smaller U.S. railways gives the railway a large presence in the United States from the Mississippi River down to the Gulf of Mexico. In total, CN owns about 20,400 miles of track.

Through its U.S. Great Lakes Transportation subsidiary, CN operates the Bessemer & Lake Erie Railroad Company (BLE), which extends between the Lake Erie port of Conneaut, OH and steel mills in the Pittsburgh area. Within Pennsylvania, CN's subsidiary owns and operates over 156 track miles.<sup>4</sup> BLE also operates a rail yard and maintenance facility at Greenville, PA. **Figure 2-22** shows the CN rail network.

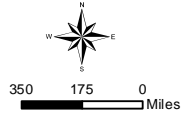
<sup>4</sup> Grand Truck Corp. Class I Annual Report, Year Ending December 31, 2012



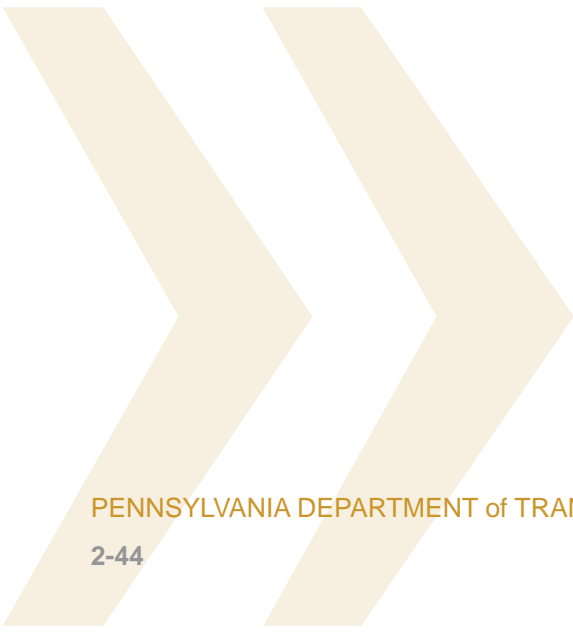
**Figure 2-22: Canadian National Rail Network**



- Canadian National Railway
- Other Railways
- Urban Areas
- Canadian Province Boundaries
- State Boundaries



Source: FRA GIS data



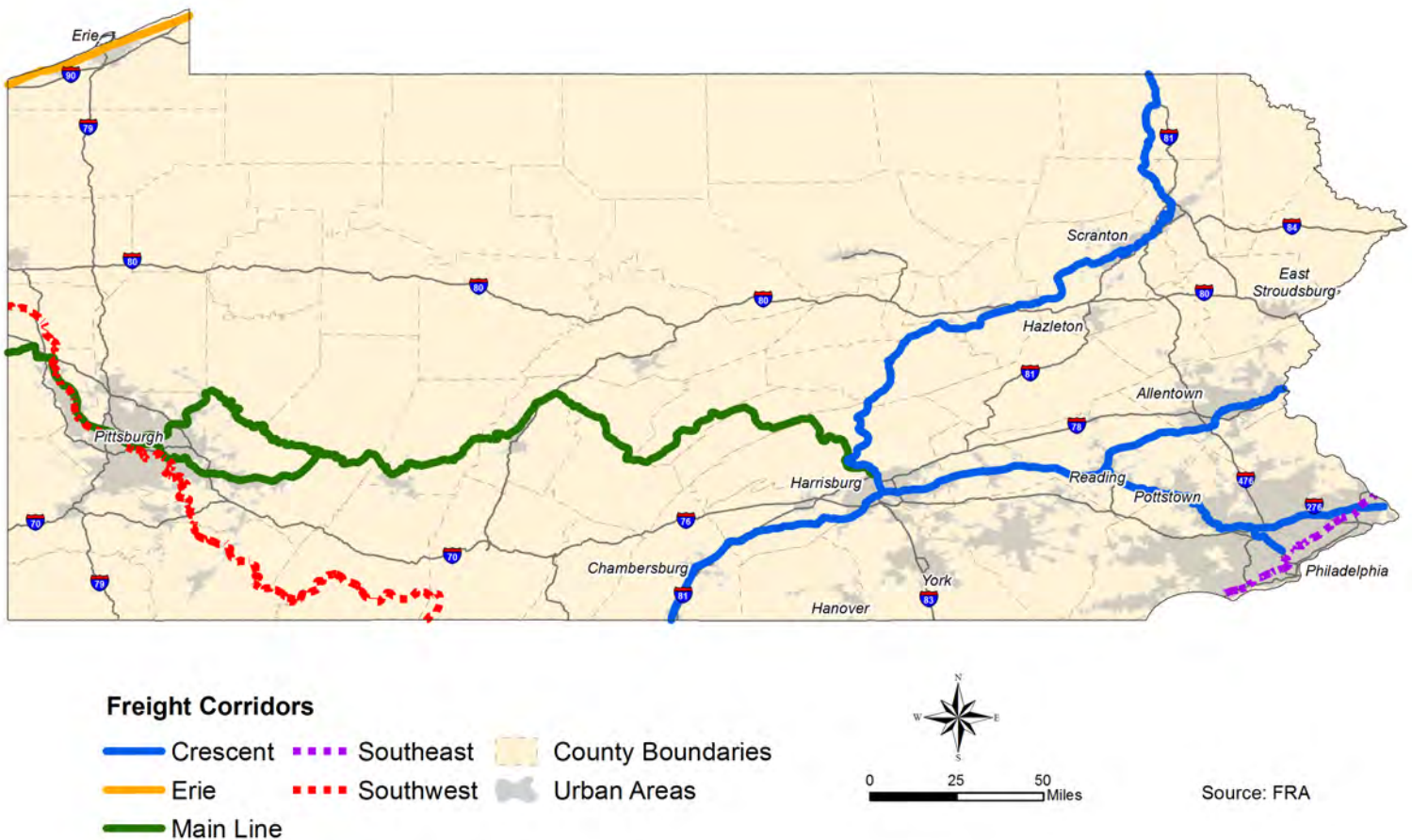
## Class I Railroad Major Freight Corridors in Pennsylvania

The Class I railroads described above generally move traffic through Pennsylvania along high density corridors that often parallel major highways. These corridors may also include operations and individual lines owned by multiple railroads. Although these corridors constitute approximately 26 percent of the total rail miles in the state, they are estimated to carry approximately 90 percent of freight rail ton-miles and carloads. The major Class I freight rail corridors through Pennsylvania are shown in **Figure 2-23** and described below.

### *Central Corridor (Main Line and Crescent Corridor)*

This NS rail corridor is the most heavily used in Pennsylvania in terms of both carloads and ton-miles of traffic moved. The corridor extends 581 miles across the length of the state with its western end near Midland and its eastern end in Reading. At Reading, the corridor branches northeast along the I-78 corridor to Easton, and southeast to Philadelphia.

**Figure 2-23: Major Rail Freight Corridors in Pennsylvania**



Four NS intermodal terminals are located along the corridor at Pittsburgh, Harrisburg, Bethlehem, and Morrisville.

### *Erie Corridor*

This corridor, which extends between Buffalo, NY and Cleveland, OH, is comprised of parallel NS and CSX lines along Lake Erie in northwest Pennsylvania. Although the corridor is comprised of only 95 miles of track within Pennsylvania, or two percent of the total state rail network.

### *I-95 Corridor (Southeast)*

This CSX rail corridor parallels I-95 in southeastern Pennsylvania from Chester north through Philadelphia to the New Jersey and Pennsylvania border at Yardley.

### *Southwest Corridor*

This CSX rail corridor crosses the southwest portion of Pennsylvania from the Pennsylvania/Maryland border near Cumberland, MD north through Pittsburgh to the Ohio border near New Castle. The total length of the corridor is 183 miles. This corridor is part of CSX's National Gateway and two CSX intermodal terminals are located on the corridor at Chambersburg and Pittsburgh.

### *I-81 Corridor*

This NS rail corridor, part of the Crescent Corridor, extends 67 miles in central Pennsylvania from the Pennsylvania/Maryland border near Hagerstown, MD to Enola Yard in Harrisburg. This corridor is part of the NS Crescent Corridor which extends from the Gulf Coast and Memphis to Harrisburg, Philadelphia, and the New York metropolitan area. The NS Rutherford intermodal terminal is located on the corridor at Harrisburg. Another intermodal terminal in the Greencastle was recently constructed to alleviate congestion along the I-81 Corridor.

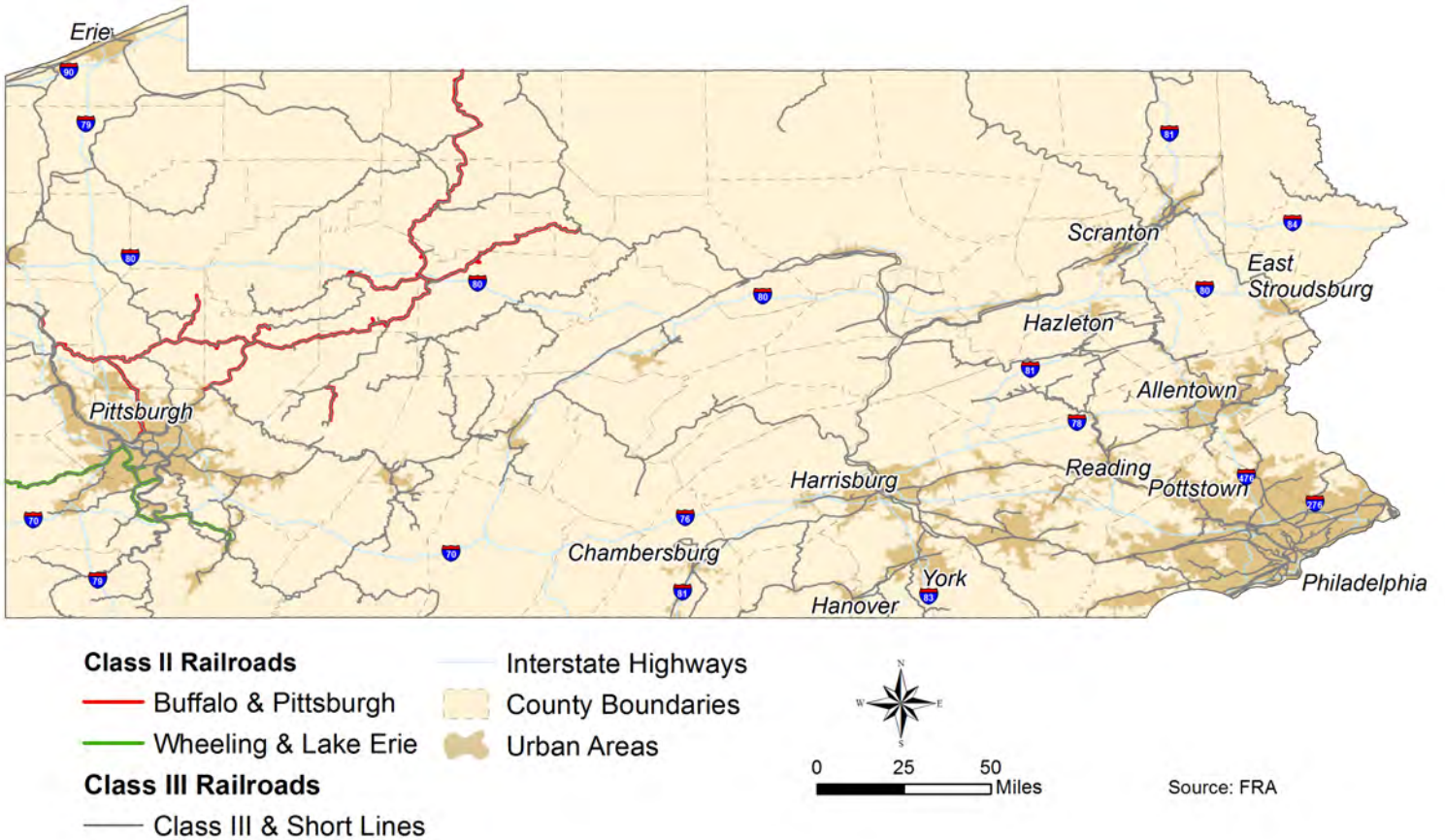
### *Harrisburg-Binghamton Corridor*

This NS rail corridor, part of the Crescent Corridor, extends approximately 180 miles north from Harrisburg along the Susquehanna River to Scranton, where it then extends north to Binghamton, NY. NS operates between Sunbury and Binghamton, and between Sunbury and Harrisburg. This corridor carries approximately four percent of all traffic in the state with coal and intermodal as the leading commodities on the corridor, which extends to New York, New England and Canadian markets.

## CLASS II RAILROADS

Pennsylvania has two Class II Railroads in the state: Buffalo & Pittsburgh Railroad (BPRR) and the Wheeling & Lake Erie (WLE) Railway. These two railroads comprise 621 route miles within the state, accounting for 11 percent of the state's total route miles. Class II railroads are depicted in **Figure 2-24**.

**Figure 2-24: Class II Railroads in Pennsylvania**



### *Buffalo & Pittsburgh Railroad (BPRR)*

The BPRR, which is owned by the Genesee & Wyoming Corporation, extends from both Buffalo, New York and Erie to Pittsburgh and New Castle over 368 miles of track. BPRR transload facilities in Pennsylvania are located at Erie and Dubois. The BPRR interchanges with all Class I carriers and its major commodities carried include aggregates, brick and cement, automotive, chemicals, coal, food and feed products, metallic ores and minerals, steel, and scrap materials.

### *Wheeling & Lake Erie Railway (WLE)*

The Wheeling & Lake Erie (WLE) Railway operates over 840 miles of track between Toledo, OH, Pittsburgh, and Hagerstown, MD. The railroad owns 575 miles of track and operates over 265 additional miles via trackage rights. Within Pennsylvania, the railroad operates over 103 miles, serving southwest Pennsylvania connecting Pittsburgh and Connellsville with Bellevue, Akron, and Carey, OH. WLE also serves intermodal terminals within the Port of Pittsburgh including privately owned terminals like Three Rivers Marine & Rail Terminals.



## CLASS III RAILROADS

Class III railroads are generally local railroads and switching or terminal railroads. Local railroads are short line railroads that primarily engage in line-haul services.

Switching or terminal railroads are short line railroads that primarily switch cars between other railroads or provide service from other lines to a common terminal. **Table 2-12** lists the Class III railroads in Pennsylvania and shows their miles of track operated.

**Table 2-12: Class III Railroads**

Railroad Name and Location	Miles (Owned, Leased, and/or Operated)
Aliquippa & Ohio River RR Co. (AORR), Beaver County	5.2
Allegheny Valley Railroad Co. (AVR), Greater Pittsburgh Region	77.9
Allentown & Auburn Railroad Co. Kutztown	4.1
Belvidere & Delaware River Railway Co. (BDRV), West Easton, PA and northwestern New Jersey	20.0
Central New York Railroad Corp. (CNK) Northeastern Pennsylvania and New York State	40.0
Chestnut Ridge Railway Corp. (CHR), Pittsburgh	10.4
Columbia & Reading Railway (CORY), Columbia	2.5
Conrail Shared Assets (CRR), Philadelphia and New Jersey region	65.4
Cumberland Mine Railroad (CM), Waynesburg	17.0
Delaware-Lackawanna Railroad Co. (DL), Northeastern Pennsylvania	88.0
East Erie Commercial Railroad (EEC), Erie	4.7
East Penn Railroad LLC (ESPN), Southeastern Pennsylvania and Delaware	44.1
Eastern Berks Gateway Railroad, Boyertown	8.0
Everett Railroad (EV), Blair County	22.0
Gettysburg & Northern Railroad (GET), Mount Holly Springs-Gettysburg	25.0
Hollidaysburg & Roaring Springs, Duncansville (HRS)	12.9
Juniata Terminal Co. (JFTS), Penn Valley	0.9
Juniata Valley Railroad Co. (JVRR), Mifflin County	17.0
Kasgro Rail Corp. (KGRX), New Castle	3.6
Kiski Junction Railroad (KJR), Schenley	4.9
Landisville Railroad, LLC (LVR), Landisville	1.9
Lehigh Railway, LLC (LRWY), North Central Pennsylvania	56.0
Lehigh Valley Rail Management (Bethlehem Div.) (PBNE), Bethlehem	4.5
Lehigh Valley Rail Management (Johnstown Div.) (CBL), Johnstown	19.1
Luzerne and Susquehanna Railway Co. (LS), Northeastern Pennsylvania	60.0
Lycoming Valley Railroad Co. (LVRR), Lycoming and Clinton Counties	48.7
Maryland Midland Railway (MMID) Primarily operates in Maryland with service through Blue Ridge Summit	0.4

Source: Pennsylvania DOT 2014 Railroad Inventory and individual railroad companies

**Table 2-12: Class III Railroads, cont.**

Railroad Name and Location	Miles (Owned, Leased, and/or Operated)
Middletown & Hummelstown RR (MIDH), Middletown	7.5
Mittal Steel USA Railways Brandywine	4.0
Mittal Steel USA Railways Coatesville	3.7
Mittal Steel USA Railways Steelton	4.7
N.D.C. Railroad Company (NDCR), Northampton	1.2
New Castle Industrial Railroad (NCIR) New Castle	15.2
New Hope & Ivyland Railroad (NHRR) Bucks County	17.1
Nittany & Bald Eagle Railroad (NBER) Blair, Clinton, and Centre Counties	70.0
North Shore Railroad (NSHR) Columbia, Montour, and Northumberland Counties	37.0
Oil Creek & Titusville Lines, Inc. (OCTL), Rouseville to Titusville	17.0
Pennsylvania & Southern Railway (PSRR), Letterkenny to Chambersburg	30.0
Pennsylvania Northeastern Railroad, Lansdale	55.0
Pennsylvania Southwestern Railroad, Inc. (PSWR) Midland	12.0
Pittsburgh & Ohio Central RR Co. (POHC), Greater Pittsburgh Area	35.0
Pittsburgh, Allegheny & McKees Rocks Railroad (PAM), McKees Rocks, PA	5.0
RJ Corman Railroad/ Allentown Lines (RJCN), Allentown	7.0
RJ Corman Railroad/Pennsylvania Line (RJCP), Central Pennsylvania	207.0
Reading Blue Mountain & Northern Railroad Co. (RBMN), Eastern Pennsylvania	327.0
Shamokin Valley Railroad (SVRR), Northumberland County	27.4
SMS Rail Service, Inc. (PJRS) Morrisville, PA and New Jersey	2.5
Southwest Pennsylvania Railroad (SWP), Southwestern Pennsylvania	66.0
Strasburg Rail Road Company (SRC), Lancaster County	3.8
Tyburn Railroad Company (TYBR), Fairless	11.5
Union County Industrial Railroad Co. (UCIR), Union County	20.4
Union Railroad Company (URR), Southwestern Pennsylvania	65.0
Wellsboro & Corning Railroad (WCOR), Wellsboro and New York State	38.0
Western New York & Pennsylvania Railroad (WNYP), Northwestern Pennsylvania and Western New York State	330.0
York Railroad Company (YRC), Stony Brook to Hanover	42.0
Youngstown & Southeastern Railroad Company (YSRR) Darlington, PA and Ohio	36.0

Source: Pennsylvania DOT 2014 Railroad Inventory and individual railroad companies

As the table above illustrates, many Class III railroads in Pennsylvania have substantial track mileage. The following paragraphs will discuss some of the larger Class III railroads in the state.

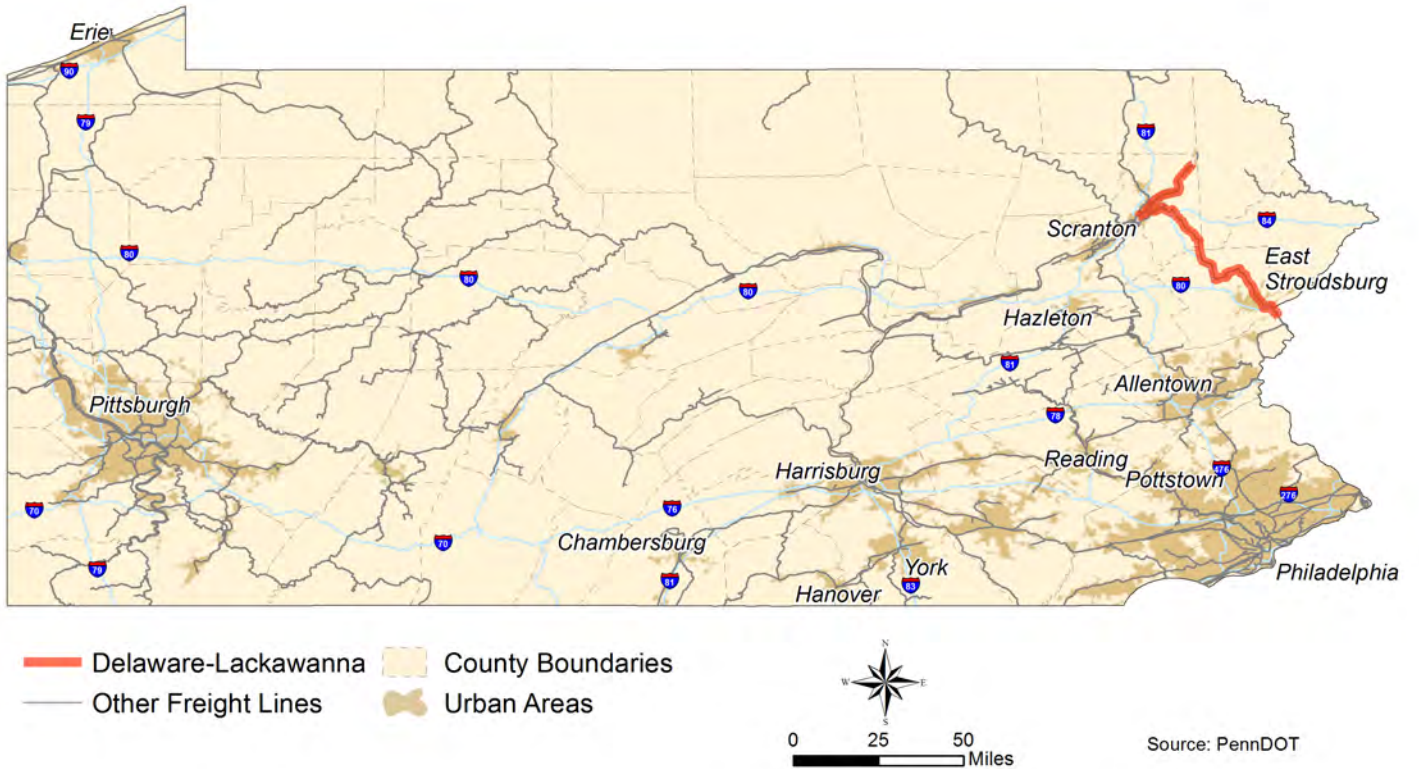


### Delaware-Lackawanna Railroad

The Delaware-Lackawanna (DL) Railroad serves Lackawanna, Monroe, Wayne, and Northampton Counties in northeastern Pennsylvania, provides connections to NS rail lines, and will also retain its interchange connection to Canadian Pacific.

The railroad's freight includes a variety of commodities including grain, forest products, and paper **Figure 2-25** illustrates the Delaware-Lackawanna rail lines.

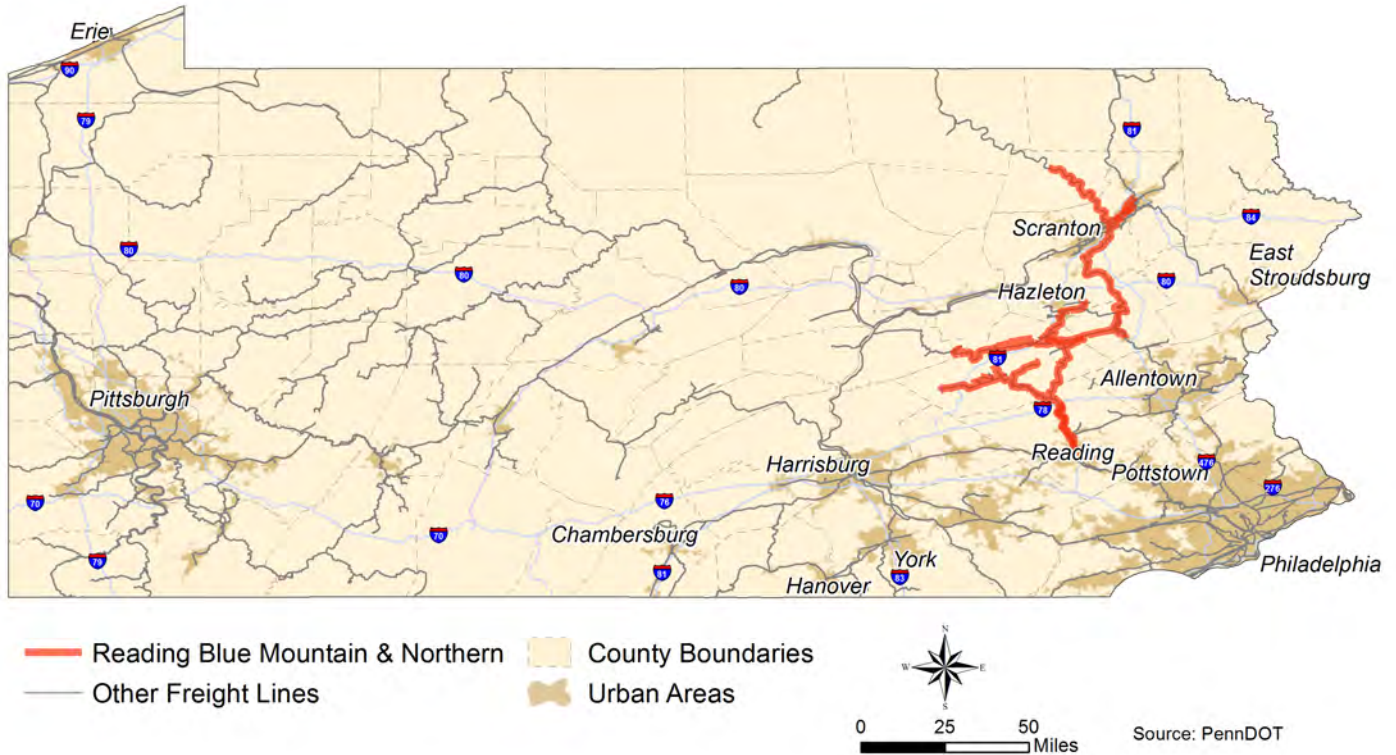
**Figure 2-25: Delaware-Lackawanna Rail Lines**



### Reading Blue Mountain and Northern Railroad

The Reading Blue Mountain and Northern Railroad (RBMN) operates a 327 mile system with freight and tourist rail service. The RBMN main line runs between Mehoopany and Reading. The railroad also operates a separate seven mile line from Towanda to Monroeton. The company interchanges with and grants trackage rights to NS. RBMN recently received a state grant for \$10 million to build a new rail bridge over the Lehigh River in order to improve operations. **Figure 2-26** illustrates the Reading Blue Mountain & Northern rail lines.

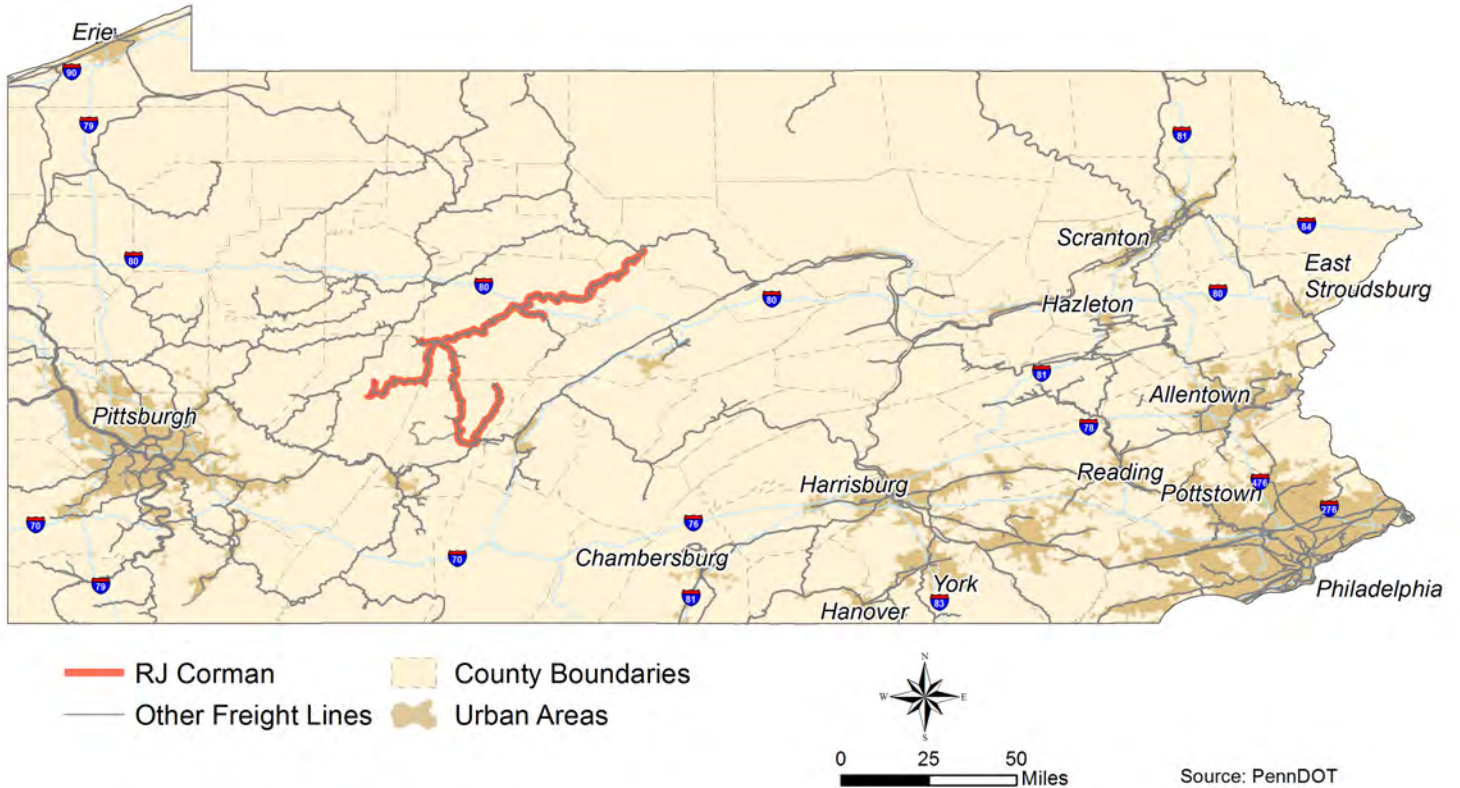
**Figure 2-26: Reading Blue Mountain & Northern Railroad Lines**



### RJ Corman Pennsylvania Lines Railroad

The RJ Corman Pennsylvania Lines Railroad (RJCP) connects Belford, Cresson, Keating, and other neighboring towns in central Pennsylvania with NS's railroad network. The line carries mainly coal, as well as lumber, bricks, and rock salt. It is the largest railroad in RJ Corman's network of short line railroads. **Figure 2-27** illustrates the RJ Corman Pennsylvania rail lines.

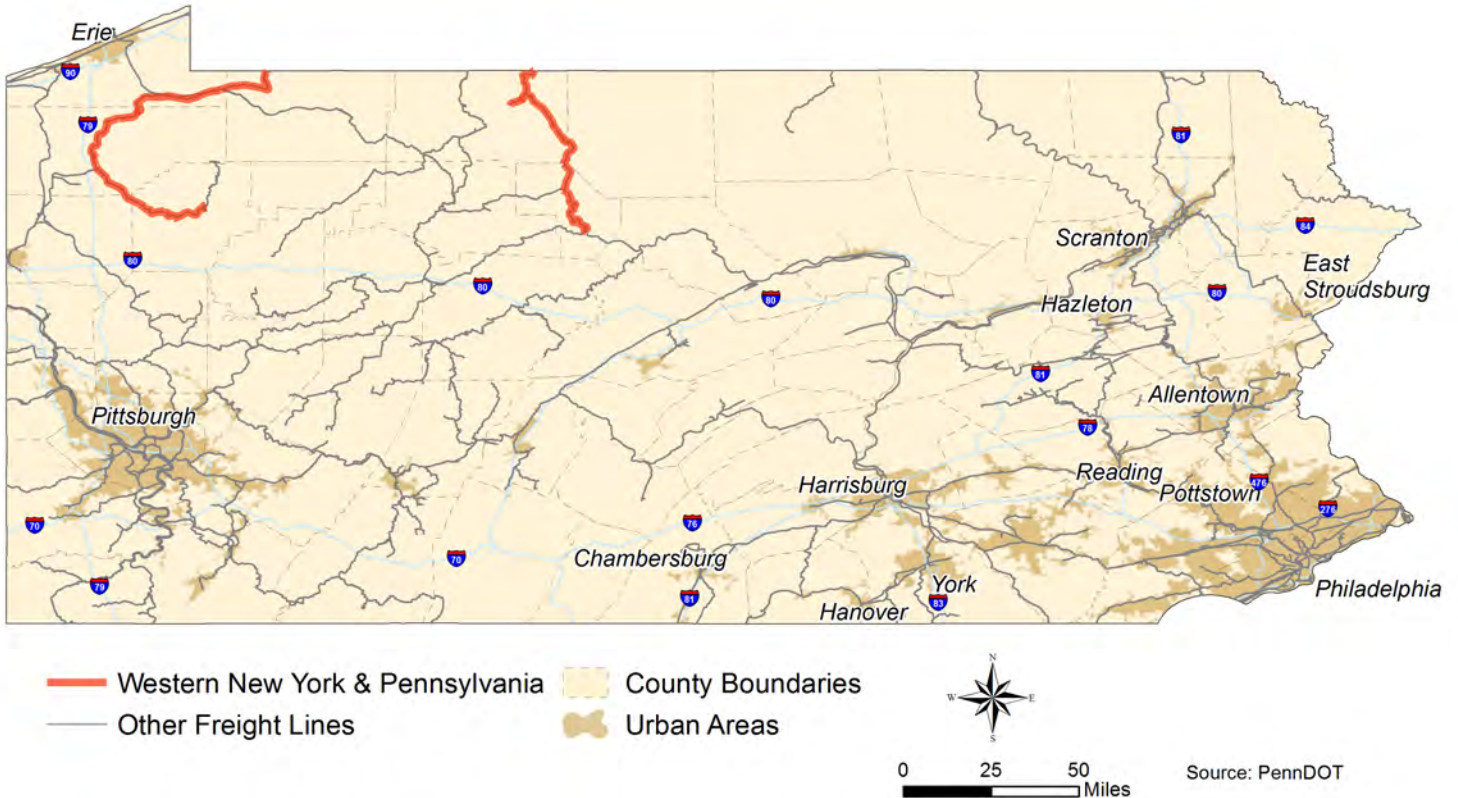
**Figure 2-27: RJ Corman Pennsylvania Railroad Lines**



## Western New York & Pennsylvania

The Western New York & Pennsylvania (WNYP) operates between northwestern Pennsylvania and Western New York. The company's main line connects Hornell, NY to Meadville, PA, with a branch from North Driftwood, PA to Machias, NY. An additional branch provides service to Oil City, PA. The railroad provides connections to NS and the Oil Creek & Titusville Line. **Figure 2-28** illustrates the Western New York & Pennsylvania rail lines.

**Figure 2-28: Western New York & Pennsylvania Railroad Lines**





### Strasburg Railroad #475

Source: PennDOT

#### 2.1.1.4 FREIGHT TRAFFIC PROFILE

Pennsylvania ranks near the top nationally in many freight rail movement statistics. As of 2012, Pennsylvania ranked first among states in the number of railroads operating in a state, fifth in total railroad mileage, eighth in the amount of tons originating in the state, twelfth in tons terminating in the state, eighth in the number of carloads originating in the state and seventh in the amount of carloads terminating within the state.<sup>5</sup> In comparison to other states, Pennsylvania also ranked eighth in total railroad employment (7,056) and rail wages (\$501.5 million) in 2012.

Freight rail is typically the transportation mode that moves the state's abundant raw materials, such as coal, oil, and agricultural products; and immense industrial output, such as steel and iron ore in the southwest and cement in the northeast. Railroads in the state also serve as a gateway for a significant volume of through freight that moves between the east coast and the rest of the nation.

Pennsylvania's freight rail system is comprised of over 5,000 miles of track operated by more than 50 railroads. A profile of the state's freight rail traffic was generated through the Surface Transportation Board's rail waybill data for the year 2013. The following analysis provides an overview of rail traffic moving inbound, outbound, through, and internally within the state.

<sup>5</sup> Association of American Railroads ([https://www.aar.org/Style%20Library/railroads\\_and\\_states/dist/data/pdf/State%20rankings.pdf](https://www.aar.org/Style%20Library/railroads_and_states/dist/data/pdf/State%20rankings.pdf))

As shown in **Table 2-13**, the state’s freight rail network carried an estimated 209.3 million tons of commodities in 2013. Inbound and outbound traffic accounted for 24 percent and 23 percent, respectively, of the state freight rail tonnage. Through freight rail movements comprised 48 percent of the total freight rail tonnage shipments in Pennsylvania, indicating the relative importance of Pennsylvania as an important link between the east coast and the midwest. Nearly 11 million tons of rail freight was shipped internally within Pennsylvania, accounting for five percent of the state’s total tonnage. Proportions of rail commodities by freight tonnage and unit movements are included in **Figure 2-29**.

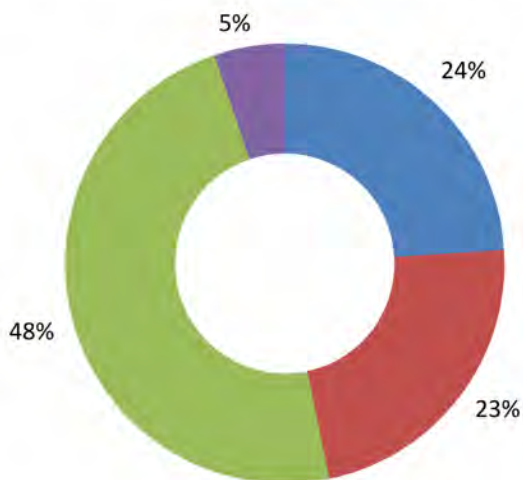
**Table 2-13: 2013 Pennsylvania Freight Rail Traffic**

	Inbound	Outbound	Through	Internal	Total
Tons	50,222,426	47,590,479	100,571,132	10,881,531	209,265,568
Percentage of Rail Tonnage	24	23	48	5	100
Rail Car Units	1,113,571	915,752	2,459,381	108,090	4,596,794
Percentage of Rail Units	24	20	54	2	100

Source: STB 2013 Waybill Processed by HNTB Corporation

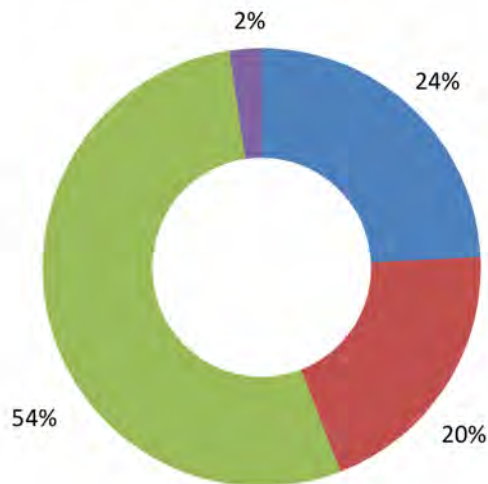
**Figure 2-29: Percentage of Rail Tonnage and Rail Unit Movement in Pennsylvania, 2013**

**Percentage of Rail Tonnage**



**Percentage of Rail Units**

- Inbound Tons
- Outbound Tons
- Through Tons
- Internal Tons



Source: STB 2013 Waybill data processed by HNTB



## MAJOR COMMODITIES MOVED BY RAIL IN PENNSYLVANIA

**Table 2-14** notes total tonnage of major commodities transported by rail within Pennsylvania. Coal is the leading commodity shipped by rail in Pennsylvania with more than 51 million tons moved within the state. Coal accounts almost for nearly one-quarter of all freight tonnage shipped by rail. Hazardous materials, miscellaneous mixed shipments, and food or kindred products other significant commodities shipped measured by tonnage.

**Table 2-15** summarizes the leading commodities for inbound rail movements. Coal represents the largest inbound commodity to Pennsylvania, accounting for 18 percent of all inbound shipments via rail in 2013. After coal, nonmetallic minerals, hazardous materials, and food or kindred products accounted for 14 percent, 12 percent and 10 percent, respectively, of total inbound tonnage in 2013.

**Table 2-16** illustrates the leading outbound rail commodities for the state. Coal dominates the state's outbound commodity flows, accounting for 27.6 million tons or 58 percent of the total outbound tonnage in 2013.

**Table 2-14: Total Rail Tonnage, 2013**

Commodity Type	Tons	Percentage of Commodities
Coal	51,107,003	24
Hazardous Materials	28,288,021	14
Misc. Mixed Shipments	18,188,824	9
Food or Kindred Products	14,784,615	7
Shipping Containers	14,486,200	7
Nonmetallic Minerals	12,892,149	6
All Other Commodities	69,518,756	33
<b>TOTAL</b>	<b>209,265,568</b>	<b>100</b>

Source: STB 2013 Waybill Processed by HNTB Corporation

**Table 2-15: Inbound Rail Movements, 2013**

Commodity Type	Tons	Percentage of Inbound Commodities
Coal	9,157,485	18
Nonmetallic Minerals	6,901,879	14
Hazardous Materials	5,999,281	12
Food or Kindred Products	4,970,292	10
Misc. Mixed Shipments	3,640,464	7
Metallic Ores	3,498,664	7
All Other Commodities	16,054,361	32
<b>TOTAL</b>	<b>50,222,426</b>	<b>100</b>

Source: STB 2013 Waybill Processed by HNTB Corporation

**Table 2-16: Outbound Rail Movements, 2013**

Commodity Type	Tons	Percentage of Outbound Commodities
Coal	27,606,855	58
Shipping Containers	3,056,920	6
Nonmetallic Minerals	2,939,526	6
Primary Metal Products	2,493,929	5
Hazardous Materials	2,350,868	5
Petroleum or Coal Products	2,204,374	5
Small Packaged Freight Shipments	2,145,880	5
All Other Commodities	4,792,127	10
<b>TOTAL</b>	<b>47,590,479</b>	<b>100</b>

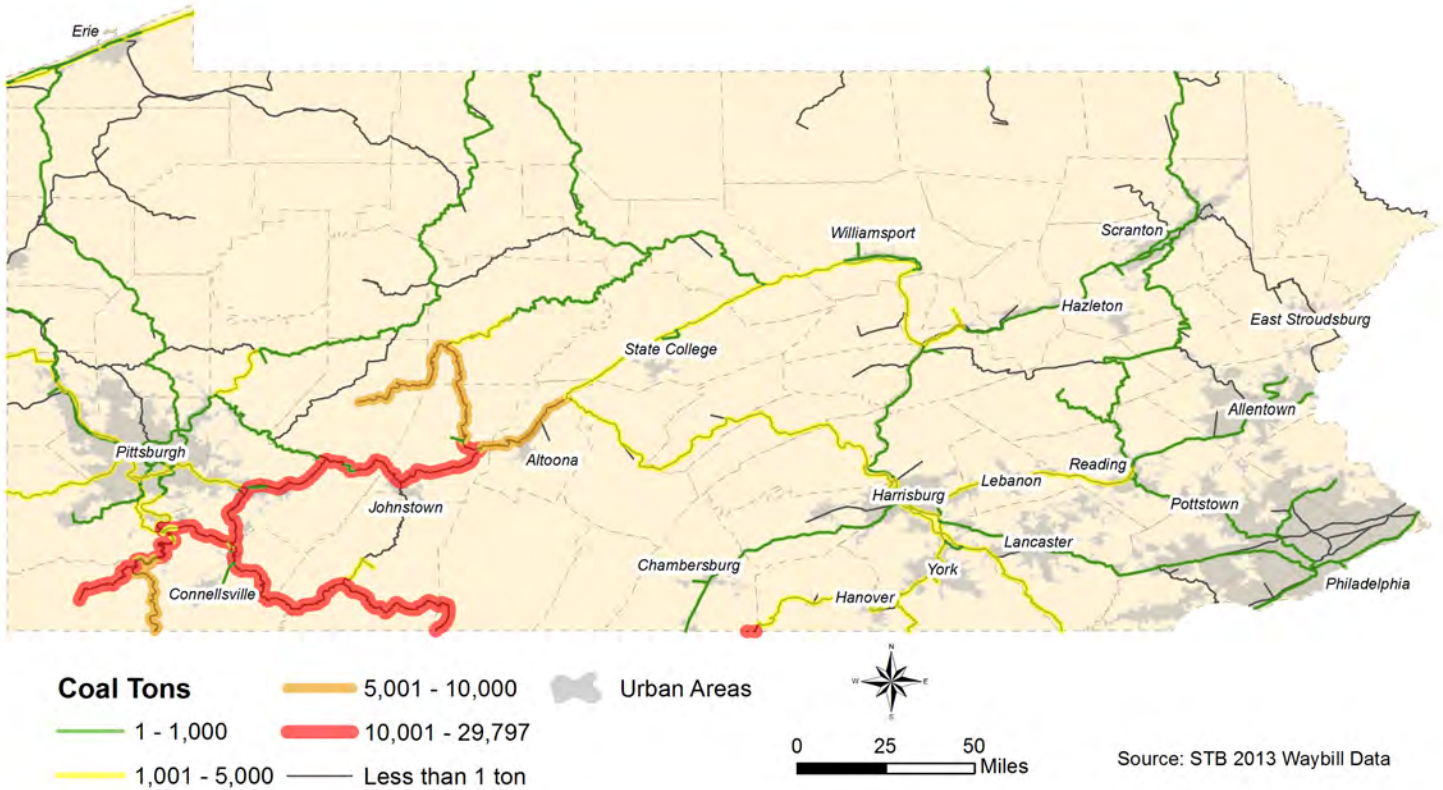
Source: STB 2013 Waybill Processed by HNTB Corporation

Although inbound and outbound rail traffic comprise of similar total rail tonnage, inbound traffic is relatively balanced among a number of different commodities while the percentage of outbound traffic is dominated by coal movements.

Given the large percentage of rail traffic that is generated by coal, it is also important to understand the corridors utilized for these commodity movements.

**Figure 2-30** indicates that coal is transported over the state’s primary Class I railroad corridors as well as a number of secondary rail corridors. On the other hand, the movement of intermodal commodities, as depicted in **Figure 2-34** are mostly limited to the Class I railroad’s major corridors which provide the capacity, clearances and allowable speeds necessary for this time-sensitive commodity.

**Figure 2-30: Total Rail Coal Movement Flows by Tonnage, 2013**



The following subsections provide a more detailed examination of the inbound, outbound, through and internal rail movements in the state.

### INBOUND RAIL MOVEMENTS

Inbound rail traffic originates outside of Pennsylvania but terminates within the state. In 2013, the largest inbound commodity by both tonnage and units shipped into the state was coal representing 9,157,485 tons and consisting of 18 percent of the state’s total inbound tonnage.

The states which generate the most rail traffic destined for Pennsylvania are shown in **Table 2-17**. The top three originating states are Illinois, Ohio, and West Virginia.

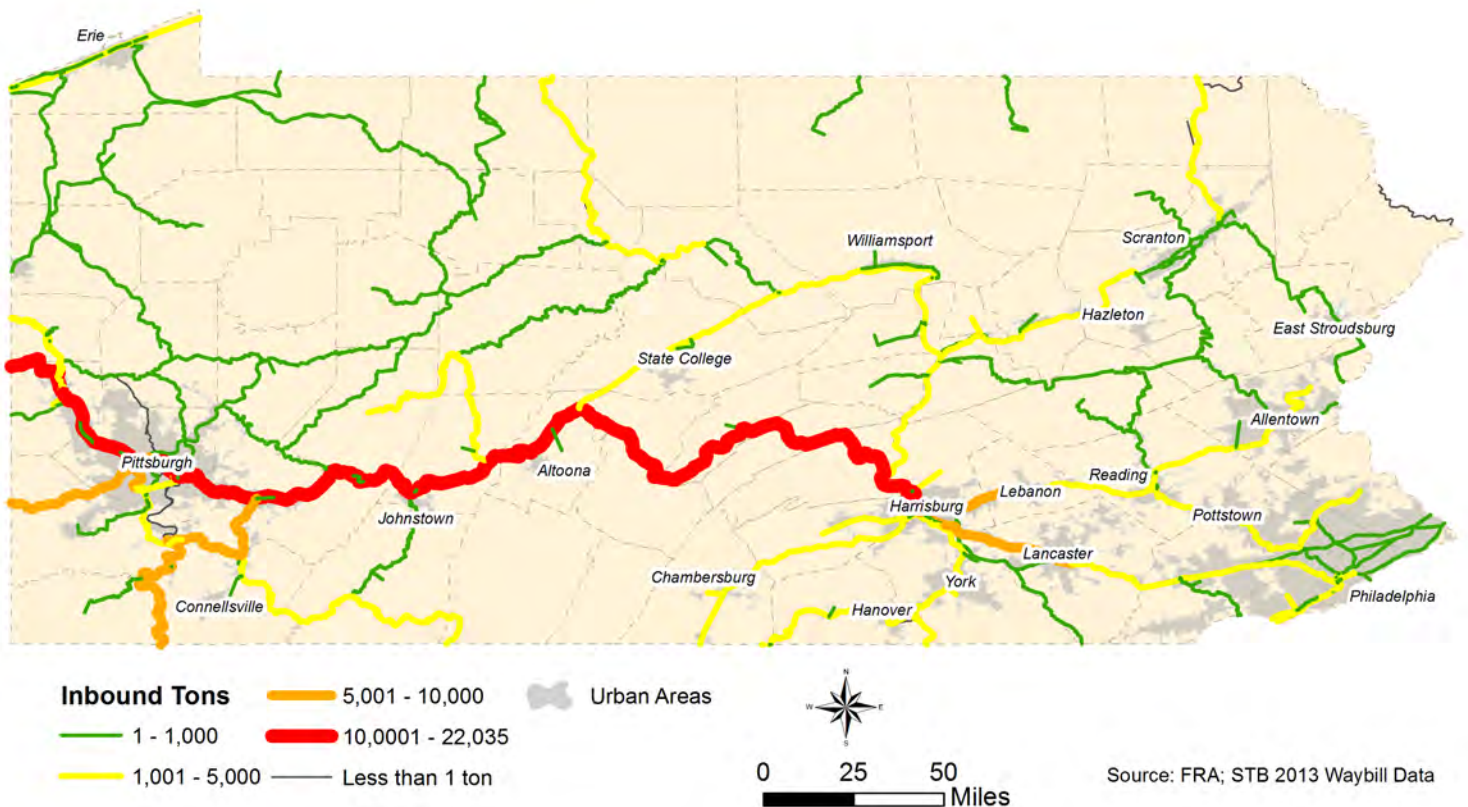
Significant inbound rail traffic flows in 2013 traveled over the state’s major rail corridors, especially the Central PA Corridor. The Harrisburg-Binghamton, I-81, and Southwest Corridors also accommodated large amounts of inbound freight rail traffic. Inbound traffic flows throughout the state are illustrated on **Figure 2-31**.

**Table 2-17: Leading Inbound Rail Tonnage from Originating States, 2013**

Origin State	Tons
Illinois	11,452,556
Ohio	8,659,169
West Virginia	7,809,080
North Dakota	2,133,996
New York	1,859,657
Michigan	1,625,931
Indiana	1,437,117
Wisconsin	1,236,020
Georgia	1,208,052
Louisiana	964,400

Source: STB 2013 Waybill Processed by HNTB Corporation

**Figure 2-31: Inbound Rail Traffic Flows by Rail Tonnage**



Source: FRA; STB 2013 Waybill Data

## OUTBOUND RAIL MOVEMENTS

Outbound rail traffic is generated within Pennsylvania and terminates outside of the state. The highest tonnage of a single commodity shipped out of the state in 2013 was coal, representing 27,606,855 million tons (58 percent of total outbound tonnage).

States which received the most rail tonnage generated in Pennsylvania are included in **Table 2-18**. The largest amount of outbound tonnage is going to Maryland where more than 14.6 million tons came from Pennsylvania in 2013.

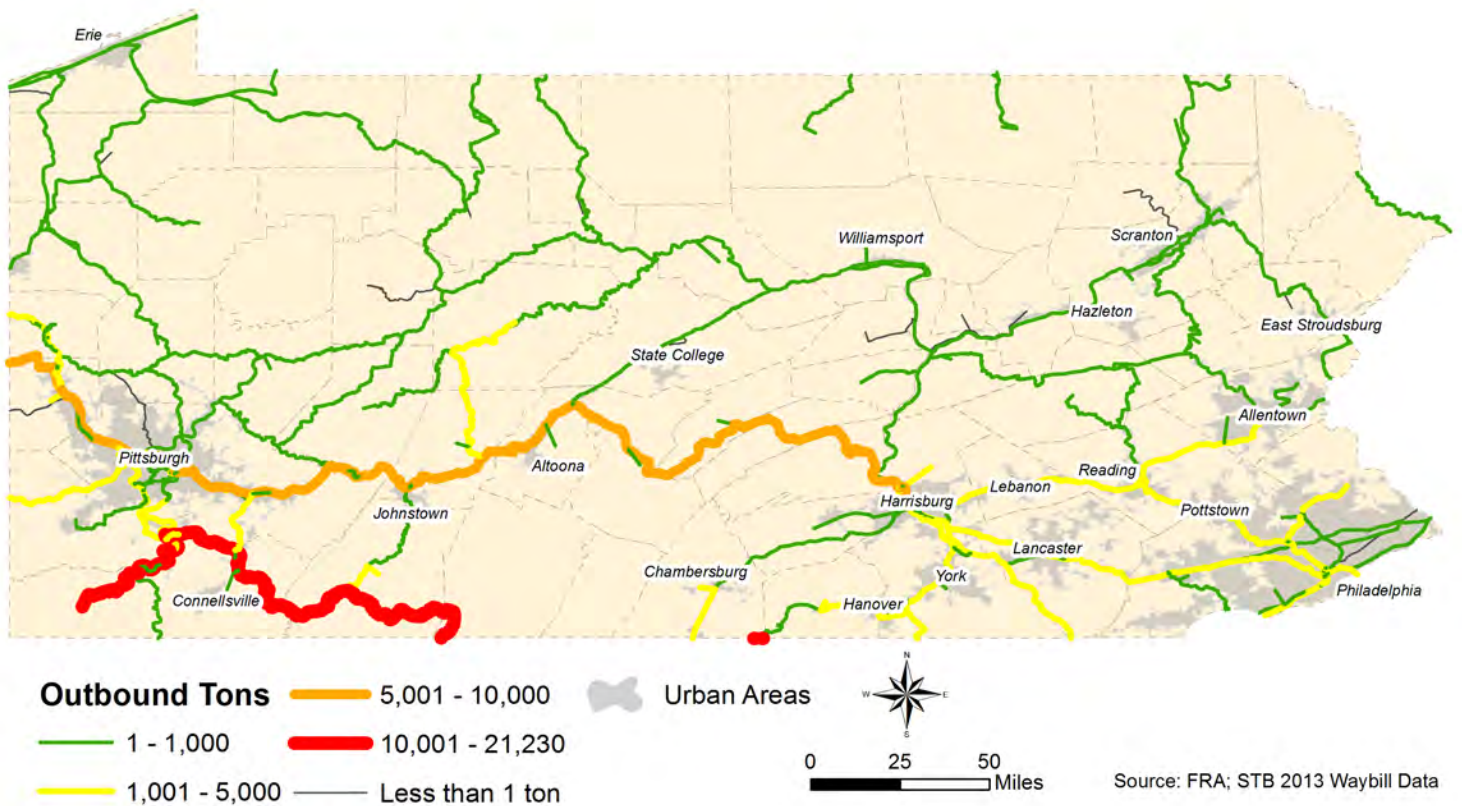
The rail line flows of outbound traffic within Pennsylvania in 2013 incorporated are in **Figure 2-32**. Outbound rail traffic primarily leaves the State via the Central PA and Southwest corridors.

**Table 2-18: Leading Outbound Rail Tonnage Destinations from Pennsylvania, 2013**

Origin State	Tons
Maryland	14,621,276
Illinois	4,503,778
Ohio	3,833,107
North Carolina	3,771,067
South Carolina	2,624,290
Virginia	2,253,866
Indiana	2,147,406
Delaware	1,932,271
New Jersey	1,428,284
New York	1,309,725

Source: STB 2013 Waybill Processed by HNTB

**Figure 2-32: Outbound Rail Traffic Flows by Rail Tonnage**



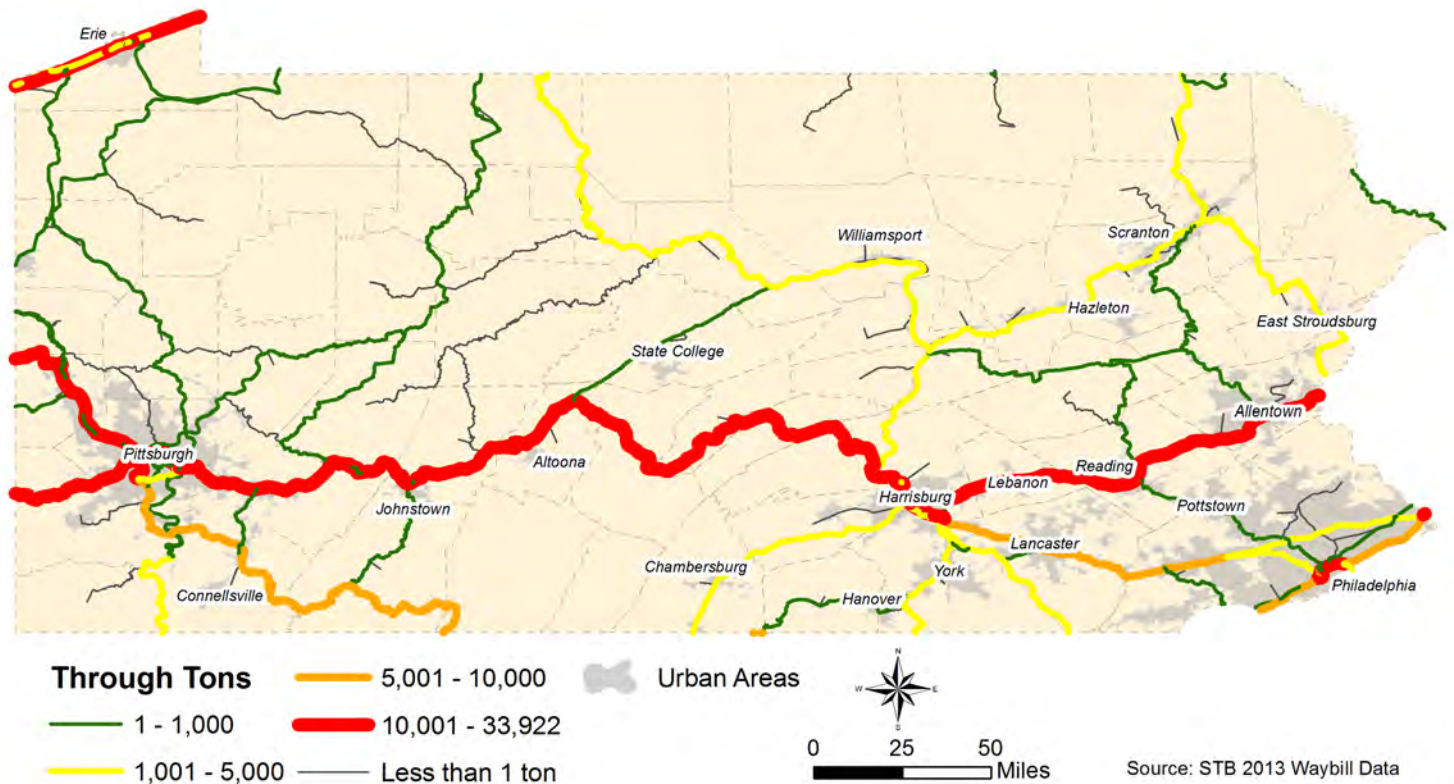
## THROUGH RAIL MOVEMENTS

Through rail movements make up over 48 percent of all freight rail movements in Pennsylvania, accounting for 100,571,132 rail tons. In 2013, hazardous materials made up the largest tonnage of through movements, representing 19.8 million tons (19.7 percent of total through tonnage).

Although through movements do not contribute directly to the state's economy by serving businesses, they do have a significant impact on the available capacity of rail lines and ultimately the levels of service these lines can provide. Through movements on rail also help reduce highway congestion by transporting goods that would otherwise be carried by truck. Thus, it is important to consider these movements, especially in Pennsylvania which is a bridge state between a number of Atlantic ports and Midwest rail hubs.

**Figure 2-33** illustrates the main through freight rail movement routes within Pennsylvania. Through freight rail traffic in Pennsylvania is primarily located along the state's major rail corridors including the central, Erie and southwest corridors of the state. Corridors in the state are shown on **Figure 2-23**.

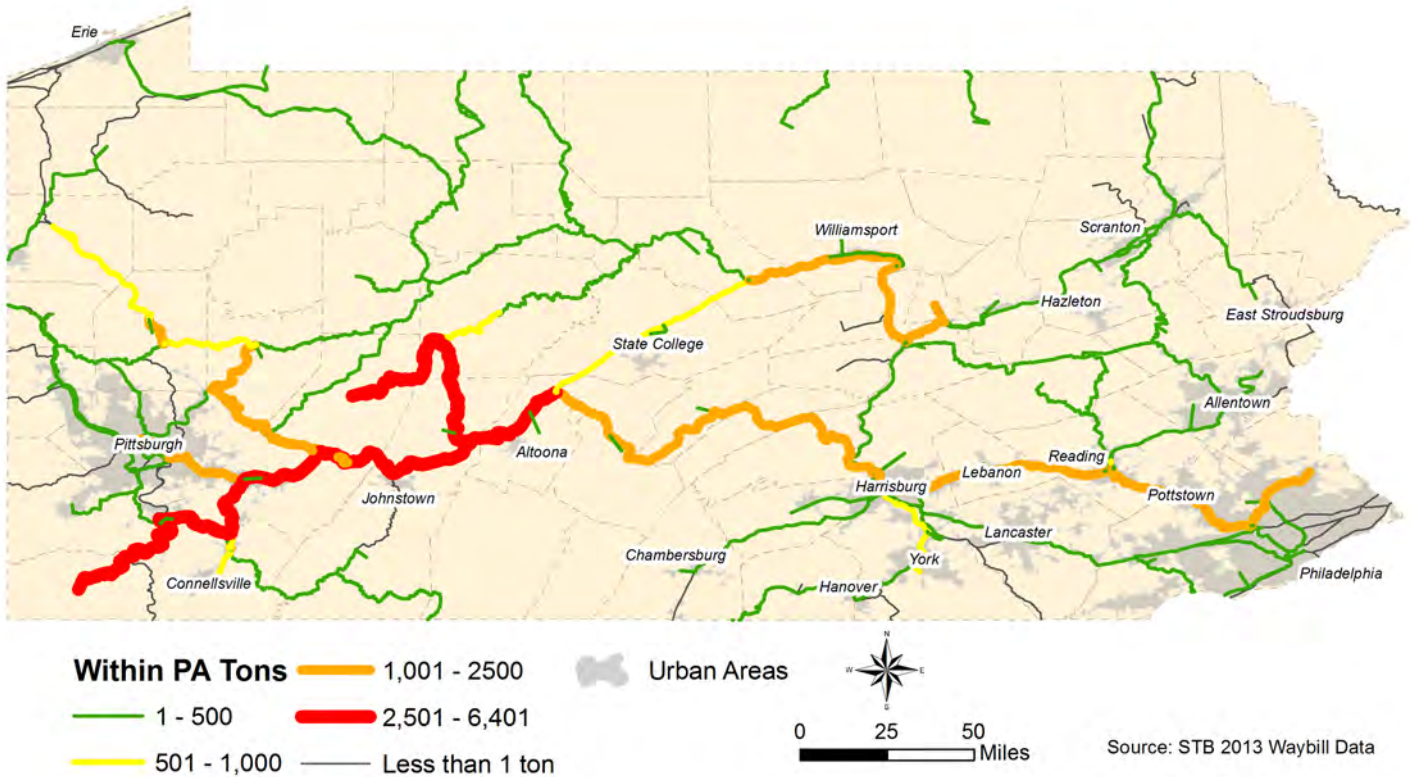
**Figure 2-33: Through Rail Traffic Flows by Rail Tonnage**



## INTERNAL RAIL MOVEMENTS

Internal freight rail movements that originate and terminate within Pennsylvania. Internal commodities accounted for 10.8 million tons, or approximately 5 percent of the state's total rail movements in 2013. Through rail movements contribute directly to the state's economy by serving local businesses. The majority of internal rail movements are related to the shipment of coal which accounted for 68 percent (7.4 million tons) of the state's total internal tonnage in 2013. **Figure 2-34** depicts the main corridors within Pennsylvania on which these internal movements operate. Internal rail traffic in Pennsylvania is primarily located on the state's major rail corridors.

**Figure 2-34: Internal Rail Traffic Flows by Rail Tonnage**





*NS intermodal gantrycrane*

Source: PennDOT

**INTERMODAL FREIGHT FLOWS**

STB reports intermodal/non-intermodal freight commodity data based upon either all rail, intermodal, or unknown. The *STB Carload Waybill Sample Reference Guide* defines an intermodal trip as “a continuous movement involving at least one railroad and another mode.” Generally, intermodal pertains to the movement of goods on two or more modes, involving either direct transfer or immediate storage. In most cases, intermodal means the transport of containers or trailers (from container ships or trucks) onto railroad flat cars.<sup>6</sup> **Table 2-19** describes intermodal rail movements in 2013. Unfortunately a significant proportion, 49.3 percent, of the reported shipments by tonnage were reported as unknown.

**Table 2-19: 2013 Pennsylvania Intermodal Freight Rail Traffic by Type**

	Inbound	Outbound	Through	Internal	Total
Intermodal (Tons)	-	178,160	129,320	-	307,480
All Rail	12,984,834	24,134,231	67,111,496	1,470,634	105,701,195
Unknown	37,237,592	23,278,088	33,330,316	9,410,897	103,256,893
<b>Total Freight Tonnage</b>	<b>50,222,426</b>	<b>47,590,479</b>	<b>100,571,132</b>	<b>10,881,531</b>	<b>209,265,568</b>

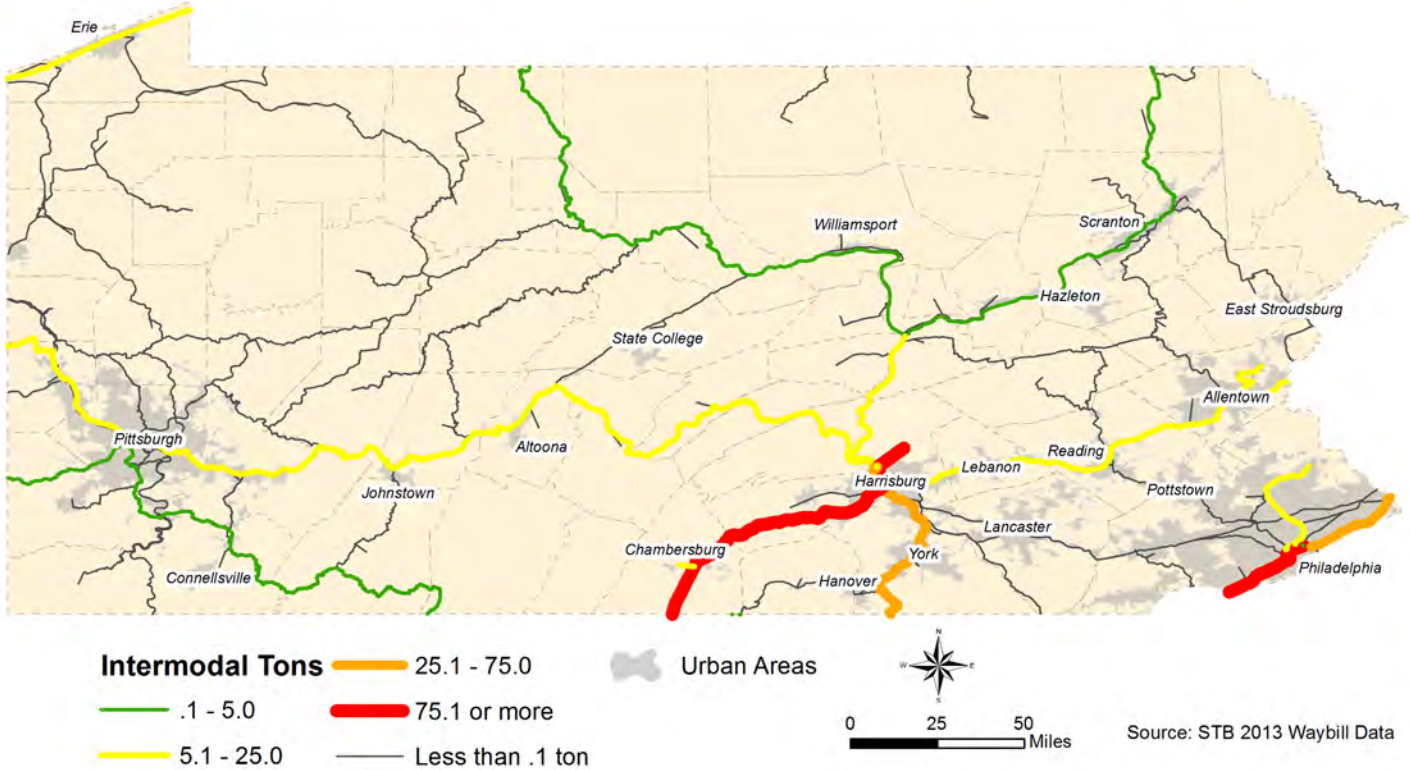
Source: STB 2013 Waybill processed by HNTB Corporation

<sup>6</sup> FHWA Freight Management and Operations, <http://www.ops.fhwa.dot.gov/freight/publications/qrfm2/sect13.htm>

Intermodal rail traffic in Pennsylvania accounts for 63.9 percent of through movements, meaning that railways in Pennsylvania are moving these intermodal shipments from and to locations outside of the state. A map of total rail intermodal movement flows in the state is illustrated in **Figure 2-35**.

Additional tables with freight commodity data can be found in **Appendix A**. For intermodal trends regarding 2011 to 2040, see **Section 2.2.2.2: Intermodal Market Trends**.

**Figure 2-35: Total Rail Intermodal Movement Flows in Pennsylvania by Tonnage, 2013**



### 2.1.1.5 NON-OPERATING RAILROADS

There are a number of companies that own rail lines in Pennsylvania but delegate their operations to another company. These Non-Operator Owners are detailed in **Table 2-20**, along with their operator and mileage.

**Table 2-20: Non-Operating Owners**

Non-Operator Owners	Servicing/Operating Railroad	Miles
A.P. Green Industries, Inc. (APG)	Everett Railroad	0.80
Almono LP (ALP)	Allegheny Valley Railroad	2.00
Belvidere & Lehigh River Railway Co. (BLRV)	Belvidere & Delaware River Railway Company, Inc.	16.90
Bucks County Railroad Preservation and Restoration Corporation (BC)	New Hope & Ivyland Railroad	17.60
Carbon County Railroad Commission (CCRC)	Reading, Blue Mountain & Northern Railroad	18.00
Columbiana County Port Authority	Youngstown & Southeastern RR	15.20
Consolidation Coal Co. (CC)	NS Railway Company	Unknown
County of Berks	Eastern Berks Gateway RR Co	8.60
Cumberland Coal Resources (CCR)	Cumberland Mine Railroad	14.00
Custom Coals Laurel	NS Railway Company	Unknown
Frank Sahd Salvage Center, Inc. (FSSC)	Columbia & Reading Railway Co.	2.50
Greater Hazleton Community Area New Development Organization, Inc. (CAN DO, Inc.)	NS Railway Company	2.00
Growth Resources of Wellsboro Foundation (GROW)	Wellsboro & Corning Railroad	24.00
HUD, Inc. t/a Emerald Anthracite II (EA)	No Service Currently	2.00
Jersey Shore Steel Company (JSS)	Lycoming Valley Railroad Co.	Unknown
Kutztown Transportation Authority (KTA)	Allentown & Auburn RR Company	4.12
Letterkenny Industrial Development Authority (LIDA)	Pennsylvania & Southern Railway LLC	25.00
Lewisburg & Buffalo Creek Railroad	Union County Industrial Railroad Company	8.50
Luzerne County Redevelopment Authority (LUCRA)	Luzerne & Susquehanna Railroad	56.00
Mifflin County Industrial Develop. Corp. (MCIDC)	Juniata Valley Railroad Company	1.00
Morrison Cove Railroad, Inc. (MC)	Hollidaysburgx & Roaring Spring RR	7.00
Oil Creek Railway Historical Society (OCHS)	Oil Creek & Titusville Lines	16.50
PBS Coals, Inc. (PBS)	CSX & NS Railway Company	8.60
Pennsylvania Northeast Regional Railroad Authority (PNERRA)	The Delaware-Lackawanna Railroad Company, Inc.	88.57
Philadelphia Belt Line Railroad Co. (PBL)	NS Railway Company & Conrail	3.50
Philadelphia Industrial Dev. Corp. (PIDC)	NS Railway Company	7.30
PPL Susquehanna LLC (PPLX)	North Shore Railroad	7.00
SEDA-COG Joint Rail Authority (SEDA)	North Shore Railroad	210.90
Shaffers' Feed Service, Inc.	Reading, Blue Mountain & Northern Railroad Co.	4.50
West Erie Shortline, Inc. (WES)	NS Railway Company	0.90
West Shore Railroad Corp. (WSRC)	Union County Industrial Railroad Co.	14.50
Westmoreland County Industrial Development Corporation (WIDC)	Southwest Pennsylvania Railroad Co.	32.00
Whirley Industries, Inc. (WI)	Buffalo & Pittsburgh RR Co.	0.30

Source: Pennsylvania DOT 2014 Railroad Inventory

### 2.1.1.6 HOLDING COMPANIES

Throughout Pennsylvania, a number short line railroads and one regional railroad are owned and operated by holding companies that control multiple railroads. These holding companies can allow for greater efficiencies and better access to capital than a small independent company. Holding companies and their associated railroads are listed in **Table 2-21** below.

**Table 2-21: Railroad Holding Companies**

Holding Company	Railroad(s) in Pennsylvania	Miles	County(ies)
ArcelorMittal	Brandywine Valley Railroad, Steelton & Highspire Railroad, Upper Merion & Plymouth Railroad	12.40	Chester, Dauphin, Montgomery
Carload Express	Allegheny Valley Railroad, Southwest Pennsylvania Railroad	143.00	Fayette, Westmoreland
Genesee & Wyoming Inc. (G&W)	Aliquippa & Ohio River Railroad Company, Buffalo & Pittsburgh Railroad, Pittsburgh & Ohio Central Railroad Company, Wellsboro & Corning Railroad, York Railroad Company	488.15	Allegheny, Beaver, Butler, Clearfield, Elk, Jefferson, McKean, Tioga, Washington, York
Genesee Valley Transportation Company	Delaware - Lackawanna	88.00	Lackawanna, Monroe, Northampton, Wayne
North Shore Railroad Company	Juniata Valley Railroad, Lycoming Valley Railroad, Nittany & Bald Eagle Railroad, Shamokin Valley Railroad, Union County Industrial Railroad	202.00	Blair, Centre, Clinton, Columbia, Luzerne, Lycoming, Mifflin, Montour, Northumberland, Union
Pioneer Railcorp	Gettysburg & Northern Railroad	25.00	Adams, Cumberland
Regional Rail, LLC	East Penn Railroad, Tyburn Railroad	128.00	Berks, Bucks, Chester, Delaware, Lancaster, Montgomery, Philadelphia, York
R. J. Corman Railroad Group	Allentown Lines, Pennsylvania Lines	221.50	Cambria, Centre, Clearfield, Clinton, Indiana, Jefferson, Lehigh
Transtar Inc.	Union Railroad Company	11.00	Union
Watco Company	Pennsylvania Southwestern Railroad	62.00	Fayette, Westmoreland

Source: Pennsylvania DOT 2014 Railroad Inventory





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### Steamtown National Park, Scranton, PA

Source: National Park Service

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#### 2.1.1.7 RAIL AUTHORITIES

Public rail authorities are organizations that allow government to promote economic development by preserving freight rail service that may have otherwise been abandoned. Pennsylvania does not have any state level rail authorities, but does have regional level authorities. There are two major rail authorities in Pennsylvania: the Pennsylvania Northeast Regional Railroad Authority (PNRRA) and the Susquehanna Economic Development Association-Council of Governments (SEDA-COG).

##### Pennsylvania Northeast Regional Railroad Authority (PNRRA)

The PNRRA was created in 2006 with the goal of regionalizing the rail assets of Northeastern Pennsylvania. PNRRA owns a hundred miles of short-line railroad in northeastern Pennsylvania, which is operated by the Delaware-Lackawanna Railroad Company. The PNRRA hopes to continue to develop and expand industry along the rail in future years.

##### Susquehanna Economic Development Association -Council of Governments (SEDA-COG)

The Susquehanna Economic Development Association-Council of Governments (SEDA-COG) Joint Rail Authority owns five short-line railroads in Central Pennsylvania. North Shore Railroad currently handles operations, but the authority has released an RFP seeking additional operators.

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### 2.1.1.8 TOURIST RAILROADS

Pennsylvania has a number of tourist railroads. Tourist railroads help preserve railroad history and provide economic development by attracting tourism dollars.

Tourist Railroads Include:

1. Bellefonte Historical Railroad, Bellefonte
2. East Broad Top Railroad, Rockhill
3. Gettysburg Scenic Railroad, Gettysburg
4. Lehigh Gorge Scenic Railway, Jim Thorpe
5. Middletown & Hummelstown Railroad, Middletown
6. New Hope & Ivyland Railroad, New Hope
7. Oil Creek & Titusville Railroad, Oil City
8. Pennsylvania Trolley Museum, Washington
9. Railways to Yesterday/Rockhill Trolley Museum, Rockhill Furnace
10. Steam Into History, New Freedom
11. Steamtown National Park, Scranton
12. Strasburg Railroad, Strasburg
13. Tioga Central Railroad, Wellsboro
14. Wanamaker, Kempton, & Southern, Kempton
15. West Chester Railroad, West Chester

Most of these tourist railroads cannot offer connectivity to regularly scheduled passenger rail service due to their geographically isolated nature. However, the Middletown & Hummelstown Railroad has a terminal within close proximity to the Amtrak Middletown station. The New Hope & Ivyland also offers limited tourist service that connects to commuter rail service at the Warminster SEPTA station.

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### 2.1.1.9 INACTIVE LINES, RAIL BANKING, RAILS TO TRAILS, AND RAILS-WITH-TRAILS PROJECTS

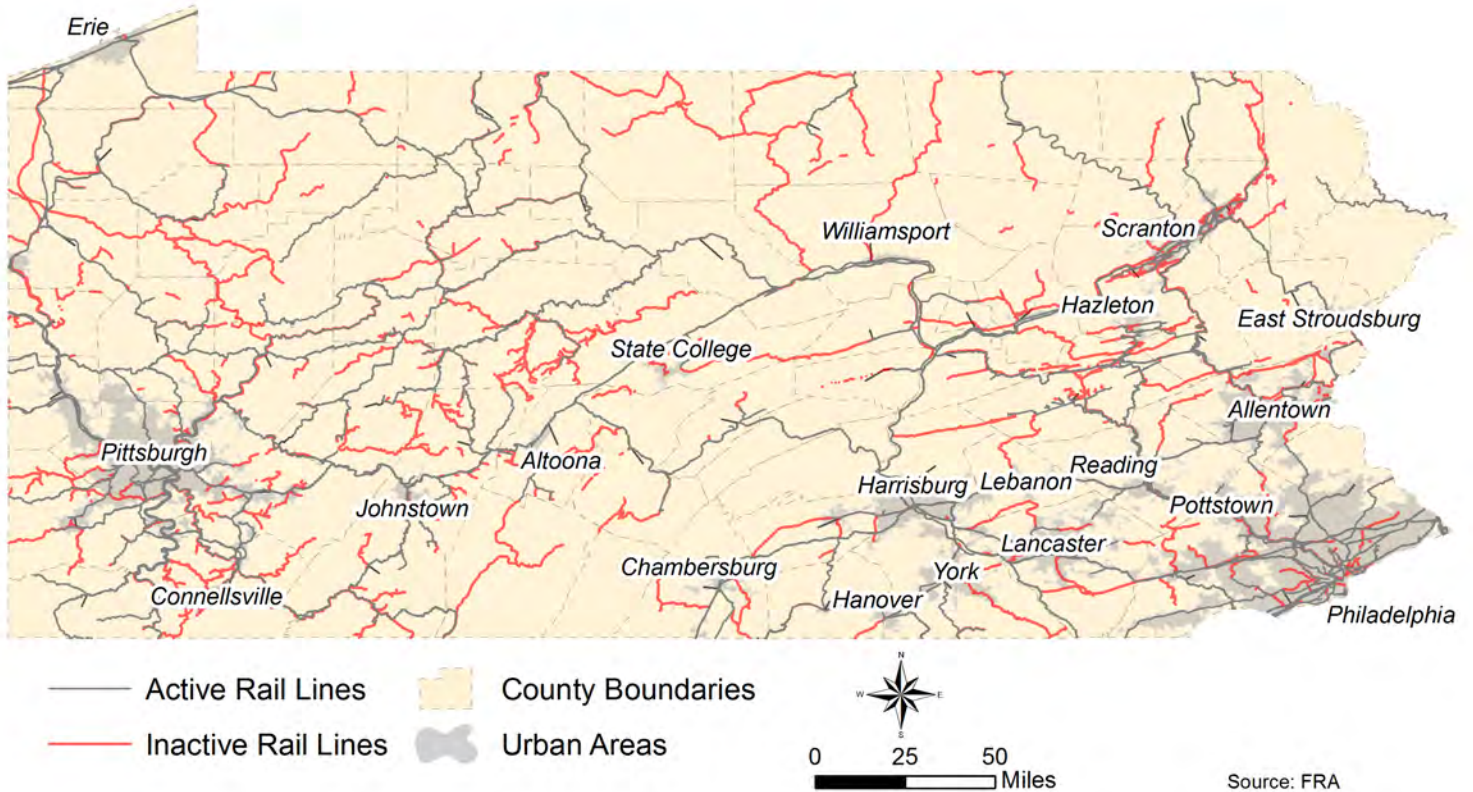
Railroad industry consolidation has led to a number of rail lines becoming inactive. **Figure 2-36** illustrates inactive rail lines throughout the state. Although these rail lines are not currently in use, their right-of-way is a valuable legacy that can be preserved for future use.

Railbanking was authorized by Congress in 1983 to create a “national policy to preserve established railroad rights-of-way for future reactivation of rail service, to protect rail transportation corridors, and to encourage energy efficient transportation.”

The main goal of railbanking is to preserve one of the most important legacies of the country’s rail network: right-of-way.



**Figure 2-36: Inactive Rail Lines**



Railbanking rail lines that would otherwise be abandoned serves two main purposes:

1. Preserve the rail corridor for future railroad use. Without preservation, the land formerly occupied by the rail line may be redeveloped, which makes future use of the corridor extremely difficult.
2. Allows interim uses such as rail-trails. Since railbanking was authorized, Pennsylvania has had a large number of successful railbanking projects, including those identified in **Table 2-22**.

**Table 2-23** details the major undeveloped railbanked corridors within Pennsylvania.

SEPTA has also allowed for rail-to-trail projects along unused portions of its Regional Rail network. Trail projects on SEPTA owned right-of-way include:

- |                              |                             |
|------------------------------|-----------------------------|
| 1. Pennypack Trail Extension | 4. Saucon Rail Trail        |
| 2. Cynwyd Heritage Trail     | 5. Chester Creek Rail Trail |
| 3. Ivy Ridge Trail           |                             |

“Rails-with-Trails” projects are an effective way of providing both rail service and a multi-use path on the same corridor, safely operating side-by-side. **Table 2-24** details the Rails-with-Trails projects in Pennsylvania.

**Table 2-22: Pennsylvania Rail-Trail Projects**

Name	County(ies)	Miles
Buffalo Valley Rail Trail	Union	9.00
Cumberland Valley Rail Trail	Cumberland	10.90
Butler-Freeport Community Trail	Armstrong, Butler	19.50
Ghost Town Trail	Cambria, Indiana	36.50
Hoodlebug Trail	Indiana	10.50
Houtzdale Line Trail	Clearfield	10.50
Lebanon Valley Rail-Trail	Lancaster, Lebanon	12.50
Lykens Valley Rail Trail	Dauphin	9.20
Pine Creek Rail Trail	Lycoming, Tioga	61.20
Redbank Valley Rail Trail	Armstrong, Clarion, Jefferson	50.60
Snow Shoe Rail Trail	Centre, Clearfield	18.50
Stony Valley Railroad Grade	Dauphin, Schuylkill	21.50
Warren to North Warren Bike Trail	Warren	2.00
Wolf Run Trail	Clearfield, Jefferson	4.20
<b>TOTAL</b>		<b>276.6</b>

Source: Rails to Trails Pennsylvania Office

**Table 2-23: Undeveloped Railbanked Corridors in Pennsylvania**

Name	County(ies)	Miles
Allentown to Salisbury Township	Lehigh	1.90
Dimeling to Madera Trail	Clearfield	13.00
West Creek Recreational Trail	Cameron, Elk	18.90
<b>TOTAL</b>		<b>33.80</b>

Source: Rails to Trails Pennsylvania Office

**Table 2-24: Pennsylvania Rails-With-Trails Projects**

Trail Name	County(ies)	Total Trail Miles	Rail-to-Trail Miles
Arboretum Trail	Allegheny	0.80	0.80
Clarion Little Toby Creek Trail	Clearfield, Elk, Jefferson	19.00	2.00
D & L Trail (Lehigh Gorge State Park Trail)	Carbon, Luzerne	25.70	6.80
Five Star Trail	Westmoreland	7.75	6.10
Heritage Rail Trail County Park	York	21.10	10.00
Hoodlebug Trail	Indiana	10.50	0.50
Luzerne County Rail Trail	Lackawanna, Luzerne	1.80	1.80
McClintock Trail	Venango	2.00	1.50
Montour Trail Westland Branch	Washington	3.00	3.00
Neversink Connector Trail	Berks	1.20	0.30
Pine Creek Rail Trail/Jersey Shore Connector	Lycoming, Tioga	62.00	0.47
Stavich Bicycle Trail	Lawrence	7.00	7.00
Schuylkill River Trail (Valley Forge to Philadelphia)	Montgomery, Philadelphia	27.00	1.40
Three Rivers Heritage Trail (South Side)	Allegheny	6.00	6.00
Schuylkill River Trail (Thun Trail)	Berks, Montgomery	18.30	3.00

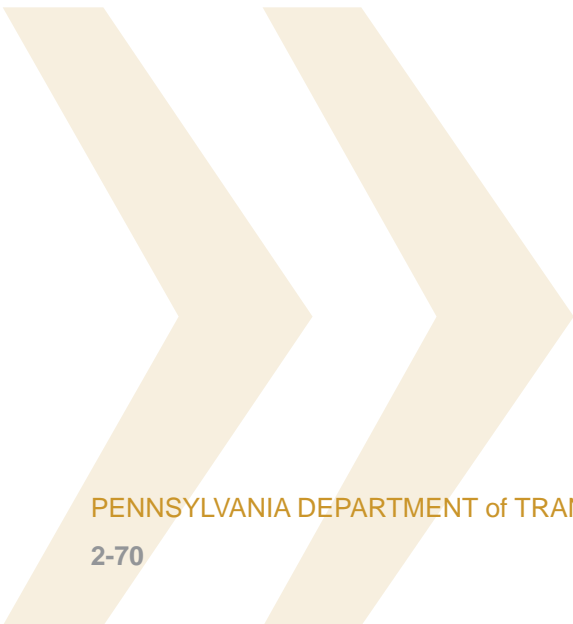
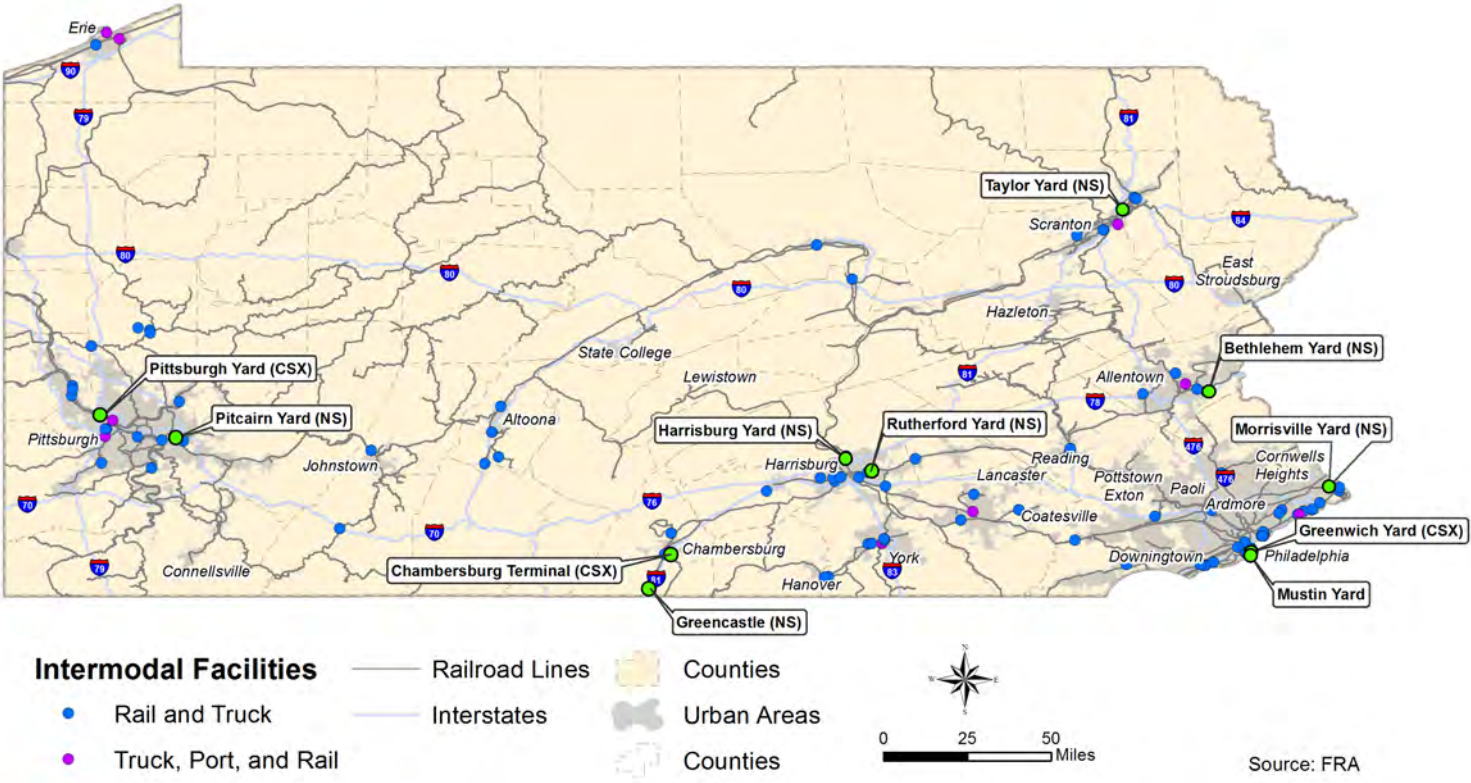
Source: Rails To Trails Conservancy Rails-With-Trails Report



## 2.1.2 Intermodal Connections: Freight and Passenger Terminals

Intermodal facilities are an integral part of the Pennsylvania rail network and play a key role in moving people and goods into, out of, and throughout the state. Pennsylvania is home to a number of intermodal facilities including seaports, airports, multimodal freight facilities and major passenger stations. An inventory of these facilities is provided in the following subsections. **Figure 2-37** shows locations of freight facilities in Pennsylvania.

**Figure 2-37: Freight Facilities in Pennsylvania**



## Military Strategic Rail Corridor Network: STRACNET

The Department of Defense's Railroads for National Defense Program (RND) program has identified over 36,000 miles of key railroad corridors as being vital for the movement of military supplies and personnel. The corridors in Pennsylvania, including their connections, are illustrated in **Figure 2-38**.

**Figure 2-38: STRACNET Routes**



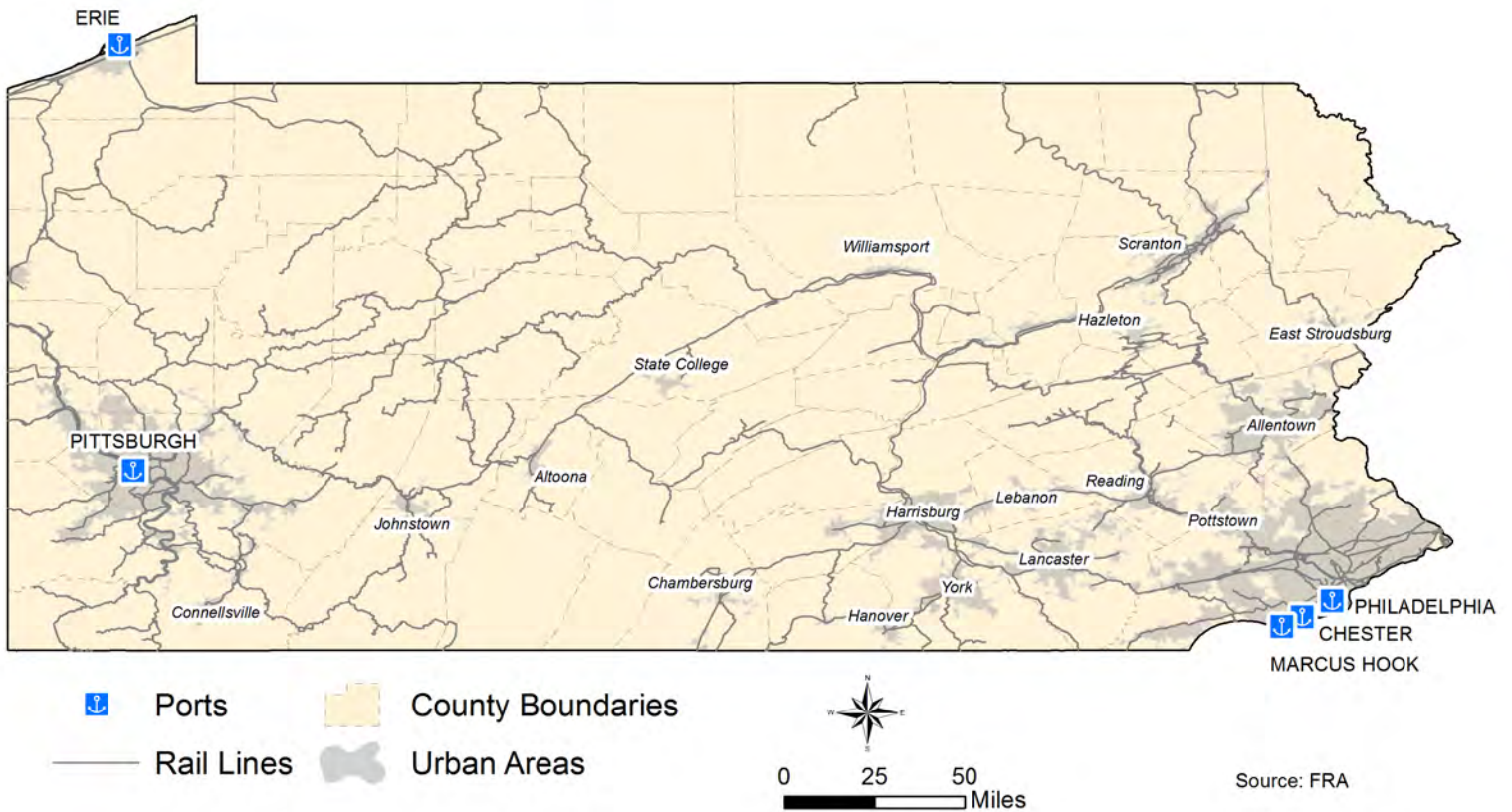
## 2. THE STATE'S EXISTING RAIL SYSTEM

### 2.1.2.1 SEAPORTS

Pennsylvania has three major shipping ports. They are located in Philadelphia, Pittsburgh and Erie. Each port has a unique competitive advantage as a major port in the state. Pennsylvania has a deep water port in Philadelphia, a busy inland port in Pittsburgh, and a Great Lakes port in Erie with international access through the St. Lawrence Seaway. The Port of Philadelphia is the twenty-fourth largest port in the United States for handling imported goods.<sup>7</sup>

Philadelphia's port generates more than one-quarter of the North Atlantic annual freight tonnage. The Port of Pittsburgh is the second largest inland port in the United States and handles the largest amount of raw materials in the world. The Port of Erie is within a 300-mile range to one-third of the US population and is in close proximity to Chicago, Washington, D.C. and parts of Canada. See **Figure 2-39**.

**Figure 2-39: Pennsylvania Ports**



<sup>7</sup> "U.S. Port Ranking By Cargo Volume". American Association of Port Authorities. 2012

## PORT OF PHILADELPHIA

### *Geography*

The Port of Philadelphia is Pennsylvania's largest port. It is located at the southeastern shoreline within the City of Philadelphia, along the Delaware River. Its central location along the NEC allows direct commerce with the country's largest and most lucrative marketplace. The port is directly accessible to more major cities by rail and truck than any other port in the United States, creating cost-efficient and timely deliveries. The port is close to Marine Highway M-95, which parallels the east coast of the United States from Maine to Florida.

### *About the Port*

The Port of Philadelphia is administered by the Philadelphia Regional Port Authority who oversees all seven terminals along the Delaware River. The terminals consist of the Packer Avenue Marine Terminal, Piers 96 & 98 Annex, Pier 84, Pier 82, Piers 78 & 80, Piers 38 & 40, and the Tioga Marine Terminal. The Port of Philadelphia handles more than one-quarter of the entire North Atlantic District's annual tonnage and is the 4th largest port in the United States for the handling of imported goods.

Each of the seven terminals offer specialized capabilities. The Port's largest facility, at 112 acres, is the Packer Marine Terminal. The Packer Marine Terminal handles containers, steel products, frozen meat, fruit, heavy lift projects, and paper. The Port's second largest facility is the Tioga Marine Terminal. It accommodates Philadelphia's Chilean fruit business, where it also handles containers, break bulk cargo, and steel. Pier 84 is a dedicated cocoa products facility, to which Philadelphia imports 70 percent of the cocoa in the United States. The remaining terminals, including Piers 38, 40, 78, and 80 comprise the Port's forest products center, handling newsprint, wood pulp, lumber, coated paper, and other forest products.

The Philadelphia Regional Port Authority (PRPA), an independent agency of the state, is the primary agency for maintaining and managing the port. Its mission is the enhancement of marine trade and commerce. The PRPA was created by an act of the Pennsylvania legislature in 1989. The agency's goals are to promote economic development and create jobs by marketing the use of Philadelphia's port system for the benefit of Pennsylvania-based industries.

### *Rail Connection*

Currently, the Port's facilities are serviced by two Class I Railroads, CSX and NS. CSX offers daily service between Philadelphia and Midwestern, Southern and Southeastern cities. NS provides double-stack, intermodal service between Philadelphia and major Midwest locations with a connection available to Canada.

### *Future Plans*

Port petroleum and natural gas traffic is anticipated to increase due to major investments by oil refineries in southeastern Pennsylvania. Additionally, alternative energy freights, such as fertilizers, chemicals and wood pellets are also being transported through Philadelphia's port with future prospects for growth.

The US Army Corps of Engineers is in the process of deepening the main channel of the Delaware River from 40 feet to 45 feet. The channel deepening will produce greater capacity for marine transportation of containerized goods, steel and metals, as well as crude oil and petroleum products. According to the Army Corps of Engineers, the project is scheduled to be completed by 2017.





## PORT OF PITTSBURGH

### Duquesne Wharf River-to-Rail transport crane

Source: Southwestern Planning Commission

### *Geography*

The Pittsburgh Port District includes 200 miles of commercially navigable waterways in southwestern Pennsylvania. It encompasses the Allegheny, Monongahela, and Ohio Rivers and extends across twelve Pennsylvania counties (Allegheny, Armstrong, Beaver, Blair, Butler, Clarion, Fayette, Greene, Indiana, Lawrence, Washington, and Westmoreland). The Port District is made navigable by a system of seventeen locks and dams.

The Pittsburgh Port District is the 2nd largest inland port in the United States. Each year it facilitates the shipment of approximately 44 million tons of cargo, including large amounts of raw material. The port is the beginning of the Marine Highway M-70 corridor, which spans the Ohio, Mississippi, and Missouri Rivers.

### *About the Port*

The Pittsburgh Port District is overseen by the Port of Pittsburgh Commission, created by the state legislature under the Law 1992-133. The Commission's board includes four legislative and eleven gubernatorial appointees. The gubernatorial appointees consist of four citizens at large, three from nominees of the Southwestern Pennsylvania Commission (SPC), one county commissioner jointly representing non-SPC counties in the Port of Pittsburgh District, and one representative each from the Association for Development of Navigation in America's Ohio Valley (DINAMO), the Waterways Association, and the River Terminal Operator's Association.

The Commission acts as a link for shippers seeking information about the three-river port system. It has an abundant amount of riverfront real estate available for redevelopment around its site. The Commission provides an inventory of waterfront industrial sites for brokerage in anticipation of industrial and commercial development. The Commission operates several financing and incentive programs, including a Revolving Loan Fund and bond financing.

The Port of Pittsburgh supports over 200 river terminals and barge industry service suppliers. The Port Commission handles over twenty major terminals with varying capacity and commercial interests. Industrial commerce within the port includes business concerning lumber, ores and metals, scrapping, bulking and packaging, and handling of various liquids and energy producing goods.

### *Rail Connection*

The port's terminal network is served by two Class I Railroads, CSX and NS; two Class II railroads, Buffalo & Pittsburgh and Wheeling & Lake Erie; and six companies that are responsible for switching lanes. In addition, many private terminals that are industrial sidetracks provide connection to the port.

### *Future Plans*

The Port of Pittsburgh has high potential for domestic waterway shipping of energy-related raw materials and products. A substantial amount of coal is presently shipped throughout Pittsburgh's three rivers for domestic use and national export. The Port is also revitalizing waterway shipping for greater efficiency of shale gas commodities. An ethane cracker facility is under consideration within the region with the idea that ethane and other chemicals will be shipped from the Port of Pittsburgh.

The Port of Pittsburgh Commission recently established a Clean Fuels/Clean Rivers program. The purpose of the program is to develop a natural gas marine corridor extending from Morgantown, West Virginia via Pennsylvania through the Ohio River to Huntington, West Virginia. The goal of the Clean Fuels/Clean Rivers program is to expand the potential of natural gas as a replacement for diesel fuel for vessels traveling on the inland waterway system, which encompasses nearly 12,000 miles of navigable waters.

The Port of Pittsburgh is emerging as an import/export nexus for energy-related companies because of the state's flourishing Marcellus Shale natural gas improvements. Royal Dutch Shell, a multinational oil and gas company, has expressed interest in developing a multi-billion dollar petrochemical complex along the Ohio River as well.

## PORT OF ERIE

### *Geography*

The Port of Erie is Pennsylvania's only port on the Great Lakes. It is located along the southeastern shore of Lake Erie in a naturally formed bay sheltered by Presque Isle to its north. The 29-foot deep harbor entrance channel between the Port of Erie and Presque Isle is served by ocean-going freighter ships via the St. Lawrence Seaway. The Port of Erie's central location between New York and Chicago provides a 300-mile radius to one-third of the United States population. It is also within relative proximity to Detroit and several Canadian port cities. The port is located along Marine Highway M-90, which spans the Great Lakes and the Saint Lawrence Seaway.



### *About the Port*

The port area is operated and maintained by the Erie-Western Pennsylvania Port Authority. Its mission statement is “*To promote industrial, commercial and recreational opportunities on Presque Isle Bay and adjacent waters.*” Currently, there are two principal industrial/commercial terminals both located at the eastern side of the port: Donjon Marine whose business activities include marine salvage, dredging, marine transportation, recycling, demolition, heavy-lift, and other related services; and Erie Sand & Gravel Company, a provider of concrete sand, stone and ready-mixed concrete to contractors, government agencies, and homeowners.

### *Rail Connection*

Freight service lines at the port are provided by NS and CSX. Erie County’s Long Range Transportation Plan from 2012 highlights the port’s current rail facilities as inadequate. According to the plan, the rail facilities connecting to the port contain just one track with no tail track and outdated siding.

### *Future Plans*

The Erie Port Authority has teamed with the Greater Erie Economic Development Corporation to establish Erie as a northern U.S. biomass industry epicenter. Their intention is to establish Erie as a major hub for the export of alternative energy resources to Europe, at which point the region could accommodate an industrial pellet facility that could produce one million tons each year with respect to resource availability.

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## 2.1.2.2 AIRPORTS

There are over 130 airports in Pennsylvania, including three major airport facilities that are classified by the Federal Aviation Administration (FAA) as hub facilities: Pittsburgh International Airport, Harrisburg International Airport, and Philadelphia International Airport. Although rail connection is only currently viable to the Philadelphia International Airport, it is worth recognizing the state’s largest airports as a potential asset to complement existing rail connections as well as consideration for compatibility with future plans of expansion.

### PHILADELPHIA INTERNATIONAL AIRPORT

#### *Geography*

Philadelphia International Airport (PHL) is the only major airport serving the Philadelphia metropolitan region. PHL is within close proximity to downtown Philadelphia and is strategically located along Interstate 95.

#### *About the Airport*

PHL was formally opened in 1940 under the name Philadelphia Municipal Airport. In 2013, PHL served 30.5 million passengers, making it the 19th busiest airport in North America.<sup>8</sup> The airport has seven terminals and four runways, which handle over 400,000 takeoffs and landings annually. It also the 16<sup>th</sup> busiest airport by freight volume, transporting over 400,000 tons of cargo and mail annually, with six cargo carriers working out of the airport. PHL regularly experiences congestion, contributing to mode share shift from airplane to train along the NEC.

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<sup>8</sup> <http://www.faa.gov/nextgen/snapshots/airport/?locationId=42&print=go>

### *Rail Connection*

PHL is directly served by the SEPTA Airport Line. The Airport Line connects the airport directly to Center City Philadelphia. Additional connections can be made to Amtrak and NJ Transit lines at 30<sup>th</sup> Street Station.

While CSX and NS make limited trips along SEPTA's Airport Line rails, there is no direct rail freight connection at the Philadelphia Airport.

### *Future Plans*

PHL is in the midst of 15-year Capacity Enhancement Program (CEP) in order to expand and modernize the airport. The CEP includes major improvements to runways, taxiways, terminal design, and infrastructure. The major goal of this expansion plan is to make the airport more competitive by reducing delays and adding capacity.

## PITTSBURGH INTERNATIONAL AIRPORT

### *Geography*

Pittsburgh International Airport (PGH) is located approximately 20 miles northwest of the City of Pittsburgh. The airport is strategically located on Interstate 376, connecting it to the interstate system, which provides efficient access to points throughout the northeast and central portion of the nation. This provides accessibility to a number of key economic centers within a 500 mile radius, including New York, NY; Baltimore, MD; Philadelphia, PA; Washington D.C.; Chicago, IL; Cleveland, OH; Cincinnati, OH; Detroit, MI and Indianapolis, IN. This location makes the airport an optimal hub for suppliers and distributors throughout the region.

### *About the Airport*

PGH opened its first passenger terminal in 1952, under the name Greater Pittsburgh Airport. Today, PGH serves more than eight million travelers each year. Those travelers are utilizing one of the airport's eight airlines. Air Canada, Delta, United, AirTran, jetBlue, U.S. Airways, American Airlines, and Southwest. According to the Cargo Division of the airport, 45 percent of the Canadian and U.S. population is accessible from the airport.<sup>9</sup> Barge, rail and truck intermodal facilities are all located on or close to the airport.<sup>10</sup> Pittsburgh's passenger service has seen dramatic decline since the creation of the Midfield terminal in 1992, leaving the airport with extra capacity.

### *Rail Connection*

There are currently no direct passenger or freight rail connections to the airport. Freight rail is available close to the airport along the Ohio River, five miles away. The airport markets Pennsylvania's freight rail system as one of its major cargo advantages.<sup>11</sup>

### *Future Plans*

In 2011, the Airport released their *Property Development Master Plan*; this document highlighted the growing interest in property development around the airport. In 2013, the airport set aside nearly half a billion dollars for improvements over the next 12 years. Among these plans are runway and taxiway rehab, roof replacement, road paving, and maintenance building renovation.<sup>12</sup> Since 2010, there have been proponents of extending the current "T" light rail system to the airport, but no plans have been implemented for the extension at this time.

<sup>9</sup> Pittsburgh International Airport: Cargo at Pittsburgh International Airport.

<sup>10</sup> Pittsburgh International Airport: PIT Operational Fact Sheet. January 2013

<sup>11</sup> "Cargo" Pittsburgh International Airport. <http://www.aircargopedia.com/pdf/PITCargo.pdf>.

<sup>12</sup> Kerlik, Bobby. "Plans for Upgrades at Pittsburgh International Airport Face Criticism" TRIBLive, October 2013.



## HARRISBURG INTERNATIONAL AIRPORT

### *Geography*

Harrisburg International Airport (HIA) is located in central Pennsylvania, 12 miles from the City of Harrisburg. The airport is adjacent to the Susquehanna River and in close proximity to Interstate 76 (I-76), the Pennsylvania Turnpike. HIA is within 125 miles of Philadelphia International Airport, Baltimore-Washington Airport, and Washington Dulles Airport.

### *About the Airport*

HIA began serving the general public in 1969, after operating for years as an Air Force base. The airport is currently owned and operated by the Susquehanna Area Regional Airport Authority. The airport is served by seven airlines. Air Canada, Allegiant, American Airlines, Delta, Frontier, United, and U.S. Airways. Two major cargo shippers, Aeroterm and Crossgates, operate at the airport's east end. The cargo carriers at the airport include Federal Express, UPS, and US Airways Cargo. HIA's cargo is more export than import, as 58 percent of all freight at the airport is outbound.<sup>13</sup>

### *Rail*

HIA is located two miles away from the Middletown Amtrak Station on the Keystone line, which provides access to Harrisburg, Philadelphia and New York. Riders can travel from the station to the airport via taxi.

While freight rail is serviced through two major intermodal facilities in Harrisburg, there is no direct freight rail connection at the airport.

### *Future Plans*

In 2013, HIA began an update to the Airport's Master Plan. The Master Plan alternatives call for a number of updates to air cargo facilities in order to meet future demand, including increasing storage capacity and additional air cargo apron space. Plans are currently in place to create a new Amtrak station in Middletown that will provide easier access to the airport by moving it closer.<sup>14</sup> Construction on the new station is set to begin in 2015.

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### 2.1.2.3 MULTIMODAL FREIGHT FACILITIES

The State of Pennsylvania has a number of major multimodal facilities that are operated by two Class I railroads NS and CSX. Canadian National (CN) does not currently operate or serve any intermodal facilities in Pennsylvania.

The state's intermodal facilities, as shown on **Figure 2-37** are described in the following subsections.

#### CHAMBERSBURG TERMINAL

The Chambersburg Terminal is operated by CSX and is located near Chambersburg, in south central Pennsylvania. The 85-acre intermodal facility transfers cargo between truck and train, and is part of the National Gateway project.

<sup>13</sup> "HIA's outbound cargo surplus offers window into freight business" October 2013.

<sup>14</sup> Malawsky, Nick. "Middletown train station project moving at full steam" PennLive. October 2013.

## FLORENCE YARD/ BETHLEHEM INTERMODAL

Florence Yard is owned by Lehigh Valley Rail Management, as a major intermodal facility for NS. This yard is located off of Route 412 in Bethlehem. The terminal is capable of standard transloading activities, stack cars, and lifts for Equipment Management Program (EMP) intermodal containers (53 feet).

## GREENCASTLE INTERMODAL YARD

NS's Greencastle Intermodal Yard opened in 2013 as part of the company's Crescent Corridor project, and was the result of a public-private partnership between NS and the state of Pennsylvania. This facility is a major storage and intermodal facility that serves central Pennsylvania, western Maryland, and northern Virginia.<sup>15</sup> The terminal is capable of standard transloading activities, stack cars and EMP lifts (53 feet), and contains 670 trailer/container parking spots.

## GREENWICH YARD

Greenwich Rail Yard is located in South Philadelphia adjacent to the Delaware River. The yard is the largest classification yard in Philadelphia and is operated by CSX. The yard is one of two major CSX rail yards in the state. The facility includes 18,000 feet of loading tracks, 2,000 truck parking spaces, and 30,000 feet of supporting tracks.

## HARRISBURG INTERMODAL YARD

Harrisburg Intermodal Yard (formerly Lucknow Yard) is operated by NS. It is located in northern Harrisburg, in central Pennsylvania. In 2013, NS completed a \$28.6 million rail yard expansion. The yard has transload capabilities and can accommodate 53-foot EMP intermodal containers.

## MORRISVILLE YARD

Morrisville Yard is located in Morrisville, PA, two miles west of Trenton, NJ. The yard is owned and operated by NS as part of its intermodal network. The yard has transload capabilities and can accommodate 53-foot EMP intermodal containers.

A large portion of the yard is used by NJ Transit for the storage and maintenance of trains. During the 2000s, NJ Transit made several upgrades to the yard including increasing its train storage capacity, constructing an enclosed maintenance shop and improving the efficiency of passenger train movements.

## MUSTIN YARD

Mustin Yard is located in Philadelphia at the former Philadelphia Naval Yard, which has been converted to a 1,200 acre business campus. This yard is an intermodal rail terminal operated by NS with access to the Port of Philadelphia.

<sup>15</sup> "Norfolk Southern's new Franklin County, Pa., Regional Intermodal Facility is good for business" Norfolk Southern. June 2013.





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### NS train crossing the Rockville Bridge over the Susquehanna River

Source: Tri-County Planning Commission

## PITCAIRN YARD

Pitcairn Yard was revived as a major rail to truck intermodal node in the late 1990s. It is located 15 miles east of Pittsburgh and is operated by NS. Pitcairn provides mechanical lifts that transfer cargo between rail and truck for transport.

## PITTSBURGH INTERMODAL RAIL TERMINAL

In the summer of 2015, CSX broke ground on construction of the Pittsburgh Intermodal Rail Terminal in Stowe Township and McKees Rocks, near Pittsburgh. This important connection in CSX's \$850 million National Gateway is a \$60 investment in redeveloping the former site of the Pittsburgh & Lake Erie Rail Yard. CSX expects to finalize construction of the terminal by 2017.

## RUTHERFORD YARD

Rutherford Yard is located in central Pennsylvania just east of Harrisburg, PA. The yard is a major rail to truck intermodal facility for NS in Pennsylvania. NS is currently investing \$60.5 million to expand the facility, which is expected to be completed in 2015. The project includes adding new unloading and loading rail spurs, adding new trailer spaces in the staging area and increasing the rail yard's lift capacity to transfer intermodal boxes between trains and trucks.<sup>16</sup> The yard offers all equipment capabilities, including the ability to handle 53-foot EMP intermodal containers.

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<sup>16</sup> Scott, Jason. "Rutherford Expansion Ramping Up" *Central Penn Business Journal*. March 2014.



## TAYLOR YARD

Taylor Yard is a major intermodal hub owned and operated by NS and located in Scranton, PA. The yard was expanded to accommodate transload operations in 2010 to process sand for natural gas development.<sup>17</sup>

## ADDITIONAL CSX FACILITIES

Other CSX facilities in Pennsylvania include a major rail yard in Pittsburgh (Demler Yard) and TRANSFLO terminals in Butler, Chester, Philadelphia (2), and Pittsburgh. TRANSFLO is a branch of CSX that provides transloading services through a network of 56 active terminals across the country.<sup>18</sup>

## ADDITIONAL NS FACILITIES

In addition to the multimodal facilities identified by the state and listed above, NS serves one additional freight terminal in Taylor, PA.<sup>19</sup>

<sup>17</sup> Haggerty, James. "Canadian Pacific building transload facility for gas industry in Taylor" *The Times Tribune*. August 2010.

<sup>18</sup> "CSX in Pennsylvania." April 2014. [http://www.csx.com/share/wwwcsx\\_mura/assets/File/About\\_CSX/State\\_Fact\\_Sheets/2014%20PDFs/CSXR525\\_StateFactSheet\\_Pennsylvania\\_5%2029.pdf](http://www.csx.com/share/wwwcsx_mura/assets/File/About_CSX/State_Fact_Sheets/2014%20PDFs/CSXR525_StateFactSheet_Pennsylvania_5%2029.pdf)

<sup>19</sup> "TERMINALS & SCHEDULES" Norfolk Southern. <http://www.nscorp.com/content/nscorp/en/ship-with-norfolk-southern/shipping-options/intermodal/terminals-and-schedules.html>





### SEPTA intermodal station

Source: SEPTA

#### 2.1.2.4 MAJOR PASSENGER STATIONS

There are 24 Amtrak stations in Pennsylvania. In the 2014 fiscal year, Amtrak stations accommodated over six million passengers. Amtrak's busiest station, Philadelphia's 30th Street Station, accounts for almost 66 percent of all Amtrak trips in the state.

There are 154 SEPTA passenger stations in Pennsylvania. SEPTA served over 36 million trips during 2013. SEPTA's busiest station, Suburban Station, serves 13.4 million passengers on an annual basis.

More detail regarding Amtrak and SEPTA stations can be found in **Section 2.1.1.1**.

### 2.1.3 Passenger Rail Service Objectives

PennDOT's long-term goals for the passenger rail element of the State's multimodal transportation system are to maintain and develop the state's rail network with stable and predictable funding and strong public support. With these goals, PennDOT aims to meet the current and future needs of residents and businesses, enhance the quality of life in Pennsylvania, and support personal safety, infrastructure security, energy efficiency, and environmental sustainability. Broad statewide objectives that expand on these goals are detailed in **Section 1.1: Pennsylvania's Goals for a Multimodal Transportation System**.

PennDOT supports the maintenance of current levels, frequencies, capacities, and ridership on existing commuter passenger rail service in the state (SEPTA's Regional Rail system) and on Amtrak's Pennsylvanian and Keystone routes. Current service levels for Amtrak's passenger rail service within Pennsylvania – including service frequencies, passenger miles, and ridership – are documented in **Section 2.1.1.1: Passenger Rail** and for SEPTA's Regional Rail system in **Section 2.1.1.2: SEPTA Overview**.

Where interest is strong among travelers, elected officials, and rail operators, PennDOT supports the analysis and consideration of proposals for higher levels, frequencies, and capacities of passenger rail, such as with the ongoing NEC Future study (<http://www.necfuture.com/>) described in **Section 1.6: Current Studies**. Such studies are based in part upon projections of future ridership change which, for Amtrak, are documented in **Section 2.2.3.1: Amtrak** of this State Rail Plan and, for SEPTA, in **Section 2.2.3.2: SEPTA** and **Appendix H**.

At the route level, the FRA has established metrics and standards for intercity passenger rail service<sup>20</sup> which are reported on by Amtrak on a quarterly basis. These metrics include five measures of finances and operations, three measures of on-time performance, three measures of train delays, and other service quality measures related to customer satisfaction. Using data from FY 2014, performance on Amtrak routes operating in Pennsylvania is documented in this report in **Section 2.1.4: Performance Evaluation of Intercity Passenger Services**.

The Department continues to coordinate with Amtrak and SEPTA to identify potential frequency increases and/or expansions of service. Specific operating and capital investment objectives for passenger rail service are the responsibility of, and are set by, Amtrak and SEPTA; PennDOT supports those agencies in their efforts to achieve them. Specific passenger rail performance and service objectives are described in **Section 2.1.3.1: Amtrak Intercity Passenger Rail Service Objectives** and **Section 2.1.3.2: SEPTA Commuter Rail Service Objectives** below.

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### 2.1.3.1 AMTRAK INTERCITY PASSENGER RAIL SERVICE OBJECTIVES

Amtrak has established system-wide and corridor-specific objectives for the coming years. The following describes the background and status of the key initiatives.

#### NORTHEAST CORRIDOR INVESTMENT

Amtrak is in the midst of major improvement planning for the Northeast Corridor (NEC). According to the 2012 Amtrak Vision for the Northeast Corridor report, the proposed NEC Capital Investment Program is estimated at \$151 billion. Potential corridor-wide capital projects include Positive Train Control, State of Good Repair backlogs, and core growth projects.<sup>21</sup>

NEC investments focus on broad goals for the entire corridor. Amtrak is striving to support economic growth and improve environmental quality throughout the region. NEC investments also aim to increase regional connectivity and expand rail infrastructure and multimodal connections. Expansion is primarily driven by Amtrak expectations of dramatic increases in ridership by 2030 along the corridor. The NEC Infrastructure Program strives to improve the service reliability of the corridor and reduce travel times, as measured by on-time performance and other performance standards, while preserving freight rail access.

Specific projects that the NEC plan identifies will address capacity constraints along the NEC in Philadelphia at key interlockings near 30th Street Station, including the Zoo interlocking to the north of the station and the Philadelphia Interlocking to the south of the station. Addressing these capacity constraints would reduce conflicts with SEPTA trains and help Amtrak achieve objectives to improve performance and reliability.

<sup>20</sup> See Docket Number FRA-2009-0016 at <http://www.fra.dot.gov/eLib/Details/L02875>.

<sup>21</sup> Amtrak. "The Amtrak vision for the Northeast Corridor: 2012 Update Report" July 2012.



## KEYSTONE CORRIDOR INVESTMENTS

The *NEC Infrastructure Master Plan* estimates a total of \$828 million will be spent by 2030 on improvements to help Amtrak meet performance and reliability objectives along the Keystone Corridor. Improvements include a third track between Paoli and Exton, as well as between Thorndale and Parkesburg. The plan also calls for interlocking, track, and signal upgrades to accommodate increased service between the Zoo Interlocking in Philadelphia and Parkesburg.

Building on the *Master Plan*, the 2011 Keystone East Corridor federal grant application listed the following goals:

1. Achieve 125 mph maximum speed.
2. Develop a sealed corridor for Keystone East (Achieved in 2014 with the completion of new grade separated roadway structures and closure of remaining public grade crossings).
3. Reduce travel time to 1 hour 15 minutes on express trains (Current express train schedules operate at a running time of 100 minutes).<sup>22</sup>

## OTHER INFRASTRUCTURE OBJECTIVES

Amtrak's performance and reliability objectives depend upon maintaining its rail infrastructure and rolling stock in good repair and its stations as accessible, appealing places for passengers to spend time boarding and alighting from trains. To the extent that investments in maintenance and improvement of these facilities make passenger rail travel more efficient, comfortable, and predictable, service objectives can be more effectively met.

Amtrak is focused on maintaining a state of good repair of all of its facilities and rolling stock. This infrastructure includes track, bridges, tunnels, overhead catenary wire, power supply systems, cable, transformers, converters, signals, communications, maintenance facilities, locomotives, passenger cars, coaches, and wagons, and passenger stations.

PennDOT is working to improve and redevelop existing stations and construct new ones. In addition to NEC station improvements, capital investments will improve ADA access, expand parking areas, update utilities, and restore historic structures. The improvements are meant to improve access to passenger rail service and promote economic development.

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### 2.1.3.2 SEPTA COMMUTER RAIL SERVICE OBJECTIVES

SEPTA's main objectives for the future are to:

1. achieve a state of good repair,
2. improve on-time performance, and
3. increase ridership capacity.

SEPTA has set an annual goal of 91 percent on-time performance for its Regional Rail system. In 2013, SEPTA's Regional Rail system achieved the best on-time performance records in SEPTA history with 93 percent of trains arriving on time. This was in large part due to the replacement of older Silverliner IV railcars with 120 new Silverliner V railcars, targeted infrastructure repairs, and improved operational coordination.

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<sup>22</sup>"March 2011 Narrative Application Form-Service Development Program, Part II Statement of Work" March 2011.

**Table 2-25** highlights the on-time performance of each SEPTA Regional Rail line between October and November of 2014. The best-performing line was the Manayunk/Norristown Line at 92 percent. The worst-performing line was the Paoli/Thorndale Line at 80 percent.

**Table 2-25: SEPTA Line On-Time Performance**

Regional Rail Line	On-Time Percentage
Airport Line	91
Chestnut Hill East Line	88
Chestnut Hill West Line	86
Cynwyd Line	84
Fox Chase Line	91
Lansdale/Doylestown Line	88
Manayunk/Norristown Line	92
Media/Elwyn Line	88
Paoli/Thorndale Line	80
Trenton Line	84
Warminster Line	91
West Trenton Line	86
Wilmington/Newark Line	84

*Source: SEPTA. Regional Rail On-Time Performance: November 2014.*

Due to increases in ridership, SEPTA has been experiencing overcrowding on several of its Regional Rail lines. In order to accommodate growing ridership, SEPTA plans to purchase bi-level cars following a fleet study. The study will assess the appropriate type and quantity of new cars needed in order to increase ridership capacity.

## 2.1.4 Performance Evaluation of Intercity Passenger Services

### 2.1.4.1 AMTRAK

Section 207 of the Passenger Rail Investment and Improvement Act of 2008 (PRIIA) charged the FRA and Amtrak with developing metrics and minimum standards for the performance and service quality of intercity passenger train operations, including on-time performance standards.

Enforcement of on-time performance standards for railroads that host Amtrak service will depend on the outcome of a current US Supreme Court case, the Department of Transportation vs. Association of American Railroads (AAR). The AAR objects to the provision of PRIIA that specified Amtrak was to work with the FRA to set metrics and minimum on-time performance standards. Freight railroads that host Amtrak can be penalized by the US Surface Transportation Board under the current provisions of PRIIA if Amtrak fails to meet performance standards due to problems caused by the freight railroads.





### Former Conrail caboose

Source: Tri-County Planning Commission

## FINANCIAL AND OPERATING MEASURES

Metrics established by the FRA and Amtrak include financial and operating measures, on-time performance, train delays and other service quality measures. These include standards for five different financial/operating measurements:

1. Percent of Short-Term Avoidable Operating Cost Covered by Passenger-Related Revenue ;
2. Percent of Fully Allocated Operating Cost Covered by Passenger-Related Revenue;
3. Long-term Avoidable Operating Loss per Passenger Mile;
4. Passenger-Miles per Train-Mile; and
5. Adjusted Loss per Passenger-mile.

The first four of these are measured at the route level and the last at the system level. For all five, the standard is to be continuous year-over-year improvement.

1. Percent of Short-Term Avoidable Operating Cost Covered by Passenger-Related Revenue

There is currently no data available to evaluate performance on this standard pending the completion of the Amtrak's Performance Tracking System.

2. Percent of Fully Allocated Operating Cost Covered by Passenger-Related Revenue

**Table 2-26** and **Table 2-27** show the general trend of Amtrak covering a greater percentage of its operating costs in the most recent reporting period. PRIIA Section 209 requirements that states provide support for short and medium distance train routes continue to be phased in throughout the reporting period.<sup>23</sup>

<sup>23</sup> <http://www.amtrak.com/ccurl/458/748/FY14-Budget-Business-Plan-FY15-Budget-Justification-FY14-18-Five-Year-Financial-Plan.pdf>

**Table 2-26: Percent of Fully Allocated Operating Costs Covered By Passenger-Related Revenue (Including State Revenue)**

Service	July 2011-June 2013 (Percent)	July 2012-June 2014 (Percent)	Percent Difference
Acela Express	171	182	6.43
Keystone Service	89	89	0.00
Northeast Regional	120	132	10.00
Capitol Limited	79	80	1.27
Carolinian	100	102	2.00
Pennsylvanian	65	72	10.77
Vermonteer	72	87	20.83
Cardinal	32	32	0.00
Crescent	43	42	-2.33
Lake Shore Limited	49	50	2.88
Palmetto	59	58	-1.69
Silver Meteor	51	51	0.00
Silver Star	44	43	-2.27

Source: FRA. "Quarterly Report on the Performance and Service Quality of Intercity Passenger Train Operations" September 2014.

**Table 2-27: Percent of Fully Allocated Operating Costs Covered By Passenger-Related Revenue (Excluding State Revenue)**

Service	July 2011-June 2013 (Percent)	July 2012-June 2014 (Percent)	Percent Difference
Acela Express	171	182	6.43
Keystone Service	71	73	2.82
Northeast Regional	120	132	10.00
Capitol Limited	40	40	0.00
Carolinian	93	94	1.08
Pennsylvanian	65	68	4.62
Vermonteer	47	51	8.51
Cardinal	32	32	0.00
Crescent	43	42	-2.33
Palmetto	59	58	-1.69
Silver Meteor	51	51	0.00
Silver Star	44	43	-2.27
Lake Shore Limited	49	50	2.04

Source: FRA. "Quarterly Report on the Performance and Service Quality of Intercity Passenger Train Operations" September 2014.

**3. Long-term Avoidable Operating Loss per Passenger Mile (excluding capital charges)**

There is currently no data available to evaluate performance on this standard pending the completion of the Amtrak's Performance Tracking System.

**4. Passenger-Miles per Train-Mile**

**Table 2-28** details the passenger miles per train mile for July 2011 to June 2013 and July 2012 to June 2014. Many long-distance routes saw decreasing number of passenger miles per train mile from 2013 to 2014. The largest increase was on the Pennsylvanian, which saw a 1.5 percent increase from 2013 to 2014. The largest decrease was on Palmetto service. This is consistent with the general trend of greater passenger usage for short and medium distance routes than for long-distance routes.

**5. Adjusted Loss per Passenger-Mile**

**Table 2-29** indicates the net operating costs of Amtrak service on a system-wide basis, both with and without the offset of state level funding.



**Table 2-28: Passenger-Miles Per Train Mile**

Service	July 2011- June 2013 (Percent)	July 2012- June 2014 (Percent)	Percent Difference
Acela Express	193	194	0.52
Keystone Service	147	147	0.00
Northeast Regional	219	220	0.46
Capitol Corridor	95	91	-4.21
Carolinian	272	266	-2.21
Pennsylvanian	196	199	1.53
Vermont	136	136	0.00
Cardinal	134	129	-3.73
Crescent	166	161	-3.01
Lake Shore Limited	243	236	-2.88
Palmetto	152	145	-4.61
Silver Meteor	231	226	-2.16
Silver Star	197	192	-2.54

Source: FRA. "Quarterly Report on the Performance and Service Quality of Intercity Passenger Train Operations" September 2014.

**Table 2-29: Adjusted Loss Per Passenger-Mile**

Adjusted (loss) per passenger-mile, including State Revenue in 2014 Constant Dollars		
Current Period	Prior Period	Prior Report
Jul. 12 - Jun. 14	Jul. 11 - Jun. 13	Apr. 12 - Mar. 14
-\$0.043	-\$0.064	-0.048
Adjusted (loss) per passenger-mile, excluding State Revenue in 2014 Constant Dollars		
Current Period	Prior Period	Prior Report
Jul. 12 - Jun. 14	Jul. 11 - Jun. 13	Apr. 12 - Mar. 14
-\$0.074	-\$0.092	-\$0.081

"Note: The definition of Adjusted (Loss) is Net Operating Loss (before net interest expense), less Depreciation, Other Post Employment Benefits (OPEB's) and Project costs covered by capital funding. FY13 results are preliminary and unaudited and are subject to change."

Source: FRA. "Quarterly Report on the Performance and Service Quality of Intercity Passenger Train Operations" September 2014.

## ON-TIME PERFORMANCE (OTP)

The PRIIA standards for on-time performance include three factors: change in effective speed, percent on-time endpoint arrival and percent on time arrival for all stations served. For all routes, effective speed is to be no worse than the baseline year, Federal Fiscal Year (FFY) 2008. The PRIIA Metrics and Standards target a quarterly effective speed the same as or better than what was recording for FFY 2008.

End-point delay tolerance for Amtrak trains (with the exception of the Acela Express, which has a delay tolerance of ten minutes) are determined by the following Delay Tolerance table: **Table 2-30** is based on route length, while **Table 2-31** includes the acceptable on time standards, varying by standards for both route type and year.

**Table 2-30: End-Point Delay Tolerance**

Route Length	Delay Tolerance
Up to 50 Miles	5 minutes
51 to 250 Miles	10 minutes
251 to 350 miles	15 minutes
351 to 450 Miles	20 minutes
451 to 550 Miles	25 minutes
More than 550 Miles	30 minutes

Source: Department of Transportation, Federal Railroad Administration. "Metrics and Standards for Intercity Passenger Rail Service"

**Table 2-31: On Time Percentage Standards**

Route Type	Percent on time in first year	Percent on time in fifth year
Acela	90%	95%
Other Northeast Corridor	85%	90%
Long-distance routes	80%	85%
All other corridors	80%	90%

Source: Department of Transportation, Federal Railroad Administration. "Metrics and Standards for Intercity Passenger Rail Service"

**Table 2-32** details the performance of Amtrak lines that provide service within Pennsylvania for each of the three PRIIA On-Time Performance tests in 2014.

**Table 2-32: PRIIA On-Time Performance (2014)**

Service	Test 1	Test 2	Test 3
	Change in Effective Speed from FY 2008 Baseline (mph)	Endpoint OTP	All-Stations OTP
	Four Quarters ending June 2014	April-June 2014	April-June 2014
<b>Acela Express</b>			
Standard	Greater or equal to zero	90.0%	90.0%
Acela Express	-1.4	77.9	82.6
<b>Other NEC Corridor Routes</b>			
Standard	Greater or equal to zero	85.0	85.0
Keystone Service	-0.9	92.2	96.5
Northeast Regional (Boston-Washington)	-0.4	80.4	87.3
<b>Non NEC Corridor Routes</b>			
Standard	Greater or equal to zero	80.0	80.0
Carolinian	0.8	58.8	58.9
Pennsylvanian	0.9	92.3	83.0
Vermonteer	3.6	85.7	79.0
Cardinal	0.6	43.6	42.8
Crescent	-0.3	51.1	52.1
Palmetto	0.5	69.8	66.5
Silver Meteor	-0.8	58.2	48.0
Silver Star	0.6	47.8	46.2
Lake Shore Limited	-1.6	38.5	28.0
Capitol Limited	.6	16.5	27.8

Source: FRA. "Quarterly Report on the Performance and Service Quality of Intercity Passenger Train Operations" September 2014.



The Pennsylvanian is one of the few Amtrak routes to meet all three PRIIA On-Time Performance metrics. This is explained by the route’s relative lack of bottlenecks compared to other Amtrak routes, as well as its improvement over previous performance.

## TRAIN DELAYS

Delays can be separated into two separate categories: issues caused by host railroads and issues caused by Amtrak. These categories assist in the analysis of on-time performance of Amtrak service, which can be impacted by both kinds of problems. **Table 2-33** details the delay codes, descriptions and explanations used by Amtrak.

The largest host-responsible causes for delay are attributed to freight train interference, signal delays and slow order delays. Host-responsible delays for Off-NEC lines are detailed in **Table 2-34**. The Amtrak caused delays are driven by factors such as passenger related delays (including issues related to disabled passengers), scheduled maintenance work, and miscellaneous delays. **Table 2-35** highlights the delays off-NEC Amtrak that are responsible for delays by service, while **Table 2-36** summarizes the major delays on the NEC.

**Table 2-33: Delay Codes**

Delay Code	Code Description	Explanation
ADA	Disabled Passenger Related	All delays related to disabled passengers, wheel chair lifts, guide dogs, etc.
CON	Hold for Connection	Holding for connections from other trains or buses
CTI	Commuter Train Interference	Delays for meeting or following commuter trains
DCS	Signal Delays	Signal failure or other signal delays, wayside defect-detector false-alarms, defective road crossing protection, efficiency tests, drawbridge stuck open
DSR	Slow Order Delays	Temporary slow orders, except heat or cold orders
ENG	Locomotive Failure	Mechanical failure on engines
FTI	Freight Train Interference	Delays from freight trains
HLD	Passenger Related	All delays related to passengers, checked-baggage, large groups, etc.
MTI	Disabled train ahead	Disabled train ahead due to mechanical failure
OTH	Miscellaneous Delays	Lost-on-run, heavy trains, unable to make normal speed, etc.
PTI	Passenger Train Interference	Delays for meeting or following other passenger trains
SMW	Scheduled M/W work	Scheduled maintenance of way work
SYS	Crew & System	Delays related to crews including lateness, lone-engineer delays

Source: FRA. “Quarterly Report on the Performance and Service Quality of Intercity Passenger Train Operations” September 2014.

**Table 2-34: Off-NEC Host Responsible Delays By Service (Minutes of Delay per 10,000 Train Miles)**

Service	April-June 2014					
	Host	Total Delay	Largest Two Delay Categories			
			Largest Source of delays	Delay	Second largest source of delays	Delay
Standard		900				
Acela Express	Metro-North	747	DSR	300	CTI	214
Northeast Regional (Boston-Washington)	Metro-North	927	CTI	397	DSR	376
Capitol Limited	CSX	3,142	FTI	1,802	DSR	425
	NS	5,100	FTI	2,813	DSR	841
Carolinian	CSX	1,831	FTI	724	PTI	365
	NS	510	PTI	149	DCS	133
Pennsylvanian	NS	759	FTI	332	DSR	245
Vermonter	Metro-North	1,057	DSR	355	CTI	318
	NECR	725	DSR	613	FTI	61
Cardinal	BBRR	1,762	PTI	535	FTI	527
	CSX	1,250	FTI	515	DCS	294
	NS	1,391	DCS	444	FTI	442
Crescent	NS	1,024	FTI	475	DSR	241
Lake Shore Limited	CSX	1,650	FTI	605	DSR	302
	Metro-North	2,550	CTI	1184	DSR	686
	NS	2,839	FTI	1585	DSR	502
Palmetto	CSX	1,094	FTI	475	PTI	203
Silver Meteor	CSX	962	FTI	347	DSR	199
	CFRC	3,722	DCS	1,457	PTI	886
	FDOT	767	CTI	230	PTI	158
Silver Star	CSX	1,139	FTI	341	DSR	275
	CFRC	2,347	DCS	1,308	CTI	359
	FDOT	1,041	CTI	580	DSR	247
	NS	245	PTI	188	DCS	27

Note: The data above reflects all hosts for rail lines that run through Pennsylvania, which includes hosts outside of the state.

Source: FRA. "Quarterly Report on the Performance and Service Quality of Intercity Passenger Train Operations" September 2014



**Table 2-35: Off-NEC Amtrak Responsible Delays By Service (Minutes of Delay per 10,000 Train Miles)**

Service	April-June 2014				
	Total Delay	Largest Two Delay Categories			
		Largest Source of delays	Delay	Second largest source of delays	Delay
Standard	325				
Acela Express	56	OTH	29	HLD	8
Northeast Regional (Boston-Washington)	265	OTH	90	HLD	61
Carolinian	419	HLD	196	ADA	140
Capitol Limited	293	HLD	138	ENG	80
Lake Shore Limited	460	HLD	302	CON	117
Pennsylvanian	301	HLD	110	OTH	72
Vermont	192	OTH	45	HLD	44
Cardinal	454	SYS	122	OTH	82
Crescent	297	HLD	78	ADA	65
Palmetto	172	ADA	59	HLD	54
Silver Meteor	373	ADA	149	HLD	96
Silver Star	451	HLD	174	ADA	126

Source: FRA. "Quarterly Report on the Performance and Service Quality of Intercity Passenger Train Operations" September 2014

**Table 2-36: On-NEC Host and Amtrak Responsible Delays By Service (Minutes of Delay per 10,000 Train Miles)**

Service	April-June 2014				
	Total Delay	Largest Two Delay Categories			
		Largest Source of delays	Delay	Second largest source of delays	Delay
Standard	265				
Acela Express	321	CTI	36	DSR	34
Keystone Service	246	ENG	36	HLD	30
Northeast Regional (Boston-Washington)	488	CON	66	ENG	59
Carolinian	556	MTI	84	HLD	73
Pennsylvanian	317	ENG	75	PTI	45
Vermont	451	ENG	54	SVS	52
Cardinal	838	ENG	156	ITI	107
Crescent	620	ENG	120	PTI	86
Palmetto	419	ENG	62	CTI	50
Silver Meteor	901	ENG	180	PTI	153
Silver Star	765	MTI	106	ENG	95

Source: FRA. "Quarterly Report on the Performance and Service Quality of Intercity Passenger Train Operations" September 2014.

**Table 2-37** describes passenger miles by route, and indicates the Northeast Regional is the most heavily traveled Amtrak route, with continued growth throughout the previous five years. **Table 2-38** indicates the Northeast Regional, Acela, and Keystone services all have over one million riders annually.

**Table 2-37 Annual Passenger-Miles By Route**

Route	FY10	FY11	FY12	FY13	FY14*
Acela	610,092,037	642,290,235	646,044,397	631,493,546	670,554,805
Vermont	25,142,343	20,904,659	23,751,590	23,846,029	24,595,098
Northeast Regional	1,096,002,456	1,155,302,501	1,241,143,904	1,234,977,907	1,257,624,976
Keystone	114,065,570	116,012,238	122,008,738	125,063,105	118,103,472
Silver Star	206,699,496	215,858,573	219,066,220	206,267,743	206,415,889
Cardinal	43,075,919	44,941,079	48,316,915	46,257,925	44,331,522
Silver Meteor	217,073,517	231,571,581	231,990,594	226,386,895	217,058,626
Capitol Ltd.	108,169,195	113,492,327	113,328,988	113,370,698	111,700,587
Lake Shore Ltd.	186,241,382	198,976,271	205,040,119	199,378,780	189,399,910
Palmetto	85,308,580	84,569,992	87,064,707	86,408,187	82,056,900
Crescent	164,843,214	165,948,448	162,173,615	159,645,909	159,056,049
Pennsylvanian	48,290,118	48,257,687	48,339,283	50,935,868	54,601,061
Carolinian	94,654,712	93,069,603	93,465,554	95,224,772	88,855,691

\*FY14 Ridership numbers are not directly comparable to previous year numbers due to Amtrak's switch to exact passenger numbers via electronic ticket collection instead of estimated ridership used in previous years. Source: Amtrak

**Table 2-38 Annual Ridership By Route**

Route	FY10	FY11	FY12	FY13	FY14*
Acela Express	3,218,718	3,379,126	3,395,354	3,343,143	3,545,306
Northeast Regional	7,148,998	7,514,741	8,014,175	8,044,216	8,083,237
Keystone Service	1,296,838	1,342,507	1,420,392	1,466,504	1,326,450
Vermont	86,245	77,783	82,086	84,109	89,640
Pennsylvanian	203,392	207,422	212,006	218,917	230,767
Carolinian	308,197	307,213	306,419	317,550	302,601
Silver Star	393,586	424,394	425,794	414,077	405,695
Cardinal	107,053	110,923	116,373	113,103	109,154
Silver Meteor	352,286	373,576	375,164	373,162	348,581
Capitol Limited	218,956	226,597	226,884	229,668	235,926
Lake Shore Limited	364,460	387,043	403,700	395,455	373,331
Palmetto	189,468	196,743	198,260	207,915	203,168
Crescent	298,688	304,086	304,266	306,733	294,306

\*FY14 Ridership numbers are not directly comparable to previous year numbers due to Amtrak's switch to exact passenger numbers via electronic ticket collection instead of estimated ridership used in previous years. Source: Amtrak



## 2.1.5 Public Financing for State Rail Projects and Services

A variety of federal and state funding programs are available for rail projects. The majority of funding programs apply to passenger rail. With private ownership of infrastructure being the dominant model for freight railroads, there are currently fewer public funding sources available for rail freight projects. Pennsylvania, however, is a national leader in rail freight investment. Projects to improve infrastructure for passenger rail can also have benefits for the freight railroads and shippers using shared rail lines, as in the case of the Keystone Corridor.

The FTA and FRA administer the majority of federal financing programs that directly pertain to passenger and freight rail. The FRA's programs are more specific to intercity passenger and freight rail, while the FTA programs include intercity passenger rail along with a variety of transit and commuter rail projects as part of the agency's goal to improve all modes of transit. The FTA administers its MAP-21 program.

At the state level, the Bureau of Rail Freight, Ports, and Waterways administers grant programs for freight rail and the Bureau of Public Transportation administers grant programs pertaining to passenger rail. Rail projects, and freight rail in particular, will typically be projected to yield economic development benefits, thus potentially qualifying for some of the many economic development grant and loan programs. The following section provides a brief overview of the relevant public funding programs for passenger and freight rail projects in Pennsylvania.

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### 2.1.5.1 FEDERAL GRANT SOURCES

The following section describes some of the public funding programs that are available to public agencies and private railroads to support the maintenance and improvement of Pennsylvania's railroads and railroad service.

#### FEDERAL RAILROAD ADMINISTRATION

A significant amount of funding has been made available through a number of different FRA programs since 2008. However, federal funding through FRA's major grant programs is currently exhausted as all funding has been allocated. Future federal funding levels are also unclear due to the lack of a long-range transportation bill. Since 2008, FRA grant programs have mainly been funded through authorizations in passed legislation such as the *Passenger Rail Investment and Improvement Act of 2008* (PRIIA), and the *American Recovery and Reinvestment Act of 2009* (ARRA).

PRIIA reauthorized Amtrak and established the framework for a national passenger rail program that lays out a federal/state partnership to fund and develop intercity passenger rail service in the United States. It is likely that any future federal authorizations for intercity passenger rail funding will continue to follow the PRIIA framework and guidance developed under the High-Speed Intercity Passenger Rail Program (HSIPR) discussed below. PRIIA originally authorized \$3.4 billion in capital grants over five years. Section 301 of the Act provided grants for Intercity Passenger Rail Service Capital Assistance. Section 501 provided capital grants for High-speed Rail Corridor Development for federally-designated corridors with planned speeds of 110 mph or more. Section 302 Congestion Grants focused on relieving rail congestion bottlenecks. Section 303 required each state develop and maintain an SRP to be eligible for the funding provided in Sections 301 and 501.

ARRA included an appropriation of \$8 billion in providing 100 percent federal funding for “*capital assistance for high-speed rail corridors and intercity passenger rail service.*” The federal government approved ARRA in February 2009 to stimulate the economy partly through the funding of infrastructure projects that could be initiated in the short-term.

The authorization of funding through legislation like PRIIA and ARRA have funded competitive discretionary FRA grant programs such as those currently being presented by the FRA and listed below. Recently, funding through FRA grant programs has been limited and none of the programs are currently accepting applications.<sup>24</sup>

### High-Speed Intercity Passenger Rail Program (HSIPR)

Grants funding for long-term high and higher speed passenger rail in key corridors in the United States.

### Rail Line Relocation & Improvement Capital Grant Program (RLR)

Under this program, a state is eligible for a grant from FRA for any construction project that improves the route or structure of a rail line and (1) involves a lateral or vertical relocation of any portion of the rail line, or (2) is carried out for the purpose of mitigating the adverse effects of rail traffic on safety, motor vehicle traffic flow, community quality of life, or economic development.

### Railroad Safety Technology Grant Program

Provides financial assistance to passenger and freight rail carriers, railroad suppliers and state and local governments for the deployment of positive train control (PTC) collision avoidance systems and complementary technologies.

Along with PRIIA and ARRA funding authorizations, the FRA has also administered grants through the Transportation Investment Generating Economic Recovery (TIGER) program. The TIGER program is a USDOT-wide program investing in critical roadway, rail, transit and port projects across the nation. Since 2009, Congress has dedicated more than \$4.1 billion over six funding cycles to fund projects that have a significant impact on the nation, a region, or a metropolitan area. **Table 2-39** includes the projects in Pennsylvania that have received TIGER funding.

**Table 2-39: Summary of Rail-Related TIGER Grant Awards in Pennsylvania**

Funding Cycle	Project Name	Recipient	Grant Amount
TIGER 2009	National Gateway Freight Rail Corridor: Multi-state corridor connecting Mid-Atlantic Seaports with Midwestern Distribution Centers via Pennsylvania, Ohio, West Virginia, Maryland	States of Ohio, Pennsylvania, West Virginia & Maryland	\$98,000,000
TIGER 2010	Dilworth Plaza and Concourse Improvements, Philadelphia	Center City District	\$15,000,000
TIGER 2010	Improvements to SEDA-COG’s short line railroad network (Central Pennsylvania Rail and Road Expansion), Central Pennsylvania	SEDA-COG	\$10,000,000
TIGER 2010	Allegheny Riverfront Green Boulevard	Pittsburgh	\$825,000
TIGER 2011	Rutherford Intermodal Facility Expansion, Greater Harrisburg Region	PennDOT	\$22,000,000
TIGER 2011	Carrie Furnace Flyover Bridge	Allegheny County	\$10,000,000
TIGER 2012	Wayne Junction Substation Replacement, Greater Philadelphia Region	PennDOT, Philadelphia, SEPTA	\$12,862,699
TIGER 2013	SEPTA-CSX Separation Project for SEPTA West Trenton Line, Greater Philadelphia Region	SEPTA	\$10,000,000
<b>TOTAL</b>			<b>\$178,687,699</b>

Source: U.S. Department of Transportation. TIGER Discretionary Grants. Accessed November 2014.

<sup>24</sup>U.S. Department of Transportation, Federal Railroad Administration. Grants and Loans. Accessed November 2014. <http://www.fra.dot.gov/Page/P0021>





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### Freight trains passing the renovated Bethlehem Union Station along the Lehigh River

Source: Lehigh Valley Planning Commission

## MAP-21 FUNDING SOURCES (ADMINISTERED BY THE FTA)

The *Moving Ahead for Progress in the 21st Century Act (MAP-21)* was signed into law on July 6, 2012 and became the first long-term highway authorization enacted since 2005. The bill funded surface transportation programs at over \$105 billion for fiscal years (FY) 2013 and 2014.

The *Highway and Transportation Funding Act of 2014* was passed in July 2014 to extend the MAP-21 authorization through May 31, 2015 at current funding levels, pro-rated for the length of the extension.

The majority of the MAP-21 funding for Pennsylvania is in the form of “formula” funding, in which funds are allocated to areas on the basis of a legislated formula. Formula funds may be used to support transit capital, planning, or operating expenses. Recipients of the funding must be a public entity. The MAP-21 grant programs are administered by the FTA and the Federal Highway Administration (FHWA). **Table 2-40** briefly describes the grant programs that can be used for rail improvements and operations.



**Table 2-40: Summary of MAP-21 Grant Programs**

Program	Statutory Reference	Rail Funding Use	Federal Share	Funding Levels
<b>Federal Transit Administration Administered Grant Programs</b>				
Fixed Guideway Capital Investment Grants ("New Starts")	49 U.S.C. 5309 / MAP-21 Section 20008	Provides grants for new and expanded passenger rail systems, among other transit systems.	80%	2013 - \$1,097M 2014 - \$1,097M
Enhanced Mobility of Seniors and Individuals with Disabilities	49 U.S.C. 5310 / MAP-21 Section 20009	Directed at enhancing public transportation services to serve the needs of transit-dependent populations, such as seniors and people with disabilities. Funds are apportioned for urbanized and rural areas based on the number of seniors and individuals with disabilities.	80% - Capital Projects 50% Operating Assistance	2013 - \$254.8M 2014 - \$258.3M
Formula Grants for Rural Areas	49 U.S.C. 5311 / MAP-21 Section 20010	Provides capital, planning, and operating assistance to states to support public transportation in rural areas with populations less than 50,000. The program also sets aside funds for the Appalachian Development Region. In FY 2013-2014, Pennsylvania received approximately \$53.3 million in funding.	80% - Capital Projects 50% Operating Assistance	2013 - \$599.5M 2014 - \$607.8M
Research, Development, Demonstration, and Deployment Projects	49 U.S.C. 5312 / MAP-21 Section 20011	Funding is used to support research activities that improve the safety, reliability, efficiency, and sustainability of public transportation. Focus areas may include research on performance management, capital and operating efficiencies, alternative fuels, safety improvements, energy efficiency, data and communication systems, and other topics that advance the interests of public transportation. This program also supports the Low or No Emission Vehicle Deployment program.	80%	2013 - \$70M 2014 - \$70M
Urbanized Area Formula Grants (UZA)	49 U.S.C. 5307 / MAP-21 Sections 20007, 20026	Allocates funding for public transportation planning, capital improvements, and job access and reverse commute projects in area's with a population of at least 50,000. The program can also fund operating expenses in areas with fewer than 200,000 residents. Pennsylvania has received approximately \$41.7 million over FY 2013-14.	80% - Capital Projects 50% Operating Assistance	2013 - \$4,916.65M 2014 - \$4,984.55M
Transit-Oriented Development Planning Pilot	49 U.S.C. 5303 / MAP-21 Section 20005(b)	Provides funding to advance planning efforts that support transit-oriented development (TOD) associated with new fixed-guideway and core capacity improvement projects. The program was originally authorized under MAP-21, however funding was not available under the FY 2013 Continuing Resolution. FTA plans to distribute funding for this program in 2015 as funding has been appropriated to the program from the Consolidated and Further Continuing Appropriations Act of 2013 and the Consolidated Appropriations Act of 2014.	80%	2015 - 19.98M

**Table 2-40: Summary of MAP-21 Grant Programs, cont.**

Program	Statutory Reference	Rail Funding Use	Federal Share	Funding Levels
<b>Federal Transit Administration Administered Grant Programs</b>				
State of Good Repair Grants	49 U.S.C. 5337 / MAP-21 Section 20027	These funds are available to State and local government authorities in urbanized areas and must be allocated to fixed guideway public transportation facilities operating for at least seven years. Pennsylvania has received over \$300 million during FY 2013-14 for fixed-guideway repairs and upgrades.	80%	2013 – \$2,136.3M 2014 – \$2,165.9M
National Highway Performance Program (NHPP)	23 U.S.C. 119 / MAP-21 Section 1106 23 U.S.C. 104(f) 49 U.S.C. 5334(i)	Provides funds for the construction of public transportation projects that help improve infrastructure condition, safety, mobility, or freight movement on the National Highway System (NHS). NHPP funds are “flexible funds” that can be transferred over from the states to transit agencies and local governments for transit projects. A State may also request that NHPP funds be transferred to the FTA for an eligible public transportation project and administered in accordance with the requirements of MAP-21.	Typically 80%	2013 – \$21,800M 2014 – \$21,900M
Surface Transportation Program (STP) Urban Funds	23 U.S.C. 133 / MAP-21 Section 1108 23 U.S.C. 104(f) 49 U.S.C. 5334(i)	Funding is used to improve the conditions and performance of surface transportation (including passenger rail systems). In addition to capital projects, STP funds may go toward transportation planning activities, transit research and development, and alternatives analysis. The STP program is similar to the NHPP program in that the funding is originally allocated to the FHWA and may be transferred to the FTA and administered to States or eligible local governmental entities in accordance with the requirements of MAP-21.	Typically 80%	2013 – \$10,000M 2014 – \$10,100M
Transportation Alternatives Program (TAP)	23 U.S.C. 213 / MAP-21 Section 1122 23 U.S.C. 104(f) 49 U.S.C. 5334(i)	TAP funds are flexible funds that can be transferred to the FTA for an eligible public transportation project selected through the MAP-21 competitive process. Rail infrastructure improvements would also have to meet TAP selection criteria of providing safe routes for non-drivers, including children, older adults, and individuals with disabilities to access daily needs. Funding can be used for construction, planning, or design of the infrastructure improvements.	Typically 80%	2013 – \$809M 2014 – \$820M
Metropolitan & Statewide and Nonmetropolitan Transportation Planning	49 U.S.C. 5303 / MAP-21 Section 20005 49 U.S.C. 5304 / MAP-21 Section 20006 49 U.S.C. 5305	This funding program provides funding for multimodal transportation planning in metropolitan areas and states. The planning process is meant to be cooperative, continuous, and comprehensive, resulting in long-range plans and short-range programs of transportation investment priorities. The planning effort must establish performance targets that address surface transportation performance, transit asset management, and transit safety. Nearly \$10 million has been apportioned to Pennsylvania during FY 2013-14.	80%	2013 – \$126.9M 2014 – \$128.8M



Table 2-40: Summary of MAP-21 Grant Programs, cont.

Program	Statutory Reference	Rail Funding Use	Federal Share	Funding Levels
<b>Federal Transit Administration Administered Grant Programs</b>				
Congestion Mitigation and Air Quality (CMAQ) Program	23 U.S.C. 120 23 U.S.C. 149 / MAP-21 Section 1113	CMAQ money supports transportation projects that reduce mobile source emissions in areas designated by the U.S. Environmental Protection Agency (EPA) as in "nonattainment" or "maintenance" of national ambient air quality standards. Eligible activities include those related to rail intermodal freight transportation improvements and passenger rail improvements. To be eligible for funding the project must be demonstrated to result in a reduction of emissions of a criteria pollutant for which the area is in non-attainment.	Typically 80%	2013 – \$2,210M 2014 – \$2,230M
Railway-Highway Crossing (Section 130) Program	23 USC 130 / MAP-21 Section 1519	MAP-21 continued the \$220 million annual set-aside under 23 USC 130. The funds are set-aside from the Highway Safety Improvement Program (HSIP) apportionment. The program provides funds for the elimination of hazards at railway-highway crossings. Additional information on projects receiving Section 130 funds in Pennsylvania is provided in the Safety and Security section.	Typically 90%	2013 – \$220M 2014 – \$220M

Sources: U.S. Department of Transportation, Federal Transit Administration. MAP-21 Formula Programs. Accessed November 2014.

## NATIONAL CLEAN DIESEL CAMPAIGN

The U.S. EPA established the National Clean Diesel Campaign (NCDC) to promote diesel emission reduction strategies. NCDC includes regulatory programs to address new diesel engines and provides funding to improve or replace the diesel engines already in use. Thirty percent of this funding goes to the State Clean Diesel Grant Program and the remainder goes to three EPA-administered programs, described below. Funding is appropriated by these programs through the Diesel Emissions Reduction Act which was reauthorized in January 2010. Clean Diesel Emerging Technologies Program grants and SmartWay Clean Diesel Finance Program grants were not funded in Federal Year 2014.<sup>25</sup>

### *The National Clean Diesel Emissions Reduction Program*

This program provides funding for the costs of retrofit technology that significantly reduces emissions through implementation of a certified engine configuration, verified technology, or emerging technology locomotives or non-road engines or diesel vehicles. Applicants must be a regional, state, local tribal agency or port authority with jurisdiction over transportation or air quality, or a nonprofit organization that supports pollution reduction. The program has been funded through fiscal year 2015, and receives \$13 million annually for distribution based on a competitive selection process.

### *The Clean Diesel Emerging Technologies Program*

The program provides an opportunity to advance new, cutting edge technologies that reduce diesel emissions from existing fleets. Under this program, EPA provides funding assistance to eligible entities for the deployment of diesel emission reduction technologies, which have not yet been verified or certified by EPA.

### *The SmartWay Clean Diesel Finance Program*

The SmartWay program uses cooperative agreements to establish innovative finance programs for buyers of eligible diesel vehicles and equipment. Innovative finance projects include those where the loan recipient receives a unique financial incentive (i.e., greater than regular market rates or conditions) for the purchase of eligible vehicles or equipment. Funding is available to public and nonprofit entities, which can in turn use it to implement innovative finance programs for private or public entities.

## APPALACHIAN REGIONAL COMMISSION (ARC)

The Appalachian Regional Commission (ARC), a regional economic development agency consisting of the 13 states within the Appalachian Region, occasionally contributes funding to rail-related projects that support economic development through Appalachian Regional Development grants. The objective of the ARC is to provide special assistance to the Region's most distressed counties and areas, to help the area become more economically competitive and self-sustaining. In support of the overall objective, the ARC has a goal of developing and improving Appalachia's infrastructure to make the region economically competitive.<sup>26</sup>

For the Appalachian Regional Development program, the federal share is generally limited to 50 percent of project costs. For projects in counties designated as "at risk", this limit can be raised to 70 percent and in "economically distressed" counties it can be raised to 80 percent. For projects in counties designated as "competitive" (those approaching national economic norms), funding is usually limited to 30 percent of project costs. Funding is usually not available for projects located in counties that have attained or exceeded national economic norms.

<sup>25</sup> United States Environmental Protection Agency. National Clean Diesel Campaign (NCDC). Accessed November 2014, <http://www.epa.gov/cleandiesel/>

<sup>26</sup> Catalog of Federal Domestic Assistance. Appalachian Regional Development. Accessed November 2014, <https://www.cfda.gov/>

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## 2.1.5.2 FEDERAL LENDING ASSISTANCE AND CREDIT PROGRAMS

### TRANSPORTATION INFRASTRUCTURE FINANCE AND INNOVATION ACT (TIFIA)

The goal of TIFIA financing is to leverage limited federal resources and stimulate private capital investment in transportation infrastructure by providing credit assistance in the form of direct loans, loan guarantees, and standby lines of credit to projects of national or regional significance. TIFIA financing is available to public or private transportation projects, including rail and transit. The program is aimed at large projects with a minimum of approximately \$50 million in capital improvements. MAP-21 legislation increased funding for TIFIA to \$750 million for Federal Year 2013 and to \$1.0 billion in Federal Year 2014. The maximum TIFIA-financed portion is 33 percent.

### THE RAILROAD REHABILITATION AND IMPROVEMENT FINANCING PROGRAM (RRIF)

The RRIF Program provides direct loans that can fund up to 100 percent of a capital project with repayment terms of up to 25 years and interest rates roughly equal to the 30 year Treasury rate, as well as loan guarantees.

The loans can be used to refinance outstanding debt that results from infrastructure projects, which the program also helps to finance at up to the total cost. State and local governments, government-sponsored authorities, and corporations, railroads, and others can participate in the program. A total of \$35 billion was authorized under SAFETEA-LU for this program, of which \$7 billion was directed to short line and regional railroads. No additional authorizations were included in MAP-21.

### RAILROAD TRACK MAINTENANCE CREDIT PROGRAM

Section 45G of the Internal Revenue Code creates an incentive for short line railroads to invest in track rehabilitation by providing a tax credit of 50 cents for every dollar the railroad spends on track improvements. The maximum credit amount allowed is \$3,500 per mile of track. The program expired at the end of 2013, but was extended through 2014. American short line railroad advocacy groups are working to convince Congress to continue the program going forward.

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## 2.1.5.3 STATE FUNDING SOURCES

### 2013 STATE COMPREHENSIVE TRANSPORTATION FUNDING PLAN (ACT 89)

The *2013 State Comprehensive Transportation Funding Plan (Act 89)* is a significant, long-range source of new funding for transportation projects. Act 89 was signed in November 2013 and provides over \$2 billion in additional revenue over the next five years by eliminating the cap on the wholesale gas tax and increasing a range of highway-related user fees. Act 89 funding includes a set-aside for freight rail, which begins at \$8 million annually and increases to \$10 million. The legislation also includes a set-aside for passenger rail that begins at \$6 million annually and increases to \$8 million annually.



## RAIL FREIGHT ASSISTANCE PROGRAM AND RAIL TRANSPORTATION ASSISTANCE PROGRAM (“CAPITAL BUDGET”)

These two separate but related programs provide financial assistance for investment in rail freight infrastructure. The objectives of these programs are (1) to preserve essential rail freight service where economically feasible, and (2) to preserve or stimulate economic development through the generation of new or expanded rail freight service.

Rail Freight Assistance Program (RFAP) grants are awarded on a competitive basis. The Rail Transportation Assistance Program (Rail TAP), otherwise known as “Capital Budget,” is available to those railroads having a line item in the current Capital Budget Bill. Even with a line item, such projects must apply and be selected in a competitive process.

The maximum state funding for a RFAP or Rail TAP project is 70 percent of the total project costs. RFAP project funding is not to exceed \$700,000. The state funding share for the new construction portion of any project cannot exceed \$250,000. The funding limit for a RTAP project is the amount of the individual line item in the state’s Capital Budget or 10% of the total RTAP funds available for the current funding round, whichever is less.

The programs are administered by the PennDOT Bureau of Rail Freight, Ports, and Waterways. Eligible recipients include railroad owners, railroad operators, railroad operators/lessees, railroad users/shippers, and municipalities/governmental entities. A wide variety of new construction and maintenance expenditures are eligible for funding. Acquisition costs of land, buildings, or materials to construct a new building are excluded as part of the RFAP grants. Rail TAP funds can be used for a broad variety of construction and rehabilitation projects, including land acquisition for rail projects. Eligible recipients include railroad owners, railroad operators, railroad operators/lessees, railroad users/shippers, and municipalities/governmental entities.

The current RFAP allocation is \$10 million, while the \$30 million has been allocated to Rail TAP. The programs fund up to 70 percent of total project costs. There is a required 30 percent match on the grantee’s part.<sup>27</sup>

## RAIL PASSENGER CAPITAL PROGRAM

As required by PRIIA, this program administers both state and federal funds for capital costs in support of intercity passenger rail service. It involves reimbursement for capital expenses incurred on the Amtrak owned Keystone Corridor between Harrisburg and Philadelphia.<sup>28</sup>

## CAPITAL ASSISTANCE PROGRAM

The PennDOT Bureau of Public Transportation administers several transit capital assistance programs which provide grants to local operators of public transportation systems for the purchase of vehicles, equipment, and facilities. Also covered under the capital assistance program are renovation and overhaul of facilities, equipment and vehicles to further the useful service life of large assets. Both urban and rural transit systems are eligible grantees under these programs.

Freight rail improvements in the Marcellus Shale region are also accessible through Act 13 regarding unconventional well fees. Act 13 began in 2012. The program provides approximately one million dollars annually in the same manner as the RFAP program.<sup>29</sup>

<sup>27</sup> Pennsylvania Department of Transportation. PennDOT Grants System: Bureau of Rail Freight. Accessed November 2014. <http://www.dot34.state.pa.us/BRFInfo.aspx>

<sup>28</sup> Pennsylvania Department of Transportation. PennDOT Grants System: Bureau of Public Transportation. Accessed November 2014. <http://www.dot34.state.pa.us/BPTInfo.aspx#20>

<sup>29</sup> Pennsylvania Department of Transportation. PennDOT Grants System: Bureau of Public Transportation. Accessed November 2014. <http://www.dot34.state.pa.us/BPTInfo.aspx#20>

## RAIL PASSENGER OPERATING PROGRAM

This program administers state funds for intercity passenger rail service, and it involves reimbursement for operating expenses as required by PRIIA. The Amtrak Keystone Passenger Rail Service is the only project which receives funding from this program. There is no formal application required for this program. The process is initiated by “A Request for Funding” from Amtrak with information to substantiate the amount of funds being requested.<sup>30</sup>

## FIXED ROUTE OPERATING ASSISTANCE PROGRAM

Under Section 1513 of Act 44, State funding is provided to help cover the costs incurred in the daily operation of urban and rural fixed route transit systems. Grant funding is determined based on each transit system’s percentage of the statewide (1) number of passengers; (2) number of senior citizens; (3) number of revenue vehicle miles; and (4) number of revenue vehicle hours.

## TECHNICAL ASSISTANCE PROGRAM

Section 1516 of Act 44 provides financial assistance for projects of statewide significance and are approved operating and capital costs relating to research, demonstration, non-urbanized service expansion and department initiated activities. The program includes development and/or demonstration of innovative approaches, techniques and technology; start-up costs and ongoing financial support for new non-urbanized systems; and support of transportation management associations and similar organizations.<sup>31</sup>

## PENNSYLVANIA INFRASTRUCTURE BANK

The Pennsylvania Infrastructure Bank (PIB) is a revolving loan fund administered by PennDOT. The PIB offers flexible financing opportunities for eligible transportation improvement projects throughout the state. The PIB provides direct, low-interest loans (currently at half of the prime rate) with a period of up to 10 years for repayment.

The PIB was capitalized with federal and state funds in 1998, in accordance with 1997 enabling legislation and a Cooperative Agreement between PennDOT and the USDOT. The PIB encompasses four separate accounts: highway/bridge, transit, aviation, and rail freight. Loans to eligible projects are made from one of these four accounts. Rail projects might fall under the transit or rail freight accounts, or, if they involve grade crossing safety or intermodal facilities, under the highway/bridge account. Among the objectives of the PIB are to spur economic development and to facilitate non-traditional projects, including intermodal facilities.<sup>32</sup>

## STATE ECONOMIC DEVELOPMENT ASSISTANCE

A rail project that can be demonstrated to have an economic development impact may be eligible for a variety of funding and financing programs available through the Department of Community and Economic Development. The “Funding Tracker” on the DCED website ([www.NewPA.com](http://www.NewPA.com)) is a comprehensive source of information on economic development funding programs available at the state level.

<sup>30</sup> Pennsylvania Department of Transportation. *Pennsylvania Infrastructure Bank Handbook*. Accessed November 2014. <ftp://ftp.dot.state.pa.us/public/pdf/PIB%20Handbook.pdf>

<sup>31</sup> The National Council for Public-Private Partnerships. *Testing Tradition: Accessing the Added Value of Public-Private Partnerships*. 2012. Accessed November 2014. <http://www.ncppp.org/wp-content/uploads/2013/03/WhitePaper2012-FinalWeb.pdf>

<sup>32</sup> Pennsylvania Department of Transportation. *PennDOT Grants System: Bureau of Public Transportation*. Accessed November 2014. <http://www.dot34.state.pa.us/BPTInfo.aspx#20>





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### Frac Tech hydrofracking storage silos

Source: Southwestern Planning Commission

## PUBLIC-PRIVATE PARTNERSHIP's (PPP)

PPPs can be a viable means of facilitating project-specific funding, thereby reducing the pressure on other funding mechanisms. The major value of PPPs is not in providing capital that would otherwise be inaccessible, but in facilitating more rapid capital investment at a comparable or even lower financing cost. Advocates of this type of financing indicate that PPPs can reduce development risks, provide more cost effective and timely infrastructure delivery, offer the potential for better ongoing maintenance, and leverage limited public sector resources, all while maintaining the appropriate level of public control over the project.<sup>33</sup>

Pennsylvania Act 88 of 2012 allows the state to enter into PPPs and created the Public Private Transportation Partnership Board to guide these investments. PennDOT is currently exploring partnership opportunities for improvements to the Keystone Corridor.

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<sup>33</sup> Pennsylvania Department of Transportation. PennDOT Grants System: Bureau of Public Transportation. Accessed November 2014. <http://www.dot34.state.pa.us/BPTInfo.aspx#20>

## 2.1.6 Safety and Security

### 2.1.6.1 SAFETY AND SECURITY OVERSIGHT AND MANDATES

Railroad safety is a top priority, not only for the state, but for the railroad owners and operators, and local and federal agencies. This section describes the agencies working to ensure railroad safety, the progress that has been made nationally and within Pennsylvania, and programs that are continuing to promote railroad safety.

#### RAIL SAFETY AGENCIES

The agencies listed below provide different levels of safety oversight and regulation. A brief description of each agency's responsibilities is provided below, while **Table 2-41** expands on each agency's authorities and responsibilities.

##### *Federal Railroad Administration (FRA)*

The FRA's Office of Railroad Safety is the primary regulatory body responsible for promoting and enforcing rail safety regulations. These regulations include basic operating rules for train safety, tank car safety, rail equipment safety, highway-rail grade crossing safety, and trespass prevention.

##### *Pipeline and Hazardous Materials Safety Administration (PHMSA)*

PHMSA is a division of the USDOT and is responsible for regulating and ensuring the safe and secure movement of hazardous materials by all modes of transportation, including railroads. Specifically, the PHMSA in coordination with FRA regulates the rail transportation of poisonous by inhalation (PIH) materials carried in tank cars. A 2009 rule mandates commodity-specific improvements in safety features and design standards for newly manufactured DOT specification tank cars. The rule also imposes a 50 mph maximum speed restriction on all loaded PIH tank cars and allows for an increased gross weight of tank cars to accommodate enhanced safety measures.<sup>34</sup>

##### *Department of Homeland Security (DHS) and Transportation Security Administration (TSA)*

The TSA, housed within the DHS, is responsible for strengthening the security of the nation's transportation systems. TSA activities in passenger rail involve working with passenger rail operators on station and train security and with railroad owners (public and private) to protect critical infrastructure. As part of this role, the TSA funds security initiatives to owners and operators of all forms of passenger rail to protect critical surface transportation infrastructure and the traveling public from acts of terrorism.<sup>35</sup>

##### *National Transportation Safety Board (NTSB)*

The NTSB is an independent agency responsible for investigating any rail accidents that result in at least one fatality or major property damage.<sup>36</sup> While the NTSB can make recommendations aimed at preventing future accidents and set safety priorities, it has no funding or regulatory enforcement authority.

<sup>34</sup> Pipeline and Hazardous Materials Safety Administration. 74 FR 1769 – Final Rule. FRA-2006-25169: Hazardous Materials: Improving the Safety of Railroad Tank Car Transportation of Hazardous Materials; Effective date: March 16, 2009. Accessed November 2014. <http://www.phmsa.dot.gov/portal/site/PHMSA/>

<sup>35</sup> Transportation Security Administration. Transit Security Grant Program FAQ. Accessed November 2014. [http://www.tsa.gov/sites/default/files/publications/pdf/grants/tsgp/fy13\\_tsgp\\_faq\\_final.pdf](http://www.tsa.gov/sites/default/files/publications/pdf/grants/tsgp/fy13_tsgp_faq_final.pdf)

<sup>36</sup> National Transportation Safety Board. About the National Transportation Safety Board. Accessed November 2014. <http://www.nts.gov/about/index.html>



## *Pennsylvania Public Utility Commission (PUC)*

The PUC has regulatory and safety oversight over passenger railroads, freight railroads, and all highway-rail crossings in the state. It is responsible for coordinating with the FRA to ensure that railroads comply with federal railroad safety regulations. In addition, the PUC has exclusive jurisdiction over all highway-railroad crossing projects.

**Table 2-41: Rail Safety Agency Summary**

Agency	Authorities/Responsibilities
FRA	1. Develop and enforce basic operating rules for train safety, tank car safety, rail equipment safety, highway-rail grade crossing safety and trespass prevention.
	2. Conduct research and development to ensure the safe, efficient and reliable movement of people and goods.
	3. Perform track inspections.
	4. Collect and analyzes rail accident/incident data from the railroads.
	5. Oversee the movement of hazardous materials, employee hours of service regulations, and signal and train control regulations.
	6. Manage funding programs for rail improvements, including safety improvements.
PHMSA	1. Regulate and enact rules aimed at improving the safe movement of hazardous materials.
	2. Permit, inspect, and enforce safety of hazardous materials.
	3. Collect data on the movement of hazardous materials.
DHS & TSA	1. Coordinate with rail operators and owners to protect critical rail infrastructure and the people who use it.
	2. Conduct rail security research and development.
	3. Conduct rail security training.
	4. Track hazardous materials shipments.
NTSB	1. Investigate any rail accidents that result in at least one fatality or major property damage.
	2. Recommend ideas that may prevent future accidents and set safety priorities.
	3. Has no funding or regulatory enforcement authority.
Pennsylvania PUC	1. Handle proceedings pertaining to the abolition, alteration, construction, relocation, and suspension of public highway-railroad crossings.
	2. Perform track inspections in coordination with the FRA.

## RAIL SAFETY MANDATES

### *Rail Safety Improvement Act of 2008 (RSIA)*

In response to several fatal rail accidents between 2002 and 2008, Congress passed the Rail Safety Improvement Act of 2008. These new regulations govern different areas related to railroad safety, such as hours of service requirements for railroad workers, positive train control implementation, standards for track inspections, certification of locomotive conductors, and safety at highway-rail grade crossings. The legislation increases penalties for violations of safety laws and gives the FRA more enforcement tools. The legislation also contains provisions to improve the conditions of rail bridges and tunnels.

### *Federal Railroad Safety Act of 1970 (FRSA)*

The Federal Railroad Safety Act was enacted to promote safety in all areas of railroad operations. The regulations that were established are meant to reduce railroad-related accidents, reduce deaths and injuries, and reduce damage to property caused by accidents involving any carrier of hazardous materials.

FRSA also protects individuals working for railroad carriers from retaliation for reporting potential safety or security violations to their employees or to the government. In 2007, FRSA was amended to transfer authority for railroad carrier worker whistleblower protections to the Occupational Safety and Health Administration (OSHA). The law was most recently amended in 2008 to specifically prohibit discipline of employees for requesting medical treatment or for following medical treatment orders.

### *Americans with Disabilities Act of 1990*

The Americans with Disabilities Act of 1990 (ADA) was created to ensure safe and accessible transportation to all U.S. citizens. The Federal Railroad Administration and Pennsylvania work to provide passenger rail service that accommodates the safety of disabled passengers on trains and at stations.

### *Title 66 Pennsylvania Consolidated Statutes, Chapter 27*

This statute mandates that no alteration should be made to any public highway-railroad crossing within the state without first obtaining approval from the Pennsylvania PUC.

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## 2.1.6.2 CRASH STATISTICS

Rail is one of the safest modes of transportation for freight and passengers. National rail safety statistics show improvement on an annual basis, implying that the nation's railroads and government agencies are developing and implementing successful safety improvements. Two common safety statistics the FRA uses to measure safety include train accident rates and highway-rail grade crossing collision rates. The rail industry's commitment to safety is reflected in these statistics as accident and collision rates nationwide have continually decreased since the 1980's. Since the year 2000, the national train accident rate and highway-rail grade crossing collision rate each fell 42 percent.<sup>37</sup>

## PENNSYLVANIA TRAIN ACCIDENTS

In 2013, there were 63 FRA reportable train accidents (involving equipment damage over \$10,500) and 60 grade-crossing incidents. Over the course of the year, 23 fatalities resulted from railroad-related events, 18 of which were trespassers (unauthorized occupants on railroad property in areas other than authorized grade crossings).<sup>38</sup>

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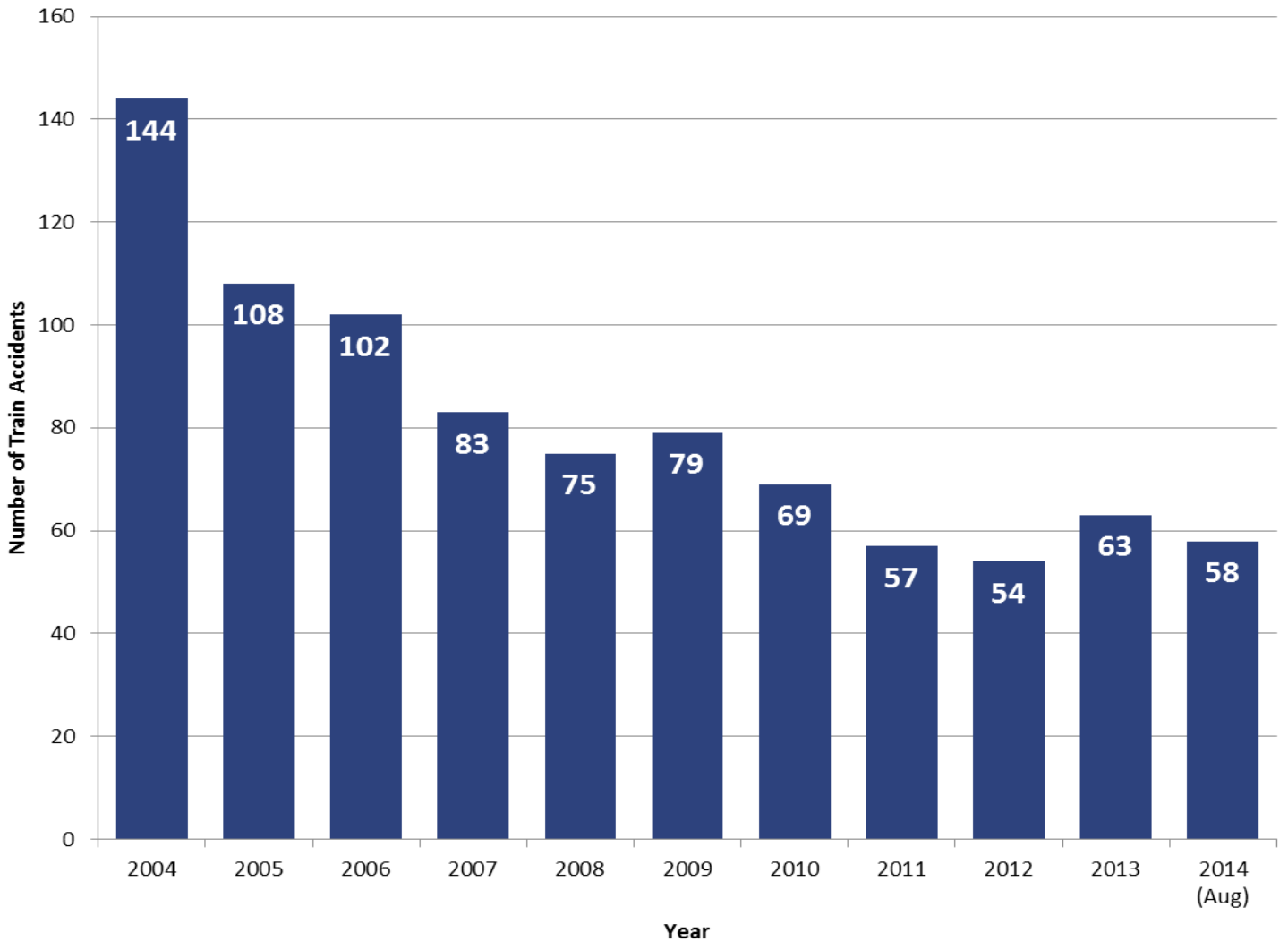
<sup>37</sup>Association of American Railroads. *Railroads: Moving America Safely*. May 2014 <https://www.aar.org/BackgroundPapers/Railroads%20Moving%20America%20Safely.pdf>

<sup>38</sup>Federal Railroad Administration Office of Safety Analysis. *One Year Accident/Incident Overview-Combined*. Accessed November 2014. <http://safetydata.fra.dot.gov/OfficeofSafety/default.aspx>



As illustrated in **Figure 2-40**, Pennsylvania railroads continue to get safer as train accidents decrease on an annual basis. The train accident rate in Pennsylvania fell nearly 60 percent in the ten years between 2004 and 2013. The data in the chart does not include highway-rail grade crossing collisions.

**Figure 2-40: Total Annual Number of Rail Accidents in Pennsylvania**



Source: FRA Office of Safety Analysis

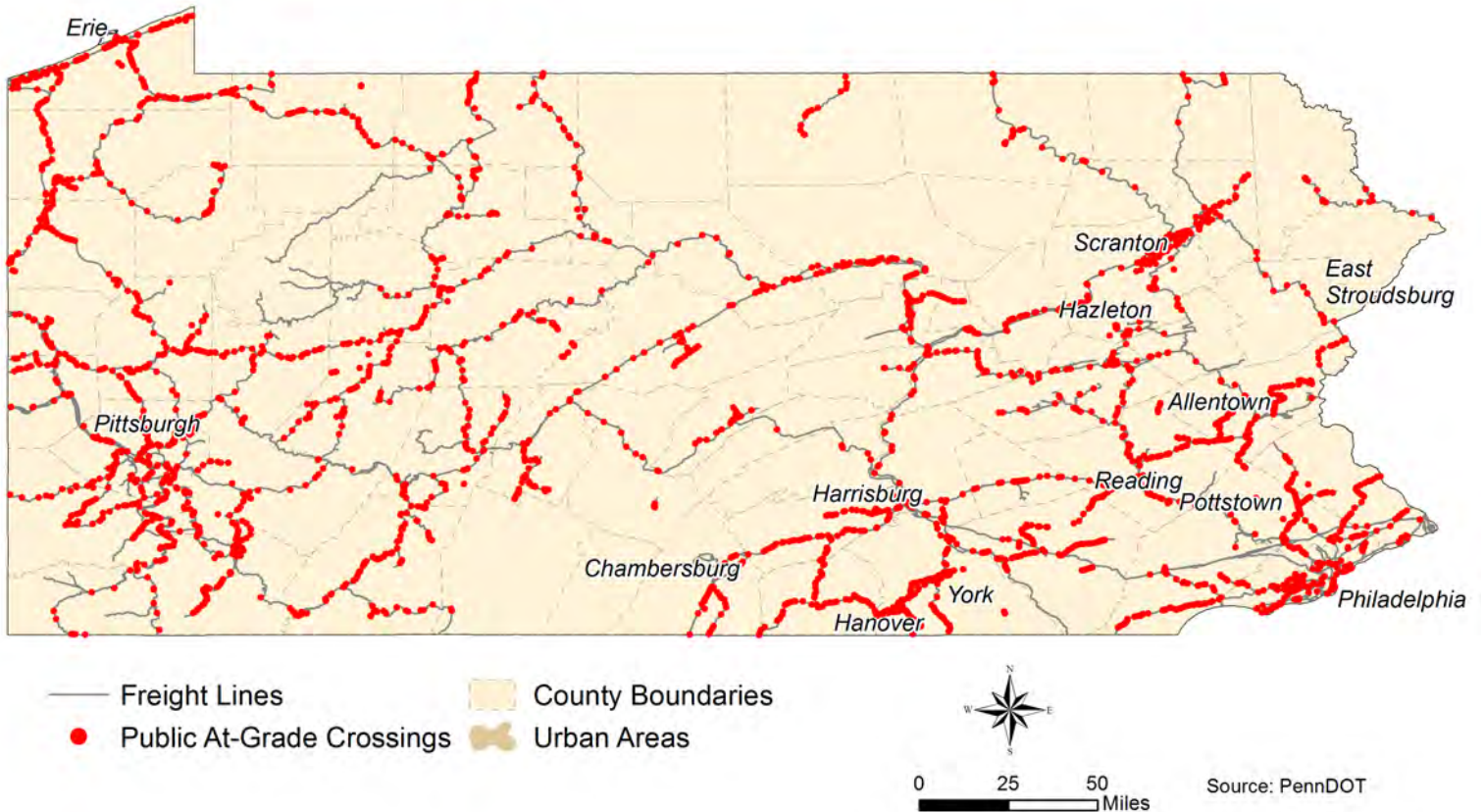


## HIGHWAY-RAIL GRADE CROSSING COLLISIONS

Pennsylvania has a total of 3,470 public rail crossings and 2,578 private rail crossings. Of the 3,470 public crossings, 2,082 are equipped with activated crossing improvements while 1,388 have passive warnings. **Figure 2-42** shows railroad crossings in Pennsylvania.

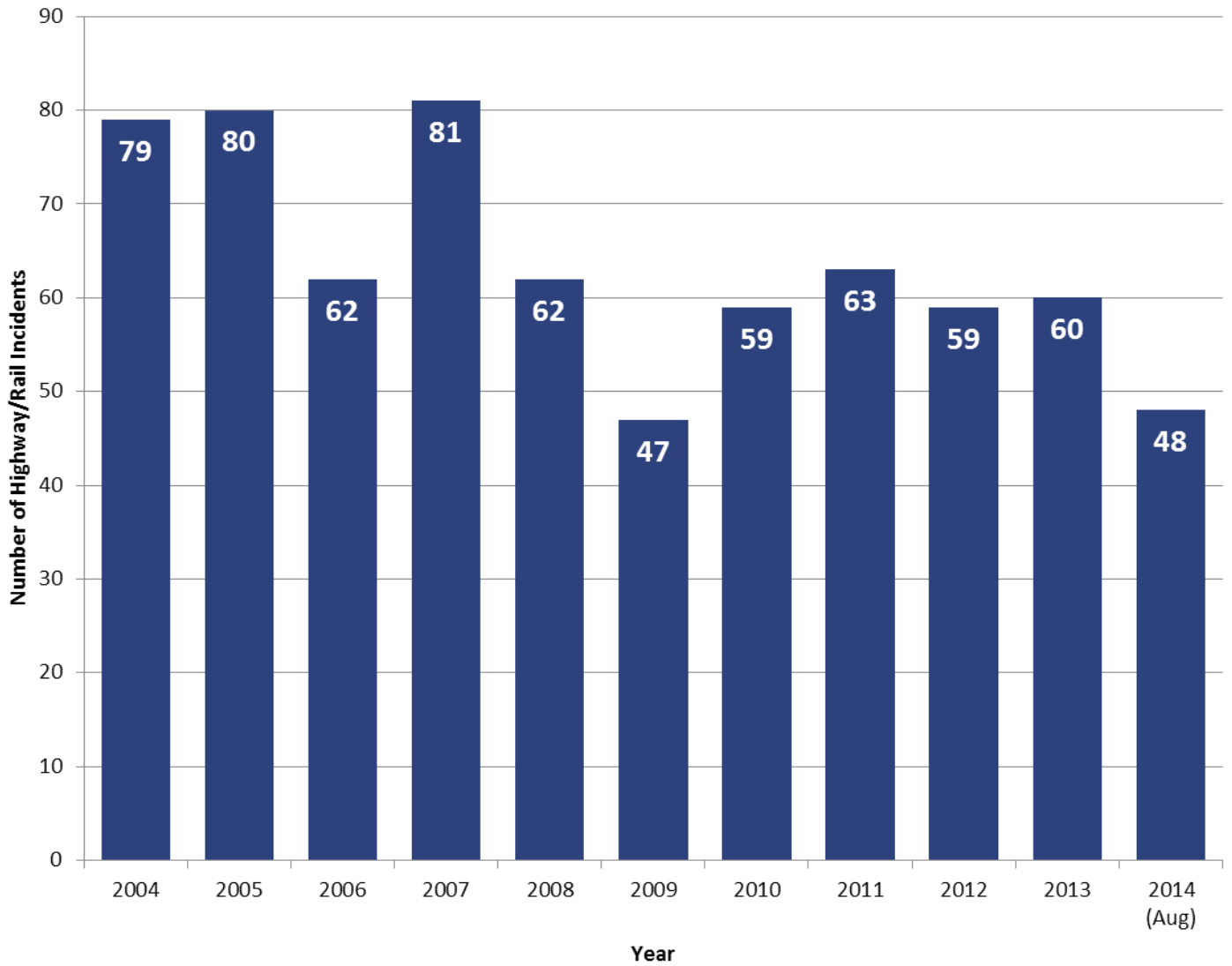
**Figure 2-43** shows the total number of highway-rail grade crossing collisions in Pennsylvania between 2004 and 2014. Crossing collisions are defined as any impact between a train and highway user at a crossing site, regardless of the severity. The chart shows that highway-rail grade crossings have become safer in recent years as collisions range between 47 and 60 between 2009 and 2014, compared to a range of 62 to 81 collisions between 2004 and 2008.<sup>39</sup>

**Figure 2-42: Railroad Crossings in Pennsylvania**



<sup>39</sup> Federal Railroad Administration Office of Safety Analysis. One Year Accident/Incident Overview-Combined. Accessed November 2014. <http://safetydata.fra.dot.gov/OfficeofSafety/default.aspx>

Figure 2-43: Total Annual Number of Crossing Collisions in Pennsylvania



Source: Federal Railroad Administration Office of Safety Analysis

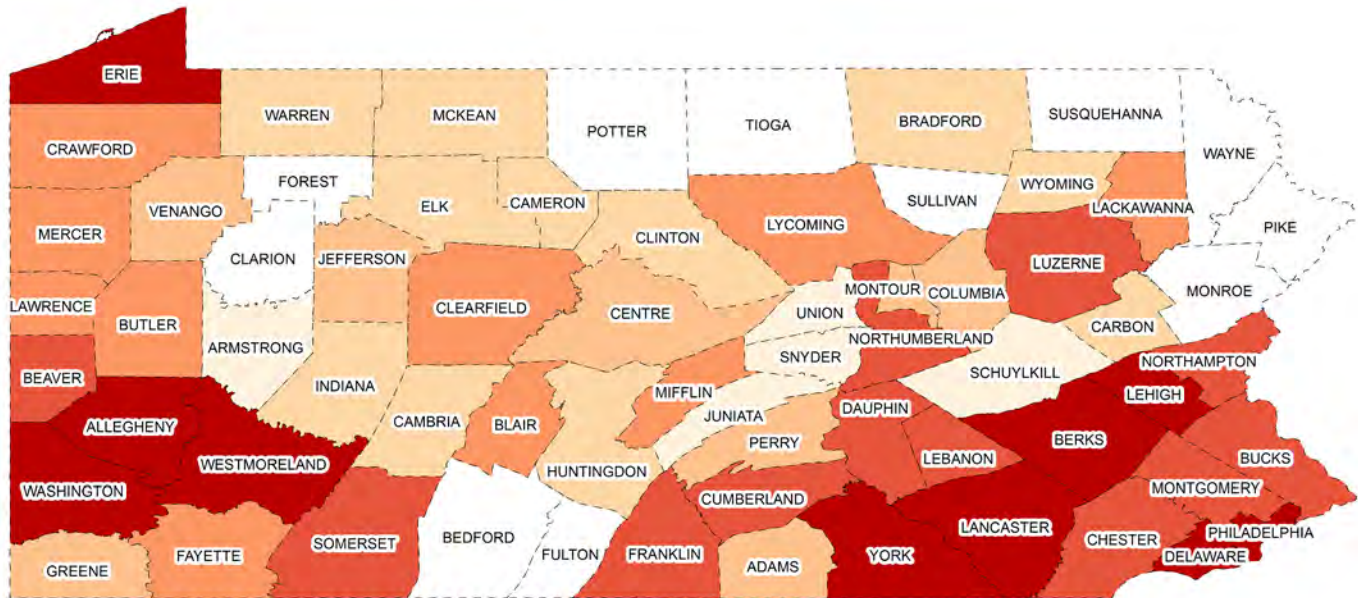


## 2. THE STATE'S EXISTING RAIL SYSTEM

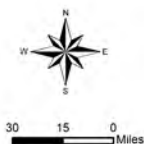
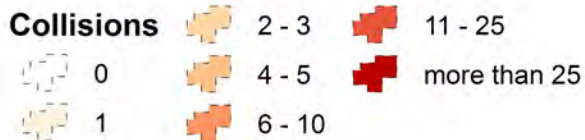
2.1 Description and Inventory 2-111

**Figure 2-44** illustrates Pennsylvania’s highway-rail grade crossing collisions by county over the same ten year period. Similar to train accidents, the greatest number of reported highway-rail grade crossing collisions occur in areas with the largest amount of train activity. The area with the greatest amount of train traffic generally includes the railroads along the Philadelphia to Pittsburgh corridor and between Pittsburgh and Erie, Pennsylvania.

**Figure 2-44: Total Crossing Collisions in Pennsylvania by County (2004-2014)**



**Legend**



Source: Federal Railroad Administration Office of Safety Analysis

Note: Figure 2-46 shows highway/rail incidents that were recorded between August 2004 and August 2014.

## 2.1.6.3 SAFETY AND SECURITY PROGRAMS AND PROJECTS

### OPERATION LIFESAVER

Operation Lifesaver is a nationwide nonprofit organization with a mission to end collisions, deaths, and injuries at highway-rail grade crossings and on rail property. The program coordinates a nationwide network of volunteers who work to educate people about rail safety. Railroads are engaged in ongoing efforts with Operation Lifesaver to educate the public that, for their own safety, they should stay off rail property.

### FEDERAL SECTION 130 CROSSING IMPROVEMENT PROGRAM

Section 130 grant funding is administered by the FHWA and addresses the elimination of hazards at highway-rail grade crossings. The program allocates more than \$200 million per year to states to improve safety conditions at crossings.

As a requirement of the program, states must submit an annual report on the progress and effectiveness of implementing the program. The report includes the number of projects undertaken, the nature of each improvement, and an assessment of the safety improvements effectiveness.

**Table 2-42** lists all of the highway-rail crossing improvement projects undertaken in Pennsylvania that received Section 130 funding. During State Fiscal Year (SFY) 2013-14, PennDOT managed 32 new highway-rail grade crossing safety improvement projects and was awarded nearly \$7.5 million from the Section 130 program. The 32 projects resulted in safety improvements at 74 at-grade crossings statewide. The table also lists all projects completed previous to SFY 2013-14. These previously completed projects were awarded nearly \$13 million dollars in federal grant funding.

**Table 2-42: Section 130 Funded Projects in Pennsylvania**

Location	FRA Grade Crossing Number(s)	Project Type	Crossing Type	Federal Funding
New Lebanon Road	262821C	Active grade crossing equipment installation/upgrade	At-grade passive warning devices	\$ 157,000
SR 22/322 4 Lane	506439X	Active grade crossing equipment installation/upgrade	At-grade active warning devices	\$ 97,200
SR 446 near Larabee	505642L	Active grade crossing equipment installation/upgrade	At-grade passive warning devices	\$ 179,758
SR 322, Race Street	148715J	Active grade crossing equipment installation/upgrade	At-grade active warning devices	\$ 210,421
SR 106907R	362757G	Circuitry upgrade	At-grade active warning devices	\$ 123,500



**Table 2-42: Section 130 Funded Projects in Pennsylvania, cont.**

Location	FRA Grade Crossing Number(s)	Project Type	Crossing Type	Federal Funding
Clinic Central Road Crossing	264159Y, 264157K, 264152B, 264156D, 264155W, 264151U, 264150M, 264149T, 264143C, 265977L, 265979A, 265980U, 265981B, 265990A, 265991G, 265992N, 265993V, 266001T, 266003G, 266005V, 266017P, 266016H	LED upgrade	At-grade active warning devices	\$ 74,000
Shamokin Railroad Crossing	591851B, 591852H	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 326,500
Piatt Township Railroad Crossing	505307J	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 125,000
Scott Township Railroad Crossings	265996R, 265997X	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 250,000
Penn Avenue	249699G	Grade crossing elimination	At-grade passive warning devices	\$ 158,500
Sixth Street Railroad Upgrade	592402P	Circuitry upgrade	At-grade active warning devices	\$ 309,485
Seventh Street Railroad Upgrade	592401H	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 340,943
Hill Road Railroad Upgrade	592441F	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 302,659.92
31st Street Railroad Crossing	592410G	Circuitry upgrade	At-grade active warning devices	\$ 339,494
Willow Street Railroad Upgrade	592449K	Signalization upgrade	At-grade active warning devices	\$ 260,704.36
Burrow Run Road	517651U	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 170,000
Bristol Road	855409S, 855453E, 855452X, 855451R, 855450J, 855448H, 855447B, 855446U, 855442S, 855440D, 855436N, 855426H, 855418R, 855413G	LED upgrade	At-grade active warning devices	\$ 90,000
Street Road	592818E	Railroad motion detectors	At-grade active warning devices	\$ 72,000

**Table 2-42: Section 130 Funded Projects in Pennsylvania, cont.**

Location	FRA Grade Crossing Number(s)	Project Type	Crossing Type	Federal Funding
First Avenue	593502X	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 80,000
8th Street	593002A	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 173,000
Broad Street Railroad Grade Crossing	593013M	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 560,000
Diller	517759 D	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 207,000
Inglenook Road	518106F	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 210,000
Franklin Street	832116Y	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 210,000
Penryn Road	591627R	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 265,728
Mason Street	535159Y	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 285,000
Lebanon City Railroad Crossings	592269M, 592336E, 592347S, 592337L	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 396,228
11th Street Crossing	584671L	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 260,000
PA 519 Grade Crossing	145575Y	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 280,000
SR 1042 Grade Crossing	145437K	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 215,000
SR 3029 Grade Crossing	145470K	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 270,000
Gallatin Ave Grade Crossing	145317U, 145316M, 145318B, 145319H	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 500,000
<b>Projects Completed 2004-2014</b>				
Union / Westbranch Highway	591779M	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 300,000



**Table 2-42: Section 130 Funded Projects in Pennsylvania, cont.**

Location	FRA Grade Crossing Number(s)	Project Type	Crossing Type	Federal Funding
Union/Reitz Avenue	591745T	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 300,000
Lebanon / Harrison Street	592335X	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 175,000
Berks / Main Street	592460K	Signalization upgrade	At-grade active warning devices	\$ 1,390
Reading / Wesner Road	592438X	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 112,481
Westmoreland / Wegley Road	912965D	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 7,500
Westmoreland / Ayers Alley	145482E	Grade crossing elimination	At-grade passive warning devices	\$ 3,214
Lehigh / 31st Street	592410G	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 139,001
Adams / Brickyard Road	832130U	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 200,000
Dauphin Railroad Crossings	518113R, 518114X, 518115E, 518112J	Grade crossing elimination	At-grade active warning devices	\$ 244,000
Farm Road	592529D	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 175,000
Schuylkill / Grier Avenue	589025A	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 133,000
Northampton / Gun Club Road	851943H	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 215,000
Northampton / Steuben Road	851930G	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 175,000
Cumberland Railroad Crossings	592296J, 592298X	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 350,000
Westmoreland / 5th Street	145477H	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 250,000

**Table 2-42: Section 130 Funded Projects in Pennsylvania, cont.**

Location	FRA Grade Crossing Number(s)	Project Type	Crossing Type	Federal Funding
Fayette Railroad Crossings	145301X, 145306G, 145311D, 145314Y, 145315F, 145316M, 145318B, 145319H, 145320C, 145322R, 145323X, 145324E, 145326T, 145329N, 145331P, 145334K, 145335S, 145340N, 145341V, 145342C, 145344R, 544507Y, 143162X, 143163E, 143167G, 143170P, 505409C, 505413S, 544503W, 544504D, 145325L, 145305A, 145327A, 145338M, 145540X, 145541E, 145543T, 145544A, 145546N, 145549J, 145570P, 145575Y, 145596S, 145599M, 145600E, 145613F, 504625S, 504626Y, 504627F, 507634B, 909013S, 909014Y	LED upgrade	At-grade active and passive warning devices	\$ 254,000
Crawford / Perry Street	528352T	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 175,000
Luzerne / New Street	361436W	Grade crossing elimination	At-grade active warning devices	\$ 7,500
Luzerne / McAlpine Street	361431M	Grade crossing elimination	At-grade active warning devices	\$ 19,500
Luzerne Railroad Crossings	361402C, 361403J, 361406E, 361412H, 361413P, 361414W, 361428E, 361429L, 361430F, 361435P	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 135,000
Luzerne Railroad Crossings	361403J, 361406E, 361412H, 361413P, 361414W, 361428E, 361429L, 361430F, 361435P, 507870F	Circuitry upgrade	At-grade active warning devices	\$ 13,200
Schuylkill / Wildcat Road	591349C	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 125,000
Lackawanna / Parker Street	249632A	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 21,000



**Table 2-42: Section 130 Funded Projects in Pennsylvania, cont.**

Location	FRA Grade Crossing Number(s)	Project Type	Crossing Type	Federal Funding
Lackawanna / South Washington Avenue	249664F	Active grade crossing equipment installation/upgrade	At-grade passive warning devices	\$ 90,000
Centre Railroad Crossings	506166F, 506167M, 506168U, 506199T, 506288K	Grade crossing elimination	At-grade passive warning devices	\$ 95,618
Franklin / Swamp Fox Road	535153H	Active grade crossing equipment installation/upgrade	At-grade active warning devices	\$ 200,000
York / Frazer Street	517620V	Active grade crossing equipment installation/upgrade	At-grade passive warning devices	\$ 175,000
Chester / 1st Avenue-State Road	534643W	Active grade crossing equipment installation/upgrade	At-grade active warning devices	\$ 280,000
Chester / Strode Avenue	593500J	Active grade crossing equipment installation/upgrade	At-grade active warning devices	\$ 60,000
Chester / Center Street	517662G	Active grade crossing equipment installation/upgrade	At-grade active warning devices	\$ 300,000
Luzerne / McAlpine Street	249676A	Crossing approach improvements	At-grade active warning devices	\$ 90,000
Northumberland / Avenue E	534794L	Grade crossing elimination	At-grade passive warning devices	\$ 7,500
Cambria Railroad Crossings	506096T, 506079C, 506086M, 506686P, 529278U, 529282J, 506087U, 506071X	LED upgrade	At-grade active warning devices	\$ 63,000
Tioga / Muck Road	505303G	Highway lighting	At-grade passive warning devices	\$ 43,000
Berks / Vinemont Road	591569X	Active grade crossing equipment installation/upgrade	At-grade passive warning devices	\$ 105,000
Lancaster/East Hempfield/Centerville Road	517593B	Active grade crossing equipment installation/upgrade	At-grade active warning devices	\$ 165,000
Berks/Spring/Montello Road	591558K	Active grade crossing equipment installation/upgrade	At-grade active warning devices	\$ 140,000
Lawrence/New Beaver/Hays Road	544678A	Active grade crossing equipment installation/upgrade	At-grade active warning devices	\$ 455,000
Butler/Evans City/W. Main Street	145754P	Active grade crossing equipment installation/upgrade	At-grade active warning devices	\$ 231,000

**Table 2-42: Section 130 Funded Projects in Pennsylvania, cont.**

Location	FRA Grade Crossing Number(s)	Project Type	Crossing Type	Federal Funding
Centre/ Milesburg/ Front Street	506199T	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 33,000
Berks/Lyons/Main Street	592460K	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 71,000
Armstrong/Wayne/ SR 1018 □ Belknap Road	148924S	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 10,000
Armstrong/East Franklin	869335T	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 10,000
Armstrong/East Franklin	869336A	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 10,000
Armstrong/ Kittanning	869362P	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 10,000
Luzerne / SR 0106	249617X	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 88,750
Jefferson / Findley Street / SR 3021	148892N	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 201,000
Luzerne / Scranton / SR 2027	361437D	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 150,000
Mercer / SR 4006	262733S	Surface improvement	At-grade active warning devices	\$ 40,000
Luzerne / Wilkes- Barre	361575S	LED upgrade	At-grade active warning devices	\$ 675,000
York / North Beaver Street	872488A	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 132,000
Adams / Granite Station Road	832138Y	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 150,000
Blair / Arden Street / T-417	529310K	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 159,000
Northumberland / Anthracite Road	591724A	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 59,000
York / North George Street	501503C	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 60,000



**Table 2-42: Section 130 Funded Projects in Pennsylvania, cont.**

Location	FRA Grade Crossing Number(s)	Project Type	Crossing Type	Federal Funding
Franklin / Colorado St T-511 / Guilford Township	535154P	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 185,000
McKean / SR 3002 -Whetmore Road	505739H	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 143,000
Centre / Witherite Road, T-432	506504B	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 107,000
Somerset / SR 0160, Graham Avenue	529069L	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 350,000
York / US 30, Jackson Township	872303R	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 110,000
Franklin / SR 2003	831862D	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 200,000
York / PA 116, Spring Grove (Main Street)	872285V	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 200,000
York / SR 4001, Grantley Road	501516D	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 150,000
York / W Princess Street	501513H	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 90,000
York / Kings Mill Road	501515W	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 120,000
Clearfield / Mall Drive	172280D	LED upgrade	At-grade active warning devices	\$ 80,000
Berks / Bern / Cross Keys Road	592483S	Circuitry upgrade	At-grade active warning devices	\$ 36,000
Butler / Butler / Center Street	149039U	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 150,000
Lancaster / E Hempfield / Junction Road	591701T	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 175,000
Berks/Richmond/ Beech Street	592450E	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 195,000
Mifflin / Lewistown / South Pine Road	506447P	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 89,000

**Table 2-42: Section 130 Funded Projects in Pennsylvania, cont.**

Location	FRA Grade Crossing Number(s)	Project Type	Crossing Type	Federal Funding
Northhampton / Lower Nazareth / Gun Club Road	851943H	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 215,000
Somerset / Casselman / Hughart Street	145269G	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 180,000
McKean / Foster / Tuna Cross Road	148400F	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 130,000
Lebanon / Jackson / Gockley Street	592327F	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 215,000
Erie / Corry / Summer Street	528424U	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 150,000
Butler / Adams / Brickyard Road	145739M	LED upgrade	At-grade active warning devices	\$ 65,000
Berks / Muhlenberg / Tuckerton Road	530938A	LED upgrade	At-grade active warning devices	\$ 10,000
Lawrence / Mahoning	141673B	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 456,599
Allegheny / Baldwin / Mcannulty Road	472963X	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 192,000
Allegheny / South Park / Wallace Road	145532F	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 180,000
McKean / Bradford / Futures Way	925949G	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 122,165
Clearfield / Karthaus / Carter Street	528127B	LED upgrade	At-grade active warning devices	\$ 85,000
Fayette / SR 1030 / Church Hill Road	145303L	Active grade crossing equipment installation/ upgrade	At-grade passive warning devices	\$ 160,000
Westmoreland / SR 3029 / Jacobs Creek Road	145466V	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 245,000
Westmoreland / S Huntingdon T-363	145469R	Active grade crossing equipment installation/ upgrade	At-grade active warning devices	\$ 151,500

Source: Pennsylvania Railway-Highway Crossing Program 2014 Annual Report



## 2.1.7 Economic and Environmental Impacts

### 2.1.7.1 CONGESTION MITIGATION

Railroads play a number of roles regarding roadway congestion in Pennsylvania. At-grade crossings hold the potential for delaying roadway traffic and freight rail transport reduces the number of trucks on the road and helps in mitigating congestion.

#### ROADWAY CONGESTION

Pennsylvania has 5,574 public at-grade crossings.<sup>40</sup> At-grade crossings have the potential to create a vehicular backup which slows traffic down, increases fuel consumption, and produces more air emissions. Additionally, rail access to intermodal facilities also plays a role in roadway congestion. Access to these facilities is often located in urban areas with multiple forms of transportation trying to reach the same location.

Grade separation is a common form of alleviating delays at at-grade crossings. Pennsylvania has 1,541 public highway above grade crossings and 1,685 public highway below grade crossings. Another option for alleviating rail borne roadway congestion is to reroute railroads onto routes that have less impact with roadways, or to build new lines that do not impact existing roadways. Often these solutions are not feasible and prove to be very costly.

In addition, increased usage of freight and passenger rail networks significantly helps to alleviate roadway congestion, as well as safety and environmental concerns. Continuing to provide commuter and intercity rail, as well as freight rail modes of transportation will help to reduce vehicle miles traveled, traffic congestion, safety and air quality concerns.

### 2.1.7.2 TRADE AND ECONOMIC DEVELOPMENT

Freight and passenger rail services are a critical component of a comprehensive transportation system supporting Pennsylvania's economy. Pennsylvania has among the largest rail system in the country with nearly 5,000 miles of track, operated by more than 50 railroads.<sup>41</sup> Between Fiscal Years 2013 and 2014, Pennsylvania invested \$34.1 million through the state's Rail Freight Grant program to maintain freight rail service and competitiveness.<sup>42</sup> The continued growth in the state's energy sector has led the industry to call for new or improved rail access. Ongoing investments in infrastructure improve passenger rail service, which allows continued growth in ridership. Ridership in the Keystone Corridor increased over 50 percent between 2006 and 2012.<sup>43</sup>

Maintaining investment in railroad infrastructure and service supports Pennsylvania's economic competitiveness by:

1. Providing reliable, safe and efficient service to connect people, goods and services, resulting in reduced travel time and improved service frequency.
2. Reducing transportation costs through reduced property damage and lost productivity. This also reduces insurance costs related to property damage and improved safety.
3. Reducing congestion with improved transportation options for freight modes as well as for passengers who cannot, or choose not to drive.
4. Supporting private sector investment through public investments, including passenger stations and improved multimodal and intermodal access.

<sup>40</sup> Pennsylvania Public Utility Commission website, accessed November 11, 2014. [http://www.puc.state.pa.us/consumer\\_info/transportation/rail\\_safety.aspx](http://www.puc.state.pa.us/consumer_info/transportation/rail_safety.aspx)

<sup>41</sup> PennDOT. Pennsylvania Intercity Passenger and Freight Rail Plan. February, 2010.

<sup>42</sup> PennDOT Multimodal Highlights 2014. <ftp://ftp.dot.state.pa.us/public/Bureaus/press/MultimodalHighlights.pdf>

<sup>43</sup> The Challenges of Improving High speed Rail in Pennsylvania: The Keystone Corridor, Marilyn Jamison, Amtrak, Presentation at the APTA 2013 Rail Conference, June 4, 2013, [http://www.apta.com/mc/rail/previous/2013/program/Documents/RobyakR\\_the-challenges-of-improving.pdf/](http://www.apta.com/mc/rail/previous/2013/program/Documents/RobyakR_the-challenges-of-improving.pdf/)

Investment in rail transportation also stimulates job creation that builds business and labor capacity by providing construction, operation and maintenance services for new and existing infrastructure. The benefit of investment in railroad infrastructure is recognized most concretely with two major freight railroad investments: the National Gateway, initiated by CSX Railroad, and NS's Crescent Corridor. The Crescent Corridor is expected to generate 26,000 jobs in Pennsylvania.<sup>44</sup> CSX notes that every \$1 of public money invested in the National Gateway is expected to generate \$36 in public benefits, such as job growth, fuel savings and savings from improved safety and service. Job creation also benefits communities through dollars spent on local goods and services.

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### 2.1.7.3 ENERGY USE AND AIR QUALITY

Railroad as a mode of transportation can provide a substantial benefit to efficient energy use and improved air quality. It has been well documented that railroad transportation is one of the most energy efficient forms of transportation. The AAR notes that in 2013, freight rail moved a ton of freight on average 473 miles per gallon of fuel, compared to trucks, which is four times more efficient than moving freight on the highway.<sup>45</sup> Passenger and freight rail service have the potential to replace trips by less efficient modes, which can reduce congestion and, thus, energy use.

PennDOT notes the Crescent Corridor will divert 700,000 long-haul trucks to rail, saving 10 million gallons of fuel.<sup>46</sup> Similarly, continued investment in passenger rail service and infrastructure with multimodal connections presents a viable alternative to cars and additional energy savings.

Twenty-two (22) counties in Pennsylvania do not meet air quality standards (also known as non-attainment status) criteria for two transportation-related air pollutants: Ozone and PM<sub>2.5</sub>. The energy savings benefits of rail transportation directly benefit air quality through fewer vehicles on highways, reduced pollution from reduced traffic congestion and better fuel efficiency. Conversely, excessive idling of locomotives caused by track and signal capacity restrictions can reduce air quality.

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### 2.1.7.4 NOISE

Both passenger and freight rail service can create elevated sporadic noise levels through communities. AAR states that one intermodal train hauls the equivalent of 280 tractor trailers and data from the Crescent Corridor projects the rail corridor improvements could divert 700,000 long-haul trucks from highways to rail.<sup>47</sup> Shifting trips from highway to rail may benefit communities in the form of reduced highway noise.

Rail-related noise could be mitigated depending on the level of investment in rail infrastructure. For example, new welded rail will reduce wheel/rail noise approximately five decibels. For comparison, a five decibel reduction in sound is generally the minimum amount of sound reduction provided by highway noise walls.

<sup>44</sup> Ibid.

<sup>45</sup> <https://www.aar.org/BackgroundPapers/Economic%20Impact%20of%20US%20Freight%20Railroads.pdf>

<sup>46</sup> PennDOT Multimodal Highlights 2014.

<sup>47</sup> PennDOT. *Multimodal Highlights 2014*. <ftp://ftp.dot.state.pa.us/public/Bureaus/press/MultimodalHighlights.pdf>





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### *Buffalo & Pittsburgh - Homer City rail replacement*

Source: Buffalo & Pittsburgh Railroad

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#### 2.1.7.5 LAND USE

In 2010, the Governor's Center for Local Government Services acknowledged the need for better planning to manage land use and development to respond to the state's changing demographics and economic trends. Although development is occurring in Pennsylvania, population growth has not been at the same pace; urban land increased 131 percent between 1992 and 2005, compared to a population growth of only 4.5 percent. The Marcellus Shale development and dramatic growth of the natural gas industry has brought new land use and infrastructure challenges for local governments.<sup>48</sup> And more than a third of the municipalities have no planning guidelines, zoning or ordinances to address pressures occurring throughout the state.

Among the recommendations of the *State Land Use and Growth Management Report* is to provide resources to local governments for essential planning services and develop strategies for green and walkable development.

A core principle of the *2010 Pennsylvania Intercity Passenger and Freight Rail Plan* was smart transportation and sound land use. Rail transportation creates opportunities to support efficient land use and encourage redevelopment that serves and complements land uses in the surrounding community. In particular, passenger rail service at community stations encourages transit supportive land uses such as residential and business development. Successful passenger rail service is frequently predicated on supportive land uses that encourage density around train stations and provide for multimodal access.

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<sup>48</sup> Pennsylvania Governor's Center for Local Government Services. *State Land Use and Growth Management Report*. 2010. [http://newpa.com/webfm\\_send/1397](http://newpa.com/webfm_send/1397)

Without appropriate planning and land use management tools, freight rail infrastructure development can be in direct conflict with surrounding land uses such as residential neighborhoods and schools. Planning should consider the placement and land use intensity of such rail infrastructure as rail yards, freight terminals and intermodal facilities. Increased freight rail activity, particularly that related to increased energy sector traffic, brings more rail traffic through residential, recreational and commercial centers, which can be perceived as a nuisance or safety hazard.

State and federal agencies or applicants for state and federal approval must consider the effect of their actions on historic properties. Historic properties are those resources listed in or eligible for listing in the National Register. To determine if a railroad has been previously evaluated for National Register eligibility, please consult the State Historic Preservation Office's online inventory, Cultural Resources GIS system, available at: <https://www.dot7.state.pa.us/crgis>. If a railroad does not appear in CRGIS, it is likely it has not been previously evaluated for National Register eligibility and requires further consideration. Guidance for evaluating the National Register eligibility of railroads is included in Guidelines for Documenting and Evaluating Railroads. For further information on environmental requirements for historic or archaeological resources, contact the Pennsylvania State Historic Preservation Office at 717783-8947.

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### 2.1.7.6 STATE RAIL PLAN PROGRESS

The previous *2010 Pennsylvania Intercity Passenger and Freight Rail Plan* provided an overview of passenger rail goals and objectives in that report's Appendix 3: Intercity Passenger Rail System (Amtrak) and Appendix 4: Commuter Rail System (SEPTA). Similarly, capital needs for the freight industry in Pennsylvania were described in Appendix 9: Rail Freight Projects. This section identified near-term, mid-term and long-term projects for the State of Pennsylvania freight rail system. The following sections highlight progress on passenger and freight goals and projects since the previous 2010 rail plan.

#### PASSENGER

Passenger rail projects since 2010 have been focused on a state of good repair and station improvements, consistent with PennDOT goals. Passenger rail improvements identified in the *2010 Pennsylvania Intercity Passenger and Freight Rail Plan* that have progressed since the development of that Plan include:

1. Preliminary work for the reactivation of inactive SEPTA Regional Rail service. Reactivation of unused SEPTA rail lines has been explored, but there are no specific projects that have extended beyond preliminary research and needs assessments at this time.
2. Older rolling stock on all SEPTA Regional Rail lines is being replaced with new Silverliner V commuter rail cars. New designs provide larger cabins, wider seating, bigger windows, green technologies, improved suspension, and improved safety and security systems.
3. Continued studies and improvements to the Amtrak-owned Keystone Corridor to improve speed, reliability, and safety of service on the Keystone East corridor. Additionally, progress continues on improving passenger rail stations between Harrisburg and Philadelphia to improve the customer travel experience and allow for more efficient rail service. Improvements include upgrades to the Zoo interlocking and Paoli station.

#### FREIGHT

PennDOT's Multimodal Project Management System (MPMS) provides information regarding awarded grant projects in Pennsylvania. Information from this data system was compared to freight rail projects listed in Appendix 9 (*Freight Rail Projects*) of the *2010 Pennsylvania Intercity Passenger and Freight Rail Plan*. The list of grant projects (2010 through 2014 grant year) shown in **Table 2-43** are for projects for which the project descriptions on the MPMS system matched those of Plan projects in Appendix 9 of the 2010 Plan.



**Table 2-43: Grants Awarded to Freight Rail Projects Identified in the 2010 Pennsylvania Passenger and Freight Plan**

As Described in the Intercity and Passenger State Rail Plan	Estimated Cost (millions)	Name of Grant Awarded	Grant Awarded (millions)
<b>Allegheny Valley Railroad Company – Near Term Projects (1 – 3 years)</b>			
Glenwood Yard Reconstruction (Allegheny County) – Improve track clearances, upgrade walkways, build auto tangent switching lead	\$5.20	Glenwood Yard Phase II	\$1.80
		Glenwood Yard Phase III	\$1.60
Marcellus Shale Gas Development (Allegheny County) – To serve gas development, rehabilitate line from Pittsburgh to Washington, PA, of the Capital W&PS subdivision	\$5.00	W&P Track Rehabilitation	\$1.34
		W&P Interchange Siding	\$1.25
<b>Central New York Railroad – Near Term Projects (1 – 3 years)</b>			
Renew 450 Bridge Timbers (Pike County) – Bridge #110.54, Renew 450 bridge timbers at \$600/each	\$0.27	Rehab of Bridge 110.54	\$3.00
<b>New Hope &amp; Ivyland Railroad – Mid-term Projects (3 – 5 years)</b>			
Upgrade Rail (Bucks County) – Replace current 90- to 100-pound rail with 130+ pound rail	\$2.00	NHRR 2013 TAP	\$1.83
<b>NS Corporation – Near Term Projects (1 – 3 years)</b>			
Intermodal Facility (Franklin County) – Construct intermodal facility	\$95.00	FCRIMF Antrim Phase 2	\$40.00
Intermodal Facility (Dauphin County) – Construct intermodal facility	\$52.00	Harrisburg Intermodal Expansion Phase 2	\$20.00
<b>Oil Creek &amp; Titusville Lines, Inc. – Near Term Projects (1 – 3 years)</b>			
Tie Replacement – 13.8 miles (Crawford, Venango Counties) – Replace 1,440 ties. Part of the mid-term project for Titusville Mainline Rehabilitation to Class 2/286,000	\$0.86	Main Line Rehabilitation	\$0.13
<b>Oil Creek &amp; Titusville Lines, Inc. – Mid-Term Projects (3 – 5 years)</b>			
Bridge Repair (Venango County) – Repair and strengthen steel panels on bridge to allow 286,000-pound capacity and speeds	\$0.18	Petroleum Center Bridge 130.27	\$0.66
<b>Reading, Blue Mountain &amp; Northern Railroad Company – Near Term Projects (1 – 3 years)</b>			
Nesquehoning Bridge Phase II (Carbon County) – Construction, infrastructure, other related costs	\$13.00	Nesquehoning Bridge Phase II	\$10.00
Rehabilitation of Mahanoy & Shamokin Branch (Columbia, Northumberland, Schuylkill Counties) – Replace ties, rail, and surfacing to accommodate increased business at a more efficient speed and improve safety	\$1.71	Mahanoy & Shamokin Rehab	\$0.70
<b>SEDA-COG Joint Rail Authority/North Shore Railroad Company – Near Term Projects (1 – 3 years)</b>			
Loyalsock Creek Bridge Replacement (Lycoming County) – LVRR bridge replacement due to pier failures	\$7.69	Loyalsock Creek Bridge	\$3.50
<b>SEDA-COG Joint Rail Authority/North Shore Railroad Company – Mid-Term Projects (3 – 5 years)</b>			
SEEDCO Industrial Park Sidings (Northumberland County) – Construct sidings to SEEDCO Industrial Park sites	\$2.70	Infrastructure Expansions	\$2.40
<b>Strasburg Railroad Company – Mid-Term Projects (3 – 5 years)</b>			
Rehabilitation and Construction of Infrastructure (Lancaster County) – Rehabilitate and construct infrastructure including rails, ties, ballast, switches, undercutting, drainage, bridges, crossings, siding, and turning facilities for handling increasing demand	\$5.00	Capital Investment	\$1.05
		Main Track & Siding Rehab	\$1.09

**Table 2-43: Grants Awarded to Freight Rail Projects Identified in the 2010 Pennsylvania Passenger and Freight Plan, cont.**

As Described in the Intercity and Passenger State Rail Plan	Estimated Cost (millions)	Name of Grant Awarded	Grant Awarded (millions)
<b>Wellsboro &amp; Corning Railroad – Near Term Projects (1 – 3 years)</b>			
Line Improvements (Tioga County) – Raise line, surface, replace ties	\$2.00	WCOR Track Rehabilitation	\$0.18
		WCOR Track Rehabilitation	\$1.40
		WCOR Track Reconstruction & Rehab	\$0.70
<b>Wheeling &amp; Lake Erie Railway Company – Near Term Projects (1 – 3 years)</b>			
Rail Rehabilitation (Allegheny, Washington, Westmoreland Counties) – Rehabilitate rail and bridge infrastructure to support new customer development	\$5.00	Clairton Branch Rehabilitation (MP 0.00 – MP 5.20)	\$0.70
		Welded Rail Installation on Main Track-Pittsburgh Subdivision	\$3.20
Infrastructure Improvements (Allegheny, Fayette, Westmoreland Counties) – Improve infrastructure to handle increased freight volumes	\$3.00	Rook Yard Capacity Marcellus	\$1.61
		Hickory Siding	\$1.10

Source: Pennsylvania Intercity Passenger and Freight Plan (2010) – Appendix 9 and PennDOT Multimodal Project Management System (MPMS)

## 2.2 Trends And Forecasts

### 2.2.1 Demographic and Growth Factors

#### 2.2.1.1 POPULATION

Pennsylvania has the sixth largest population in the United States with more than 12.7 million residents, yet the state is characterized as a “slow growth” state. Pennsylvania has not experienced double digit growth rates since the 1920s. While there have been fluctuations of moderate growth during the years immediately following World War II, the overall trend has been sluggish and lower than the national average. Until 1950 Pennsylvania was the second-most populous state in the nation. However since the 2000 Census, Pennsylvania ranked sixth behind California, Texas, New York, Florida and Illinois.

Despite modest growth rates, Pennsylvania has experienced an increase in absolute population by adding 421,000 persons between 2000 and 2010. **Table 2-44** provides detail on population changes within the state and compares such growth with the nation dating back to the 1970 Census.

Recent estimates from the U.S. Census indicate that since the 2010 the state has grown by an additional 72,000 persons, to a July 2013 American Community Survey estimate of 12,773,801 residents.



**Table 2-44: Population Growth in Pennsylvania**

Census Year	Population		Percent Increase over Previous Decade		Absolute Increase over Previous Decade
	PA	US	PA	US	PA
1970	11,794,000	203,302,000	4%	13%	482,000
1980	11,864,000	226,546,000	1%	11%	70,000
1990	11,882,000	248,710,000	0%	10%	18,000
2000	12,281,000	281,422,000	3%	13%	399,000
2010	12,702,000	308,746,000	3%	10%	421,000

Source: U.S. Census Bureau

## POPULATION SHIFTS

There have also been significant population shifts within the state. Much of the state's population growth has occurred in its eastern and southern regions, with retirees relocating from the urban centers of New York, Baltimore and Washington. The greatest absolute gains in population in Pennsylvania have occurred in the suburban counties of Philadelphia. This growth has been enough to offset the population declines that continue to occur in much of the state's western half.

**Table 2-45** provides more detail on the state's top counties in total population growth since the 2000 Census. **Figure 2-45** depicts the growth in population between 2000 and 2010 by county and **Figure 2-46** illustrates projected population growth across the state by county from 2010 to 2040.

**Table 2-45: Pennsylvania Counties – Top 10 Counties by Growth Rate, 2000-2010**

County	Pennsylvania Location	2000 Population	2010 Population	Growth Rate (percent)
Forest County*	North West	4,946	7,716	56.0%
Pike County	Eastern	46,302	57,369	23.9%
Monroe County	Eastern	138,687	169,842	22.5%
Franklin County	South Central	129,313	149,618	15.7%
Chester County	South East	433,501	498,886	15.1%
York County	South Central	381,751	434,972	13.9%
Centre County	Central	135,758	153,990	13.4%
Lehigh County	Eastern	312,090	349,497	12.0%
Northampton County	Eastern	267,066	297,735	11.5%
Adams County	South Central	91,292	101,407	11.1%

\* Forest County's low base population numbers (4,946), coupled with the opening of a new, state maximum security prison in 2004, significantly affected its population growth rate.

Source: U.S. Census Bureau

Figure 2-45: Pennsylvania Population Growth Rate, by County, 2000-2010

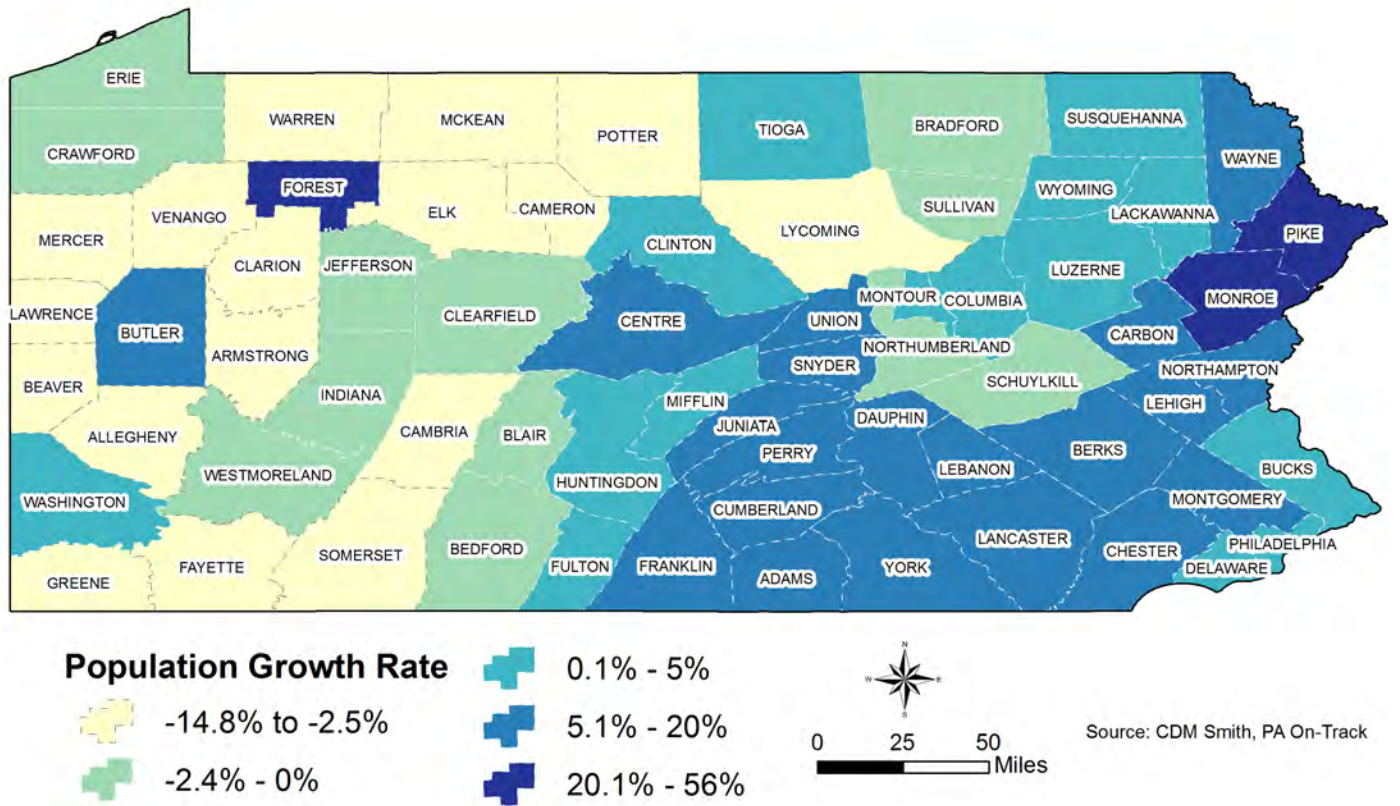
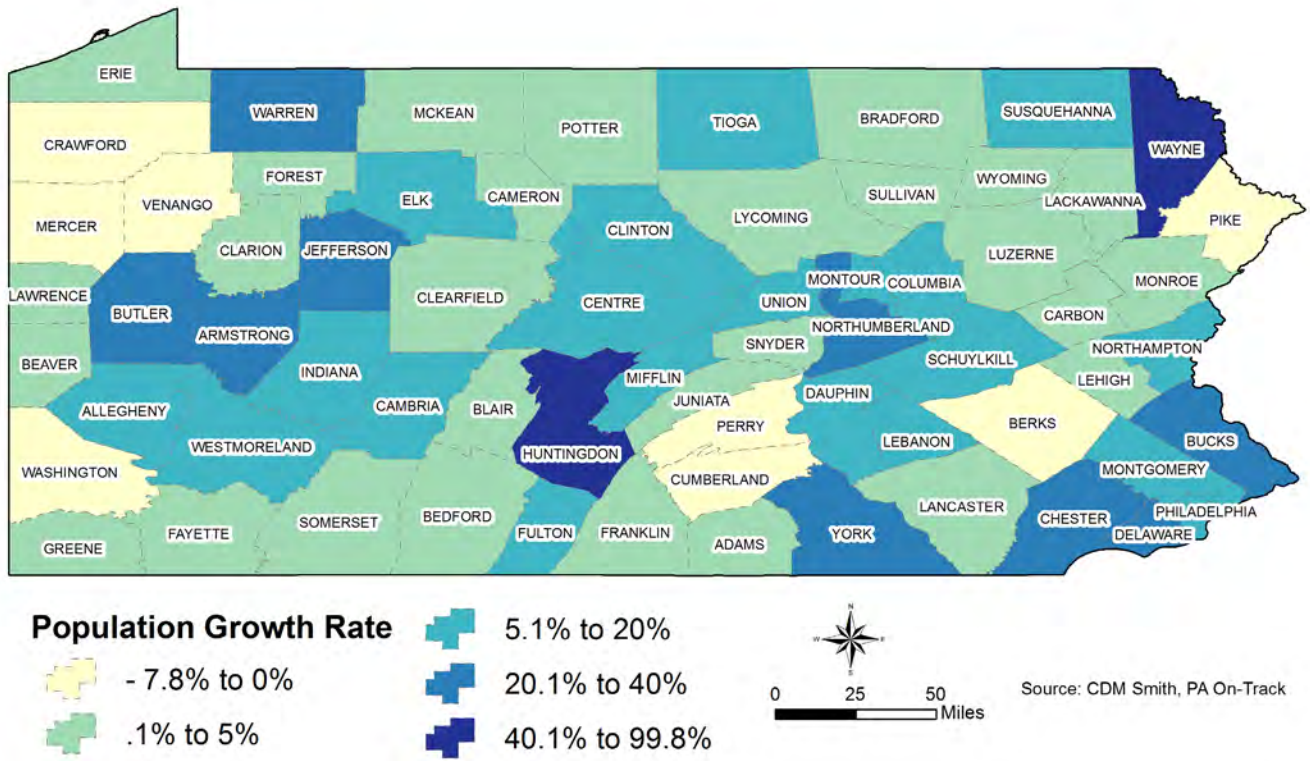


Figure 2-46: Pennsylvania Projected Population Growth Rate, by County, 2010-2040



At a municipal level, the state's population continues to decentralize from many of the state's most densely developed urban centers (i.e. cities and boroughs), while gaining population in surrounding townships. Many of the state's urban centers reached their maximum population during the 1930s and 40s, particularly in western Pennsylvania as well as in the state's anthracite belt. Some cities, most notably Pittsburgh and Johnstown, have lost more than half of their respective total population since the 1950s. The trend of decentralization makes planning for the state's transportation infrastructure increasingly difficult.

Forty-eight (48) of 67 counties in the state are classified as rural and consist of 3.4 million residents. Pennsylvania consists of fourteen Metropolitan Statistical Areas (MSAs). MSAs contain a core urban area of 50,000 or more residents. The state also contains twenty-one micropolitan statistical areas. Micropolitan statistical areas represent smaller counterparts to the MSAs, consisting of regions centered around a core city or town with a population between 10,000 to 49,999 residents. At least one micropolitan statistical area includes each of the state's Rural Planning Organization (RPO) planning regions. As a group, the state's micropolitan statistical areas are growing faster, and have a combined population of 1.3 million. Examples of urban clusters of micropolitan statistical areas in the state include DuBois, Oil City, and Sayre.

## AGE

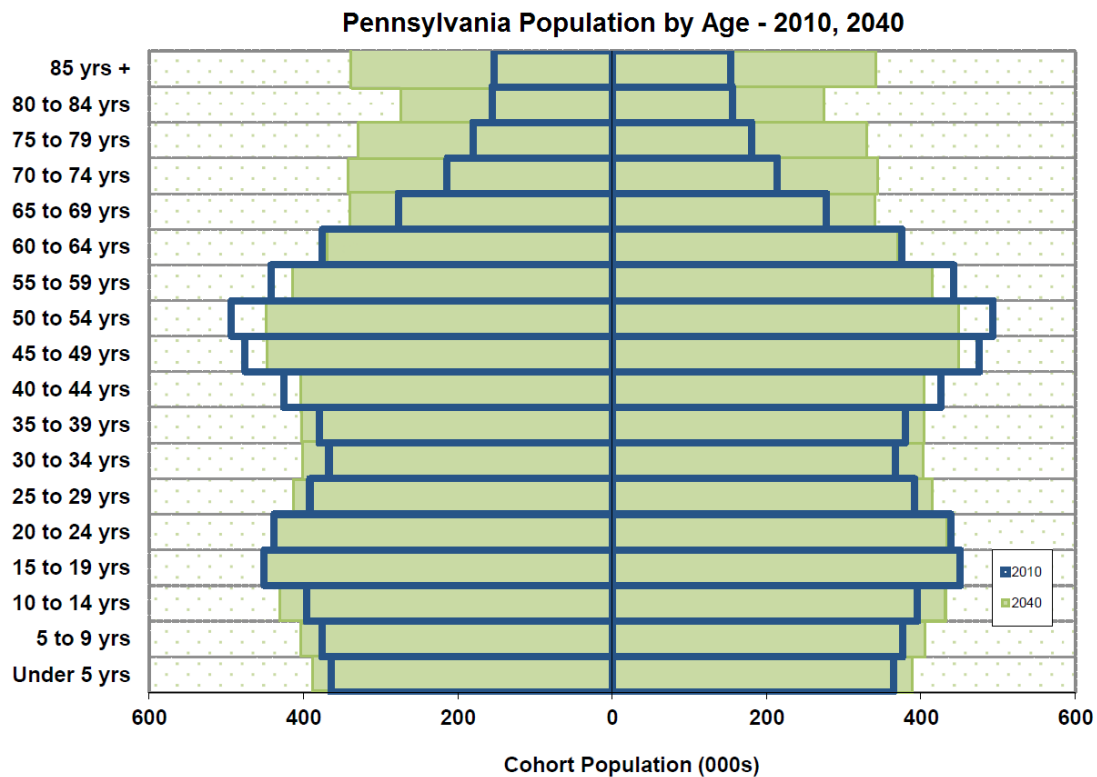
As shown in **Figure 2-47**, nearly 22 percent of Pennsylvania residents are under the age of 18, and nearly 16 percent are over the age of 65. Combined, the share of the state's "dependent population" is now approaching 40 percent. A dependent population is typically more reliant upon alternative forms of transportation than the automobile such as bicycling, walking, and public transportation. A growing proportion of an aging population will impact land use patterns as seniors who are less mobile will require access to health care services and community-connected housing.

Pennsylvania is an aging state, recently passing a demographic milestone of more than 2 million residents older than age 65. Additionally, a significant number of the state's population remains in rural counties. These two factors create issues when attempting to provide efficient transportation services in many areas of the state. Planning strategies for future public transportation will require additional services for highways, road signage, and pedestrian safety measures, as the state's population continues to age. Benefits of improvements will go beyond seniors; accommodations that are made to meet the needs of senior transportation users will also benefit all users.

## POPULATION FORECAST

Data from the long-term county economic and demographic projections firm of Woods & Poole indicate that Pennsylvania's population is expected to continue to experience slow to moderate growth, and climb to over 14 million persons by the 2040 Census. By that time, the state's share of total senior population (age 65+) is expected to increase from 15.4 percent to over 23 percent. The absolute number of seniors is expected to increase by two-thirds, from a 2010 total of 1.96 million to 3.26 million. More data regarding population forecasts by county is available in **Appendix B**.

Figure 2-47: Pennsylvania Age-Sex Pyramid; females on left, males on right



## Employment

### 2.2.1.2 EMPLOYMENT

The unemployment rate within the state was 9 percent in 2013 (**Table 2-46**). Notice, the unemployment rate rises as the age cohort descends with 25.2% of 16-19 year olds unemployed. Asians and whites are the least likely races to be unemployed. Males are more likely to be unemployed than females. 32.2 percent of those living in poverty and approximately 18 percent of those with a disability are unemployed. Furthermore, the more education a resident has attained, the less likely it is for that resident to be unemployed. See **Figure 2-48** for projected employment growth between 2012 and 2040.

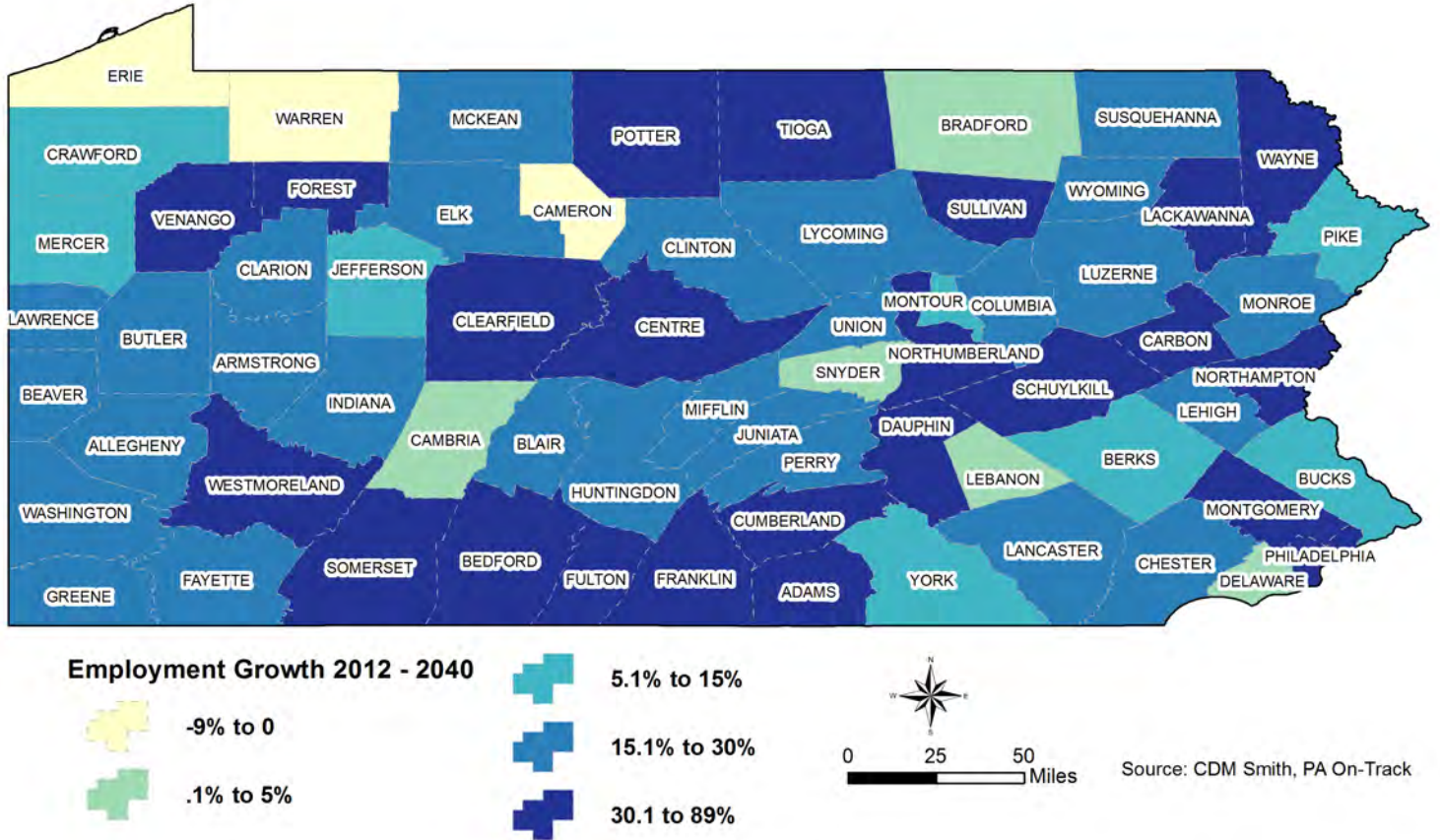


**Table 2-46: Pennsylvania Unemployment Rates, by Various Demographic Groups, 2013 Estimates**

Population	Unemployment Rate
Population 16 years and over	9.0%
AGE	
16 to 19 years	25.2%
20 to 24 years	15.6%
25 to 44 years	8.4%
45 to 54 years	6.5%
55 to 64 years	6.2%
65 to 74 years	6.3%
75 years and over	5.9%
RACE AND HISPANIC OR LATINO ORIGIN	
One Race	8.9%
White	7.7%
Black or African American	17.6%
American Indian and Alaska Native	16.9%
Asian	7.5%
Some other race	17.9%
Two or More Races	15.7%
Hispanic or Latino Origin (of any race)	15.9%
SEX	
Male	9.0%
Female	7.5%
POVERTY STATUS	
Below poverty level	32.2%
DISABILITY STATUS	
With any disability	17.6%
EDUCATIONAL ATTAINMENT	
Less than high school graduate	16.0%
High school graduate (includes equivalency)	9.3%
Bachelor's degree or higher	4.0%

Source: U.S. Census Bureau, 2013 American Community Survey

Figure 2-48: Projected Employment Growth Rate, by County, 2012 to 2040



## 2. THE STATE'S EXISTING RAIL SYSTEM

The most common occupation types in Pennsylvania are Management, Business, Science and Arts. The state's most common industries are Educational Services, Health Care and Social Assistance (**Table 2-47**).

**Table 2-47: Occupation, Industry and Class of Worker in Pennsylvania, 2013 Estimates**

	Total	Percent
Civilian employed population 16 years and over	5,914,876	57.4%
<b>OCCUPATION</b>		
Management, business, science, and arts occupations	2,143,993	36.2%
Service Occupations	1,029,157	17.4%
Sales and office occupations	1,451,596	24.5%
Natural resources, construction, and maintenance occupations	493,001	8.3%
Production, transportation, and material moving occupations	797,129	13.5%
<b>INDUSTRY</b>		
Agriculture, forestry, fishing and hunting, and mining	81,562	1.4%
Construction	339,203	5.7%
Manufacturing	732,754	12.4%
Wholesale trade	166,569	2.8%
Retail trade	696,381	11.8%
Transportation and warehousing, and utilities	300,135	5.1%
Information	105,649	1.8%
Finance and insurance, and real estate and rental and leasing	381,895	6.5%
Professional, scientific, and management, and administrative and waste management services	573,861	9.7%
Educational services, and health care and social assistance	1,531,907	25.9%
Arts, entertainment, and recreation, and accommodation and food services	482,168	8.2%
Other services, except public administration	276,018	4.7%
Public administration	246,774	4.2%
<b>CLASS OF WORKER</b>		
Private wage and salary workers	4,916,440	83.1%
Government workers	674,532	11.4%
Self-employed in own not incorporated business workers	315,702	5.3%
Unpaid family workers	8,202	0.1%

Source: U.S. Census Bureau, 2013 American Community Survey

### 2.2.1.3 PERSONAL INCOME AND POVERTY LEVELS

In 2013, median household income in the state was \$52,548, with married-couple households earning considerably more: \$78,817 (**Table 2-48**).

Approximately nine percent of all families and nearly 29 percent of all families with a single female householder are living in poverty. Nearly 14 percent of all people within the state are living below the poverty line, and nearly 20 percent of all children are living in poverty, as shown in **Table 2-49**.

**Table 2-48: Median Earnings in Pennsylvania, 2013 Estimates**

Median Income	Earnings
Median Household Income	\$52,548
Median Family Income	\$ 66,646
Married couple family	\$78,817
Male householder, no spouse present	\$ 45,816
Female householder, no spouse present	\$ 32,249

Source: U.S. Census Bureau, 2013 American Community Survey

**Table 2-49: Poverty Rates in Pennsylvania, 2013 Estimates**

Poverty Rate	Percent
All families	9.2
Married-couple family	3.8
Female householder, no husband present, family	28.9
All people	13.8
Under 18 years	19.6
18 to 64 years	13.3
65 years and over	8.3

Source: U.S. Census Bureau, 2013 American Community Survey

### INDUSTRIAL OUTLOOK BY SECTOR

Pennsylvania handled more than 209 million tons of rail borne shipments in 2013. Shipments consisted of inbound, outbound, through, and internal cargo. When accounting for Standard Transportation Commodity Code (STCC) without hazardous materials, the top five industrial sectors accounted for 121.3 million tons, or approximately 58 percent, of shipments in 2013. It was necessary to use STCC code without hazardous materials accounted when comparing 2013 Surface Transportation Board (STB) data, because waybill data predictions processed by IHS Transearch did not include the hazardous material code. Note the commodities accounted for regarding hazardous materials did not affect the total, and were therefore categorized within other various STCC commodity categories.

When comparing 2013 figures with 2040 growth, the amount of freight tonnage shipped throughout the state is forecasted to grow by 85 million tons, or 41 percent. **Table 2-50** includes figures for the top eight rail freight commodities.

Coal was the greatest shipped commodity in 2013 with 24 percent of the total rail tonnage. Despite a reduction of 2 percent to 49 million tons in 2040, coal is still projected to be the most shipped commodity by tonnage in Pennsylvania.

Other than a reduction in freight shipments of coal, forecasts predict an increase in freight rail traffic for the top freight rail commodities in Pennsylvania. Therefore, it is critical to note the future industrial outlooks indicate an increased amount of freight rail traffic upon an already congested freight rail network.



**Table 2-50: Pennsylvania Rail Freight by Major Commodities, 2013 and Projected for 2040**

STCC2*	Commodity	2013 (tons)					2040 Tons	Percent Growth
		Inbound	Outbound	Through	Internal	Total		
11	Coal	9,157,485	27,606,855	6,924,241	7,418,422	51,107,003	49,926,121	-2%
28	Chemicals or Allied Products	5,875,265	1,309,879	14,758,651	230,136	22,173,931	43,777,575	97%
46	Misc. Mixed Shipments	3,781,624	2,285,160	12,651,520	5,000	18,723,304	34,218,161	83%
20	Food or Kindred Products	4,971,092	586,532	9,267,791	3,640	14,829,055	24,051,310	62%
42	Shipping Containers	121,800	3,056,920	11,286,880	20,600	14,486,200	7,323,956	-49%
14	Nonmetallic Minerals	6,901,879	2,948,046	3,542,512	483,268	13,875,705	19,403,801	40%
13	Crude Petrol or Natural Gas	2,206,020	172,816	8,117,620	800	10,497,256	164,623	-98%
40	Waste or Scrap Materials	1,239,888	777,924	7,257,268	415,128	9,690,208	24,191,090	150%
	Remaining Rail Commodities	15,259,801	7,214,683	24,753,127	2,188,665	53,882,906	91,233,460	69%
<b>Total Rail Commodities</b>		<b>50,222,426</b>	<b>47,590,479</b>	<b>100,571,132</b>	<b>10,881,531</b>	<b>209,265,568</b>	<b>294,290,097</b>	<b>41%</b>

\*2-Level Standard Transportation Commodity Code without Hazardous Materials included in order to compare 2013 data with IHS Transearch 2040 commodity growth predictions

Source: Existing 2013 data is STB 2013 Waybill Processed by HNTB Corporation; 2040 future tonnage is 2011 IHS Transearch Waybill data made available through PennDOT and processed by HNTB Corporation.

## 2.2.2 Freight Rail Demand and Growth

As described in the section on **Freight Traffic**, in 2012 Pennsylvania ranked first among states in the number of railroads, fifth in railroad mileage, and between seventh and tenth in the amount of tons and carloads originating and terminating within the state. Pennsylvania also ranked eighth in total railroad employment (6,977) and rail wages (\$483.2 million).

### 2.2.2.1 PROJECTED FREIGHT RAIL MOVEMENTS

Rail borne shipments of the top five industrial sectors are projected to account for 173.8 million tons, or 59 percent of the 294.2 million tons projected to be shipped by rail in 2040. **Table 2-51** provides projections for rail freight commodities for the top eight (by tonnage) commodities in 2040.

For comparison purposes, **Figure 2-49** and **Figure 2-50**, are included to portray current (2013) total and projected 2040 traffic density levels, respectively, over the network. Freight rail density is defined as millions of gross tons carried per year.

Total rail tonnage in Pennsylvania is projected to increase by 41 percent, from 209 million tons in 2013 to 294 million tons in 2040. Current (2013) and projected (2040) tonnage with carload figures for each individual commodity as well as additional rail movement metrics are available in **Appendix A**.

Among specific commodities, the largest increases for combined inbound and outbound Pennsylvania rail traffic are projected to be Waste and Scrap Materials by 150%.

The projected increases in line density occur primarily on Pennsylvania’s major rail corridors (along the corridors of Interstate 95, Interstate 81, Central, Southwest, and Erie). These projected increases are consistent with the Association of American Railroads’ projected growth in trains per day of 50 to 100 percent over these lines by the year 2035.

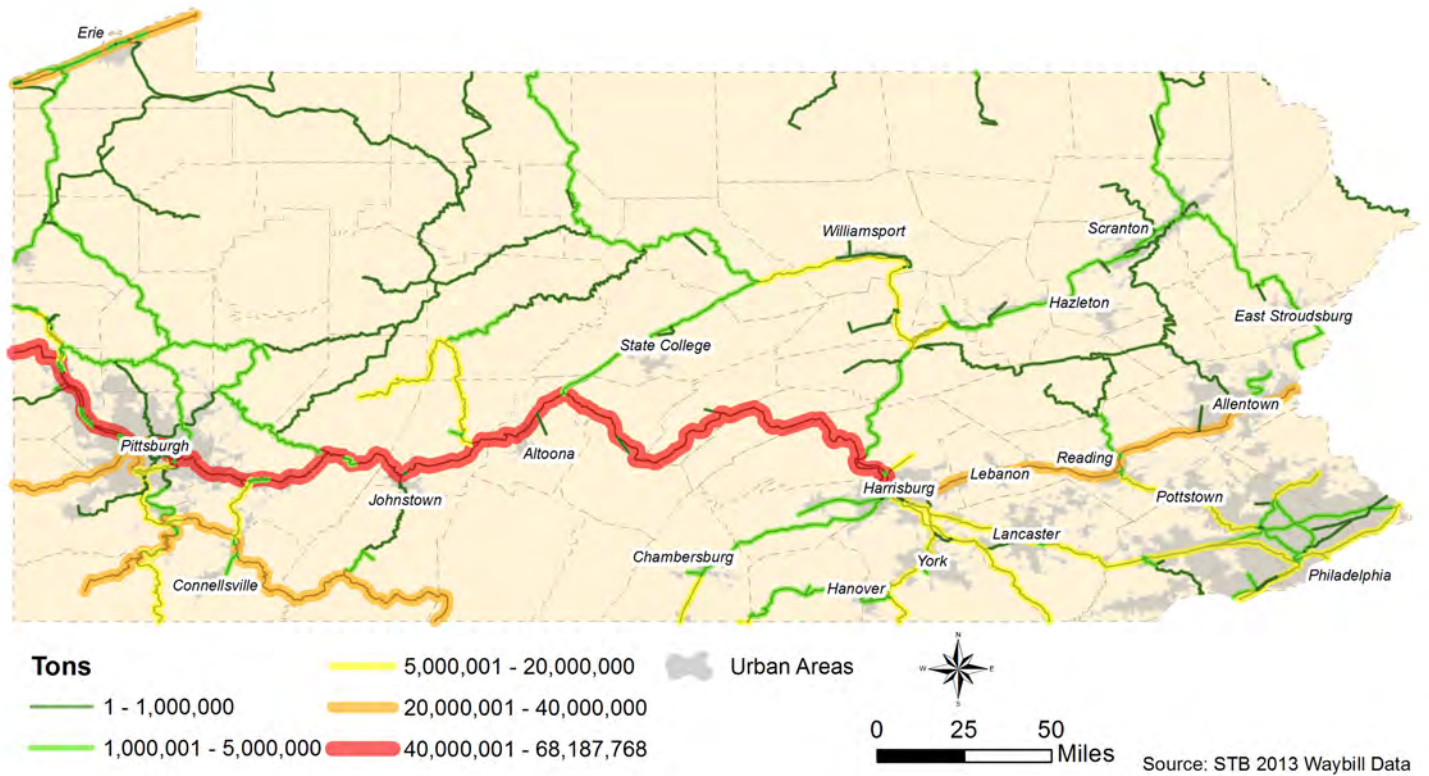
**Table 2-51: Projected Pennsylvania Rail Freight by Major Commodities, 2040**

STCC2*	Commodity	2040 (tons)					Percent Total Tons
		Inbound	Outbound	Through	Intrastate	Total	
11	Coal	9,736,241	22,442,839	10,891,969	6,855,072	49,926,121	17%
28	Chemicals or Allied Products	9,786,615	2,059,827	31,537,938	393,194	43,777,575	15%
46	Misc. Mixed Shipments	6,280,042	3,542,230	24,385,900	9,988	34,218,161	12%
40	Waste or Scrap Materials	7,804,901	784,505	15,449,328	12,576	24,051,310	8%
20	Food or Kindred Products	2,575,651	62,145	18,021,102	1,197,953	21,856,851	7%
14	Nonmetallic Minerals	9,337,666	4,569,229	4,313,982	1,182,924	19,403,801	7%
26	Pulp, Paper or Allied Products	6,163,669	416,811	9,356,546	120,364	16,057,391	5%
33	Primary Metal Products	4,463,138	1,493,834	6,317,221	1,253,074	13,527,267	5%
Remaining Rail Commodities		17,075,001	13,234,603	40,737,525	424,491	71,471,620	24%
<b>Total Rail Commodities</b>		<b>73,222,924</b>	<b>48,606,024</b>	<b>161,011,511</b>	<b>11,449,636</b>	<b>294,290,096</b>	<b>100%</b>

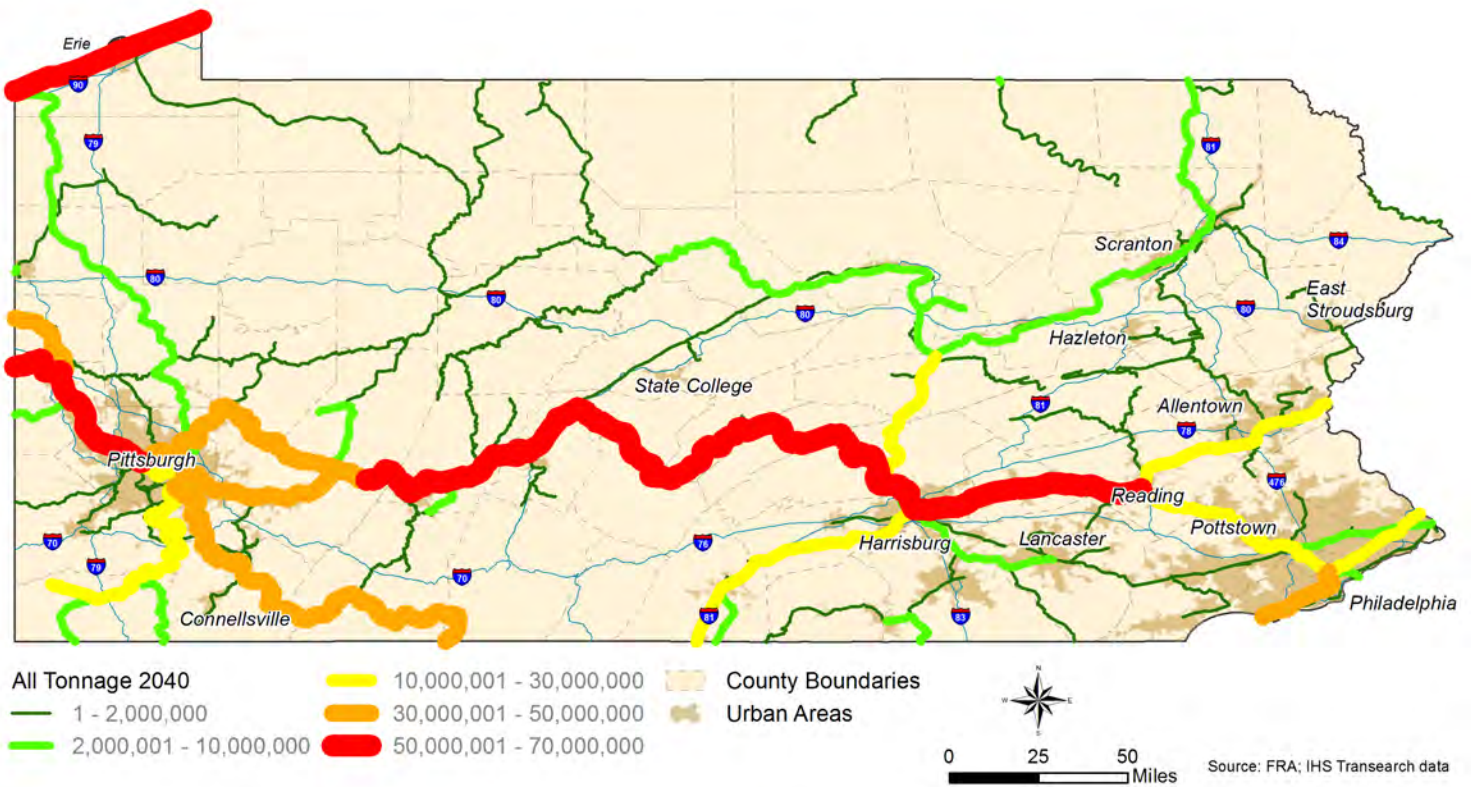
\*2-Level Standard Transportation Commodity Code Source: 2011 IHS Transearch Waybill data made available through PennDOT and processed by HNTB Corporation.



**Figure 2-49: Pennsylvania Rail Line Densities by Total Net Rail Tonnage, 2013**



**Figure 2-50: Projected Pennsylvania Rail Line Densities by Total Net Rail Tonnage, 2040**



## 2.2.2.2 INTERMODAL MARKET TRENDS

Intermodal rail services involve the transport of shipping containers and truck trailers by trains loaded at specially designed intermodal terminals. The market for intermodal shipping has grown rapidly in recent decades in Pennsylvania and in the rest of the United States. Shippers and receivers increasingly rely on intermodal connections between Pennsylvania's rail, highway, airports, ports, waterways, and pipeline networks to move freight. Traditional bulk products, such as corn and other grains, or break bulk cargo shipped in barrels, drums, or bags are moving to intermodal containers, while typical non-container shipments such as coal have been declining.

Intermodal freight rail shipping requires the availability of an intermodal facility that can handle container and trailer shipments. Pennsylvania has one of the highest densities of intermodal facilities in the nation: the Harrisburg area is home to three major Norfolk Southern (NS) Railroad yards and the Philadelphia and Pittsburgh metropolitan areas host multiple large NS and CSX intermodal yards. These and other existing intermodal terminals and transload facilities, described in detail in **Section 2.1.2: Intermodal Connections: Freight and Passenger Terminals**, have facilitated intermodal freight flows and eased transfers between transportation modes. In doing so, they have helped remove trucks from Pennsylvania roadways and relieve traffic congestion.

This section presents and compares existing intermodal freight rail demand in Pennsylvania and projected demand for the year 2040, focusing on Class I carriers. STB 2011 IHS Waybill data summarizes current and projected intermodal flows and identifies key challenges and opportunities for railroads, planners, and rail customers.

### INTERMODAL FREIGHT RAIL FLOWS

Pennsylvania's extensive freight rail network has some of the highest tonnage and flows by value in the nation, with demand projected to continue to grow through 2040, including both container and non-container (carload) shipments. Total rail-based freight flows in Pennsylvania are expected to increase at an annual rate of about 1.1 percent, from 209.0 million tons in 2011 to 294.3 million tons in 2040. During the same time period, intermodal freight rail flows are projected to grow at almost twice as high an annual rate of 2.1 percent, from 29.2 million tons to 54.5 million tons (**Table 2-52**).

The rate of growth in non-container freight rail shipments in Pennsylvania is forecast to be much lower; with the projected increase in tonnage from 179.8 million in 2011 to 239.8 million in 2040, the annual projected growth rate is 1.0 percent. This difference in projected growth rates for intermodal and non-intermodal freight rail shipments is reflected in the many intermodal capital investments planned by Class I carriers along the main freight corridors in Pennsylvania.

By tonnage, 86 percent of the current freight rail shipments in Pennsylvania utilize regular non-intermodal railcars, while 14 percent use intermodal containers (**Table 2-53**). The 2040 projections call for a substantial increase in the percentage of intermodal shipments by tonnage, to 19 percent of all freight rail flows. By value of shipments, intermodal and non-intermodal shipments are currently roughly split, with non-intermodal shipments at 55 percent in 2011, but projected to decrease to 52 percent by 2040. In 2011, when measured in units, 54 percent of freight rail flows were intermodal and 46 percent were non-intermodal. The growth in intermodal units is projected to outpace the expected increase in non-container flows through 2040, with intermodal units increasing to 60 percent and carloads decreasing to 40 percent of all traffic.



**Table 2-52: Pennsylvania Intermodal Freight Rail by Tonnage, Value, and Units, 2011 and Projections for 2040**

	2011	2015	2040	2011-2040 Percent Growth	2011-2040 CAGR*
<b>Intermodal (Container)</b>					
Tonnage	29,210,960	32,429,542	54,479,806	86.5%	2.1%
Value	\$112,092,705,497	\$124,277,381,236	\$210,641,177,708	87.9%	2.1%
Units	2,451,472	2,721,191	4,603,992	87.8%	2.1%
<b>Non-Intermodal (Carload/Railcar)</b>					
Tonnage	179,754,853	194,879,567	239,810,291	33.4%	1.0%
Value	\$137,772,300,294	\$163,663,890,697	\$232,334,653,025	68.6%	1.8%
Units	2,118,334	2,357,573	3,067,314	44.8%	1.2%
<b>Total: Intermodal and Non-Intermodal</b>					
Tonnage	208,965,813	227,309,108	294,290,097	40.8%	1.1%
Value	\$249,865,005,791	\$287,941,271,933	\$442,975,830,733	77.3%	1.9%
Units	4,569,806	5,078,764	7,671,307	67.9%	1.7%

\*CAGR – Compound Annual Growth Rate

Source: STB 2011 IHS Transearch Waybill; made available through PennDOT and processed by HNTB Corporation

**Table 2-53: Pennsylvania Intermodal and Non-Intermodal (Carload/Railcar) Freight Rail by Percentage, 2011 and Projections for 2040**

		2011	2040
Tonnage	Intermodal	14.0%	18.5%
	Non-Intermodal (Carload/Railcar)	86.0%	81.5%
Value	Intermodal	44.9%	47.6%
	Non-Intermodal (Carload/Railcar)	55.1%	52.4%
Units	Intermodal	53.6%	60.0%
	Non-Intermodal (Carload/Railcar)	46.4%	40.0%

Source: STB 2011 IHS Transearch Waybill; made available through PennDOT and processed by HNTB Corporation

It should be noted that data regarding the effects of intermodal flows on the operational profile of railroads handling freight loading at specific locations was not provided by IHS. Manifest train service, consisting of several individual railcars moving from one customer to another and grouped only at the terminal, was not available for analysis; unlike unit trains, that consist of rail cars loaded at the same location and moved to a single destination without intermediate stops.

## INTERMODAL FREIGHT RAIL CHALLENGES AND OPPORTUNITIES

Looking beyond the current and projected intermodal data, there are several notable characteristics of intermodal freight rail trends for Pennsylvania worth noting:

- 1. Pennsylvania's transportation system is benefitting from significant on-going and planned capital investment in freight rail intermodal facilities.** Two Class I railroad companies operating in Pennsylvania (Norfolk Southern and CSX) have invested – and plan to continue investing – in new and expanded intermodal facilities, enabling excellent intermodal access across the state and bridging the modal capabilities of roadways, rail, and waterborne cargo. Examples include investments in the NS Crescent Corridor, a \$2.5 billion rail infrastructure project in 11 states, with important intermodal improvements planned in Pennsylvania, including the Rutherford Yard expansion in Dauphin County and the Navy Yard expansion in the City of Philadelphia. NS Main Line Corridor intermodal enhancements include double-stack clearances across Pittsburgh to create a high-speed intermodal route. The CSX National Gateway Corridor project includes finishing clearances to allow double-stack trains to/from the Chambersburg intermodal terminal, as well as initial work on the high-capacity Pittsburgh intermodal terminal. These improvements are described in more detail in **Chapter 4** of the SRP.
- 2. Intermodal flows are the fastest growing segment of the freight rail industry.** As NS and CSX inject more capital funding into intermodal yard enhancements, better and more convenient last-mile access, and track rehabilitation, the projected compound annual growth in intermodal traffic of over 2 percent from 2011 to 2040 is likely to materialize. The intention is to achieve faster and more reliable delivery times, improve capacity, and run more efficient and profitable trains that can both compete with and augment other transportation modes.

Leveraging intermodal freight rail transportation to induce modal shift from trucks to trains may offer modest roadway congestion relief, but rising demand on access roads to intermodal facilities could cancel out those benefits. Last-mile access enhancements will become more critical as the number of intermodal train units continues to increase. And although projected increases in intermodal freight rail shipments can be largely accommodated on established rail corridors in Pennsylvania, the state is a good candidate to establish new intermodal corridors.

- 3. Pennsylvania is a staging area for goods movement throughout the northeastern United States.** Improved intermodal facilities and better intermodal connections can affect and incentivize businesses' locational decisions. Companies locate facilities near intermodal freight rail yards to reduce transportation costs, with consumers benefiting from lower costs and faster delivery of commodities brought to the market. The associated siting of distribution and warehousing facilities and logistics hubs can generate employment opportunities.

The proposed freight rail projects described in **Chapter 4** and the Rail Service and Investment Program (RSIP) in **Chapter 5** identify and describe some of the improvements planned over the short and long-term timeframes that are responsive to the strong growth trendline in intermodal freight rail movements across Pennsylvania.



### 2.2.2.3 ENERGY EXTRACTION ACTIVITIES

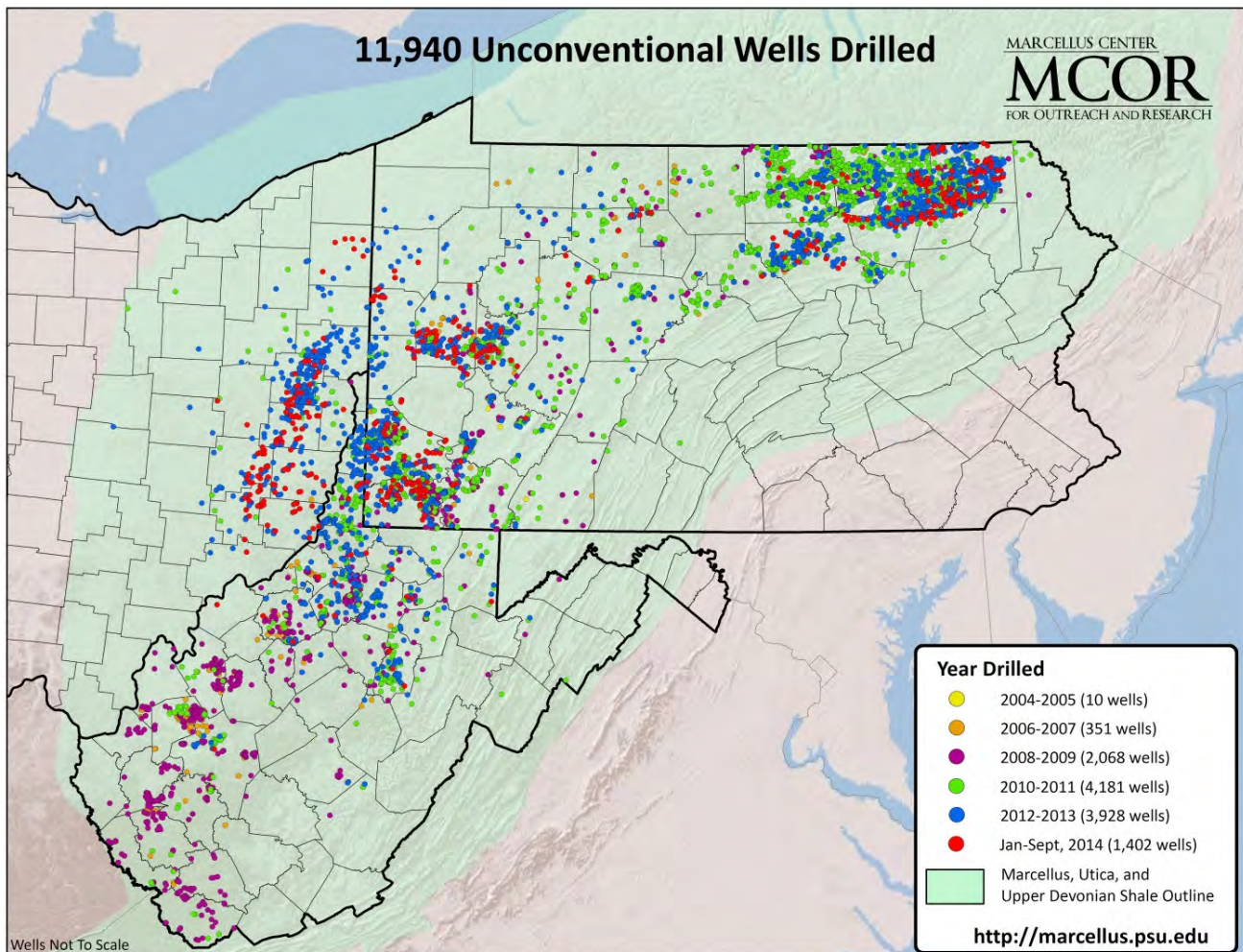
Pennsylvania’s railroad network has been impacted by two major increases in fracking-related energy extraction activity: natural gas drilling in northern and western Pennsylvania, from the Marcellus and Utica Shale; and oil drilling in North Dakota. Although both forms of energy extraction have been driven by new fracking technology, their impacts to the state’s rail system have been different.

#### NATURAL GAS DRILLING IN THE GREATER PENNSYLVANIAN REGION

Due to recent advances in drilling technology, natural gas extraction in northern and western Pennsylvania has expanded exponentially. Near-term projections indicate that these activities will continue to grow within the Marcellus and Utica Shale regions.

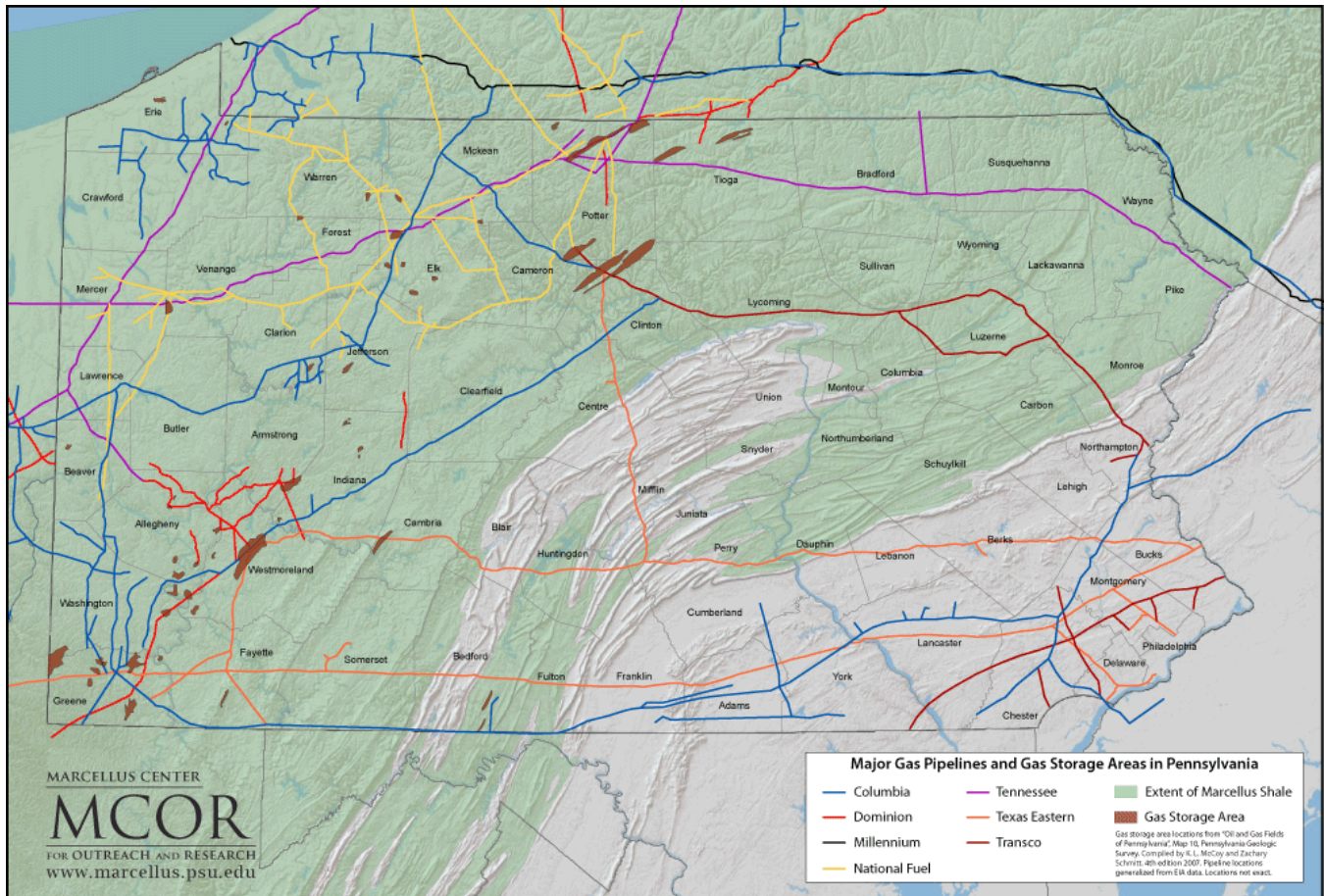
The number of unconventional natural gas wells in the region has grown substantially since 2004, from 10 wells drilled in 2004-2005 to 3,928 wells drilled in 2012-2013. **Figure 2-51** provides a map of unconventional wells in the region. The drilling of each new well creates demand for rail freight to transport the large quantities of sand, water, chemicals, and equipment required for fracking. However, once a well is established there is minimal demand for freight rail service, as natural gas from the well is distributed via pipeline. **Figure 2-52** shows the natural gas pipeline network in Pennsylvania.

**Figure 2-51: Unconventional Wells in the Region**



Source: Penn State University

**Figure 2-52: Natural Gas Pipeline Network in Pennsylvania**



Source: Penn State University

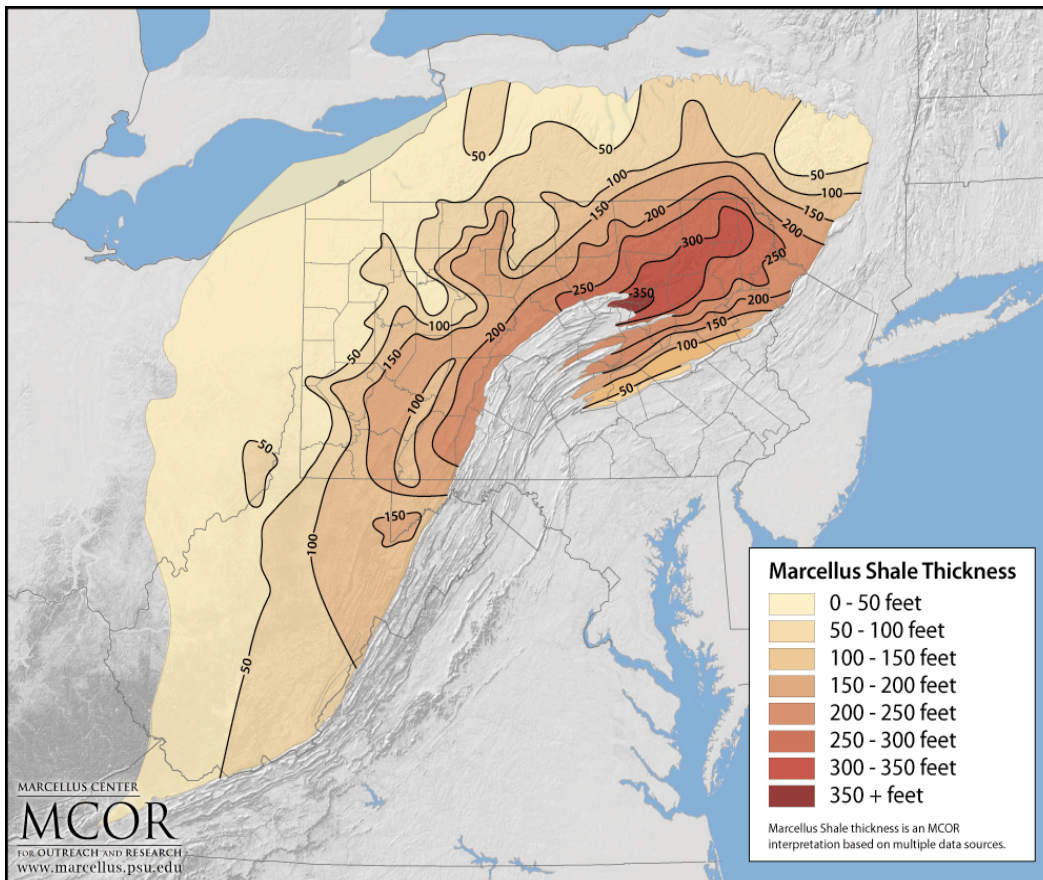
### Marcellus Shale

The Marcellus Formation, more commonly known as the Marcellus Shale, is a fine-grained, clastic sedimentary rock formation found in the Northeast United States. The Marcellus Shale is located subsurface nearly a mile beneath much of eastern Ohio, West Virginia, Pennsylvania, and New York. Lesser amounts are located in Virginia, Maryland, and Tennessee. Shale consists of reservoirs of natural gas which is the focus of fracking and natural resource extraction.

Fracking continues to generate a number of economic and social implications as the formation is located close to the high population centers of New Jersey, New York, and New England. Its proximity has given the Marcellus Shale a unique transportation advantage over other sources of energy. **Figure 2-53** illustrates the extent of Marcellus Shale reserves.



**Figure 2-53: Regional Extent of the Marcellus Shale**



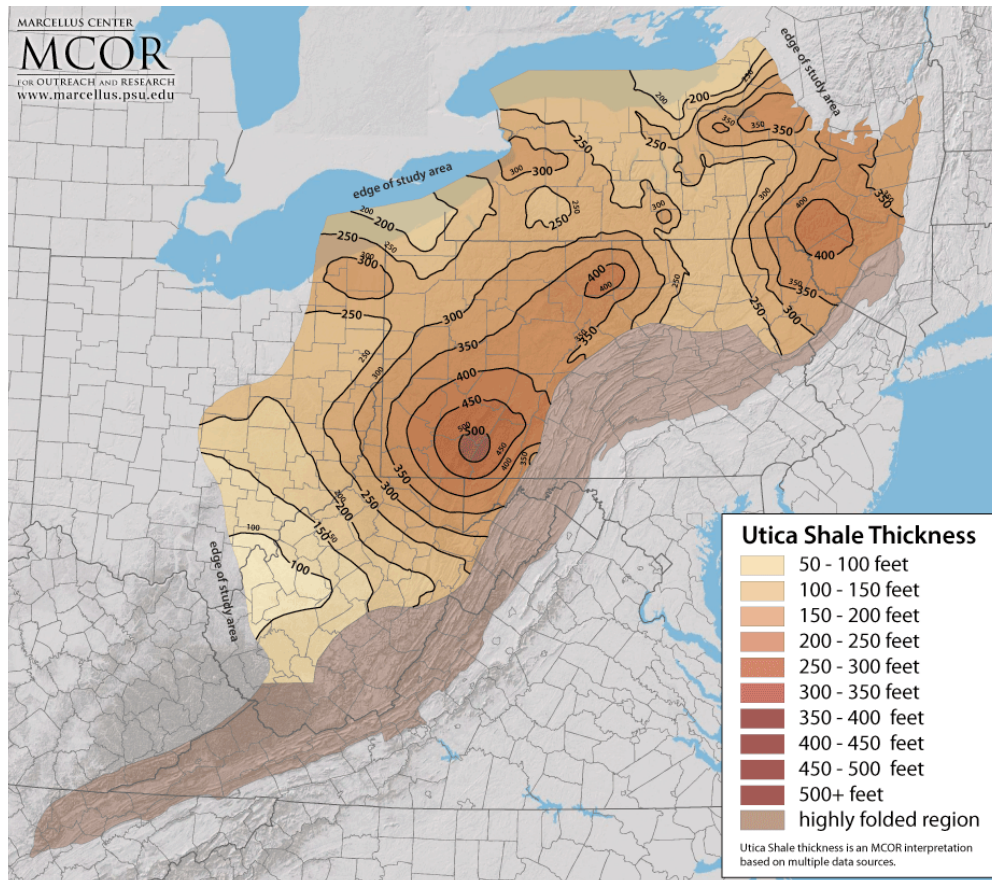
Source: Penn State University

The long-term future of the Marcellus Shale and its production is still unclear. Thus far, it appears that the Marcellus Shale is outperforming earlier forecasts, due to well efficiency improvements. Some experts and forecasts predicted that the wells will remain profitable at lower levels for decades to come. Most forecasts predict that future production levels will remain the same or grow until 2022, with minimal production by 2030. However, forecasts for the Marcellus Shale have proven to be conservative in the past and it is possible the shale may stay productive for much longer than this timeline.

There is also the potential for some wells to be re-fractured in the future due to advances in technology. Many of the same drilling pads may be reused in the coming years to drill horizontal wells in different directions. The Marcellus Shale will have an effect on Pennsylvania's economy and transportation system for years.

Fracking of the Marcellus Shale has created issues within the state's transportation system. The Marcellus Development requires a number of commodities for transportation, including: frac sand, pipe, hydrochloric acid, brine water, cements, and other miscellaneous worker equipment. This activity causes congestion at some area transloading facilities and rail yards. Annual rail loadings in the Northern Tier of Pennsylvania are not expected to decline until after 2022.

**Figure 2-54: Regional Extent of the Utica Shale**



Source: Penn State University

### *Utica Shale*

The Utica Shale is another source of natural gas that lies below the Marcellus Shale, but consists of greater total area. Similar to the Marcellus Shale, the Utica Shale was not seen as developable until 2010 due to advances in technology that include horizontal drilling and hydraulic fracturing. Unlike the Marcellus Shale, the Utica Shale covers almost all of Pennsylvania and major portions of New York, Ohio, West Virginia, Virginia and Quebec, Canada. The Utica Shale development has not been investigated or drilled nearly as much as the Marcellus Shale, so it is unclear how large the resource is at this time. The Utica Shale will likely be developed within areas of the Marcellus Shale first as the infrastructure is already present. The current impacts of the Utica Shale are minimal because a relatively smaller portion has been investigated within Pennsylvania. If the Utica Shale is found to be a cost-effective and developable resource, there would likely be similar impacts to the transportation network as the Marcellus Shale. **Figure 2-54** illustrates the location of Utica Shale.



## NATURAL GAS DRILLING IN THE NORTH DAKOTA BAKKEN OIL FIELD

Although North Dakota Bakken oil is extracted over one thousand miles outside of Pennsylvania, it has had an impact on Pennsylvania's rail network. Large quantities of crude oil are being shipped via rail to refineries in the Philadelphia area on a daily basis. A significant increase in shipments of Bakken crude oil from North Dakota has contributed to an increase in traffic on Class I railroads. Class I shipments of Bakken crude have grown from 6,107 carloads in 2005 to 435,560 carloads in 2013. Information recently disclosed by the Pennsylvania Emergency Management Agency indicates approximately 75 trains carrying crude oil pass through the state each week, primarily carried by NS and CSX.<sup>49</sup>

The increased volume of crude oil being transported by rail as well as the flammability of Bakken crude oil has raised safety concerns, especially after a series of recent accidents on trains carrying Bakken crude. Safety is especially important in Pennsylvania, where oil trains pass through large population centers including the metropolitan regions of Philadelphia and Pittsburgh.

The USDOT is addressing safety concerns through a series of Emergency Orders and proposed regulations. Both FRA and USDOT Pipeline and Hazardous Materials Safety Administration (PHMSA) have coordinated with railroad industry officials and emergency services responders to actively pursue measures to continuously improve safety and reduce risk.<sup>50</sup> Some of those actions include:

1. Implementing the requirements of FRA Emergency Order Number 28 requirements for attendance and securing freight trains and vehicles
2. Implementing a Rail Corridor Risk Management System to route trains on safe and secure routes
3. Pursuing regulations to ensure continued upgrades for new tank cars and retrofitting existing tank cars with enhanced safety features
4. Working with and training local emergency responders to maintain a robust emergency response team throughout rail service areas<sup>51</sup>

PennDOT will continue its rail crossing safety investments through its Section 130 program, in addition to ongoing private railroad investment to improve grade crossings.

Both the PUC and railroads will continue to identify opportunities to close unneeded or redundant crossings.

In summary, safety opportunities and improvements will be met through a multi-faceted approach, which include:

1. Continuous personnel training
2. Continued investment in infrastructure improvements
3. Implementing new technologies, including detectors to identify defects on equipment and inspection cars that locate track defects
4. State and federal enforcement of safety regulations and emergency orders
5. Continued investment and participation in Operation Lifesaver to continuously educate the public about rail safety

<sup>49</sup> Pennsylvania Emergency Management Agency. "Bakken Crude Information" October 2014.

<sup>50</sup> <http://www.phmsa.dot.gov/hazmat/osd/chronology>

<sup>51</sup> <https://www.aar.org/BackgroundPapers/Railroads%20Moving%20America%20Safely.pdf>



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### Point Breeze refinery

Source: EPA

## PHILADELPHIA ENERGY SOLUTIONS REFINING COMPLEX

The Philadelphia Energy Solutions Refining Complex (PES) is located in South Philadelphia. It is the largest oil refining complex along the U.S. Eastern Seaboard and accommodates the greatest amount of Bakken crude oil shipments from North Dakota in the United States. The PES facility is also the oldest operating refinery in the United States and possibly the world, continuously operating over 140 years.

PES operates under management of a partnership between The Carlyle Group and Sunoco Inc., a subsidiary of the Energy Transfer Partners, L.P. The entire PES facility is split between two locations, Girard Point and Point Breeze. The combined facilities allow a total processing capacity of 330,000 barrels of crude oil each day. Where one barrel of oil is equal to 42 gallons, PES has the ability to refine 14 million gallons daily. Products from the refining process include gasoline, low-sulfur diesel, jet fuel, kerosene, butane, propane, home heating oil, and a petrochemical cumene commonly used as an agent to synthesize various industrial chemicals.

In 2013 PES partnered with CSX to construct a new rail facility. The rail facility allows for high-speed unloading of oil from rail cars to the refinery along 5.6 miles of track. PES can currently handle two unit trains per day, seven days a week; where each train may include as many as 120 cars with as many as 700 barrels of crude oil in each car tank. The project was facilitated by a \$10 million grant from PennDOT.





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### Marcus Hook refinery

Source: EPA

## DELAWARE COUNTY FACILITIES

Delaware County also hosts several refineries and storage facilities located along the Delaware River. The facilities include Sunoco Logistics in Marcus Hook Borough, Conoco Phillips, Inc. in Trainer Borough, and Enbridge in Eddystone Borough; each ranging in refining capabilities and storage capacity.

### *MARCUS HOOK INDUSTRIAL COMPLEX*

In 2012, the Marcus Hook Industrial Complex (MHIC) was revived by Sunoco Logistics Partners L.P. for the purpose of refining liquefied petroleum gas (LPG). The facility includes docks, truck racks, pipeline connections, and rail access. The Marcus Hook Industrial Complex currently provides rail access through Conrail rail lines with trackage rights to both CSX and NS.

MHIC refines LPG that is distributed predominantly from the Marcellus and Utica Shale regions to produce byproducts such as propane, ethane and butane. The complex provides approximately two million barrels of LPG for cavern storage in addition to five million barrels of refined product as well as crude oil along its terminals.

Sunoco Logistics is in the process of expanding its facilities with a 500,000-barrel propane tank and a 300,000-barrel ethane tank. Moreover, under development of plans, MHIC is currently the intended terminus for the Mariner East 1 and Mariner East 2 pipeline projects that will eventually result in a maximum of 345,000 barrels of crude oil each day for refining. The refined fuels, predominantly propane and ethane, can be shipped to local or regional markets in addition to being exported internationally. The implications of such investments when fully completed along the Delaware River create a market estimated at multi-billions of dollars each year.

### *THE TRAINER REFINERY COMPLEX*

The Trainer Refinery Complex, formerly owned by ConocoPhillips, was purchased by Delta Air Lines in 2012 and operates under Delta’s subsidiary Monroe Energy, LLC. Since that time, the complex has been renovated for the refining of crude oil. It currently provides rail access through Conrail rail lines with trackage rights to both CSX and NS.

Monroe Energy refines crude to produce various byproducts with several contracts to companies such as providing petroleum to Phillips 66, an energy manufacturing and logistics company. However, the refinery primarily focuses efforts on jet fuel for Delta Air Lines to reduce costs of its airline operations. The complex has a production capacity of approximately 185,000 barrels each day.

During the summer of 2014, Monroe Energy settled on a five-year agreement with Bridger Transfer Services, LLC, to supply the Trainer refinery with 65,000 barrels of crude oil daily. Bridger is acquiring 1,300 crude-by-rail cars and has a contract to load 80,000 barrels of crude a day from Enbridge Incorporated’s rail terminal in Eddystone, Pennsylvania, onto barges that can deliver crude to Trainer. Delta may build a pipeline connecting the Trainer refinery to the terminal in the future.

### *THE EDDYSTONE RAIL COMPANY FACILITY*

The Eddystone Rail Company facility is an intermediate trans-shipment facility for light, sweet Bakken crude oil from North Dakota. The facility is accessible by Conrail rail lines with right to use available to CSX, and NS.

The facility opened for operation in the spring of 2014. It is operated by Enbridge, Inc., an energy delivery company based in Calgary, Alberta, Canada. At the facility, crude oil is transferred from rail to barge and delivered to various refineries along the Delaware River. The Eddystone Rail Company facility currently receives and delivers up to approximately 80,000 barrels per day with an intended maximum capacity of 160,000 barrels per day.



## 2.2.3 Passenger Rail Demand and Growth

### 2.2.3.1 AMTRAK

As described previously, Amtrak provides intercity passenger rail service in Pennsylvania with approximately 120 trains a day, with 24 different stations in the state. **Table 2-54** summarizes projected annual station ridership growth for 2019 and 2035. Total growth for all Pennsylvania Amtrak stations is projected to grow ten percent from 2014 to 2019, 24 percent from 2019 to 2035, and 36 percent from 2014 to 2035.

**Table 2-54: Amtrak Projected Annual Ridership, 2014 to 2035**

Station Name	FY14	FY19	FY35	Percent Change 2014 to 2019	Percent Change 2019 to 2035
Cornwall Heights*	2,093	2,260	2,680	8%	19%
Philadelphia (North)	644	700	800	9%	14%
Philadelphia (30 <sup>th</sup> St)	3,901,459	4,235,500	5,102,800	9%	20%
Ardmore	56,641	63,700	82,800	12%	30%
Paoli	169,181	190,400	248,300	13%	30%
Exton	106,165	119,400	155,400	12%	30%
Downingtown	59,950	67,400	87,600	12%	30%
Coatesville	15,566	17,500	22,700	12%	30%
Parkesburg	49,642	55,800	72,500	12%	30%
Lancaster	522,644	588,300	767,600	13%	30%
Mount Joy	46,391	52,100	67,800	12%	30%
Elizabethtown	108,380	121,900	158,800	12%	30%
Middletown	66,604	74,900	97,300	12%	30%
Harrisburg	491,539	553,300	722,200	13%	31%
Lewistown	9,375	10,700	14,500	14%	36%
Huntingdon	6,801	7,800	10,500	15%	35%
Tyrone	3,346	3,800	5,200	14%	37%
Altoona	26,088	29,800	40,400	14%	36%
Johnstown	22,931	26,200	35,500	14%	35%
Latrobe	4,631	5,300	7,200	14%	36%
Greensburg	15,023	17,200	23,300	14%	35%
Pittsburgh	146,155	164,800	216,200	13%	31%
Connellsville	4,925	5,400	6,700	10%	24%
Erie	18,312	20,200	25,200	10%	25%
<b>TOTAL</b>	<b>5,852,426</b>	<b>6,432,140</b>	<b>7,971,350</b>	<b>10%</b>	<b>24%</b>

Source: Amtrak

### 2.2.3.2 SEPTA

SEPTA operates a regional commuter passenger rail service in Pennsylvania offering 13 Regional Rail lines with 154 stations serving the City of Philadelphia, Bucks, Chester, Delaware and Montgomery counties, as well as service to Newark, Delaware, and both Trenton and West Trenton, New Jersey. **Table 2- 55** summarizes projected Regional Rail line average weekday ridership growth from 2010 to 2040. Total growth for all SEPTA rail lines is projected to grow 9.1 percent from 2010 to 2040.

**Table 2-55: SEPTA Regional Rail Average Weekday Ridership Forecasts, 2010 to 2040**

Regional Rail Line Name	Average Weekday Ridership Forecasts							2010 – 2040 Difference	
	2010	2015	2020	2025	2030	2035	2040	Absolute	Percent
Airport Line	6,430	5,834	5,873	5,911	6,014	6,116	6,150	-280	-4.4%
Chestnut Hill East	5,840	5,805	5,852	5,899	6,013	6,127	6,183	343	5.9%
Chestnut Hill West	5,060	5,111	5,188	5,264	5,256	5,247	5,259	199	3.9%
Cynwyd	660	622	642	661	678	695	699	39	5.9%
Lansdale/Doylestown	16,560	17,355	17,674	17,992	18,160	18,328	18,992	2,432	14.7%
Elwyn	10,830	10,824	11,080	11,336	11,409	11,481	11,696	866	8.0%
Fox Chase	5,040	5,119	5,072	5,025	5,088	5,150	5,186	146	2.9%
Norristown	10,660	10,680	10,875	11,070	11,279	11,488	11,662	1,002	9.4%
Paoli/Thorndale	21,890	22,698	23,208	23,717	24,262	24,807	24,885	2,995	13.7%
Trenton	10,660	11,215	11,165	11,114	11,272	11,430	11,608	948	8.9%
Warminster	8,590	9,170	9,289	9,407	9,580	9,753	9,894	1,304	15.2%
Wilmington/Newark	9,230	9,421	9,361	9,300	9,454	9,607	9,512	282	3.1%
West Trenton	12,290	12,745	12,730	12,714	12,894	13,074	13,285	995	8.1%
<b>System Total</b>	<b>123,740</b>	<b>126,599</b>	<b>128,009</b>	<b>129,410</b>	<b>131,359</b>	<b>133,303</b>	<b>135,011</b>	<b>11,271</b>	<b>9.1%</b>

Source: Delaware Valley Regional Planning Commission



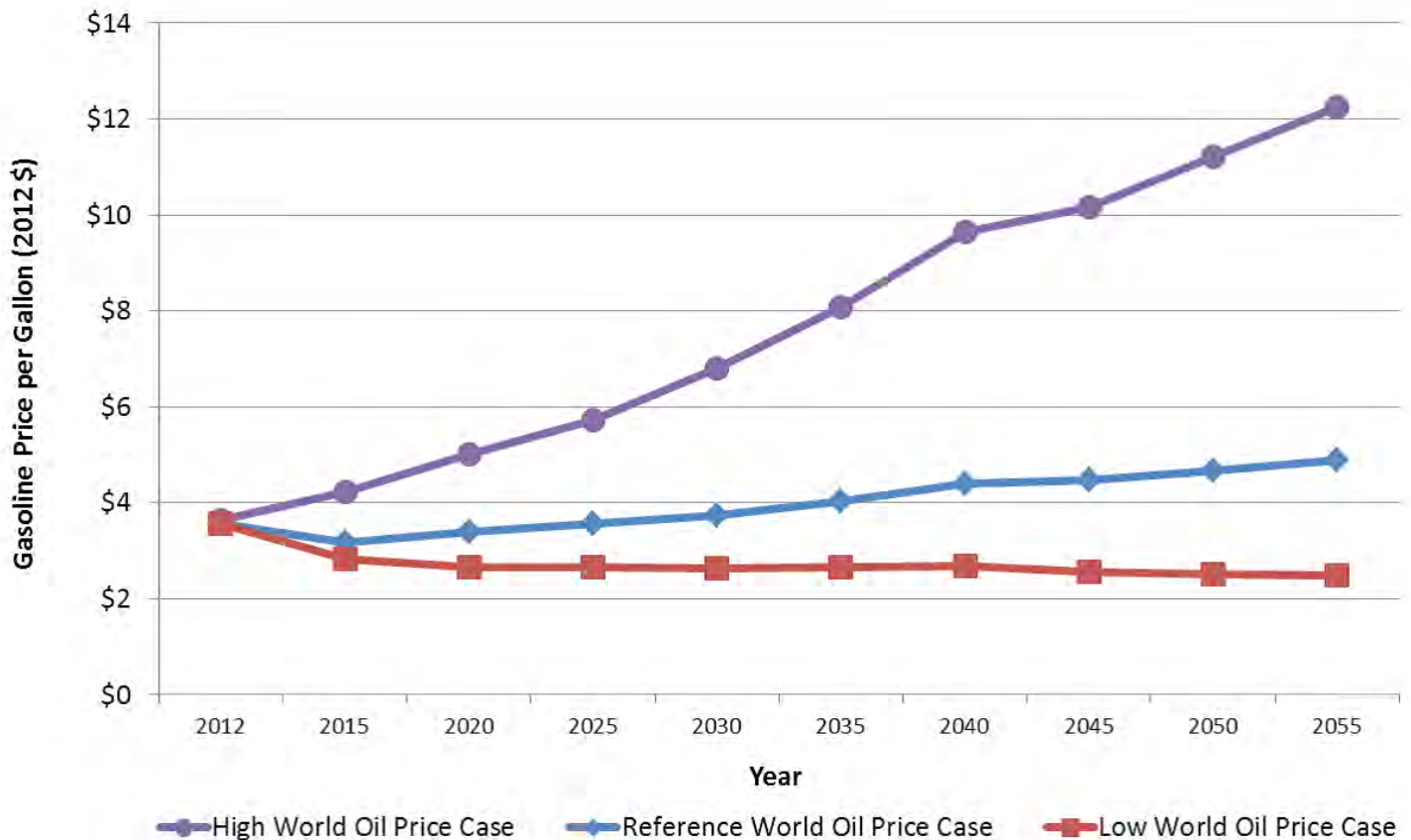
## 2.2.4 Fuel Cost Trends

Gas prices over the past decade in Pennsylvania and the United States have generally mirrored one another, with Pennsylvania pricing averaging slightly above U.S. averages. The price difference is due to the relatively high rate of tax that Pennsylvania levies for fuel. The rate of tax on fuel in Pennsylvania is determined by the state Department of Revenue by a cost per gallon (cpg) equivalent basis upon the average wholesale price per gallon. As of October 2014, Pennsylvania's motor fuel tax was 60.2 cents per gallon, and the diesel motor fuel tax was 76.5 cents per gallon.<sup>52</sup>

Trends in fuel costs (crude oil and regular gasoline) heavily influence passenger rail attractiveness.

**Figure 2-55** provides projections of gasoline prices in the United States to 2055 provided by the Energy Information Agency (EIA). Forecasts predict a gasoline price of \$3.39 per gallon in 2020, with a high case price of \$5.02 per gallon and a low case price of \$2.67 per gallon. Future improvement in automobile technology is likely to reduce the impact of high gas prices on automobile fuel cost with better fuel efficiency.

**Figure 2-55: U.S. Retail Gasoline Prices as Forecasted**



Source: Chicago-Detroit/Pontiac Passenger Rail Corridor Investment Plan Alternatives Identification and Evaluation, Transportation Economics & Management Systems, Inc., July 2014.

<sup>52</sup>American Petroleum Institute

## 2.2.5 Rail Congestion Trends

Rail congestion not only impacts on-time performance of passenger service but also the efficiency of freight rail service. The rail network within Pennsylvania does not experience severe congestion relative to other regions within the country. However, there are some bottleneck locations that negatively impact railroad operations. In addition, rail service within Pennsylvania is affected by major congestion points outside of the state.

Passenger rail congestion is an issue on the heavily used Northeast Corridor within Pennsylvania, which experiences large volumes of Amtrak and SEPTA train traffic, as well as some NJ Transit and freight railroad traffic. Two of the most important passenger capacity constraints in the state are in Philadelphia on the NEC: the Zoo Interlocking in Philadelphia, located at the convergence of the Keystone Corridor, and NEC; and the Philadelphia Interlocking Flyover, located at the junction of the NEC and SEPTA Airport lines. Congestion is also an issue on the Keystone Corridor between Thorndale and Philadelphia, which is shared between Amtrak and SEPTA as well as limited freight operations.

In the immediate area outside of Pennsylvania, the Bellevue Interlocking, located north of Wilmington, Delaware and the Trenton, New Jersey Transportation Center have been identified as congestion points on the NEC, which impact area Amtrak and SEPTA trains.

Beyond the immediate Pennsylvania area, the performance of trains on the NEC is subject to delays from numerous critical bottlenecks throughout the length of the corridor, especially in New York and New Jersey. Increased levels of congestion in Chicago have had a severe negative impact on Amtrak's two long distance trains that serve Pennsylvania, the Lakeshore Limited and the Capital Limited.

Information regarding freight rail congestion is limited as it usually occurs on the property of privately owned railroads. Based on the responses received from freight railroads in Pennsylvania as part of this plan, there is some rail congestion at certain rail yards and areas where freight trains share tracks with passenger service, but there are no major freight rail congestion issues within the state.

The trend of increasing levels of passengers and freight rail use raises the importance of handling existing bottlenecks and creating additional infrastructure capacity to allow for future improvements of service.



## 2.2.6 Highway and Airport Congestion Trends

### 2.2.6.1 HIGHWAYS

There are several areas in Pennsylvania with highway congestion. According to the transportation research group TRIP, individual motorists in some regions in Pennsylvania are losing more than \$2,900 each year in fuel and time. That same report also identified the five most congested areas within the state as:

1. Harrisburg/Lancaster/York
2. Lehigh Valley/Reading
3. Philadelphia
4. Pittsburgh
5. Scranton/Wilkes-Barre

In 2011, the American Transportation Research Institute released the *Freight Performance Measures Initiative*, a report that detailed the most congested interchanges in the United States. That report highlighted five interchanges within Pennsylvania:

1. I-76 at I-676 in Philadelphia (Ranked 25<sup>th</sup> worst in the country)
2. I-76 at I-476 in Philadelphia (38<sup>th</sup>)
3. I-70 at I-79 West in Pittsburgh (88<sup>th</sup>)
4. I-81 and I-83 in Dauphin County (101<sup>st</sup>)
5. I-81 and I-78 in Lebanon County (235<sup>th</sup>)

### 2.2.6.2 AIRPORTS

#### AIRPORT ACTIVITY

Pennsylvania aviation activity is measured using data reported by the airports and/or airlines. Data is collected by the Federal Aviation Administration (FAA) and the United States Department of Transportation Bureau of Transportation Statistics.

Commercial Service Airports in the state currently handle over 20 million enplaned air passengers, close to 700,000 commercial takeoffs and landings, and approximately 1 billion pounds (loaded) in air freight volume.

In the year 2032, the state's aviation system is forecast by the PennDOT Bureau of Aviation to handle:

1. Over 32 million enplaned passengers.
2. Approximately 1 million commercial aircraft takeoffs and landings.
3. 2.1 billion pounds of air freight.
4. Approximately 6,000 based aircraft.
5. Over 2.8 million non-commercial general aviation takeoffs and landings.

## AIRPORT CONGESTION

The only major airport congestion issue within Pennsylvania is at the Philadelphia International Airport. According to Philadelphia Airport's Master Plan:

1. Philadelphia International Airport was ranked as the fourth most delayed airport in the United States (2009).
2. The Airport was responsible for close to eight percent of national airport delays in 2009.
3. The delays at PHL create substantial costs in money and time for the airlines, the passengers and cargo shippers.

These delays are primarily caused by the full capacity of the airport, and lack of underground refueling system. The airport is in the midst of 15-year Capacity Enhancement Program (CEP) in order to expand and modernize the airport. The CEP includes major improvements to runways, taxiways, terminal design, and infrastructure. The major goal of this expansion plan is to make the airport more competitive by reducing delays and adding capacity.

Other airports have not seen recent problems with delays. Pittsburgh International Airport passenger service has seen dramatic declines since the creation of Midfield Terminal in 1992, leaving the airport with extra capacity.

### 2.2.7 Land Use Trends

Demographic trends help drive changes in land use throughout Pennsylvania. One of Pennsylvania's major demographic trends is an already large, growing population of senior citizens. While Pennsylvania's population grows older, communities will need to look elsewhere for new population growth. Currently, the state has relied on migrants from other countries to fill the gap.

One of the major trends within Pennsylvania is the decentralization of population surrounding urban centers and along major transportation corridors. This decentralization has caused the developed land in Pennsylvania to increase 131 percent from 1992 to 2005. Across the state, previously undeveloped open space is being turned into new residential and commercial hubs. The suburban areas of Pennsylvania have shown increased growth throughout recent years, while urban centers have lost population. At the same time, the *2010 Pennsylvania Land Management Report* suggests that changing demographics will lead to an emerging market for green and walkable development.

In recent years, land use has varied greatly across the state, as the southeastern portion of the state has developed quite differently from the rest of the state. The southeastern region saw the largest decline in agriculture (24.4 percent) and forested lands (20.4 percent) from 1992 to 2005. At the same time, other regions saw only minimal decreases of 4.9 percent and 2 percent in agricultural land and forest land, respectively.

Finally, natural resource development has and will continue to impact land use across the state. The gas exploration related to the Marcellus Shale and Utica Shale has led to large impacts on land use and development within the state. The state recognizes this energy boom and is focusing on encouraging improvements and investment in the rail network in order to lessen the burden on local roads and highways. Most of the activity associated with the Marcellus Shale is found in southwest and northern Pennsylvania. Forested lands are affected as timber is cleared from 1.5 acres for well sites across the state. At the same time, water quality is affected as these wells require large amounts of water to operate.





*Buffalo & Pittsburgh Rail*

*Source: Buffalo & Pittsburgh*

## 2.3 Rail Service Needs And Opportunities

### 2.3.1 Safety Evaluation and Improvement Opportunities

The FRA has reported record-breaking safety performance among railroads nationally in recent years.<sup>53</sup> This trend of improved safety is also reflected in rail safety performance in Pennsylvania as noted in **Section 2.1.6**. Rail accidents in the state have fallen in number from 144 in 2004 to less than 70 from 2010 to 2013. Likewise, grade crossing incidents have fallen in number from 79 in 2004 to less than 65 in 2010 to 2013. The data point to the continued need to find opportunities to further improve safety performance.

Both the FRA and Pennsylvania oversee efforts for continued safety improvements through regulation and inspection, training and outreach and capital investments. FRA records and federal accident data indicate that rail accidents are largely attributed to human factors and track defects. In 2013, 29 percent of accidents were caused by human error and 25 percent were caused by track defects.<sup>54</sup> Thus, these two factors represent the area of greatest need and opportunity to improve safety. To manage exposure from these two risk factors, the long term focus must be a comprehensive safety approach. As FRA notes, the long term solution goes beyond regulation to performance based risk management programs.<sup>55</sup>

<sup>53</sup> <http://completepackaging.com/cps-content/uploads/2014/10/Rail-Safety-Fact-Sheet.pdf>

<sup>54</sup> <http://safetydata.fra.dot.gov/officeofsafety/publicsite/Query/AccidentByRegionStateCounty.aspx>

<sup>55</sup> <http://completepackaging.com/cps-content/uploads/2014/10/Rail-Safety-Fact-Sheet.pdf>

FRA is focused on improving safety performance through its existing regulations and inspection program, implementing a proactive approach with its safety programs and continuing capital investments. Pennsylvania will continue to implement this approach through state-based programs, in cooperation with FRA. Some of those activities include:

1. Regulations and Inspection Program
2. Safety training standards for personnel;
3. Passenger equipment safety standards for high-performance rail;
4. Signal system reporting requirements and hours of service recordkeeping; and
5. Drug testing for maintenance-of-way employees.
6. Proactive Approach
7. New tools promoting freight and passenger rail safety in Risk Reduction and System Safety Programs;
8. Fatigue management;
9. Confidential close call reporting system; and
10. Harmonizing railroad operating rules.

The increased rail activity related to transporting crude oil by rail cars also presents challenges with transportation of hazardous materials. Recent incidents, including the 2013 Lac Mégantic derailment in Canada that resulted in 42 deaths and evacuation of 2,000 residents, have led to increased concern about freight railroad safety. In FRA's 2008 Emergency Order, agency inspections identified an annual average of 1,483 defects securing trains since 2010, which indicates a need to increase the focus on safer freight train operations.<sup>56</sup> Both FRA and PHMSA are coordinating with the railroad industry and emergency services responders to actively pursue measures to continuously improve safety and reduce risk.<sup>57</sup>

Some of those actions include:

1. Implementing FRA Emergency Order 28 to improve the safety of trains carrying hazardous materials.
2. Implementing a Rail Corridor Risk Management System to route trains on safe and secure routes.
3. Pursuing regulations to ensure continued upgrades for new tank cars and retrofitting existing tank cars with enhanced safety features.
4. Working with and training local emergency responders to maintain a robust emergency response team throughout rail service areas.<sup>58</sup>

PennDOT will continue its rail crossing safety investments through the Section 130 program, as well as ongoing private railroad investment to improve grade crossings. In addition to grade crossing improvements, both PennDOT and railroads will continue to identify opportunities to close unneeded or redundant crossings.

In summary, safety opportunities and improvements will be met through a multi-faceted approach, which includes:

1. Continuous personnel training;
2. Continued investment in infrastructure improvements;
3. Implementing new technologies, including detectors to identify defects on equipment and inspection cars that locate track defects;
4. State and federal enforcement of safety regulations and emergency orders; and
5. Continued investment and participation in Operation Lifesaver to continuously educate the public about rail safety.

<sup>56</sup> <http://www.gpo.gov/fdsys/pkg/FR-2013-08-07/pdf/2013-19215.pdf>

<sup>57</sup> <http://www.phmsa.dot.gov/hazmat/osd/chronology>

<sup>58</sup> <https://www.aar.org/BackgroundPapers/Railroads%20Moving%20America%20Safely.pdf>



## 2.3.2 Freight System Issues

Some of the most significant factors influencing freight rail include a changing market in terms of commodity growth and decline, short-and-mid-term growth in oil traffic and growing concerns with physical rail characteristics like weight restrictions, aging rail and bridge issues.

Pennsylvania must determine how to meet future freight flow demand and capture as much as possible on the freight rail network to minimize growth in highway congestion and meet state environmental and energy goals. A description of some of the system issues facing freight rail in Pennsylvania is below.

### CHANGING MARKETS

A comparison of the 2012 and 2040 forecasted freight flows for rail in Pennsylvania shows substantial rail activity in the state. Freight rail shipments in Pennsylvania are projected to be a total of 294 million tons by 2040, growing from 209 million tons transported in 2013. Growth over the next 25 years will come from domestic and international sources.

Pennsylvania is the fourth-largest coal energy producing state in the United States, yet production in the state has been steadily declining since the 1930s. Originally the decrease in Pennsylvania coal mining was due to competing labor expenses compelling the mining industry to relocate throughout Appalachia, eventually settling further west in Wyoming and Montana. More recently, Pennsylvania has also witnessed declining coal reserves of both anthracite and bituminous coal. As depicted in **Table 2-56** coal production dropped a total of 20 percent between 2002 and 2012.

Overall demand for coal has decreased in recent years due to a number of factors. This includes a reduction in coal demand during the economic downturn of 2008, increased environmental concerns, and the reduced price of other energy sources such as natural gas.

**Table 2-56: Pennsylvania Coal Production 2002 - 2012**

Coal	2012		2002		Percent Change	
	Mines (Number)	Production (millions of tons)	Mines (Number)	Production (millions of tons)	Mines (Percent change in number)	Production (percent change in millions of tons)
Underground	49	45.0	69	55.8	-29	-19
Surface	186	9.7	185	12.6	1	-23
<b>Total</b>	<b>235</b>	<b>54.7</b>	<b>254</b>	<b>68.4</b>	<b>-7</b>	<b>-20</b>

Source: US Energy Information Administration, Annual Coal Reports

### PHYSICAL RAIL CHARACTERISTICS

#### *Weight restrictions*

Increased use of rail cars with gross weights of 286,000 pounds and up to 315,000 pounds is crucial in order for railroads to remain competitive with other freight modes. A gross rail load of 286,000 pounds is the nationwide standard on the rail system. It is found to be the most cost effective due to costs related to rail fatigue, turnout deterioration, bridge life, routine maintenance, and freight car wheels that would rise more linearly with axle loads. Most Class I railroads mainlines are now capable of carrying 286,000 pound cars, with some Class I railroads accommodating rail cars weighing up to 315,000 pounds.

Many older rail lines in Pennsylvania were designed and constructed to carry railcars weighing up to 263,000 pounds. The 263,000 pound limit is detrimental to many short line and regional railroads whose rail lines are unable to support heavier axle load railcars and additionally are unable to upgrade their infrastructure due to financial restraints. Railroad companies in Pennsylvania that reported issues with weight restrictions include the Delaware-Lackawanna, Everett, Pennsylvania Northeastern, and the Steelton & Highspire.

### *Aging Rail*

As Pennsylvania's rail infrastructure continues to age, numerous challenges emerge to keep rail at a state of good repair in order to maintain the current and future rail system. Pennsylvania has more railroad companies than any state in the nation, and maintenance and infrastructure rehabilitation is vital for the continued operation of freight rail. The American Society for Civil Engineering (ASCE) reports that approximately 60 percent of the short line and regional railroad physical infrastructure in the United States is in need of extensive rehabilitation.<sup>59</sup> The majority of railroads who responded to the SRP request for information reported issues with aging rail and the extent of sufficient funds required to undertake maintenance efforts.

### *Bridge and Tunnel Concerns*

One of the most challenging transportation infrastructure issues facing railroads in the state are the number of structurally-deficient bridges and tunnels. Many of Pennsylvania's bridges were built in late 19th and early 20th centuries and a number of them are currently structurally deficient or functionally obsolete. Annual state of good repair bridge expenditures for all railroad classes are projected to be approximately \$560 million.<sup>60</sup> Class I railroads are generally able to support their own infrastructure projects, but smaller railroads are sometimes unable to address their bridge infrastructure needs due to limited resources. According to the ASCE Report Card for Pennsylvania's Infrastructure, there are 170 railroad bridges that are currently in need of rehabilitation. Nearly all reporting railroads in the state reported that their bridges are in need of rehabilitation and upgrades, with some companies suspending service until improvements are completed.

SEPTA's rail system is heavily dependent on older bridges. The average bridge age is more than 84 years and 155 bridges in the system are over 100 years old. With new Act 89 funding, SEPTA can move forward with bridge repair including extensive rehabilitation of nine stone arch bridges, as well as the Crum Creek, Cobbs Creek, Darby Creek, and Ridley Creek Viaducts on the Media/Elwyn Line. Budgets for individual projects range from \$7.6 million to \$77.5 million.

Freight Railroads reporting rail structure concerns include the Everett Railroad, NS, Buffalo & Pittsburgh Railroad, the Delaware-Lackawanna Railroad Company, the Steelton & Highspire Railroad, and the SEDA-COG Joint Rail Authority.

### *Other Concerns*

Other concerns with freight rail in Pennsylvania include rail and yard congestion, capacity, and clearance. For example, Pennsylvania Northeastern Railroad Company reports that bottlenecks at the Philadelphia Greenwich Yard, which accommodates CSX, NS, and Conrail, create delays. Bottlenecks are also reported by the Delaware-Lackawanna Railroad and Pittsburgh & Ohio Central Railroad. NS and CSX report congestion issues when sharing track with passenger rail, forcing the companies to comply with a narrow operating window. Removing barriers to promote efficient flow on freight rail, such as adding tracks for freight capacity and providing double stack clearance, would mitigate capacity and congestions issues. For example, NS has plans for Pittsburgh double stack clearances, with 14 bridges and other obstructions that would be eliminated for double stack clearance. Removal of the obstructions is expected to cost approximately \$80 million and would increase capacity and improve schedules by two to three hours.

<sup>59</sup> ASCE's 2014 Report Card for Pennsylvania's Infrastructure <http://www.pareportcard.org/PARC2014/grades.php?grade=rail>

<sup>60</sup> *Ibid.*



### 2.3.3 Passenger System Issues

Pennsylvania's passenger rail system has been experiencing growing ridership, and there are numerous opportunities to improve the state's high-speed, intercity and commuter rail passenger systems. Intercity and high speed service can be improved throughout the state, especially along the NEC and Keystone East lines. There are opportunities for SEPTA to increase passenger capacity through state of good repair projects and new rolling stock acquisition.

### 2.3.4 Technology Improvements / Advancements

Recent advances in intelligent transportation systems (ITS) are important in the protection of passenger and freight rail systems throughout the United States. New ITS signaling and management systems help rail transportation navigate increasingly congested and complex rail networks.

ITS technologies can be used to reduce operators' costs, reduce carbon emissions associated with rail travel, maximizing the use of track and rolling stock, and assisting rail travelers in planning their trips. Many railroads in Pennsylvania are implementing the latest technologies system-wide, including new mobile software that provides for tracking and reporting rail and signal inspections, defects, repairs, the identification of right-of-way property lines, grade crossing data, milepost locations, culvert locations, bridge locations and logging rail stress management history. Information can then be made available in real-time to all track personnel via the mobile software.

A relatively new example of ITS is Positive Train Control (PTC). PTC monitors and controls train movements to safely separate trains, enforce speed control, temporarily restrict speeds, and enhance rail worker safety by avoiding collisions.

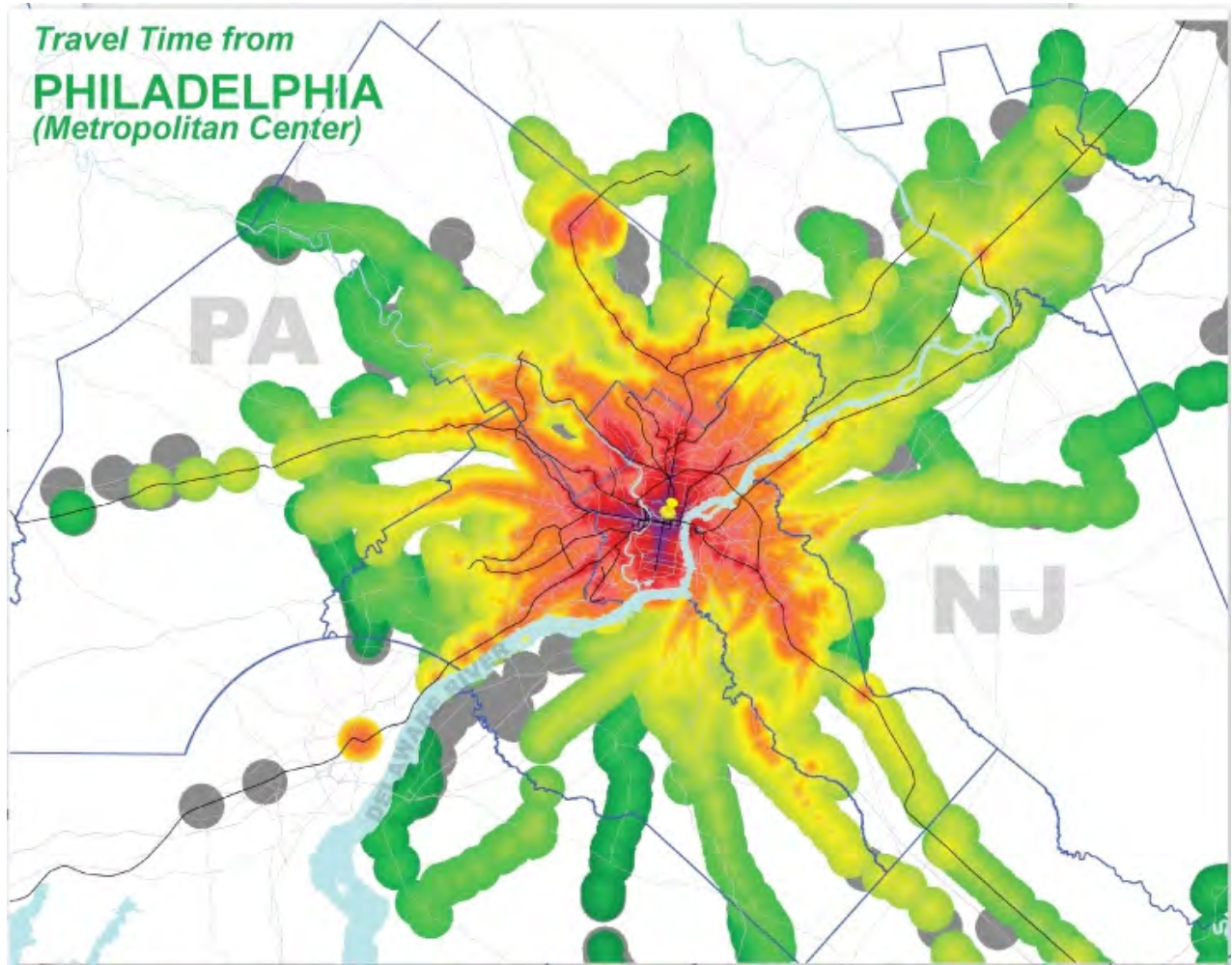
New technologies for rail can increase safety and efficiency in a variety of ways. The following describes new technologies that are improving the existing features of passenger and freight rail networks.

#### Web-based Transit Trip Planning

In 2005, Google and TriMet (the Portland, Oregon area transit system) worked together to create a new extension of Google Maps called Google Transit. This web-based trip planner allows transit customers to obtain detailed transit directions directly from Google Maps. The initial project was a success and since then Google Transit has rapidly expanded to include thousands of transit systems around the world, including coverage of over 2.3 million individual train stations, ferry slips, and bus stops. The success of Google Transit has also led to the creation of other web-based trip planners such as Microsoft Bing Transit, HopStop, as well as dozens of transit mobile apps.

Web-based trip planning eliminates many of the problems associated with older trip planning software that required transit systems to pay for and maintain complex software and hardware systems. Google Transit also helps overcome communication barriers by providing support in multiple languages, and compatibility with screen readers for blind customers.

Figure 2-56: Travel times via transit from Center City Philadelphia



Source: DVRPC

In Pennsylvania, all passenger rail systems, including Amtrak, SEPTA, Port Authority of Allegheny County (Port Authority), PATCO and NJ Transit participate in Google Transit. Many bus systems in the state are also online, including Amtran, Butler Transit, Centre Area Transportation Authority (CATA), IndiGO, LANTA, Monroe County Transit, Port Authority, Rabbit Transit, SEPTA and Transportation Management Association of Chester County (TMACC). This allows Google to provide seamless directions for trips such as Cumberland, PA to Lincoln Field in Philadelphia, via Rabbit Transit bus, Amtrak railroad, and SEPTA subway.

One reason for the success of web-based trip planners was the development of the General Transit Feed Specification (GTFS). GTFS was created by Google and TriMet for communicating transit schedule data, and has become the standard for many software developers beyond Google, such as Microsoft Bing. The data includes important temporal and spatial data to allow the trip planner to know exactly where and when transit service is provided. The specification has also been expanded to include information such as transfer, fare, and handicap accessibility information.



**Figure 2-56** illustrates a GTFS-based model of transit travel times from Center City Philadelphia to surrounding suburbs. GTFS schedule data can be used for transportation planning purposes as well. Metropolitan Planning Organizations such as the Delaware Valley Regional Planning Commission in Philadelphia import GTFS data directly into transportation modeling software to analyze transit travel times in the region.

## AVL

Increased use of GPS-based Automatic Vehicle Locator

(AVL) systems and electronic train signaling systems provides transit customers with real-time data. This information allows transit users to make decisions based upon the transit data. Amtrak and SEPTA share real-time data with their customers through in-station signage, websites and mobile apps. Real-time information data can also be shared through Google Transit and other mobile apps through the GTFS-realtime standard, introduced by Google in 2011.

## Electronic Fare Payment

Amtrak successfully converted to an electronic ticketing system in 2012, enabling customers to purchase tickets via Amtrak’s website or mobile app. On-board fare collection can take place using a conductor’s electronic scanner on a customer’s printed ticket or from a smart phone. This system provides multiple, convenient methods for customers to purchase a ticket as well. Additionally, this technology helps to streamline Amtrak’s internal fare collection operations, while giving the railroad access to real-time information on customer travel patterns.

SEPTA is currently developing an electronic fare payment system, which will ultimately allow transit and Regional Rail customers to pay their fare without cash, tickets, or tokens. The system is designed to be flexible enough to allow for payment with a specialized fare card (to be called SEPTA Key), or via a customer’s credit card.

These new transit information and fare payment technologies work together to make public transportation more convenient, efficient, and easy to use.

### 2.3.5.1 CURRENT CONDITIONS

The state's rail transportation system is directly impacted by its land use. Transportation planners for many years have grappled with the dynamic that exists between changes in land use and resulting impacts on the transportation system.

Since 1968, the state's Municipalities Planning Code (MPC) has provided the enabling legislation and statutory authority for Pennsylvania's municipalities to regulate and manage land use. Pennsylvania has 2,562 units of local government, or one unit for every 4,792 persons. Among the 50 states, only Illinois and Minnesota have more general purpose government entities. According to the Governor's Center for Local Government Services, 80 percent of Pennsylvania's municipalities govern fewer than 5,000 people, while 60 percent govern fewer than 2,500.

This fragmentation of land use management in Pennsylvania presents a significant challenge to the efficient maintenance and operation of the state's rail system.

Some problems inherent in the way Pennsylvania's municipalities manage land use include:

#### **Comprehensive Planning**

A large percentage of Pennsylvania's townships and boroughs do not have comprehensive plans, or plans that are current. Recent data from the Pennsylvania Department of Community and Economic Development (DCED) indicates that 33.6 percent of municipalities in the state currently have no comprehensive plans in place at all. Many of these are in the state's central and northern regions, where the Marcellus Shale gas extraction industry has taken root and made significant impacts to state and local roadway networks. The emergence of the Marcellus Shale natural gas industry has directly impacted the water supply, police enforcement, housing, and transportation. The turnover of leadership at the municipal level also adds to the complexity of administering and enforcing any existing ordinances.

#### **Management Tools**

The MPC, as the enabling legislation for managing land use in Pennsylvania, offers many tools and techniques for municipal officials to use. In some cases, the provisions may be available, but the requirements associated with them are so burdensome they are not used to their full extent. A few examples include the Official Map (to identify future areas for public acquisition), Impact Fees (to pay for land development impacts), and Access Management ordinances (to manage the safety and capacity of a thoroughfare).

#### **Inefficient development patterns**

Municipalities that do maintain land use management ordinances often unwittingly promote development patterns that are inefficient and not conducive to safety and mobility. As a result, land use development patterns commonly do not promote transit-oriented development.

#### **Cumulative Impacts**

Some land developments, particularly those of regional significance, may be approved by the host municipality without any informed analysis of the cumulative impacts on the rail network across municipal boundaries. This is especially a concern when large developments generate subsequent developments, with each routinely being approved individually.

PennDOT in recent years has developed resource handbooks that can help educate local officials as to the potential impacts of their decisions involving land use, but their impact is not fully clear.



Based on DCED’s *Land Use and Growth Management Report* of self-reported data, approximately 66.4 percent of Pennsylvania municipalities had an adopted municipal comprehensive plan as of 2010. A smaller percentage (approximately 63 percent) had an adopted municipal zoning ordinance, while even fewer (61.3 percent) had an adopted municipal subdivision ordinance. As required by the State, every county in Pennsylvania has an adopted county comprehensive plan. The absence of these important local-level land use plans and ordinances impacts the municipality’s ability to ensure that development reflects local priorities, and preserves the capacity and viability of existing and future transportation infrastructure.

### 2.3.5.2 POLICY NEEDS

The trends and issues noted carry with them serious implications for the state’s transportation system. A few of the more notable implications related to rail transportation’s relationship to demographics and land use are highlighted below:

- 1. Coordination of land use and transportation planning will continue to be an ongoing need:** The authority to manage land use rests with the state’s municipalities, while most transportation decision making choices are made by PennDOT. In between are the counties and Regional Planning Organizations that connect the two and play a vital role in conducting studies, providing training, and encouraging local municipalities to consider the broader implications their land use decisions bring on the larger transportation network. For its part, PennDOT can continue to strengthen its planning efforts in recognition of this relationship through its support of ongoing training opportunities as offered through LTAP, or the planning series topics (e.g., Connectivity, Official Map, Access Management, etc.) that are offered by PennDOT and promoted by the Pennsylvania Chapter of the American Planning Association.
- 2. The need for land use management strategies at the local level continues:** While every Pennsylvania county has adopted a comprehensive plan, there are many areas of the state that are not guided by any land use planning document at the local level. This includes a comprehensive plan, zoning ordinance, or subdivision and land development ordinance. These gaps leave major areas of the state open to a greater potential of haphazard and uncoordinated development, which can deprive the state of investments it has made in the rail transportation system.
- 3. Land use management must be responsive to the needs of the state’s shippers:** This includes preserving rail rights-of-way for future rail-dependent businesses. Businesses desire easy, reliable access to terminals as supply chains in the future will increasingly depend on “just in time” delivery as trucks become rolling warehouses for shippers.

### 2.3.6 Station Design Standards

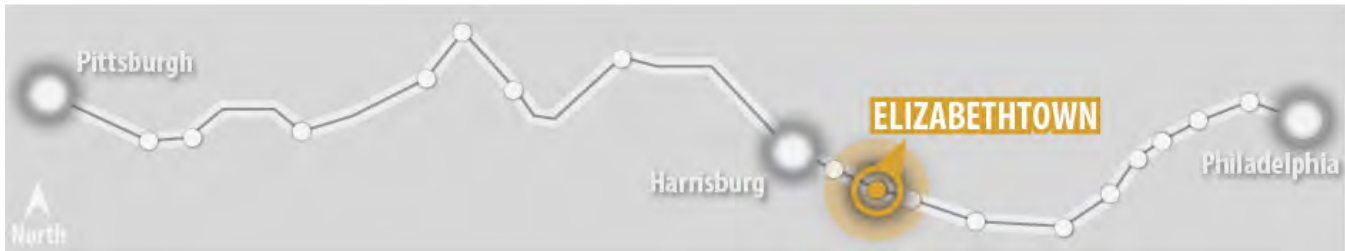
*The Amtrak Station Program and Planning Guide* provides guidance for future Amtrak station redevelopment. With a variety of station types and functions, this document looks at Amtrak systems, station categories, programming specifications, site analysis, and existing station and platform conditions to guide the unique design requirements for Amtrak station development.

The renovated Elizabethtown Amtrak Station provides a case study for future Amtrak station redevelopment in Pennsylvania. While the Elizabethtown example does not represent the redevelopment of all Amtrak stations, this example details some of the elements that emerged through the planning process used by Amtrak.

## Elizabethtown Background

The Elizabethtown Station is an Amtrak station located in Elizabethtown, PA on the Keystone East Line. **Figure 2-57** displays the location of Elizabethtown Station. It is served by Amtrak’s Keystone Service between Harrisburg, Philadelphia and New York City and the Pennsylvanian between Pittsburgh, Philadelphia and New York City. The station was built by the Pennsylvania Railroad in 1915 on an elevated embankment and was renovated in 2012. The Borough of Elizabethtown owns the station building and leases a portion of it to Amtrak. The facility features a stone station building and two high level platforms accessed via stair and elevator from a tunnel under the embankment.

**Figure 2-57: Amtrak’s Keystone Line and Stations**



Source: Plan the Keystone

## Amtrak Classification

Amtrak classifies stations as large, medium, caretaker, or shelter. Elizabethtown is classified by Amtrak as a medium station (category 2) based on ridership. These types of stations are “primarily oriented to State Corridor service, or major destinations along Amtrak’s Long Distance services, and have ticket offices and minimal staff.” The station classification is used to determine needs for entrance and circulation, customer service, intermodal transit services, amenities, and building support spaces. Each of these needs was considered in the redevelopment process of this station.





**Figure 2-58: Elizabethtown Amtrak Station Site Plan**

Source: Sowinski Sullivan Architects

## Multimodal Access

There are multiple access points to the station site. The site plan for the facility is shown in **Figure 2-58**. The variety of connections to this site makes the updated station a multimodal transportation site with multiple opportunities to move people to and from destinations.

For example, the station can be accessed from South Wilson Avenue with platform access also available via Masonic Drive. Two parking lots, one for short-term and the other for long-term use, provide direct access to transit users. Red Rose Transit buses serve the station from the west (short-term) lot. Sheltered bicycle racks are available both in the west lot and on Masonic Drive. A pedestrian trail links Wilson Avenue with the central business district of Elizabethtown. A pick-up/drop-off area is located in front of the historic station building.

## On-Site Access

Within the vicinity of the site, there are a number of connection points for accessing the station facility. Elevators allow access to the platforms, ramps connect the parking areas with the station building, accessible parking spaces are provided and curb cuts allow access to sidewalks and bus berths. These enhancements provide a user-friendly environment to accommodate as many transit users as possible.



### Sheltered bicycle parking with bus waiting area beyond

Source: Sowinski Sullivan Architects

The platforms are accessed by a tunnel under an embankment upon which the tracks and platforms are located. This tunnel links the rear of the station building with Masonic Drive to the south. Each platform is provided with one stair and one elevator for access from the tunnel. Due to the specific conditions at this station, a tunnel was used, though other stations may require the use of a pedestrian overpass. Ramp access from station to platform is also possible if site elevations allow for practical ramp design and construction.

### New Technology

Green technologies have been incorporated to provide sustainable solutions for the site. For example, the long term (east) parking lot incorporates many storm water management features in its design. Many parking stalls are paved with permeable asphalt and are adjacent to gravel catchment areas. Parking stalls against the embankment have planted berms. The entire parking area is sloped to drain runoff into the central bioswale. Additionally, all lighting is high intensity, energy efficient and of consistent light temperature.

Other technologies provide additional income for the station or provide added convenience for the customers as future conditions dictate. For example, parking stalls in the west lot are numbered to accommodate future payment collection. Alternative parking strategies not used include metered parking, pay-on-foot parking and garage parking.

### Architectural Re-use

The historic station building houses a waiting room containing seating, schedule information and ticketing kiosks, building support spaces, and restrooms (one unisex and one accessible unisex). The Elizabethtown Chamber of Commerce occupies the former ticket office and baggage rooms. Within the waiting room is a double sided sign with historical information. The sign includes text, photos and a map describing the railroad's importance to the town and information about a demolished freight house. Building support spaces include a custodial closet, mechanical space in the basement and HVAC space in the attic.





## High level platforms and canopy

Source: Sowinski Sullivan Architects

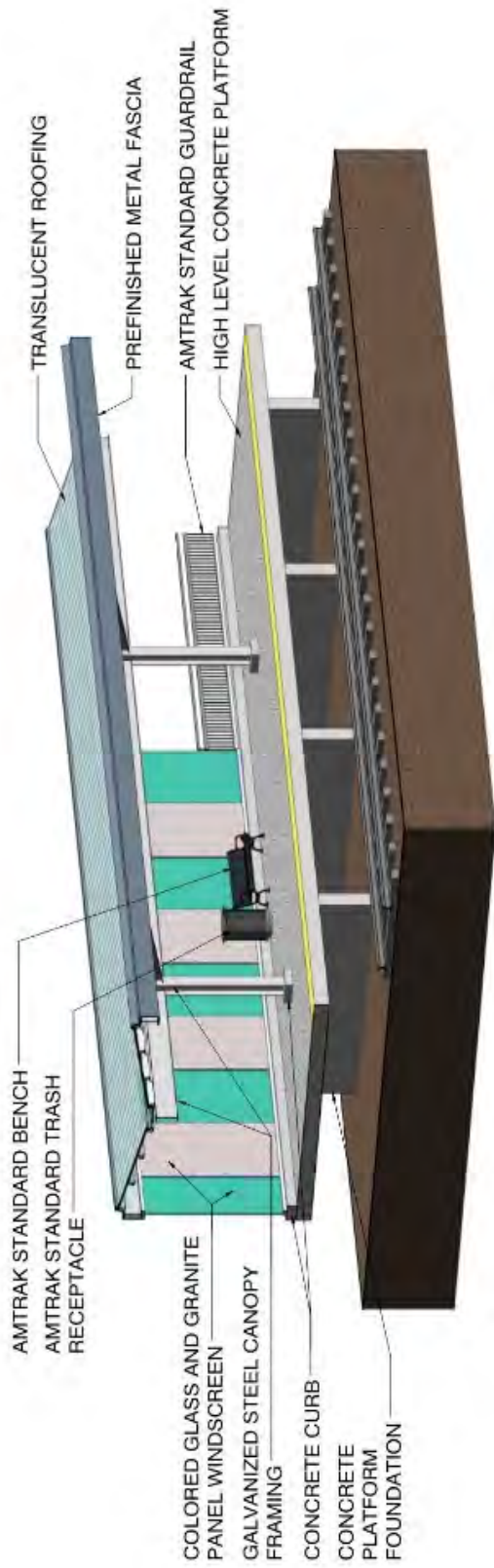
### Platforms

The high level platforms are precast concrete on cast-in-place concrete pier foundations. They are both 500 feet long and 12 feet wide. At canopy locations, the platform is 18 feet wide. The platform edge is four feet above the top of rail and is 5'-7" from the track centerline. The edge is made of two pressure treated wood boards and there is a two foot wide tactile warning strip at the platform edge. Along the back of the platforms, colored glass and granite panel windscreens are provided for the length of the canopies. Where no windscreen is provided, unpainted galvanized steel guardrails prevent falls. Benches, a bridge plate, trash receptacles and Passenger Information Displays (PID) are located on each platform. Each elevator is provided with a waiting area enclosed on two sides with windscreens. All station signage is to Amtrak standards. All lighting is high intensity, energy efficient and of consistent light temperature. In addition to the stairs from platform to tunnel, both platforms have a fenced in area of safe dispersal at the end of each platform for emergency egress. For platform dimensional and clearance details, the standards of PUC, Amtrak, local transit authority or freight railroad operating over tracks are followed; whichever is most restrictive. Platform amenities not provided at Elizabethtown include vending machines and platform shelters. These could be incorporated as needed at other locations. Platform shelters in particular would be appropriate at locations that lack a station building.

The platform canopy is a "butterfly" style meaning the roof pitches inward to a central gutter. Aluminum leaders drain to below the platform. The canopy is constructed of unpainted galvanized steel columns and framing members. The canopies are 136'-9" long and 17 feet wide and feature a translucent panel roof. Bird deterrent is provided in the form of sloped pieces of prefinished sheet metal at the bottom flange of all steel members. Alternative strategies considered but not used include netting, spikes and scare-eye balloons. For platform canopy dimensional and clearance details, the standards of PUC, Amtrak, local transit authority or freight railroad operating over tracks are followed; whichever is most restrictive. **Figure 2-59**, **Figure 2-60**, and **Figure 2-61** provide details of the platform and canopy designs.

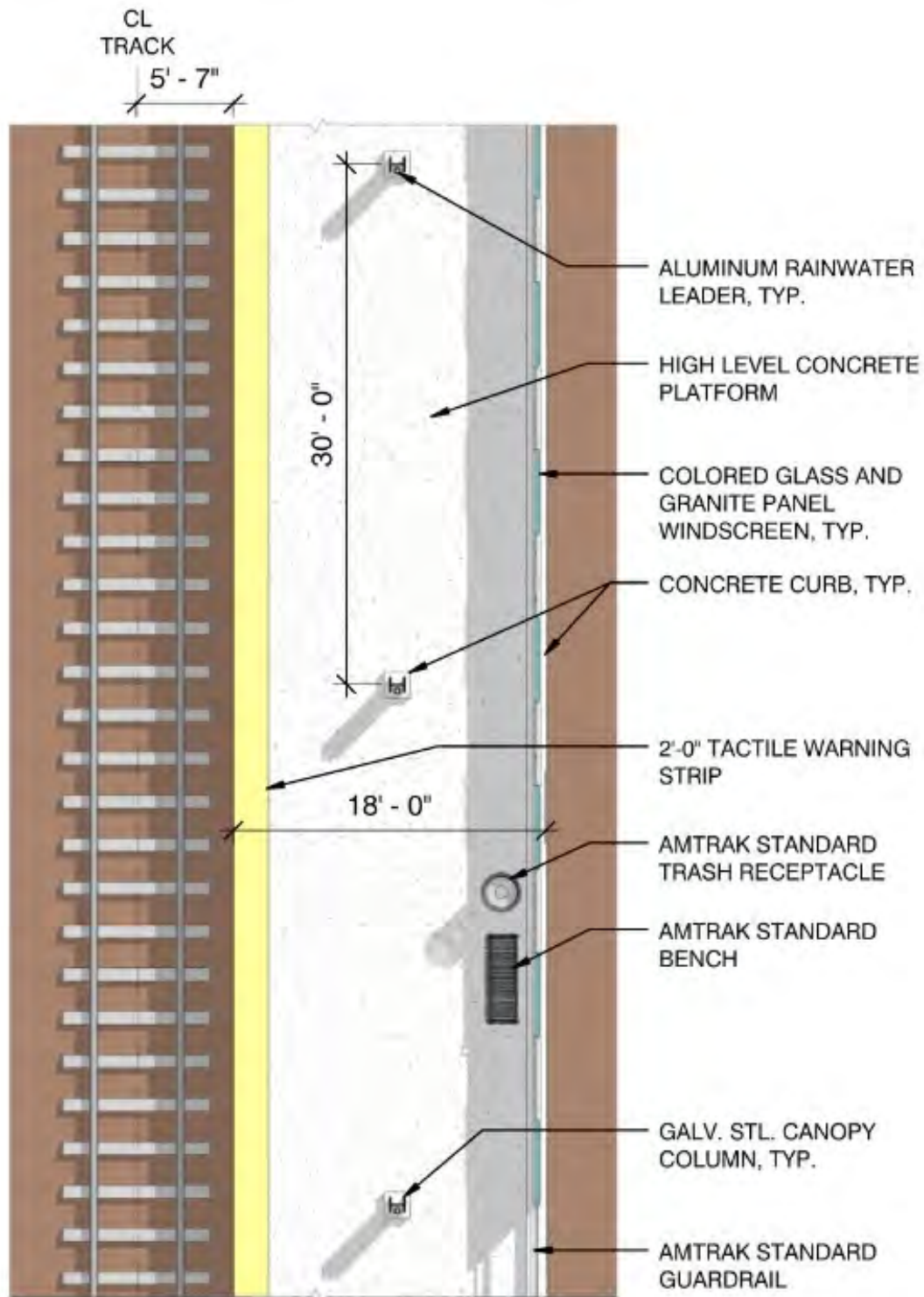


Figure 2-59: 3-D View of Typical Platform and Canopy



Source: Sowinski Sullivan Architects

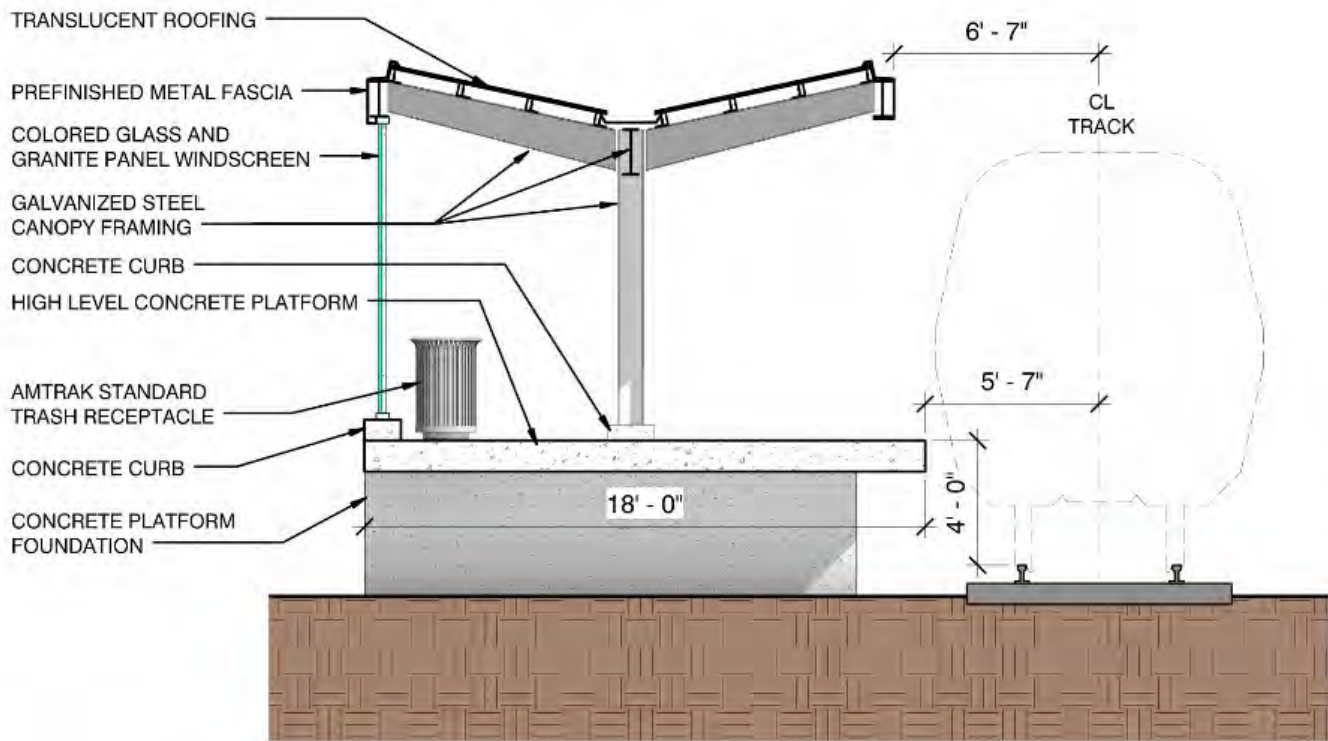
Figure 2-60: Typical Plan of Platform



Source: Sowinski Sullivan Architects

**Figure 2-61: Typical Cross Section of Platform and Canopy**

Source: Sowinski Sullivan Architects



### Freight Rail Accommodation

Elizabethtown is located on a portion of the Keystone East Corridor that is bypassed by most freight service. At locations that have heavy active freight service, accommodations for freight rail must be incorporated to avoid conflicts with high level passenger. Options include gauntlet tracks, retractable/flip up platform edges, bridge plates and gap fillers.

### 2.3.7 Funding Rail Improvements

Providing sufficient funding for needed railroad infrastructure projects in Pennsylvania is a challenge. Act 89 has substantially increased the levels of state transportation revenue, but uncertain levels of future federal transportation funding make full financing of the state's transportation system difficult. Private investment in freight rail systems has helped increase capacity, especially for large Class I freight railroads, but may not be sufficient for all needed upgrades to smaller freight railroads. Innovative public-private partnerships may be solutions for some projects, but these require close alignment of private investors and the public sector in order to be successful.



Sand loader

Source: Southwestern Planning Commission





### SEPTA bridge construction in progress

Source: SEPTA

## 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**



#### 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 Pennsylvania services that use the corridor. Improvements east of Thorndale also benefit the SEPTA Paoli/Thorndale Line that uses the corridor.



**Construction work in progress for State Interlocking on the Keystone Corridor**

Source: Amtrak

**Table 3-1: Summary of Amtrak’s Keystone Corridor Five Year Plan (2015-2019)**

	Number of Projects	Estimated Cost of Projects (millions of 2015 dollars)
State of Good Repair Projects	30	\$94.0
System and Station Improvements	19	\$425.5
Safety Focused Projects	2	\$1.9
<b>Total</b>	<b>51</b>	<b>\$521.4</b>

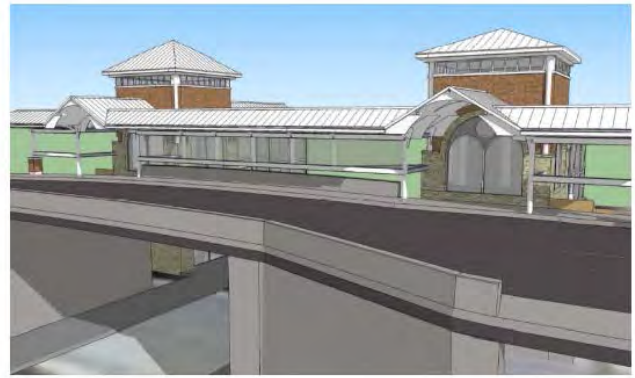
Source: Amtrak Five Year Capital Plan and PennDOT

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.





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**Rendering of proposed Mount Joy Station**

Source: PennDOT



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**Rendering of proposed Middletown Station**

Source: PennDOT



### Completed renovation of Swatara Creek Bridge on the Keystone Corridor

Source: Amtrak

## 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**.



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

	Number of Projects	Estimated Cost of Projects (millions of 2015 dollars)
State of Good Repair Projects	76	\$1,008.3
System and Station Improvements	7	\$160.5
Safety Focused Projects	2	\$0.8
<b>Total</b>	<b>85</b>	<b>\$1,169.6</b>

Source: Amtrak Five Year Capital Plan and PennDOT

### 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](http://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**.



**Proposed Amtrak high performance locomotive**

Source: Amtrak

Figure 3-2: Proposed Stair Step Improvements for the Northeast Corridor



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**.



Figure 3-3: Potential Phasing for New Northeast Corridor “NextGen” Alignment



Source: Amtrak

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.<sup>1</sup>

### 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.

<sup>1</sup> Michael Baker Jr., Inc. for Somerset County (November 2012). *Rockwood Amtrak Train Station Feasibility Study*. Retrieved from [www.co.somerset.pa.us/files/plan\\_files/Rockwood%20Final.pdf](http://www.co.somerset.pa.us/files/plan_files/Rockwood%20Final.pdf).



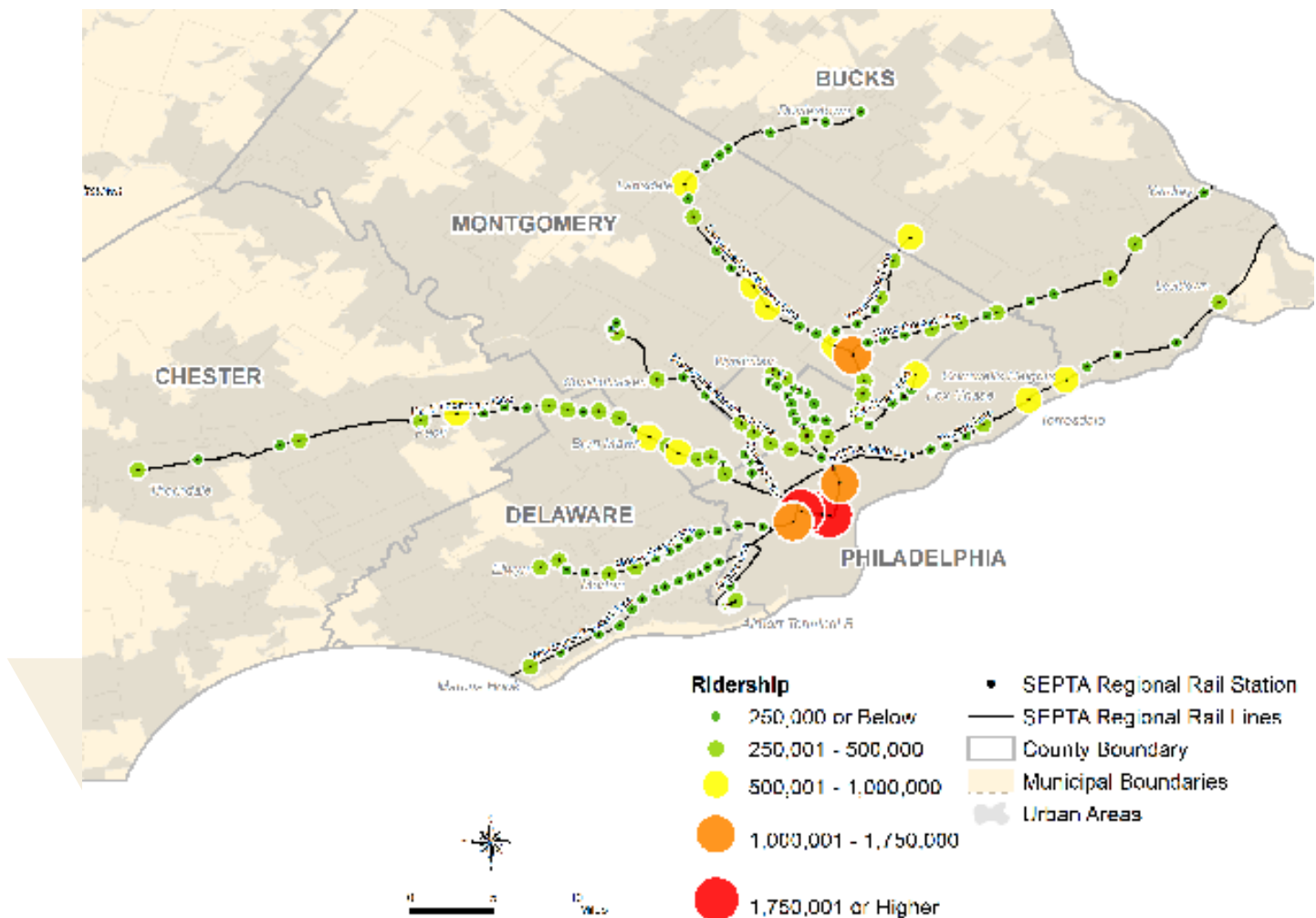
**Table 3-3: Summary of SEPTA's Regional Rail Twelve Year Capital Plan (2015-2026)**

	Number of Projects	Estimated Cost of Projects (millions of 2015 dollars)
State of Good Repair	53	\$2,170.8
System and Station Improvements	36	\$1,062.3
Expansion Projects	3	\$198.3
Safety Focused Projects	2	\$84.8
<b>Total</b>	<b>94</b>	<b>\$3,516.2</b>

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.

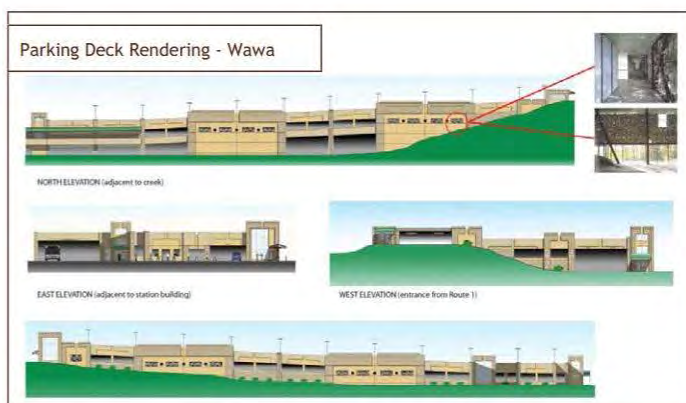
**Figure 3-4: SEPTA Annual Ridership, by Regional Rail Station, 2014**



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.



### Rendering of future Wawa Station and parking garage

Source: SEPTA

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**.





#### SEPTA track work

Source: SEPTA

### 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.



### Overhead catenary repairs on the SEPTA Media/Elwyn Line

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

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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.<sup>2</sup> Additional funding for operations may also need to be established in order to create any new financially sustainable transportation service.

### 3.5 Conclusion

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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**.

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<sup>2</sup> Pennsylvania Department of Transportation *dotGRANTS*. Retrieved from [www.dot34.state.pa.us/BPTInfo.aspx#19](http://www.dot34.state.pa.us/BPTInfo.aspx#19).



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#### North Shore Railroad Company in Avis, PA

Source: Mike Zollitsch

## 4. Proposed Freight Rail Improvements and Investments

This chapter summarizes known and proposed freight rail investments in Pennsylvania identified as part of this State Rail Plan (SRP). Freight railroads are the only mode of transportation where the majority of infrastructure is built, owned, operated and maintained by the carriers themselves through privately sourced financing. Unlike passenger rail service, most freight rail service in the Commonwealth is provided by private companies. Per FRA guidance, these companies are not obligated to include their capital investment plans in the SRP, and the study team did not receive lists of potential projects from all of the state's Class I, II, and III/short line railroads. As a result, there may be additional capital investments made by the private sector that are not currently known and not captured in this SRP's investment program. The content of this chapter is based on received information from individual freight railroads and regional planning organizations and should not be considered a comprehensive list of future freight railroad improvements across Pennsylvania.

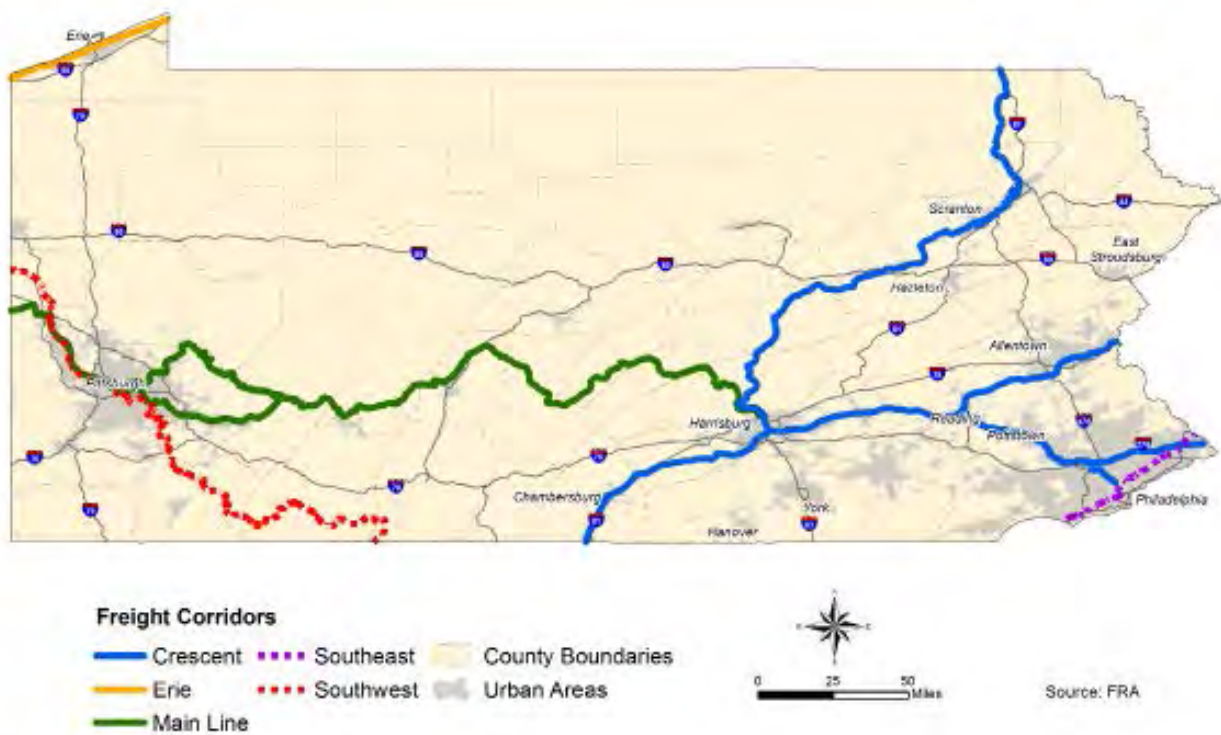


## 4.1 Freight Corridors

The 2010 *PA State Rail Plan* identified key freight rail corridors in the Commonwealth. This effort revisits that concept. The corridor identification process was developed in a manner that allowed for a clear understanding of freight rail system needs for both existing and future (2040) freight operations. A full needs analysis has not been undertaken for this SRP update. Instead, the 2015 SRP freight corridors were defined by reviewing freight-only corridors identified for the 2010 state rail plan, rail operators' Class, ownership, end points of freight services within the state, the most recent quantitative commodity flows data available (2013 *Surface Transportation Board Waybill Sample*), and qualitative descriptions of corridor-wide capacity improvements. Short lines were not included in the evaluation unless they were the primary connection to a major port or intermodal facility. The five corridors described below represent freight rail corridors which create Pennsylvania's core network corridors for investment.

This chapter identifies priority freight rail corridors and lists the projects for those corridors; **Chapter 5** will evaluate those projects and also propose a specific improvement program for each of the corridors and other identified freight rail projects not located along the key corridors. The corridors are shown in **Figure 4-1**. **Table 4-1** lists the PA freight rail corridors. A brief description of each corridor follows.

**Figure 4-1: Pennsylvania Freight Rail Corridors**



**Table 4-1: Freight Rail Corridors in Pennsylvania**

Corridor	Railroad	Route	Parallel Highway Route	Length (miles)
Crescent Corridor	NS	Maryland state line to Philadelphia/ New Jersey/New York via Harrisburg	I-81 I-78 I-76 I-83	467
Main Line	NS	Ohio state line to Harrisburg via Pittsburgh	I-76	400
Southwest	CSX	Ohio state line to Maryland state line via Pittsburgh	I-70 I-79	218
Southeast	NS & CSX	Delaware state line to New Jersey state line via Philadelphia	I-95	49
Erie	NS & CSX	Ohio state line to New York state line via Erie	I-90	45
<b>TOTAL</b>				<b>1,179</b>

### THE CRESCENT CORRIDOR

Operated by Norfolk Southern (NS), is a 2,500 mile rail infrastructure project stretching from the Gulf Coast to the East Coast. Within Pennsylvania, the corridor parallels I-81 in the central part of the state from the Maryland border near Hagerstown, Maryland, to Harrisburg. Eastwards from Harrisburg, the Crescent Corridor continues to Reading, where it splits northeast to Easton in the I-78 highway corridor and southeast to Philadelphia roughly along I-76. Another, most recently added section of the corridor, extends north along the Susquehanna River to Scranton and turns north to Binghamton, New York. The Canadian Pacific Railway (CP) used to operate the section between Sunbury and Binghamton (recently acquired by NS), with NS operations between Sunbury and Harrisburg (with CP trackage rights). The NS Rutherford intermodal terminal in Harrisburg is located on the I-81 corridor and is a part of the NS Crescent Corridor initiative. This corridor is double-stack cleared and 286k compliant. However, the corridor is in need of additional intermodal yard capacity, and track upgrades and speed improvements are needed, particularly the segment acquired by NS from CP.

### THE MAIN LINE CORRIDOR

Operated by NS and extends from the Ohio state line near Midland and crosses east to Harrisburg where it meets the Crescent Corridor, also operated by NS. This corridor is double-stack cleared (outside of the Pittsburgh area, where vertical clearance issues persist) and 286k compliant.

### THE SOUTHWEST CORRIDOR

Operated by CSX Transportation (CSX), crosses the southwest portion of the state beginning at the Maryland border near Cumberland, Maryland, north through Pittsburgh to the Ohio border near New Castle. The Southwest Corridor is part of CSX’s National Gateway Program to create an efficient rail route linking Mid-Atlantic ports to Midwestern markets. The corridor is 286k compliant and has just recently been double-stack cleared, thanks to CSX’s continuous efforts to improve their National Gateway Corridor extending from North Carolina to Ohio via Pennsylvania. The corridor is, however, in need of additional intermodal yard capacity.

### THE SOUTHEAST CORRIDOR

Operated by CSX, contains the CSX mainline and parallels I-95 in Chester north through Philadelphia to the New Jersey border in Yardley. The corridor contains the CSX intermodal terminal in South Philadelphia. The Southeast Corridor has been cleared for double-stack trains. Although the corridor’s main track is 286k compliant, some feeder lines are not.





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## Lycoming Valley Railroad

Source: SEDA COG

### The Erie Corridor

Consists of parallel mainline tracks operated by NS and CSX along Lake Erie in northwest Pennsylvania parallel to I-90, from the Ohio state line to the New York state line. The corridor is double-stack cleared and 286k compliant.

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## 4.2 Freight Projects Criteria

For purposes of this part of the freight rail network assessment, freight rail projects are defined as physical or operational improvements that potentially offer significant benefits to Pennsylvania, its residents and businesses, and the overall statewide transportation network. They can include rail network enhancements such as:

1. Improved accessibility and mobility of freight flows;
2. Relief of congestion and bottlenecks on the freight system;
3. Improvements to the safety, security, or resilience of the freight system;
4. Improved or preserved freight rail infrastructure;
5. Implemented technology or innovation to improve the freight system; and
6. Projects that reduce the environmental impacts of the freight flows.

The proposed freight rail projects in this SRP are responsive to the eight overall SRP Goals and Objectives.

The identified improvements are organized by corridor and by class of rail operators. PennDOT has received and identified a variety of freight rail projects, including:

1. State of Good Repair (including track and bridge updates: upgrades to or maintenance of tracks and grade crossings, replacement or rehabilitation of bridges, and upgrades to signal systems);
2. System improvements (including projects that address vertical clearance and weight restrictions, and 286k compatibility);
3. Yard improvements;
4. Rolling stock fleet additions and upgrades; and
5. Investment in new or expanded intermodal facilities and connections.

The identified projects range from major, corridor-long improvements to spot improvements intended to address localized problems. Several of these localized projects respond to specific bottlenecks, physical constraints, and the State of Good Repair issues identified by freight stakeholders. The majority of projects are State of Good Repair, with many system improvements as well, followed by yard improvements, intermodal connections, and rolling stock.

### 4.3 Freight Projects by Corridor

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The freight projects summarized in this section include those identified by freight stakeholders and those where benefits, costs, and impacts are largely centered on freight carriers and industrial clients. The privately-held and privately-funded freight railroads plan and implement long-term capacity improvements in a manner different from the public sector. Investments are often centered in the near term, focusing on enhancing services for existing clients and addressing known capital and operating needs that are consistent with a longer term vision.

Class I railroads' operations and capital master plans go beyond Pennsylvania's state borders. Due to the nature of their business, Class I railroads focus on both near term and long term needs to properly and efficiently manage, maintain, and expand their multi-state networks to sustain cost-competitive, efficient long-distance freight movements.

While the described projects focus on key freight corridors served by Class I carriers, a large number of improvements are also needed on Class II and Class III/short line networks within Pennsylvania. Class II and short lines often provide critical feeder service and last mile connectivity to the Class I network and provide economic development benefits centered on creating and retaining economic value for the Commonwealth. And, unlike Class I railroads, short lines typically rely on state funding to sustain their operations.

**Tables 4-2 through 4-6** summarize the major known freight improvements along the key PA freight rail corridors. **Appendix D** contains the detailed freight project list, including other Class I projects, and all submitted Class II and Class III/short line projects. It should be noted that, for the most part, the presented cost estimates are general in nature and not detailed engineering cost estimates. Even though some corridors provide connections to points beyond the state border, this evaluation only reflects the estimated costs within Pennsylvania.



“Unlike trucks, barges, and airlines in the U.S., freight railroads do not strain the public purse. Even during the economic downturn, America’s freight railroads spent approximately \$25 billion annually to build and maintain the most efficient rail system in the world. In 2014, that investment is expected to increase to an estimated \$26 billion, helping to keep America competitive.”

*Association of American Railroads*

<http://freightrailworks.org/partners/overview/>



**Kinski Junction Railroad (KJR)  
tracks near Pittsburgh**

*Source: PennDOT*

### 4.3.1 Crescent Corridor

The Crescent Corridor is the largest freight rail corridor in the state. NS has been aggressive in reinvesting in and expanding its network in the past several years, including multiple major capital investments along this corridor, many included as part of the Crescent Corridor Initiative. This strategy has largely been in response to unprecedented demand for rail services across the U.S.

One example of increased demand for freight services and Norfolk Southern's strategic response is the purchase of the Delaware & Hudson Railway Co. line (D&H) - running between Sunbury, Pennsylvania, and Schenectady, New York - from Canadian Pacific Railway for \$217 million. The spur will become part of the Crescent Corridor which is the centerpiece of NS's capital improvements. This investment will be part of a \$2.5 billion Crescent Corridor rail infrastructure project that spans 11 states and will provide fast and direct routes from the Southeast to the Northeast with connections to Mexico and Southern California.<sup>1</sup> State of Good Repair track and signal upgrades will be required along 127 miles of D&H line between Sunbury and the NY/PA state line through Scranton, with an estimated price tag of \$50 million.

NS has also invested in intermodal facilities across its network to better serve the needs of intermodal freight industries across the country. Although not funded by NS, the underpass bridge at the entrance to the NS Rutherford Yard in Dauphin County is an identified State of Good Repair project along the Crescent Corridor that responds to the rapid growth of intermodal freight shipping across the country and intensified NS operations in the Harrisburg area. NS reportedly expects to finish the overall \$60 million expansion of its Rutherford intermodal facility in 2015, part of the company's strategy to divert some freight flows from truck to rail.<sup>2</sup>

Harrisburg has emerged as one anchor of the roughly triangular-shaped Norfolk Southern rail network (the other two are Atlanta and Chicago). Yard improvements and expansion are critical enhancements needed in South-Central Pennsylvania for the area to serve as a true freight rail hub. Enola Yard, on the western side of Harrisburg, is a former Pennsylvania Railroad yard facility that has been downgraded during the earlier railroad's ownership. In recent years, NS set up a 15-track classification yard at Enola. That, along with automatic sorting increased the number of railcars that could be handled from 125 to 1,200 daily.<sup>3</sup> The proposed Lemoyne Connection yard improvement project would provide direct access to Enola from the Lurgan Branch and ease congestion resulting from increased NS operations at the yard. It should be noted that the implementation of this project would also improve and benefit NS's Main Line Corridor operations west of Harrisburg.

The Navy Yard in Philadelphia also suffers from capacity constraints, more so than access issues, as in the case of Enola Yard. Part of the overall Crescent Corridor strategy, expansion of the South Philadelphia rail yard would allow NS to handle more than 72,000 containers and trailers annually at the site. Terminal expansion will be funded through a public-private partnership, with an estimated \$10 million price tag shared by PennDOT and NS, with funds secured by both entities.

Other identified projects along the Crescent Corridor include a few smaller State of Good Repair projects, including multiple track rehabilitation, bridge replacement, and grade separated crossings, as well as multiple system improvements, such as rail relocation and market studies. Major projects along the Crescent Corridor are summarized in **Table 4-2**.

1 Norfolk Southern. Retrieved from [www.nscorp.com/content/nscorp/en/ship-with-norfolk-southern/shipping-options/corridors/crescent-corridor.html](http://www.nscorp.com/content/nscorp/en/ship-with-norfolk-southern/shipping-options/corridors/crescent-corridor.html)

2 Journal of Commerce. Retrieved from [www.joc.com/rail-intermodal/class-i-railroads/csx-transportation/csx-ns-take-differing-intermodal-strategies-next-phase\\_20140124.html](http://www.joc.com/rail-intermodal/class-i-railroads/csx-transportation/csx-ns-take-differing-intermodal-strategies-next-phase_20140124.html)

3 Brotherhood of Locomotive Engineers and Trainmen. Retrieved from [www.ble-t.org/pr/news/headline.asp?id=8137](http://www.ble-t.org/pr/news/headline.asp?id=8137)



**Table 4-2: Major Crescent Corridor Improvements**

Project Name	Project Description	Source	Estimated Cost (millions of 2015 dollars)	Location
Track improvements	Track improvements: Abrams Yard to Morrisville Yard	NS	\$80.00	Philadelphia
D&H Improvements	NS acquired 283 miles of D&H rail lines and facilities in Pennsylvania and New York, including 127 miles between Sunbury and the NY/PA state line through Scranton. Track and signal upgrades will be required.	NS	\$50.0	North Cumberland, Montour, Columbia, Luzerne, Lackawanna, Susquehanna Counties
N. 25th Street Underpass Under NS	Replace one-lane North 25th Street underpass of NS with a two-lane underpass and improve approaches and sight distance in West Lebanon Township.	Lebanon MPO LRTP 2015-2040	\$35.0	West Lebanon Township
Entrance to NS Rutherford Yard	Replace NS underpass bridge - entrance to NS Rutherford Yard.	NS	\$30.0	Dauphin County
Lemoyne Connection	Enola Yard is on the west shore of the Susquehanna River. The Lemoyne Connection would provide direct access to Enola from the Lurgan Branch. Freight rail congestion would be eased through Harrisburg, which sees an average of 60-70 freight trains daily.	Tri-County Regional Planning Commission	\$20.0	Enola
Grade separated crossing	One or two new grade separated crossings of NS in 17-mile corridor extending from SR 2005 (US 222-B) in Ontelaunee Township to Lehigh County line. Only one crossing currently exists in this corridor (SR 1010 in Richmond Township).	Reading Area Transportation Study MPO	\$11.0	Richmond Township
Navy Yard Expansion	To attract large intermodal rail volumes to Philadelphia, the Navy Yard terminal will need to be expanded.	DVRPC Connections 2040	\$10.0	Philadelphia
Replacement of single-track structure	Replacement of existing single-track structure on Norfolk Southern Belt Line over US 422 and Tulpehocken Creek. Two-lane rail approaches to structure from both north and south. This bridge may be partially addressed in proposed reconstruction of US 422.	Reading Area Transportation Study MPO	\$10.0	Reading / Wyomissing Borough
Rehabilitation of rail spur	Colebrookdale Rail Spur: Rehabilitation of existing rail spur extending from NS line in Pottstown, Montgomery County northeast to Boyertown, Berks County.	Reading Area Transportation Study MPO	\$10.0	Pottstown to the Borough of Boyertown

**Table 4-2: Major Crescent Corridor Improvements, cont.**

Project Name	Project Description	Source	Estimated Cost (millions of 2015 dollars)	Location
Automated Horn System at Lebanon City RRX	Work with NS to install automated horn system in Lebanon.	Lebanon MPO LRTP 2015-2040	\$8.0	Lebanon City
Schuylkill Ave. Bridge SB	Bridge replacement / rehabilitation on Schuylkill Avenue southbound (PA 183) over NS in Reading, Berks County.	RATS 2015-2018 Highway and Transit TIP	\$6.3	Reading
New bridge on Krick Lane	New bridge on Krick Lane over NS replacing at-grade crossing.	York County MPO LRTP	\$4.0	South Heidelberg Township
SR 2087/ Norfolk Southern	Replacement / rehabilitation of the bridge that carries SR 2087 over NS in Reading, Berks County.	RATS 2015-2018 Highway and Transit TIP	\$3.1	Reading
Bridge rehabilitation	Rehabilitation of NS Bridge across the Main Stem of the Susquehanna River in Snyder County.	SEDA-COG MPO	TBD	Snyder County
Yard expansion	Rutherford Yard expansion	NS	TBD	Dauphin
Yard improvements	Harrisburg Yard facility enhancements	NS	TBD	Dauphin

### 4.3.2 Main Line Corridor

The former Pennsylvania Railroad main line - now owned by Norfolk Southern - connects Philadelphia (via the Crescent Corridor), Harrisburg, and Pittsburgh and extends to Chicago. The Main Line Corridor is the number one corridor in the state in terms of freight volume. Major identified improvements include several overdue State of Good Repair projects, such as the Midland track stabilization project near the Ohio state line and the Port Perry Branch Bridge rehabilitation project. Other cited State of Good Repair projects include bridge rehabilitation projects in Allegheny County, diesel switchyard retrofits in the same load-out areas, and grade crossing improvements.

The identified yard projects include the proposed two-mile long car rail siding next to the NS mainline in Sharpsville. Local supporters suggest the site could attract gas and oil-drilling companies, but other industries also might find it an ideal location.<sup>4</sup>

Sites like the Sharpsville rail siding would benefit from increasing the vertical clearance at 14 bridges in Pittsburgh for double-stacked railcars. Currently, the Main Line is cleared for double-stacks outside of the Pittsburgh area; in the Pittsburgh area, double-stacked NS trains must use the Mon line to Wilmerding (since the Mon Line was upgraded - double-stack, double track, and new signals - in the mid-1990s) instead of going through the city. The estimated cost of clearing for double-stack trains on the NS Main Line through Pittsburgh is \$80 million. Major projects along the Main Line Corridor are summarized in **Table 4-3**.

<sup>4</sup> The Sharon Herald. Retrieved from [www.sharonherald.com/news/local\\_news/rail-siding-eyed-to-lure-business/article\\_33c018fd-7136-5a4c-b4c1-027bfa6bb1b5.html](http://www.sharonherald.com/news/local_news/rail-siding-eyed-to-lure-business/article_33c018fd-7136-5a4c-b4c1-027bfa6bb1b5.html)





**Small yard railcar storage in the Erie Corridor area**

Source: Greater Erie Industrial Development Corporation (GEIDC)

**Table 4-3: Major Main Line Corridor Improvements**

Project Name	Project Description	Source	Estimated Cost (millions of 2015 dollars)	Location
Pittsburgh Double Stack Clearances	Currently double-stack intermodal trains take a circuitous route through Pittsburgh because of 14 overhead bridges and other obstructions. This project would eliminate those overhead obstructions and create a high speed intermodal route, improving schedules by two to three hours.	SPC MPO	\$80.0	Pittsburgh
Midland Track Stabilization	NS Cleveland Line runs through Midland over a shifting track bed for approximately one mile. This unsafe condition has existed for decades and there have been several derailments with trains ending up in the Ohio River. While NS has made repairs to the area, a more permanent solution is desired. Adjacent SR 68, which is also shifting and buckling, would also be repaired.	SPC MPO	\$60.0	Midland

**Table 4-3: Major Main Line Corridor Improvements, cont.**

Project Name	Project Description	Source	Estimated Cost (millions of 2015 dollars)	Location
Port Perry Bridge Rehabilitation/ Replacement	Rebuild Port Perry Bridge for better geometry to improve travel times: a) add a second line; b) flatten the curve at Thompson; and c) enlarge the tunnel.	SPC MPO	\$35.0	North Versailles Township and Duquesne
Car Rail Siding	Proposed 100 car rail siding on the NS mainline in Sharpsville, PA, behind the former steel mill (now DSF, Inc.).	Mercer County MPO	\$11.0	Sharpsville
Freeport Rd Br over RR	Bridge rehabilitation / replacement on SR 1001, Freeport Road over NS RR in O'Hara Township, Allegheny County.	SPC TIP Highway List	\$5.7	Allegheny County
Diesel Switchyard Retrofit	Retrofit up to two (2) GP8 switcher locomotive frames or new frames with Genset configuration located on NS Railroad, in Conway, Pitcairn, and Shire Oaks.	SPC TIP Highway List	\$3.0	Beaver County, Allegheny County, Washington County
Bridge replacement	Replace Federal Street bridge in Pittsburgh	NS	TBD	Allegheny
Load-out area	Construct a new load-out area in Westmoreland County	NS	TBD	Westmoreland

### 4.3.3 Southwest Corridor

This corridor, operated by CSX, crosses the southwest portion of the state from the Maryland border near Cumberland to the Ohio border near New Castle via Pittsburgh. The Southwest Corridor is a major freight route linking Mid-Atlantic seaports to Midwestern markets. The corridor is 286k compliant and double-stack cleared, the latter thanks to continuous implementation of CSX’s National Gateway plan that has included multiple tunnel daylighting and tunnel modification projects, all aimed at gaining the necessary 21-foot vertical clearance required for double-stacking.

The corridor is in need of additional intermodal yard capacity, but the planned Pittsburgh Intermodal Rail Terminal project will provide Western Pennsylvania companies with a direct freight rail link to the Midwest and beyond.

The identified projects along the corridor focus on State of Good Repair improvements, including track and bridge rehabilitation, along with grade crossing safety enhancements in multiple locations. Major planned capacity and efficiency improvements include finishing clearances to allow double-stack trains between Chambersburg and Portsmouth, and initial work on the high-capacity Pittsburgh intermodal terminal. Other projects include the acquisition and maintenance of existing CSX main line railroad in Allegheny and Beaver Counties, and retrofitting an existing conventional diesel switcher locomotive. Major projects along the Southwest Corridor are summarized in **Table 4-4**.





**Buffalo & Pittsburgh Railroad (BPRR)**

Source: PennDOT

**Table 4-4: Major Southwest Corridor Improvements**

Project Name	Project Description	Source	Estimated Cost (millions of 2015 dollars)	Location
PBS Coals Inc. Track Rehabilitation	Rehabilitation of 10 miles on Cambria Branch including partial replacement of defective ties and track surfacing work to supplement annual routine track maintenance program.	Southern Alleghenies LRTP	\$18.7	Somerset Township
Ultra-clean Diesel Switch	The Genset diesel engine will be used to retrofit an existing conventional diesel switcher locomotive that will operate locally within the SPC area.	SPC TIP Highway List	\$4.2	Neville Township

**Table 4-4: Major Southwest Corridor Improvements, cont.**

Project Name	Project Description	Source	Estimated Cost (millions of 2015 dollars)	Location
Henry Mancini Bridge Preservation	Bridge Preservation on Ramp G Road (Henry Mancini Bridge) over CSX RR and Main Street in Aliquippa, Beaver County.	SPC TIP Highway List	\$3.8	Aliquippa City
CSX Rail Project Evans City	Acquisition and maintenance of existing CSX main line railroad from the Allegheny and Beaver County lines. This rail line has been earmarked for abandonment by the CSX railroad. If this abandonment proceeds, two existing manufacturing businesses which are dependent on rail for raw materials and finished product shipments may be forced to leave the area.	SPC 2040 Plan	TBD	Butler County
National Gateway	Finishing clearances to allow double-stack intermodal trains between Chambersburg and Portsmouth.	CSX	TBD	Cumberland
Pittsburgh Terminal	Beginning work on a new facility that will open up a new intermodal market for CSX customers with initial annual capacity of 50,000 loads.	CSX	TBD	Allegheny

#### 4.3.4 Southeast Corridor

The Southeast Corridor parallels the nationally important Interstate 95 highway corridor and passes directly through Philadelphia. Within Pennsylvania, the corridor is a shared operation between CSX and Norfolk Southern. CSX owns 50 route miles of the corridor’s track in the Philadelphia Shared Access Area. CSX has a relationship with SEPTA for providing commuter rail service. The Southeast Corridor also includes the CSX intermodal terminal in South Philadelphia.

Major identified improvements along the Southeast Corridor include most notably improvements that would result in increased capacity expansion. The most expensive freight project on the list involves adding dedicated freight track alongside the entire CSX main line from Philadelphia to Wilmington, Delaware, with an estimated cost of nearly \$600 million in 2015 dollars. Other capacity expansion projects along the Southeast Corridor include multiple second main track additions, on CSX’s High line/ Trenton line. Additional vertical clearance through double-stacking projects in Philadelphia on the CSX Philadelphia Subdivision and CSX Schuylkill River lines are also included, along with multiple high-level grade crossing improvements in the Philadelphia area. Several overdue State of Good Repair projects, such as the 25th Street viaduct rehabilitation are also listed.

The fairly recent importance of crude oil shipments in Pennsylvania is exemplified by the inclusion of SEPTA Airport line freight capacity expansion project benefiting multiple Class I carriers. NS and CSX retain trackage rights over the Airport Line from 60th to 90th Street in Philadelphia and use their daily four-hour window to move unit trains of Bakken crude oil to the new terminal in Eddystone. The facility is



designed to receive two loaded crude oil trains a day of 120 cars each, but the four-hour overnight window on the freight movements presents a challenge. Adding additional tracks to the Airport Line would improve operating flexibility for the freight operators and greatly enhance access to Eddystone. Major projects along the Southeast Corridor are listed in **Table 4-5**.

**Table 4-5: Major Southeast Corridor Improvements**

Project Name	Project Description	Source	Estimated Cost (millions of 2015 dollars)	Location
New track	Add dedicated freight track from Wilmington to Philadelphia	DVRPC	\$582.6	Delaware, Philadelphia
Added track	Add second main track from CP Belmont to CP Arsenal on CSX High line / CSX Trenton line	DVRPC	\$202.2	Philadelphia
Added track	Add second main track from Newtown Junction to CP Wood on CSX Trenton line	DVRPC	\$102.9	Bucks, Philadelphia
Grade crossing separation	Grade crossing separation at Main Street in Darby on CSX Philadelphia Subdivision	DVRPC	\$50.0	Delaware County
Capacity Expansion	The crude oil transfer facility at Eddystone, served by NS and CSX, is accessed in part via SEPTA's Airport Line, a double track rail line. NS and CSX must comply with a narrow 4-hour operating window (12 am to 4 am). Adding additional tracks to the Airport Line will improve operating flexibility for Eddystone.	NS/CSX/DVRPC	\$40.0	Philadelphia
Added track	Add second main track from Delaware State Line to CSX Trenton Line on CSX Philadelphia Subdivision	DVRPC	\$40.0	Delaware, Philadelphia
Grade crossing separation	Grade crossing separation at Main Street in Darby on CSX Philadelphia Subdivision	CSX	\$8.3	Delaware
Vertical clearance	Double-stack clearance at Art Museum Tunnel on CSX Philadelphia Subdivision	CSX	\$6.0	Philadelphia
Vertical clearance	Double-stack clearance at Grays Ferry Avenue on CSX Schuylkill River line	CSX	\$4.0	Philadelphia
Viaduct Improvement Project	Restore the 1.2 mile 25th Street viaduct between Washington Avenue and West Passyunk Avenue in Philadelphia to its original condition and appearance: install debris shield, remove parapet walls; repair drainage system, waterproof decking; replace parapet walls; and resurface underside of viaduct.	CSX	TBD	Philadelphia
Trenton Line Capacity	Preliminary engineering work to add five miles of Trenton main line double-track between New York and Philadelphia	CSX	TBD	Philadelphia to Trenton, NJ
Bridge rehabilitation	Replace two single-track steel deck truss spans, increasing speeds from 10 mph to 20 mph.	CSX	TBD	Philadelphia

### 4.3.5 Erie Corridor

The Erie Corridor consists of parallel mainline tracks operated by NS and CSX along Lake Erie in northwest Pennsylvania, running parallel to I-90. This corridor is double-stack cleared and 286k compliant. The identified improvements along this corridor focus mostly on State of Good Repair enhancements, including grade crossing safety projects, signal upgrades, and bridge rehabilitation. It should be noted that the Erie Corridor has experienced yard capacity issues. Major projects along the Erie Corridor are summarized in **Table 4-6**.

**Table 4-6: Major Erie Corridor Improvements**

Project Name	Project Description	Source	Estimated Cost (millions of 2015 dollars)	Location
At-Grade Crossing Improvements	Improve RR signals and gate crossings within North East Borough	Erie Area Transportation Study (EATS) MPO LRTP	\$1.0	North East Borough
At-Grade Crossing Improvements	Improve signal and gate crossings within Springfield Twp (Huntley Rd, Elmwood Rd, Scott Rd, Ellis Rd, and Pond Rd)	EATS MPO LRTP	\$1.0	Springfield Township
Millfair Road Railroad Overpass Project	Millfair Rd from SR 20 to SR 5 Millcreek and Fairview Twp. New Bridge (with at-grade crossing removal), roadway rehabilitation including signal upgrades at SR 20 and SR 5 intersections	EATS MPO LRTP	\$0.5	Millcreek and Fairview Townships
At-Grade Crossing Improvements	Study to construct a grade-separated railroad crossing on Erie's west side (Pittsburgh Ave, Green Garden Rd, or Raspberry St)	EATS MPO LRTP	\$0.2	Erie City



## 4.4 Projects Outside Key Freight Corridors

### 4.4.1 Class II and Class III/Short Lines Improvements

This section briefly summarizes the identified and known improvement needs for Class II and Class III/short line railroads across the state. While these rail operators are not identified as part of the key statewide freight corridors network described above, the short lines provide critical “last mile” access between industries and the Class I railroad network. Pennsylvania is served by more than fifty regional and short line railroads, more than any other state. The two existing Class II railroads in the Commonwealth -- Buffalo & Pittsburgh Railroads (BPRR) and Wheeling & Lake Erie Railroad (WLE) -- are critical to the vitality of regional freight movements in Western Pennsylvania. Overall, regional Class II railroads and local short-line railroads remain critical parts of the state’s rail network for moving raw materials and finished goods cheaply and efficiently.

**Table 4-7** summarizes the potential Class II projects. Outside of the proposed reactivation of the unused freight rail line between DuBois and Curwensville, the majority of the projects can be categorized as near-term capital improvements needed to sustain and enhance existing operations, such as continuous welded rail installation, grouting and sealing of tunnels, passing siding, and gate installation.

**Table 4-7: Major Class II Projects**

Rail Operator	Project Name	Project Description	Source	Estimated Cost (millions of 2015 dollars)	Location
BPRR	Line Reactivation	Reactivate unused freight rail line between DuBois and Curwensville.	BPRR	\$30.00	Clearfield County
BPRR	Clarion River 5 Span Bridge	1899 constructed bridge needing extensive repairs. Five span bridge going over State Highway 219 and Clarion River.	BPRR	\$5.00	Elk County
BPRR	Sidings	The sidings on the Corbet IP Site on Platt Road in Sandy Township. Two sidings of approximately 800 feet in length each with switches off of the B&P Railroad.	BPRR	\$1.00	Clearfield
BPRR	Passing Siding	Build 2,500 foot siding with two number 10 turnouts. Passing siding Buffalo and Pittsburgh Railroad at MP 135 where train cannot make the 1.5 % grade hill heading south out of Bradford. Currently the train has to run to siding MP 145 which adds upwards of four hours to travel time.	BPRR	\$0.65	McKean

**Table 4-7: Major Class II Projects, cont.**

Rail Operator	Project Name	Project Description	Source	Estimated Cost (millions of 2015 dollars)	Location
BPRR	Grout & Seal Tunnels with Water & Ice Conditions	"Grout and seal seven tunnels: 1. Ellwood City Tunnel in Zellenople 2. Empire Tunnel in Brockway 3. Simpson Tunnel in Valier 4. Stombaugh Tunnel in Cowan 5. Sabula Tunnel in Sabula 6. Caledonia Tunnel in Caledonia 7. Indiana Tunnel in Indiana"	BPRR	\$0.40	Butler
WLE	Continuous Welded Rail	Continue with focus on the installation of continuous welded rail (install or replace 14 miles of track in 2015-2016).	WLE	\$9.00	Allegheny
WLE	Track Rehabilitation	Installation of Continuous Welded Rail on the Clairton Branch.	WLE	TBD	Allegheny
WLE	Bridges Rehabilitation	Ballast deck installation on 6 bridges, and retire 4 bridges with installation of culverts and 2,000 deck timbers.	WLE	TBD	Allegheny
WLE	Ties & Ballast	Install or replace 47,000 wood ties and 30,000 tons of ballast.	WLE	TBD	Allegheny

For all Class II and Class III/short lines operating in the Commonwealth, upgrading tracks and bridges to accommodate heavier capacity rail cars is essential to retaining industries in the state, particularly in the rural and small urban areas where short lines predominantly operate. Recent market trends in the energy sector serviced by freight rail, and particularly growth of the Marcellus shale industry in Pennsylvania, has added to the demand for rail improvements on the local and regional freight rail network that provides last mile access to the facilities, and moves materials in and out of the sites. In recent years, the number of rail cars handled by many short line operators in Pennsylvania has grown steadily in response to higher demand from customers in the oil, gas, and de-icing industries.

Historically, short line railroads have received funding from PennDOT either through the Rail Freight Assistance Program (RFAP) or the Capital Budget Rail Freight Assistance Program. On an annual basis, these programs provide financial assistance for investment in rail freight infrastructure. Projects are awarded through a grant system that evaluates projects based on factors including, but not limited to, how well the rehabilitation and construction of facilities will improve railroad operations and enhance railroad service. Class III/short lines projects and needs cover a variety of undertakings, ranging from rehabilitating a railroad bridge to replacing turnouts or switches, with most focusing on near-term capital needs and falling into the State of Good Repair needs. The actual listing of projects is contained in **Appendix D**.



## 4.5 Freight Projects Summary

When combined, the identified Class I, Class II, and Class III/ short lines projects total nearly \$2 billion in 2015 dollars in the 2015-2040 timeframe. Most of these 288 projects are Class I projects (81 percent of all projects), and many are capacity expansion and State of Good Repair investments, indicating that meeting increased demand and preserving, maintaining, and investing in the existing freight rail network infrastructure is paramount to rail operators in Pennsylvania. It should again be stressed there are inherent shortcomings and challenges in estimating rail freight capital needs. For a variety of reasons, most notably the lack of thorough and complete project input data from the rail operators doing business in Pennsylvania, rail freight capital investments are underreported. Many Class I freight railroads are hesitant to provide details on their capital spending plans, while short line operators often are preoccupied with day-to-day operations and rarely know or report their multi-year capital improvement needs.

**Table 4-8** presents a high-level summary of all of the identified freight rail projects on Pennsylvania’s freight rail network organized by Improvement Type. The detailed list of all known freight rail projects in Pennsylvania for the 2015-2040 time period is provided in **Appendix D**. Information concerning a few additional projects was received after the project submission deadline established for this *2015 Pennsylvania State Rail Plan*. These projects are listed in **Appendix M**.

**Table 4-8: Freight Rail Projects Summary by Improvement Type**

Rail Operator	Number of Projects	Total Estimated Cost (millions of 2015 dollars)*
Class I	54	\$1,589.6
Class II	13	\$46.3
Class III/Short Line	221	\$278.0
<b>Total</b>	<b>288</b>	<b>\$1,913.9</b>

\*Totals exclude projects without cost estimates

## 4.6 Freight Multi-Modal Connectivity

Pennsylvania occupies a vital position within the nation’s intermodal rail system. The state is an important conduit by which international freight is transported by rail within the Northeast, between the South and North, and between the South and Northeast and the Midwest. Intermodal facilities are an integral part of the Pennsylvania rail network and play a key role in moving people and goods into, out of, and throughout the state.

Pennsylvania is home to a number of intermodal facilities including seaports, airports, multi-modal freight facilities and major passenger stations. Because of the interconnectivity between the transportation modes involved in the movement of freight in Pennsylvania, the proposed investments in the freight rail network contribute to and benefit from investments in the highway and transit systems, as well as in port and air facilities. For example, ongoing and planned improvements at the Port of Philadelphia will increase demand for freight rail movements originating in and destined for the port. The channel deepening at the port will produce greater capacity for marine transportation of containerized goods, steel and metals, as well as



### SEDA-COG loading/unloading area

Source: PennDOT

crude oil and petroleum products. The Port's facilities are serviced by two Class I Railroads, CSX and NS. CSX offers daily service between Philadelphia and Midwestern, Southern, and Southeastern cities, while NS provides double-stack, intermodal service between Philadelphia and major Midwest locations. Any improvements to the port facilities will affect CSX and NS operations by boosting demand for their services.

The National Cooperative Highway Research Program (NCHRP) Report 586, *Rail Freight Solutions to Roadway Congestion—Final Report and Guidebook*, described an already-implemented double-stack clearance project coordinated by PennDOT to remove 163 obstacles to double-stack rail car service to the Port of Philadelphia. This project removed or raised low-clearance bridges or lowered the rail rights-of-way along the rail routes serving the port to allow direct rail access rather than truck drayage to and from the port. The project was cited as an example of a major freight rail improvement implemented within Pennsylvania that positively affected rail, truck, and waterborne movements.

Modal shift from truck to rail is also possible with relatively straightforward improvements to the freight rail network. In order for these improvements to be effective, they are best planned and implemented at



the corridor level. Successful projects to improve freight flows do not have to fall into a single capital improvements category. Some of the identified spot level improvements, such as signal interconnections between rail and adjacent highway intersections or grade separations at highway-rail grade crossings, can improve traffic flow to railroad approaches or along service roads feeding into major roadway congestion points.

Examination of the project lists discussed in this section (with details provided in **Appendix D**) also reveals there is a challenge in meeting the “last mile” deficiencies for connectors to important intermodal facilities such as ports, rail-highway interchange sites, or major warehousing/distribution centers. In many cases, regional and local entities perceive these last mile connections to be critical in sustaining existing businesses and attracting new ones into an area.

Railroad weight capacity is and will continue to be critical to maintaining freight rail movement efficiency and cost advantage. Upgrading rail facilities to handle taller or heavier rail cars is one solution that benefits freight and passenger travel congestion. In Pennsylvania, key freight corridors are largely 286k compliant, however most of the short lines network is not. Consistency with the 286k standard would mean that shippers can optimize their shipments and lower the overall price tag for freight shipping services, benefiting all the involved modes in the process.

Although reliability of a given freight rail line tends to be more critical than speed in day-to-day operations, improvements to track condition and higher line speeds would benefit the freight rail network and other transportation modes that take part in the movement of freight (especially for time-sensitive shipments). The overall freight movement time is also dependent on frequency of pick-up and delivery and on rail yard capacity, so those issues need to be considered when planning for the multi-modal aspects of freight movements.

Lastly, preserving a safe rail operating environment is critical to the efficient flow of freight in the rail system. As Pennsylvania’s economy improves and freight flows increase, one indicator of rail safety that affects multiple modes is grade crossing safety. While maintenance of the rail network is the responsibility of the privately-owned railroad companies, the key point of contact between freight railroads and the public is at rail highway grade crossings. PennDOT’s Grade Crossing Unit works with the Pennsylvania Public Utility Commission, railroads, and local roadway authorities to improve the safety of grade crossings throughout the Commonwealth. Funding for grade crossing improvements is usually provided through the Federal Highway Administration Section 130 program. Further information on the PennDOT’s Grade Crossing Program is available in **Chapter 2**.

## 4.7 Conclusion

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This chapter presents a high level list of freight rail projects proposed in the Commonwealth of Pennsylvania for the next 25 years. A detailed list of projects is available in **Appendix D** of this report (and a list of a few additional projects which were received after the submission deadline is in **Appendix M**). Further detail on investment alternatives to fund freight rail projects organized by the State Rail Plan goals is included in **Chapter 5**.



Tank cars against the Philadelphia skyline

Source: HNTB Corporation

## 5. Pennsylvania's Rail Service and Investment Program (RSIP)

### Introduction

This chapter of the *2015 Pennsylvania State Rail Plan* (SRP) presents the Rail Service and Investment Program (RSIP), describes the improvements and investments planned over the short and long-term timeframes (defined respectively as 2015 to 2019 and 2020 to 2040), and outlines the capital investment plan required to implement them. These proposed projects address intercity passenger and freight rail needs identified in **Chapters 3** and **4** and have been evaluated using the objectives that support Pennsylvania's rail vision and goals. Estimated public and private benefits and costs of the RSIP are described in **Sections 5.4** through **5.8** of this chapter.

Pennsylvania's freight railroads, passenger rail operators, and state, regional, and local transportation planners have developed plans for the next five years that focus first and foremost on maintaining the state's rail system in good repair. Addressing investments deferred in past years, improving the efficiency of operations, and making the system safer for rail and other modes of transportation are priorities that are reflected in the lists of projects to be initiated and completed between 2015 and 2019.





### North Shore Railroad

Source: Michael Zollitsch

In keeping passenger and freight rail systems in a state of good repair, these modes will continue to provide economically and socially important travel and transport options to the people and businesses of Pennsylvania and to national and international visitors and shippers.

Details of freight railroad projects were obtained, where available, but the freight rail element of the report is based on freight rail project submissions received from less than half of all private railroads operating in the state.

Short-term passenger and freight rail needs in Pennsylvania comprise 417 projects (192 SEPTA and Amtrak passenger rail projects and 225 freight rail projects), of which 68 percent are State of Good Repair projects designed to maintain the existing condition of rail networks in the state and another 31 percent are system enhancements and safety improvements to the existing rail networks in the state (the remaining 1 percent are expansion projects). These short-term projects are to be initiated and completed (or largely completed) before 2020, and will require an estimated \$3.9 billion (in Year of Expenditure (YOE) adjusted dollars) in funding from a variety of private and public sources (federal, state, regional, and local).

In the long-term between 2020 and 2040, investments in Pennsylvania's passenger and freight rail systems will continue to prioritize state of good repair, but system enhancements of existing infrastructure and operations will receive higher levels of investment too, as will projects to ensure the safety and security of rail users and operators. In addition to ongoing commitments to maintain and enhance Pennsylvania's rail networks, both passenger and freight rail systems will benefit from planned service expansions to increase ridership and meet higher market demand for rail transportation.

Projects identified for the state's passenger and freight rail networks in the long-term, from 2020 to 2040, include 114 projects (38 passenger and 76 freight rail), of which 43 are State of Good Repair projects, 56 are system enhancements, and 11 are safety improvement projects. An additional four are expansion projects to add segments and capacity to the systems.

Because current plans indicate these projects will be undertaken five to twenty five years from the present, estimates of their costs are more abstract and some projects' costs remain to be determined. At a minimum, these long-term projects will require \$1.9 billion (in 2015 dollars) in funding for passenger rail projects and \$1.5 billion (in 2015 dollars) in funding for freight rail projects from a combination of private companies and public sources.

This RSIP also identifies vision projects which have not proceeded far enough into the planning process to definitively place them within the 2020 to 2040 timeframe. These projects will require further study in the coming years and it is possible they will progress to implementation sooner than expected. Whatever the ultimate timing of their implementation, it is important to include them in this SRP because they illustrate the types of system enhancements and expansions that planners and rail operators believe will provide better mobility and accessibility for people and goods in Pennsylvania in the future. A more detailed discussion of these vision projects and maps indicating their locations in the state is found in **Section 5.7** of this chapter of Pennsylvania's SRP.

## 5.1 Vision

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The 2015 Pennsylvania SRP reflects the state's vision for freight and passenger rail transportation documented in key recent efforts to plan an effective and comprehensive multimodal transportation system throughout Pennsylvania. Recent efforts include the 2010 *Pennsylvania Intercity Passenger and Freight Rail Plan* and the ongoing *PA On Track* initiative, including its Comprehensive Freight Movement Plan. The SRP vision builds on these initiatives and adapts them to changing demographic, economic, social, and technological conditions.

*PA On Track's* vision for the future of transportation in Pennsylvania is simple and direct:

*“Deliver a quality transportation system to support the economy and lifestyles of current and future Pennsylvanians.”*

Consistent with that broad transportation vision is Pennsylvania's vision for its rail systems which reflects an emphasis on quality and meeting the needs of the state's citizens:

*“Pennsylvania's rail system will provide safe, convenient, reliable, cost-effective connections for people and goods. As a viable alternative to other modes, it will support economic competitiveness, smart growth, and environmental sustainability, thereby strengthening Pennsylvania's communities.”<sup>1</sup>*

*PA On Track* identifies four key goal areas – System Preservation, Safety, Personal and Freight Mobility, and Stewardship – that guide planning efforts for all transportation modes in the Commonwealth. *PA On Track* goal areas are supported by eight specific SRP goals:

1. Bring the priority rail system to a state of good repair and maintain it
2. Develop an integrated rail system
3. Support the future needs of residents and businesses
4. Enhance the quality of life in Pennsylvania
5. Assure personal safety and infrastructure security
6. Support energy efficiency and environmental sustainability
7. Identify stable and predictable funding
8. Build public support for rail system services and assets

<sup>1</sup> Pennsylvania Intercity Passenger and Freight Rail Plan, February 2010, page 2. Accessed at <ftp://ftp.dot.state.pa.us/public/bureaus/railfreight/PARailPlanAppend2/PARailPlanlowres.pdf>.



Objectives for each one of these eight goals provide more detail about how they are to be achieved and are listed in **Chapter 1**.

Implementation of this vision is based upon two components: projects that can be initiated and completed (or largely completed) within five years and those that will be initiated in the twenty-year period starting in 2020. Longer-term and conceptual projects which have not advanced enough to be placed in either of these time frames are included in a separate vision projects list.

Projects are categorized in the RSIP using four principle categories:

1. State of Good Repair
2. System Enhancements
3. Expansion Projects
4. Safety Improvements

The SRP uses three principal strategies for addressing rail system needs:

1. To maintain Pennsylvania's existing rail system = State of Good Repair projects
2. To develop a better state rail system = with system enhancements and safety improvements
3. To create the best state rail system possible = with expansion projects

## 5.2 Program Coordination

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To develop the SRP and its RSIP extensive document review and key stakeholder interview processes were initiated and completed. These helped ensure consistency with other state policies and programs and multi-state planning efforts in which Pennsylvania railroads and planners have been involved.

State Rail Plans from all of Pennsylvania's neighboring states were reviewed:

1. *New Jersey State Rail Plan, Final Report, April 2015*
2. *Delaware State Rail Plan, Final Report, April 2011*
3. *Maryland State Rail Plan* (currently in draft form in June 2015, under review by FRA)
4. *West Virginia State Rail Plan, Final Report, December 2013*
5. *Ohio Statewide Rail Plan, Final Report, May 2010*
6. *New York State Rail Plan, Final Report, 2009*

Reviewing these plans helped identify multi-state projects that include segments in Pennsylvania and in one or more other states. Also reviewed were state rail plans developed for Minnesota and Wyoming, the latter being the first State Rail Plan formally approved by the FRA under new 2013 guidance.

1. *Minnesota GO: A Collaborative Vision for Transportation: DRAFT State Rail Plan, March 2015*
2. *Wyoming Statewide Rail Plan, Final Report, March 2015*



### Nittany & Bald Eagle Railroad

Source: Michael Zollitsch

To ensure that Pennsylvania's SRP and the RSIP are well coordinated with other state planning efforts, the following public and private planning initiatives were reviewed:

1. *PA On Track* is an ongoing initiative to set statewide policies and goals for an effective and efficient multimodal transportation system in Pennsylvania. Though not yet finalized (expected completion in 2015 after publication of the SRP), it provides essential guidance with its vision for Pennsylvania's roadway, rail, freight, mass transit, and bicycle and pedestrian systems
2. For passenger rail projects, these studies and initiatives provided essential information:
  - a. Amtrak's *2015 Northeast Corridor (NEC) 5-Year Plan* and *NEC FUTURE* studies
  - b. SEPTA's *Fiscal Year 2015 Capital Budget and Fiscal Years 2016-2027 Capital Program*
  - c. DVRPC's *FY 2015-2018 Transportation Improvement Program (TIP)* and *Connections 2040 Plan and Update*
3. For freight rail projects, Metropolitan Planning Organization (MPO) and Rural Planning Organization (RPO) planning documents from across the state were consulted, including Transportation Improvement Programs, Long-Range Transportation Plans, and other project and program specific plans and studies
4. Finally, reports and plans produced by three Pennsylvania state programs and commissions were reviewed to identify additional projects and planned investments:
  - a. The *State Transportation Improvement Program (STIP): 2015-2018*
  - b. Documents produced by the State Transportation Commission and State Transportation Advisory Committee, including PennDOT's *2015-2026 Twelve Year Program*
  - c. Reports and documents produced for the state's *Rail Transportation Assistance Program (RTAP)* and *Rail Freight Assistance Program (RFAP)*



Review of published plans and reports was complemented with telephone and in-person interviews with planners and rail specialists. The interviews were structured to pose questions about region-specific rail transportation goals, expected economic impacts of rail projects, local businesses' reliance on rail transportation, and project priorities at the local and regional levels.

### 5.3 Rail Agencies

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PennDOT manages rail transportation in the state through its depute for Multimodal Transportation, which is responsible for:

1. Local and public transportation through the *Bureau of Public Transportation*
2. Rail and water freight transportation through the *Bureau of Rail Freight, Ports, and Waterways*
3. Airports through the *Bureau of Aviation*

Providing guidance to the depute on state transportation policy and investments are the members of the *State Transportation Commission* and the *State Transportation Advisory Committee*. Rail expertise is provided by the members of the state's *Rail Freight Advisory Committee*. When appropriate, the Commonwealth initiates studies to address specific rail-related questions, such as Governor Wolf's spring 2015 appointment of a railway civil engineering consultant to evaluate safety issues related to Pennsylvania's freight rail transport of petroleum products.

The creation of the depute of Multimodal Transportation was initiated by the passage of the *Comprehensive Transportation Funding Plan of 2013* (commonly referred to as "Act 89"), bringing under one umbrella the state's support for passenger and freight rail transportation.

Currently, there are no known proposed changes to the structure of state-level rail agencies by state departments, legislators, or elected officials, nor does the SRP propose any such changes. At present, the system of state, regional, and local government support to passenger and freight rail is well adapted to analyzing, planning for, funding, and implementing publicly supported passenger and freight rail investments and projects.

### 5.4 Program Effects

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The RSIP for Pennsylvania will have significant and wide-ranging effects on travel behavior, freight movement, economic activity, and the natural environment. The existence of extensive passenger and freight rail networks creates efficiencies in the movement of people and goods. When compared to travel by other modes, rail transportation can help reduce energy consumption, time spent in travel, harm to people and property from vehicle collisions, and pollutant emissions. But measuring and confirming those impacts require robust methods of identifying and evaluating benefits.

To assess these effects, a methodology was developed for this RSIP to measure the public benefits of preserving and improving the state's systems of passenger and freight rail with State of Good Repair projects, enhancement and safety projects, and expansion projects. This methodology focused on quantifying the vehicle miles traveled (VMT) of cars, light-duty trucks, and heavy trucks that are avoided because they utilize Pennsylvania's passenger and freight rail networks.



### Amtrak train at the Lancaster Station

Source: PennDOT

These *avoided VMT* have important effects related to the:

1. Operating costs of cars and trucks,
2. Pavement maintenance costs on the state's highway network caused by heavy truck travel,
3. Fatalities, injuries, and property damage due to car and truck collisions, and
4. Pollutant emissions from cars and trucks.

This methodology is not a standard benefit-cost analysis nor a full economic impact analysis, but it provides valuable information about Pennsylvania's rail systems by assessing the relative benefits contributed by individual freight and passenger network segments.

To perform this analysis, projects were grouped by mode (freight or passenger) and by rail plan goals. Projects were also grouped by phasing: short-term projects are funded projects that are anticipated to be completed within the next five years, while long-term projects are those anticipated for completion after 2020 and those for which funding has not yet been secured.

For the intercity passenger rail network in Pennsylvania, economic benefits were evaluated based on the assumption that rail travel displaces trips that would otherwise be made largely by private cars or light duty trucks (i.e., vans, sports utility vehicles, and pickups). For freight rail projects, economic benefits were evaluated based on the assumption that freight movements across Pennsylvania's rail network displace shipping that would otherwise be made by truck.

Benefits were calculated using spreadsheet models populated with:

1. The list of short-term, long-term, and vision projects that make up this RSIP,
2. Operations data from Amtrak and SEPTA (such as ridership, trip lengths, and operating expenses) and from the state's freight rail operators (based on 2013 waybill data of tonnage, distances, and shipments by commodity type), and
3. Economic, safety, emissions, and monetization factors from a variety of federal and state sources.



Passenger rail network benefits were calculated by forecasting future travel, then comparing operating costs, emissions, and collisions for equal numbers of passenger trips and distances by rail versus private automobiles. Similarly, freight rail benefits were calculated across the freight rail network by forecasting future shipments (tonnage, distances, and shipments), then comparing operating costs, emissions, and collisions for shipments by rail versus trucks. Freight benefits were also examined to reduce pavement maintenance costs associated with higher levels of truck travel on the state’s roadways if the freight rail system were not usable. Net benefits over the short-term (2015 to 2019) and long-term (2020 to 2040) were computed, then summarized to net present values (NPVs) using 3 percent and 7 percent discount rates. These values are required for many economic assessments, including US Department of Transportation TIGER grant benefit-cost analyses. (Further details of this methodology are contained in **Appendix E**.) Monetary values were computed for the identified differences in operating costs, collision costs, pollutant emissions, and pavement maintenance costs.

Whether discounted at the conservative value of 3 percent or the more aggressive value of 7 percent, the total net public benefits of the presence and operations of Pennsylvania’s passenger and freight rail networks is in the billions of dollars, with the vast majority of benefits coming from the freight rail system in the state.

For passenger travel, the benefits are largely due to avoided motor vehicle collisions and the costs associated with fatalities, injuries, and property damage. Reductions in operating costs are also substantial, particularly for SEPTA riders who save considerable amounts of money by avoiding the operating, maintenance, insurance, and parking costs associated with automobile commuting. Pollutant emissions reductions also lead to measurable and important public benefits. See **Table 5-1** below.

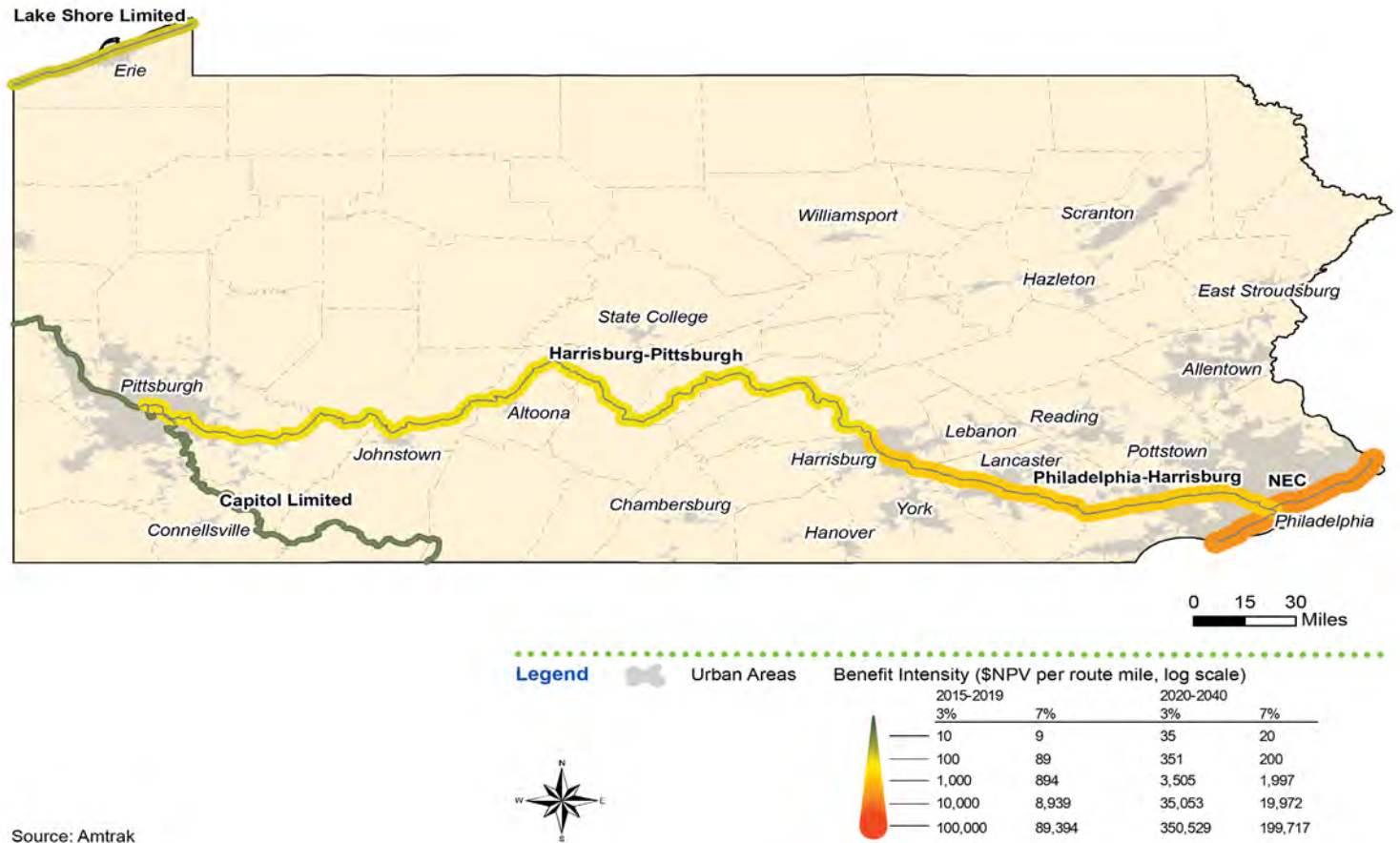
**Table 5-1: Summary of Passenger Rail Benefits Through 2040, in millions of 2015 dollars**

	NPV 3 Percent		NPV 7 Percent	
	2015-2019	2020-2040	2015-2019	2020-2040
Amtrak – Composite				
Operating cost savings	\$105	\$362	\$94	\$207
Collision reduction	\$557	\$1,922	\$498	\$1,097
Emissions reduction	\$43	\$183	\$38	\$102
<b>Total</b>	<b>\$705</b>	<b>\$2,467</b>	<b>\$630</b>	<b>\$1,406</b>
SEPTA – Trunk Line				
Operating cost savings	\$351	\$1,050	\$314	\$608
Collision reduction	\$273	\$816	\$244	\$473
Emissions reduction	\$17	\$67	\$15	\$38
<b>Total</b>	<b>\$641</b>	<b>\$1,933</b>	<b>\$573</b>	<b>\$1,119</b>

*Numbers may not add up due to rounding.*

For Amtrak, the largest benefits per mile occur on the NEC. Lower benefits per route mile are found on the Keystone Service between Philadelphia and Harrisburg, on the Lake Shore Limited route, and on the Capitol Limited route. See **Figure 5-1**.

Figure 5-1: Amtrak Benefits per Segment Route Mile

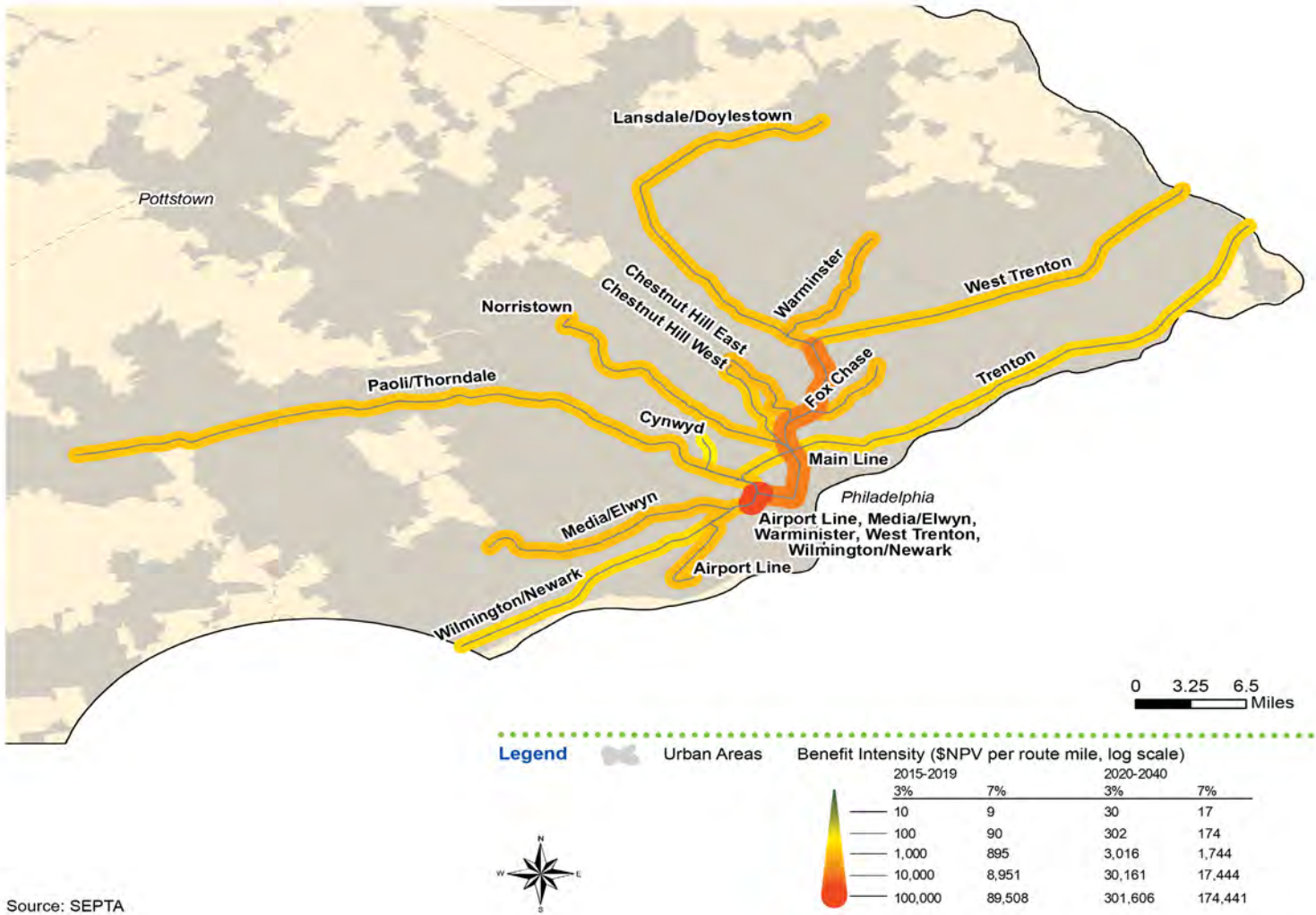


Source: Amtrak

For SEPTA, benefits are most significant in the trunk line of SEPTA’s Regional Rail system, described as the segment between Philadelphia’s 30th Street Station and Jenkintown-Wyncote, where several northern commuter rail lines branch off. See **Figure 5-2**. All of SEPTA’s 13 commuter rail lines operate along some portion of the trunk line, thus, improvements on this segment support system-wide benefits. Significant benefits also accrue on a segment between University City and 30th Street Station. Here, five different SEPTA commuter rail lines operate on the Amtrak-owned NEC. Any benefits here accrue to SEPTA and Amtrak. Elsewhere, benefits are fairly evenly distributed along most of SEPTA’s Regional Rail lines, with smaller benefit gains on the Chestnut Hill West, West Trenton, Wilmington-Newark, and Cynwyd Lines.



Figure 5-2: SEPTA Benefits per route mile



Source: SEPTA

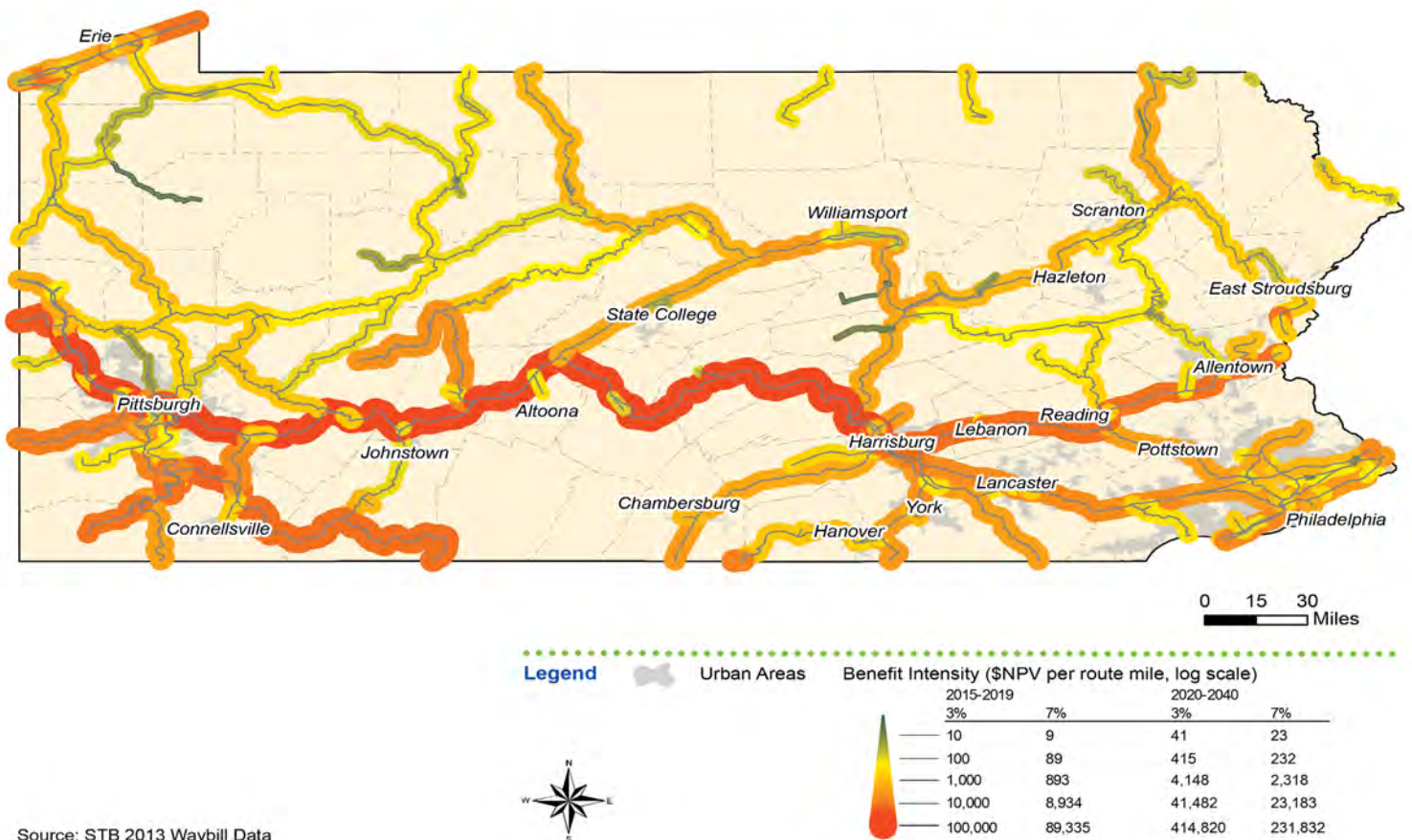
For freight rail, transportation operating cost savings are very large, reflecting the size of the freight rail network throughout Pennsylvania and the inclusion of an additional public benefit—pavement maintenance cost savings—not part of the passenger rail network analysis. For commodities suited to rail transportation (higher volume and weight and lower value per pound commodities like coal, petroleum products, and grains), the efficiencies of rail transportation are high and the operating cost savings important to businesses that rely on it. Pavement maintenance costs, pollutant emissions reductions, and avoided motor vehicle collisions are also important public benefits. See **Table 5-2**.

**Table 5-2: Summary of Freight Rail Benefits Through 2040, in millions of 2015 dollars**

	NPV 3 Percent		NPV 7 Percent	
	2015-2019	2020-2040	2015-2019	2020-2040
Operating cost savings	\$58,899	\$241,659	\$52,621	\$135,219
Pavement maintenance cost savings	\$8,030	\$32,948	\$7,174	\$18,436
Collision reduction	\$6,546	\$26,856	\$5,848	\$15,027
Emissions reduction	\$5,576	\$26,454	\$4,977	\$14,583
<b>Total</b>	<b>\$79,051</b>	<b>\$327,918</b>	<b>\$70,620</b>	<b>\$183,265</b>

Freight network benefits are greatest on Norfolk Southern’s Main Line between Pittsburgh and Harrisburg, on the shared NS/CSX Lake Erie corridor, and in the Pittsburgh and Philadelphia regions served by multiple Class I carriers. See **Figure 5-3** below.

**Figure 5-3: Freight Network Benefits per route mile**



Source: STB 2013 Waybill Data



Investments made as part of the RSIP will ensure that passenger and freight rail transportation continues to play a role in the state’s multimodal transportation system. The value to the people and economy of Pennsylvania of maintaining and improving the state’s rail systems is summarized in this public benefit analysis, but reflect a variety of benefits. Significant automobile and truck traffic that causes roadway congestion is avoided by permitting shippers and travelers more options for freight shipments and travel. Economic efficiency results from providing travelers and shippers better options to meet their needs. Safety improvements help users of Pennsylvania’s multimodal transportation system avoid collisions that cost lives and cause personal and property damage. Greenhouse gas and pollutant emissions are lower than they would be, providing environmental benefits. A higher level of resiliency—in both natural and human systems—is obtained through the efficiencies and alternatives that result from the preservation and enhancement of the state’s rail networks.

## 5.5 Passenger Element

Pennsylvania’s extensive passenger rail network includes higher-speed, intercity, and commuter rail services provided by Amtrak and SEPTA.<sup>2</sup> The network of stations and rail infrastructure, including tracks, signals, and electric distribution systems, as well as locomotives and passenger cars, require significant investment to maintain in a state of good repair. Before the passage of Act 89, funding constraints severely limited SEPTA’s ability to maintain the Regional Rail commuter system, leading SEPTA to propose shutting down significant portions of the system. Now with new revenue from Act 89, SEPTA can address these critical needs as well as invest in station improvements, safety projects, and incremental expansion projects. Conversely, the long-term outlook for federal transportation funding continues to remain uncertain, which may limit Amtrak’s ability to maintain its portion of the state’s passenger rail network.

The passenger element of the RSIP was created in close coordination with Amtrak, SEPTA, regional planning organizations, and other stakeholders in order to meet the SRP’s goals. Projects where the majority of spending will be completed before 2020 are classified as short-term, where projects scheduled for implementation primarily between 2020 and 2040 are classified as long-term. This RSIP also includes a list of vision projects which have not yet advanced far enough in planning, design, and funding to be placed on the short- or long-term projects lists (see **Section 5.7** below).

### 5.5.1 Passenger Rail Investment

The passenger element of the RSIP consists of 230 known passenger capital projects scheduled between 2015 and 2040 that have confirmed funding, or reasonable expectations of funding, based on current levels of federal, state, and local financial support. These include a large number of short-term projects from Amtrak and SEPTA, as well as long-term SEPTA projects. For the purpose of developing the RSIP, passenger rail projects were grouped by four areas of impact compatible with the SRP Goals (as indicated in **Table 5-3**):

1. **State of Good Repair:** Projects that maintain the existing rail network, including repair of railroad bridges, replacement of electric distribution components that have exceeded their useful life, and general track work projects.
2. **System Enhancements:** Projects that improve the rail passenger experience by improving passenger stations and upgrading infrastructure to allow for improved passenger train performance.
3. **Expansion Projects:** Projects that expand the capacity of the rail network, such as the planned extension of SEPTA’s Elwyn line to Wawa.
4. **Safety Improvements:** Projects that improve system safety, such as installing new fencing and closing at-grade railroad crossings.

<sup>2</sup> SEPTA is the only commuter rail system in Pennsylvania that shares tracks with Amtrak and freight railroads and is, therefore, included in this State Rail Plan.



Crum Creek Viaduct

Source: SEPTA

**Table 5-3: Passenger Rail Projects Evaluation Criteria Matrix**

Investment Type	Compatibility with SRP Goals			
	State of Good Repair	System Enhancements	Expansion Projects	Safety Improvements
State of Good Repair	X			X
Station Improvements	X	X		X
Replacement of Outdated Components of Overhead Catenary Electrical system	X			
Rolling Stock Rehabilitation and Replacement	X			
System Improvements		X		X
Parking Garages at Suburban Stations		X		
Flood Mitigation Measures		X		
New Payment Technology (NPT) Electronic Fare Payment System		X		
Network Expansion			X	

**Table 5-4** indicates the number of passenger rail projects by agency and State Rail Plan goal, while **Table 5-5** summarizes agency spending by State Rail Plan goal, both showing a strong emphasis on State of Good Repair investments. A detailed list of short-term and long-term intercity passenger rail projects can be found in **Appendix F** and **Appendix G**, respectively.

**Table 5-4: Number of Passenger Rail Projects by Agency and SRP Goals, 2015 to 2040**

Rail Agency	SRP Goal				Total, by Agency	Percentage by Agency
	State of Good Repair	System Enhancements	Expansion Projects	Safety Improvements		
Amtrak: Keystone	30	19	-	2	51	22.2%
Amtrak: NEC	76	7	-	2	85	37.0%
SEPTA	53	36	3	2	94	40.9%
<b>Total Projects</b>	<b>159</b>	<b>62</b>	<b>3</b>	<b>6</b>	<b>230</b>	<b>100%</b>
Percent Projects by Goal	69.1%	27.0%	1.3%	2.6%	100%	

*Note: This summary reflects the overall RSIP number of projects, not project costs.*



### SEPTA train leaving Bryn Mawr Station

Source: Jersey Mike

There are extensive long-term expansion and system enhancement plans being prepared for Amtrak's Northeast and Keystone Corridors as part of the *NEC FUTURE* study, which will lay out the future of these important corridors. These planning initiatives will not be completed until after the SRP is published.

Projected ridership that will benefit from Amtrak's ongoing investments are included in **Chapter 2**. Projected ridership increases resulting from SEPTA's investments are included in **Appendix H**. Due to current uncertainties in federal funding, vision projects for expanding the geographic reach of passenger rail service are discussed in **Section 5.7** rather than in the 20-Year Plan. They may be advanced to the long-term capital plan as future funding allows.

**Table 5-5** indicates agency spending by primary project SRP goal and demonstrates an emphasis on State of Good Repair projects. It is important to note that many projects achieve multiple SRP goals; for example, State of Good Repair work contributes to safety by reducing the chance of collisions caused by deficient infrastructure.



**Table 5-5: Projected Passenger Rail Spending by Agency and State Rail Plan Goals, 2015 to 2040, in millions of 2015 dollars**

	SRP Goal				Total	Percentage of Total
	State of Good Repair	System Enhancements	Expansion Projects	Safety Improvements		
Amtrak Keystone	\$94.0	\$425.5	-	\$1.9	\$521.4	10.0%
Amtrak NEC	\$1,008.3	\$160.5	-	\$0.8	\$1,169.6	22.5%
SEPTA Short-Term	\$574.5	\$750.8	\$166.0	\$84.8	\$1,576.1	30.3%
SEPTA Long-Term	\$1,596.3	\$311.5	\$32.3	-	\$1,940.1	37.2%
<b>Total</b>	<b>\$3,273.1</b>	<b>\$1,648.3</b>	<b>\$198.3</b>	<b>\$87.5</b>	<b>\$5,207.2</b>	<b>100%</b>
Percent Projects by Goal	62.8%	31.7%	3.8%	1.7%	100%	

### 5.5.1.1 SHORT-TERM PASSENGER RAIL CAPITAL PROJECTS (2015-2019)

In the five year period from 2015 to 2019, there are 192 passenger rail projects identified for initiation and completion, 29.2 percent of which are SEPTA projects and 70.8 percent of which are Amtrak projects on the Keystone and NEC (see **Table 5-6**).

**Table 5-6: Number of Short-Term Passenger Rail Projects by Agency and SRP Goal, 2015 to 2019**

	SRP Goal				Total	Percentage of Total
	State of Good Repair	System Enhancements	Expansion Projects	Safety Improvements		
Amtrak Keystone	30	19	-	2	51	26.5%
Amtrak NEC	76	7	-	2	85	44.3%
SEPTA	29	23	2	2	56	29.2%
<b>Total</b>	<b>135</b>	<b>49</b>	<b>2</b>	<b>6</b>	<b>192</b>	<b>100%</b>
Percent Projects by Goal	70.4%	25.5%	1.0%	3.1%	100%	

*Note: This summary reflects the overall RSIP number of projects, not project costs.*

## AMTRAK

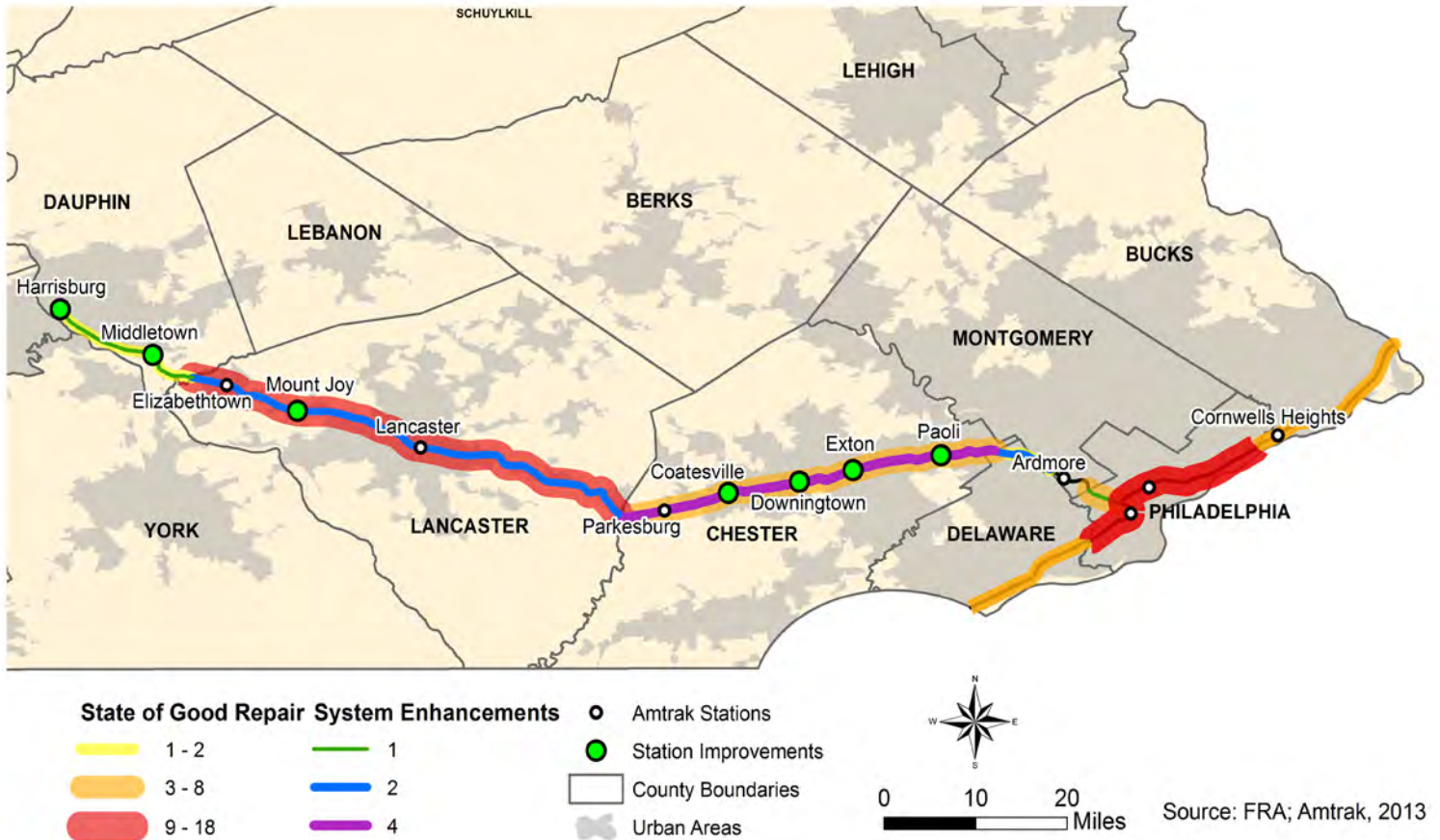
Amtrak’s short-term capital plan includes 51 projects representing a \$561.8 million (in inflation-adjusted Year Of Expenditure dollars) investment in the Keystone Corridor, focusing on State of Good Repair and system enhancement projects. Extensive station improvement projects are included to reach system enhancement goals, including \$34 million for a new Middletown Station to replace the current inadequate station, and \$31.9 million to upgrade the existing Mount Joy station (all figures in Year of Expenditure dollars).

The Pennsylvania portion of Amtrak’s NEC does not require major bridge and tunnel replacement projects needed in other portions of the corridor, but ongoing track work and maintenance of catenary power systems will require \$1.24 billion in spending spread across 85 projects. NEC projects also include over \$160 million in system enhancements to 30th Street Station. (Due to the inter-state nature of Amtrak’s NEC, many division-wide State of Good Repair projects for the NEC extend beyond Pennsylvania.)

Funding for Amtrak’s planned capital projects is subject to annual Congressional appropriation. Short-term Amtrak State of Good Repair projects that are geographically specific are shown in **Figure 5-4**.

Positive Train Control (PTC), a federally-mandated safety system designed to prevent accidents by automatically controlling maximum train speeds, is expected to be complete on the NEC by the end of 2015.

**Figure 5-4: Short-Term Amtrak Passenger Rail Projects, 2015-2019**



## SEPTA

SEPTA short-term capital plan projects for the Regional Rail network include extensive State of Good Repair bridge and track projects throughout the system, as well as station enhancements and expansion projects. The locations of SEPTA short-term projects are shown in **Figure 5-5**. SEPTA is ahead of most other rail systems in the country in installing a PTC safety system throughout its rail network and expects to reach substantial completion by the end of 2015.

One highlight of the short-term capital plan is the \$135 million (YOE dollars) extension of the Elwyn line to a new station in Wawa, expected to open in 2020. This one-stop extension is predicted to attract 719 daily trips in the opening year, increasing to 930 daily trips by 2035. Of the 719 daily trips in 2020, 667 are expected to be diverted from highway travel, with the remaining trips diverted from existing transit lines.<sup>3</sup> The annual incremental operating expense for the Wawa extension is expected to be \$1.6 million annually starting in 2020, with expected incremental revenue including farebox and parking fees of \$0.6 million (all figures expressed in 2015 dollars).

The short-term portion of the SEPTA capital plan includes \$137.2 million for major Regional Rail bridge rehabilitation and replacement projects. Projects include the \$82.3 million (YOE dollars) replacement of the Crum Creek Viaduct on the Media/Elwyn Line, one of the largest bridges on the SEPTA Regional Rail network. Additional bridge efforts include a \$46 million (YOE dollars) project to replace key structural components on three viaducts on the Media/Elwyn Line and a \$9.3 million (YOE dollars) project to rehabilitate nine stone arch bridges throughout the system.<sup>4</sup>

SEPTA plans on acquiring new rolling stock and rehabilitating older rolling stock for its Regional Rail network. A highlight of this effort is a contract to purchase 13 new high speed electric locomotives to replace existing locomotives, with the option to purchase five more units, for a total cost of \$154.4 million.<sup>5</sup>

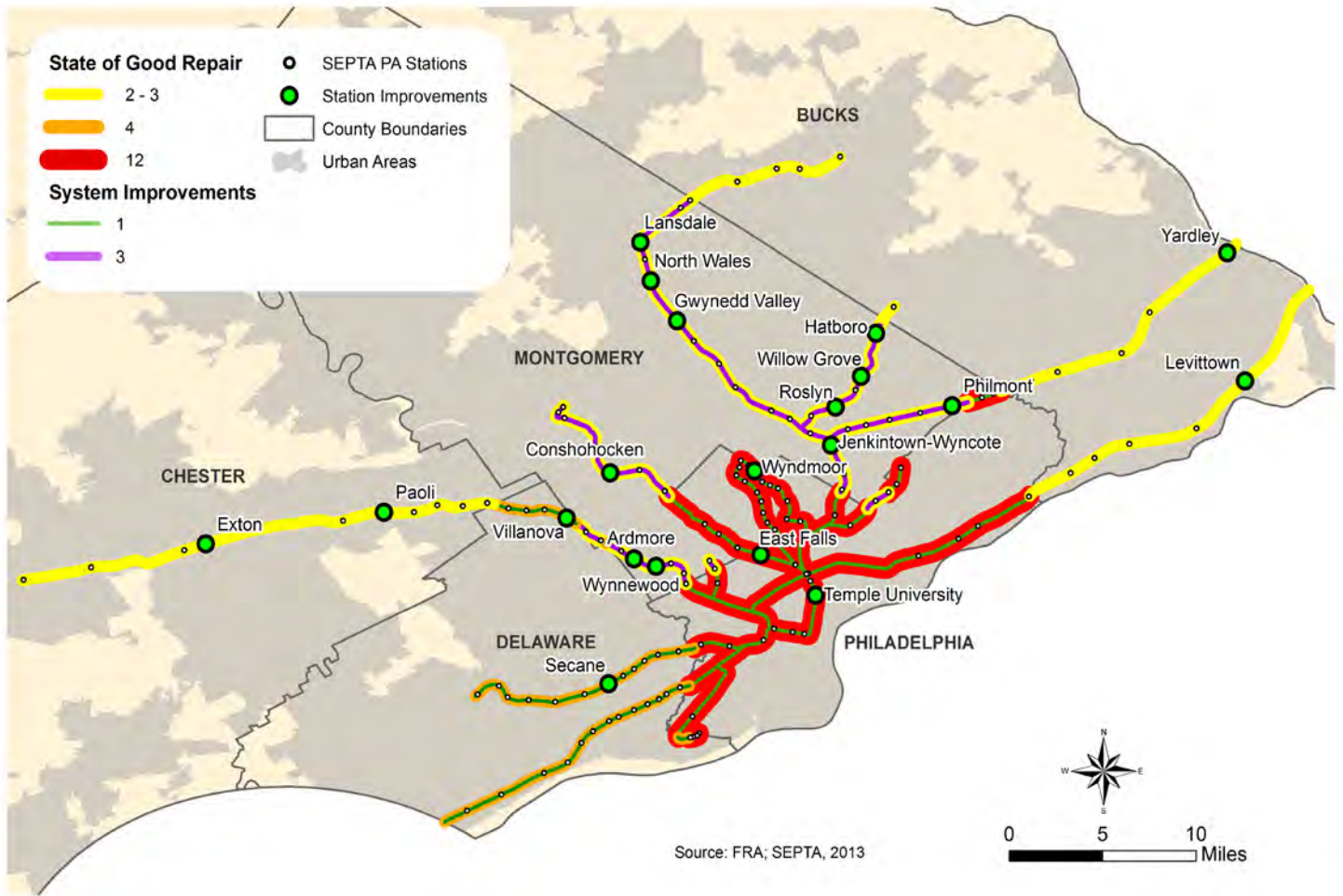
Examples of SEPTA station improvements scheduled for the near future include a \$31.9 million (YOE dollars) improvement of Levittown Station, a \$26.9 million (YOE dollars) improvement project for Jenkintown Station, and \$24.5 million (YOE dollars) in improvements for Secane Station. Station enhancements include improvements to pedestrian connections for walkability, as well as bicycle parking facilities. Lansdale Station improvements will include connections to a new Transit-Oriented Development (TOD) complex adjacent to the train station.

3 Vollmer Associates for DVRPC, 2000, *Elwyn to Wawa Service Restoration Feasibility Report*; Brandywine Valley Engineers for DVRPC, 1999, *Elwyn to Wawa Service Restoration Study Progress Report No. 2*; SEPTA Capital Plan; DVRPC, 2011, *Wawa to West Chester Regional Rail Extension Ridership Forecast*.

4 Ardmore, Exton, and Paoli SEPTA Regional Rail stations are jointly used with Amtrak.

5 May 2015 SEPTA Special Board Meeting Agenda. Retrieved from <http://www.septa.org/about/board/pdf/agenda-special-5-2015.pdf>

Figure 5-5: SEPTA Short-Term Passenger Rail Projects, 2015 to 2019



### 5.5.1.2 LONG-TERM PASSENGER RAIL CAPITAL PROJECTS (2020-2040)

In the time period 2020 to 2040, there are 38 passenger rail projects identified for initiation (see **Table 5-7**). Extensive plans for Amtrak’s high speed NEC and Keystone Corridor lines are currently under development as part of the *NEC FUTURE* study and will not be finalized until after publication of the *2015 Pennsylvania State Rail Plan*. This section, therefore, will focus exclusively on long-term projects included in SEPTA’s most recent capital plan.

Table 5-7: Number of Identified Long-Term Passenger Rail Projects by Class and SRP Goal, 2020 to 2040

	SRP Goal				Class Distribution	Percent by Class Distribution
	State of Good Repair	System Enhancements	Expansion Projects	Safety Improvements		
Amtrak Keystone	0	0	0	0	0	0.0%
Amtrak NEC	0	0	0	0	0	0.0%
SEPTA	24	13	1	0	38	100.0%
<b>Total</b>	<b>24</b>	<b>13</b>	<b>1</b>	<b>0</b>	<b>38</b>	<b>100%</b>
Percent Projects by Goal	63.2%	34.2%	2.6%	0.0%	100%	

Note: This summary reflects the overall RSIP number of projects, not project costs. No Amtrak projects are identified for 2020 and beyond.



The long-term portion of the SEPTA Capital Plan includes 38 projects representing a \$1.9 billion investment, with a continued emphasis on State of Good Repair projects and station enhancements. Selected highlights of the long-term plan are included in this section and a detailed list of all projects is in **Appendix G**. The SEPTA long-term capital plan is based on reasonable assumptions of federal funding levels, state revenue from Act 89, and continued local contributions from Philadelphia and its four suburban counties.

The largest SEPTA long-term capital project is a \$1.1 billion (2015 dollars) investment to replace the Silverliner IV Regional Rail passenger cars that were purchased in the 1970s with modern passenger cars that will provide for more reliable Regional Rail service. The largest fixed infrastructure project also supports the State of Good Repair goal by investing \$56 million (2015 dollars) in the rehabilitation of the Schuylkill River Bridge that carries all SEPTA Regional Rail lines between Center City and 30th Street station, along with approach spans built in 1929 that carry trains over adjacent streets and rail lines.

Improving passenger rail stations is an important part of the SRP's goal of system enhancement. A key long-term station enhancement plan is the \$53 million improvement project for Noble Station in Montgomery County, which includes a new parking garage, high-level platforms, passenger waiting areas, and landscaping.

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### 5.5.1.3 LIVABILITY

Station improvement projects included in the capital plan are consistent with the FRA Station Area Planning guidance to meet important goals for improving the livability of areas near train stations. Amtrak's *Station Program and Planning Guide* (described in **Section 2.3.6** of the SRP) sets standards for station development and redevelopment projects, including improvements to pedestrian and intermodal transportation connections, as well as land use changes. Further improvements to the area are currently being studied as part of the ongoing *Philadelphia 30th Street Station District Plan* as a result of PennDOT, SEPTA, Amtrak, Brandywine Realty Trust, and Drexel University project principals. Planned station improvements throughout SEPTA's Regional Rail network and along Amtrak's Keystone Corridor will also include enhanced connections to improve pedestrian access to local business districts.



### Entrance to 30th Street Station in Philadelphia

Source: HNTB Corporation

## 5.5.2 Passenger Rail Capital Financing Plan

Capital funding is essential for maintaining the aging, large-scale infrastructure used by Pennsylvania's passenger rail network, as well as for creating opportunities for future passenger rail system improvements. The capital funding plan for intercity passenger rail service in Pennsylvania relies on a variety of federal, state, and local funding sources. State level funding was enhanced by passage of Pennsylvania Act 89 in 2013, as explained in **Chapter 2**. Revenue from Act 89 is bondable and indexed against inflation, ensuring a steady flow of state funding that agencies may borrow against for capital projects. SEPTA anticipates Act 89 to increase annual state capital funding from \$120 million to more than \$350 million by 2018.<sup>6</sup> However, federal funding, which historically has been a vital source of capital funding for passenger railroad projects, remains uncertain due to the current lack of long-term federal funding legislation for either the general surface transportation fund or for Amtrak. State and federal capital funding programs are included in **Chapter 2**.

Low-interest financing options can help reduce interest costs for passenger capital projects. Potential financing sources include the federal *Railroad Rehabilitation & Improvement Financing* (RRIF), the federal *Transportation Infrastructure Finance and Innovation Act* (TIFIA) and the *Pennsylvania Infrastructure Bank* (PIB) programs. Private Activity Bond (PAB) financing may also be an option to finance capital costs.

<sup>6</sup> SEPTA Capital Budget. Retrieved from <http://septa.org/strategic-plan/reports/capbudget15.pdf>.



An example of a low interest RRIF loan used for passenger service improvements is financing provided to Amtrak for \$562.9 million to purchase 70 new electric high speed locomotives to replace Amtrak’s current fleet that serves the Northeast and Keystone Corridors.<sup>7</sup>

PennDOT is proactively seeking opportunities to collaborate with the private sector through its Public Private Partnerships Office, as described in **Chapter 2**. Pending federal legislation known as the *Passenger Rail Reform and Investment Act of 2015* (PRRIA) could give Amtrak greater flexibility in pursuing Public-Private Partnership opportunities.

Another potential source of revenue is to sell or lease public railroad-owned property in order to better capture the value of railroad service. An example is the Cira Center, a large office building built on land which Amtrak first leased to and then sold outright for \$23.2 million to a private real estate developer.<sup>8</sup>

Due to the combination of limited federal resources and newly available state resources, SEPTA’s system wide capital plan projects for FY 2015 are funded through 40 percent federal funding and 60 percent state and local funding. Federal grants generally require a non-federal funding match, ranging from a 20 percent required match for most FTA grants to 50 percent for FTA New Starts and High Speed Rail grants. State grants have historically been matched with 3.33 percent from local sources. The short-term capital plan for SEPTA and Amtrak passenger service in YOE dollars is summarized in **Table 5-8**, with further detail included in **Appendix F**.

**Table 5-8: Short-Term Passenger Rail Capital Project Costs, 2015-2019 in millions of Year of Expenditure dollars**

Rail Line	Number of Projects	2015 YOE	2016 YOE	2017 YOE	2018 YOE	2019 YOE	Total 2015-2019 YOE	Sum of Anticipated State Match*
Amtrak Keystone	51	\$78.5	\$80.9	\$83.3	\$85.8	\$233.3	\$561.8	\$15.6
Amtrak NEC	85	\$233.9	\$240.9	\$248.2	\$255.6	\$263.3	\$1,241.9	\$1.7
SEPTA Regional Rail	56	\$373.5	\$309.7	\$319.0	\$328.5	\$338.4	\$1,669.1	\$1,143.6
<b>Total Passenger Projects</b>	<b>192</b>	<b>\$685.9</b>	<b>\$631.5</b>	<b>\$650.4</b>	<b>\$670.0</b>	<b>\$835.0</b>	<b>\$3,472.8</b>	<b>\$1,160.9</b>

Note: Original costs from Amtrak and SEPTA Capital Plans. YOE calculations based on PennDOT’s 3% annual forecasted inflation rate.  
 \* State funding is competitive and match is not guaranteed.

Both agencies have based their short-term capital programs on anticipated available funding, resulting in a combined capital budget with no anticipated funding gap, as indicated in **Table 5-9**.

Long-term projects (2020 to 2040) included in SEPTA’s capital plan call for \$1.9 billion in spending for Regional Rail improvements, as summarized in **Table 5-24** and detailed in **Appendix G**. SEPTA anticipates these investments will be funded through federal, state, and local funding resources. Amtrak’s long-term capital investment and financing strategies are to be determined by the ongoing *NEC FUTURE* study as well as future Congressional action.

7 February 2015 Amtrak 5 Year Budget & Business Plan. Retrieved from <http://www.amtrak.com/ccurl/133/704/FY15-Budget-Business-Plan-FY16-Budget-Justification-FY-15-19-Five-Year-Financial-Plan.pdf>, page 151

8 Dec 5, 2013, Brandywine buys land where Cira Centre stands, Philadelphia Business Journal, retrieved from [www.bizjournals.com/philadelphia/blog/real-estate/2013/12/brandywine-buys-land-where-cira-centre.html](http://www.bizjournals.com/philadelphia/blog/real-estate/2013/12/brandywine-buys-land-where-cira-centre.html). May 9, 2002, Office Tower Planned on Leased Site, AP Newswire, retrieved from [www.apnewsarchive.com/2002/Office-Tower-Planned-on-Leased-Site/id-ad6d355c45553f5163c107f5d5ee3383](http://www.apnewsarchive.com/2002/Office-Tower-Planned-on-Leased-Site/id-ad6d355c45553f5163c107f5d5ee3383).

**Table 5-9: Short-Term Rail Capital Spending Gap Analysis, 2015-2019 in millions of Year of Expenditure dollars**

	2015 YOE	2016 YOE	2017 YOE	2018 YOE	2019 YOE	Total 2015-2019 (YOE)
SEPTA Regional Rail	\$373.5	\$309.7	\$319.0	\$328.5	\$338.4	\$1,669.1
Amtrak	\$312.4	\$321.8	\$331.5	\$341.4	\$496.6	\$1,803.8
<b>Anticipated Available Funding</b>	<b>\$685.9</b>	<b>\$631.5</b>	<b>\$650.5</b>	<b>\$669.9</b>	<b>\$835.0</b>	<b>\$3,472.9</b>

Note: All costs and revenues based on Amtrak and SEPTA capital plans. Amtrak funding is subject to annual Congressional appropriations.

### 5.5.3 Operating Financing Plan

Passenger rail operating costs are annually recurring expenses and include energy costs and salaries for railroad operations staff. In almost all cases, passenger railroads require additional funds to supplement farebox revenue in order to meet operating costs requirements. Unlike capital costs, operating costs cannot be bonded and are generally ineligible for US Department of Transportation grants.

#### AMTRAK

Amtrak’s operating budget is funded through a mix of farebox revenue, and federal and state support. These funding sources vary between Amtrak’s three business lines: the NEC, its Long Distance Network, and State Supported Routes.

Due to high demand for service along the NEC, farebox revenue for the NEC Regional and Acela Express services exceeds the cost of operations. Fares on the NEC are managed through a sophisticated dynamic pricing system to maximize farebox revenue.<sup>9</sup> This operating surplus is expected to continue in the near future, meaning operating budget federal support for the NEC is not required. The surplus from the NEC operations budget is currently used to subsidize other portions of the Amtrak network. The long-term future of NEC operations funding is currently being examined by the *NEC FUTURE* study.

Long distance services with routes over 750 miles, such as the Capitol Limited and Lake Shore Limited, are unusual for American passenger rail service as their operating budgets have been supported by the federal government since Amtrak’s inception. This support is expected to continue, subject to Congressional appropriation.

Under PRIIA (2008), financial responsibility for routes less than 750 miles, including Pennsylvanian and Keystone services, has been transitioning from federal to state support. A five year summary of expenses and revenues for these Pennsylvania State Supported services are included in **Table 5-10**. Amtrak expects a reduced state subsidy will be required in 2020 due to increased ridership and farebox revenue. Pennsylvania Act 89’s provisions for inflation-indexed revenue should ensure the long-term availability of funding for these routes.

<sup>9</sup> Amtrak Pricing and Revenue Management Overview. (May 30, 2013) Retrieved from <http://rail.transportation.org/SiteCollectionDocuments/AASHTO%20v4.ppt>.



**Table 5-10: Projected Operating Budget for Amtrak State-supported Routes, in millions of Year of Expenditure dollars**

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
<b>Keystone Service</b>					
Operating Costs (including allocated capital equipment costs)	\$40.1	\$42.5	\$44.6	\$46.1	\$48.4
Farebox and related revenue *	\$31.2	\$32.8	\$34.6	\$36.5	\$38.5
State Operating Subsidy	\$8.9	\$9.7	\$10.0	\$9.6	\$9.9
<b>Pennsylvanian Service</b>					
Operating Costs (including allocated capital equipment costs)	\$16.4	\$16.6	\$16.4	\$17.2	\$17.6
Farebox and related revenue *	\$11.3	\$12.0	\$12.6	\$13.3	\$14.0
State Operating Subsidy	\$5.1	\$4.6	\$3.8	\$4.0	\$3.6
<b>Total State Supported Services</b>					
Operating Costs (including allocated capital equipment costs)	\$56.5	\$59.2	\$61.1	\$63.3	\$66.0
Farebox and related revenue *	\$42.5	\$44.8	\$47.2	\$49.8	\$52.5
State Operating Subsidy	\$14.0	\$14.4	\$13.9	\$13.5	\$13.5

\* Includes revenue from NEC portion of the route.

Numbers may not add up due to rounding.

Source: Amtrak

## SEPTA

SEPTA’s operating budget is primarily funded through state financial support, which constitutes approximately 65 percent of the agency’s Regional Rail operating subsidy, as detailed over five years in **Table 5-11**. The remainder of the operating subsidy is provided through 25 percent federal support and 9.5 percent local support, with less than 1 percent provided through other subsidies. Federal grants are generally ineligible for operating costs, however, federal grants can fund preventative maintenance work on capital equipment, which is associated with the operations budget. Local funding is provided by the City of Philadelphia and the four Pennsylvania suburban counties served by SEPTA. Since the passage of Act 89, state transportation revenue is indexed to inflation and state funding for operating costs is expected to be stable.

The agency expects overall farebox revenue to increase by 1 percent annually, except for fare increases scheduled for every three years, with the next fare increase scheduled for FY 2017. Agency policy provides that the SEPTA Board of Directors determines the amount of each fare increase as needed.

### 5.5.4 Economic Benefits

High quality passenger rail service provides a wide range of public and private economic benefits. An analysis of benefits from passenger trips taken by rail instead of private vehicle is included in **Section 5.4**. Additional information on economic benefits provided by Amtrak and SEPTA is provided in this section.

**Table 5-11: Projected Operating Budget for SEPTA Regional Rail, FY 2015 to FY 2019 in millions of Year of Expenditure dollars**

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Operating Expenses	\$321.2	\$327.7	\$338.2	\$352.3	\$363.6
Farebox and related revenue *	\$167.2	\$168.0	\$176.3	\$178.0	\$179.8
Operating Subsidy (Total)	\$154.0	\$160.0	\$161.9	\$174.3	\$183.8
Federal	\$40.6	\$39.6	\$40.1	\$43.1	\$45.5
State	\$99.3	\$105.2	\$106.4	\$114.6	\$120.9
Local **	\$13.1	\$14.0	\$15.4	\$16.6	\$17.5
Other	\$1.0	\$1.0	\$1.0	\$1.0	\$1.0

\* Includes revenue from advertising, real estate leases, and investments.

\*\* Philadelphia contributes 7% of SEPTA Regional Rail's operating subsidy, while Bucks County provides approximately 0.6%, Chester County provides 0.4%, Delaware County 0.9%, and Montgomery County provides 0.1% of the subsidy.

Numbers may not add up due to rounding.

Source: FY 2015 and FY 2016 budget numbers from published SEPTA Operating Budget. FY 2017 to 2019 represent projections based on historic revenue and operating trends. Future operating costs are subject to change based on factors including energy costs, PRIIA allocated costs for use of Amtrak's infrastructure, and future Regional Rail union contracts.

## AMTRAK

Maintaining a state of good repair on the entire NEC is essential for the 750,000 daily riders who travel the line on commuter and Amtrak service, contributing over \$50 billion annually to the American economy.<sup>10</sup> Improved service on the corridor could result in \$8.2 billion in annual productivity savings for highway and aviation customers alone by shifting additional passengers from congested roadways and airports to high speed rail.<sup>11</sup>

Within the state, Amtrak employs over 2,700 Pennsylvania residents with total annual wages of \$220 million, and annual purchases of over \$235 million in goods and services.<sup>12</sup> On a national level, Amtrak estimates its current operations contribute approximately \$8.8 billion in economic benefits annually.<sup>13</sup>

## SEPTA

A study in 2013 concluded that the presence of SEPTA's Regional Rail network contributes a substantial premium to home values within close proximity of Regional Rail stations.<sup>14</sup> In addition, the entire multimodal SEPTA network is estimated to contribute \$3.2 billion in annual economic output across the state. If SEPTA's overall network were not maintained, it would increase transportation and time costs in the greater Philadelphia region by \$2.1 billion annually.<sup>15</sup>

10 Northeast Corridor Commission, April 2014, *The Northeast Corridor and the American Economy*, retrieved from [www.nec-commission.com/wp-content/uploads/2014/02/NEC\\_american\\_economy\\_report.pdf](http://www.nec-commission.com/wp-content/uploads/2014/02/NEC_american_economy_report.pdf).

11 Northeast Corridor Commission, 2015, *Connecting Residents to their Jobs*, retrieved from [www.nec-commission.com/reports/nec-and-american-economy/job-access](http://www.nec-commission.com/reports/nec-and-american-economy/job-access).

12 Amtrak Pennsylvania Fact Sheet, 2015, retrieved from [www.amtrak.com/pdf/factsheets/PENNSYLVANIA14.pdf](http://www.amtrak.com/pdf/factsheets/PENNSYLVANIA14.pdf).

13 National Railroad Passenger Corporation FY 15 Budget and Business Plan, 2015, retrieved from [www.amtrak.com/ccurl/133/704/FY15-Budget-Business-Plan-FY16-Budget-Justification-FY-15-19-Five-Year-Financial-Plan.pdf](http://www.amtrak.com/ccurl/133/704/FY15-Budget-Business-Plan-FY16-Budget-Justification-FY-15-19-Five-Year-Financial-Plan.pdf) (page 68).

14 Econsult, 2013, *The Impacts of SEPTA Regional Rail Service on Suburban House Prices*, retrieved from [www.econsultsolutions.com/experience/ourprojects/the-impacts-of-septa-regional-rail-service-on-suburban-house-prices/](http://www.econsultsolutions.com/experience/ourprojects/the-impacts-of-septa-regional-rail-service-on-suburban-house-prices/)

15 Economy League of Greater Philadelphia and Econsult, 2013, *Understanding SEPTA'S Statewide Economic Value*, retrieved from [www.septa.org/sustain/pdf/Understanding\\_SEPTA\\_s\\_Statewide\\_Economic\\_Value\\_0.pdf](http://www.septa.org/sustain/pdf/Understanding_SEPTA_s_Statewide_Economic_Value_0.pdf).





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## Lycoming Valley Railroad

Source: Michael Zollitsch

## 5.6 Freight Element

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### 5.6.1 Freight Element Implementation Plan

The freight rail system in Pennsylvania has been developed over the course of more than 150 years and provides effective and efficient transportation services to shippers within Pennsylvania and from other states and countries. The extensive network of rail corridors, terminals, and yards requires consistent and substantial investments to maintain a state of good repair, with upgrades and system enhancements to improve operations, and safety improvements as technologies and business practices improve and evolve. The SRP reflects the dual requirements of ongoing State of Good Repair investments and systems enhancements by concentrating the majority of planned investments in these two areas in the short term, while foreseeing expansion projects in the long term.

### 5.6.1.1 BACKGROUND AND METHODOLOGY

The 2010 *Pennsylvania Intercity Passenger and Freight Rail Plan* acknowledged that Pennsylvania’s rail system is in need of substantial investment. It identified a priority program that would achieve Pennsylvania’s vision for both passenger and freight rail, with focus on projects aligning with the plan’s goals to strengthen the overall rail system within the context of priority corridors.

Recognizing that the maintenance of the existing state freight rail system of corridors, yards, and other infrastructure requires consistent and substantial resources, this 2015 *Pennsylvania State Rail Plan* (and the RSIP that identifies specific investments needed to implement it) follows the model of the 2010 plan. It does this by emphasizing state of good repair, system enhancements, and safety improvements with investments in system expansion only planned for the long-term. For the purpose of developing the RSIP, freight rail projects categorized by investment type in **Chapter 4** were grouped by the four areas of impact compatible with the SRP Goals (as indicated in **Table 5-12**).

1. State of Good Repair: projects addressing maintenance of tracks, rehabilitation of bridges, and routine or backlogged fleet replacement schedule.
2. System Enhancements: projects addressing needed freight rail network enhancements, focusing on track upgrades and bridge replacement, yard capacity improvements, and enhancing intermodal connectivity between freight rail, trucks, and waterborne cargo.
3. Expansion Projects: investment in new or expanded lines, rehabilitation and reactivation of inactive routes, and new service extensions to connect to major freight activity centers and networks.
4. Safety Improvements: projects that reduce train-car conflicts result in improved safety at crossings, grade crossing improvements, grade separation projects, upgrades to rail change outs and ties, bridge replacements, PTC, Automated Horn systems, and cargo security.

These goals serve as a way of organizing PennDOT’s objectives for the state rail system.

**Table 5-12: Freight Rail Projects Evaluation Criteria Matrix**

Investment Type	Compatibility with SRP Goals			
	State of Good Repair	System Enhancements	Expansion Projects	Safety Improvements
<b>Physical Improvements</b>				
State of Good Repair	X			X
Yard improvements		X		X
Intermodal connections		X		
System improvements		X		X
<b>Service Changes</b>				
Service Expansion			X	
New Service			X	



### 5.6.1.2 FREIGHT RAIL CAPITAL PROJECTS SUMMARY (2015-2040)

PennDOT has coordinated with the freight railroads, regional and local planning organizations, and other stakeholders to identify short-term, long-term and longer-term vision freight rail projects to be included in this SRP. When implemented, these projects will greatly enhance the state’s freight rail network.<sup>16</sup> Similar to passenger rail, freight rail projects are organized based on whether they would be completed in the short-term (5 years: 2015-2019) or longer term (20 years: 2020-2040). This section briefly summarizes the entire RSIP’s freight element (2015 through 2040) while the next two sections provide more details on the 5-Year and 20-Year freight elements of the RSIP.

There are also multiple unfunded long-term vision studies that could potentially be approved as future projects. Those proposals would require further studies and analysis before maturing into feasible rail improvements. Further, these projects would likely be implemented in 2040 and beyond, unless funding is secured beforehand. These freight rail studies are summarized together with passenger rail vision projects in **Section 5.7**.

The RSIP does not address all privately-funded improvements that will be completed independently by the Class I, II and III railroads. PennDOT reached out to all freight rail carriers operating in Pennsylvania in October 2014, with 23 freight carriers responding to this request. The SRP therefore reflects only the responses from those carriers and does not provide a complete listing of needs in the Commonwealth. Several freight rail operators submitted proposed projects after the submission deadline. These projects are added as an addendum in this SRP’s **Appendix M**.

The proposed projects range from major, corridor-long improvements to spot improvements intended to address localized problems. Several of these localized projects respond to specific bottlenecks, physical constraints, and the State of Good Repair issues identified by freight stakeholders. Most projects included in the RSIP are Class III / short line improvements projects. **Table 5-13** indicates a high-level breakdown of all the proposed and known freight rail projects that were submitted to PennDOT for this RSIP.

By their responsiveness to and compatibility with the SRP goals, the majority of freight rail projects fall into the State of Good Repair category, with many identified system enhancements projects, followed by safety improvements, and a small number of expansion projects. This allocation of resources reflects freight rail operators’ focus on addressing the immediate needs of their clients. These State of Good Repair projects and system enhancements aim at incremental and timely improvements of their operations and increased efficiencies gained via focused strategic capital spending responsive to their clients’ needs rather than expansion projects.

The percentage distribution by SRP goals is important to emphasize, particularly since it shows that very few projects are meant to expand the freight rail system. The overwhelming focus of the freight rail RSIP is

**Table 5-13: Number of Freight Rail Projects by Class and State Rail Plan Goal, 2015 to 2040**

	SRP Goal				Total	Percentage
	State of Good Repair	System Enhancements	Expansion Projects	Safety Improvements		
Class I	17	25	0	12	54	18.8%
Class II	9	2	1	1	13	4.5%
Class III/ Short Line	139	61	2	19	221	76.7%
<b>Total Projects</b>	<b>165</b>	<b>88</b>	<b>3</b>	<b>32</b>	<b>288</b>	<b>100%</b>
Percent Projects by Goal	57.3%	30.6%	1.0%	11.1%	100%	

Note: 23 of 67 contacted freight rail operators responded to data request. 67 of 288 projects are designated as TBD (23% have no cost estimate).

<sup>16</sup> Additional projects may be added to the SRP when the plan is updated in 2020, or by a PennDOT amendment in the interim.



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### Allegheny Valley Railroad outside of Pittsburgh

Source: PennDOT

on maintaining the existing system, enhancing its operations, and making it safer. The overall story behind the RSIP is one of good stewardship of the system that previous generations have created and a commitment to investing in that system to make it function more efficiently and safety.

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#### 5.6.1.3 SHORT-TERM FREIGHT RAIL CAPITAL PROJECTS

The RSIP identifies 225 freight rail capital projects for implementation within the next 5 years (2015-2019), including 25 Class I, 12 Class II, and 188 Class III/short line projects (see **Table 5-14**). Thirteen projects included in the 5-Year freight rail RSIP are also included in the 20-Year program. Overlap in reporting in the number of projects is due to implementation timeframes spanning both short-term and longer-term programs for those particular projects. However, cost estimates are assigned to the 5-Year and 20-Year program on a year-by-year basis with no resulting funding overlap or double-counting.

The primary focus of short-term capital funding for freight rail operators in Pennsylvania overall is State of Good Repair (two thirds of all projects), followed by system enhancements. While the locations of known State of Good Repair projects are spread throughout Pennsylvania, safety improvements are mostly grade crossing improvement projects in areas with high population and employment density where potential for vehicular and rail conflicts is high, particularly in the Philadelphia area.



By rail class operator, the overwhelming majority of the short-term freight rail projects (84 percent) are Class III / short line projects. Smaller short line and regional railroads tend to be primary recipients of public funding for rail improvements and that is reflected in the large number of projects for Class III railroads in this RSIP. On the other hand, it should be noted that since rail maintenance, replacement, and expansion of track, structures and equipment by Class I railroads are largely self-funded by income from their operations, many such projects were not reported for this RSIP.

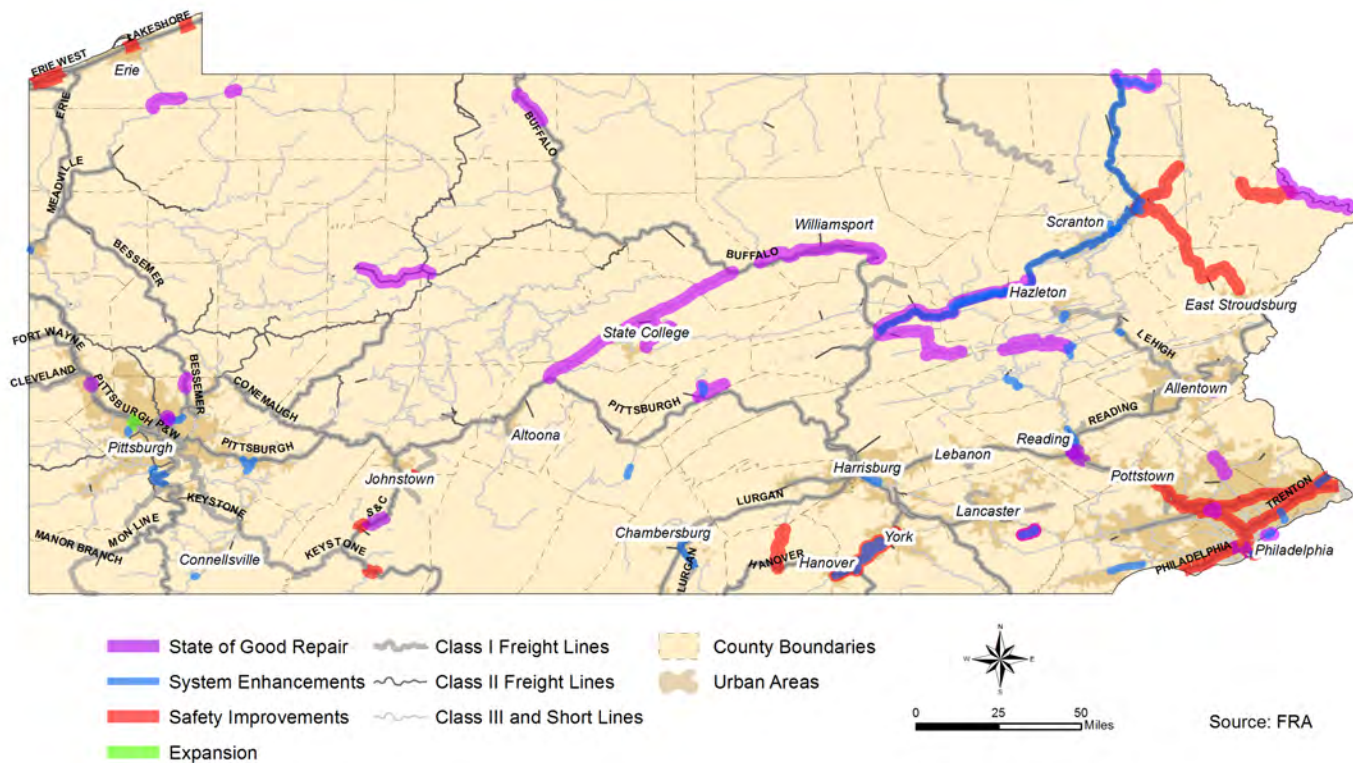
**Table 5-14** and **Figure 5-6** present a high-level summary of all known short-term RSIP freight rail projects, with a complete detailed list of 5-Year freight rail RSIP projects organized by rail carrier and SRP Goals in **Appendix I**.

**Table 5-14: Number of Short-Term Freight Rail Projects by Class and SRP Goal, 2015 to 2019**

Rail Class	SRP Goal				Class Distribution	Percentage by Class Distribution
	State of Good Repair	System Enhancements	Expansion Projects	Safety Improvements		
Class I	10	7	0	8	25	11.1%
Class II	9	2	0	1	12	5.3%
Class III/ Short Line	131	41	0	16	188	83.6%
<b>Total Projects</b>	<b>150</b>	<b>50</b>	<b>0</b>	<b>25</b>	<b>225</b>	<b>100.0%</b>
Percent Projects by Goal	66.7%	22.2%	0.0%	11.1%	100.0%	

Note: 46 of 225 projects are designated as TBD (20% have no cost estimate). Due to overlap in implementation timeframe, 13 short-term projects are also included as long-term.

**Figure 5-6: Location of Short-Term Freight Rail Projects (2015-2019) by Pennsylvania State Rail Plan Goal**



### 5.6.1.4 LONG-TERM FREIGHT RAIL CAPITAL PROJECTS

The RSIP identifies 76 freight rail capital projects for implementation over the longer term (2020-2040), including 32 Class I, one Class II, and 43 Class III/short line projects.<sup>17</sup> The nature of private investments in freight rail means project level data used in the RSIP is incomplete (many investments will be made that are not reflected here) and that planning generally follows a shorter time frame because planning and construction processes are generally faster in the private sector than they are in the public sector.

The primary focus of known long-term capital funding for freight rail operators in Pennsylvania overall are system enhancements aimed at increasing network efficiencies and capacity, followed by state of good repair. Unlike short-term projects which focus on preservation of the existing system, long-term priorities have an emphasis on system enhancements.

By rail class operator, longer-term freight rail projects are split fairly evenly between Class I and Class III/short line projects. **Table 5-15** presents breakdown of the proposed and known long-term freight rail projects that were submitted to PennDOT for this RSIP, with a complete, detailed list of 20-Year freight rail RSIP projects organized by rail carrier and SRP Goals included in **Appendix J**.

**Table 5-15: Number of Long-term Freight Rail Projects by Class and SRP Goal, 2020 to 2040**

Rail Class	SRP Goal				Class Distribution	Percentage by Class Distribution
	State of Good Repair	System Enhancements	Expansion Projects	Safety Improvements		
Class I	9	19	0	4	32	42.1%
Class II	0	0	1	0	1	1.3%
Class III/ Short Line	10	24	2	7	43	56.6%
<b>Total Projects</b>	<b>19</b>	<b>43</b>	<b>3</b>	<b>11</b>	<b>76</b>	<b>100%</b>
Percent Projects by Goal	25.0%	56.6%	3.9%	14.5%	100%	

*Note: This summary reflects the overall RSIP number of projects, not project costs. 21 of 76 projects are designated as TBD (28% have no cost estimate). Due to overlap in implementation timeframe, 13 short-term projects are also included as long-term.*

## 5.6.2 Freight Element Financing Plan

### 5.6.2.1 BACKGROUND AND AVAILABLE STATE FUNDING SOURCES

The freight rail projects included in this RSIP will provide important economic benefits to Pennsylvania. In order to realize the benefits, state, private, and local funds must be used to leverage federal grant and loan programs. A range of innovative funding and financing tools are needed by public and private freight rail sector stakeholders to implement this SRP. Being privately owned, the sources of funds to operate, maintain, and improve a freight railroad are largely drawn from private capital. Because freight railroads provide public benefits, both direct and indirect, and often share corridors with publicly-operated passenger rail service, some degree of public funding is common, particularly for Class III/short lines that do not have the same access to private capital markets as Class I carriers do.

<sup>17</sup> As noted above, thirteen projects included in the 20-year freight rail RSIP are also included in the 5-year program. Overlap in reporting is due to implementation timeframes spanning both short-term and longer-term programs for those projects.





### Norfolk Southern train at Lancaster Station

Source: PennDOT

Unlike many other states, Pennsylvania has a set of grants and loans that are targeted at freight railroad operators (**Section 2.1.5.3** of the SRP discusses these in detail). The existing major state sources of funding for freight rail investments in the state include the following:

1. Rail Freight Assistance Program (RFAP) (dedicated rail grants)
  - a. One of two dedicated freight rail assistance programs in Pennsylvania.
  - b. Act 89 of 2013 provided PennDOT with a consistent funding source for future RFAP projects, grants for which are awarded on a competitive basis.
  - c. The maximum state funding for a RFAP project is 70 percent of its total cost.
  - d. Funding for the new construction portion of RFAP projects is capped at \$250,000 per project.
  - e. The RFAP appropriation for 2014 was \$10 million, an increase from \$8 million in 2013, and \$6 million in 2012.
2. Rail Transportation Assistance Program (RTAP) (dedicated rail grants through the state's Capital Budget)
  - a. One of two dedicated freight rail assistance programs in Pennsylvania.
  - b. RTAP assistance is available from the Capital Budget.
  - c. The maximum state funding for a RTAP project is 70 percent of its total cost.
  - d. The funding limit for a RTAP project is the amount of the individual line item in the state's Capital Budget or 10 percent of the total RTAP funds available for the current funding round, whichever is less.
  - e. The typical annual RTAP appropriation has averaged about \$35 million annually in recent years.
3. Pennsylvania Infrastructure Bank (PIB) (loans, only a small portion of which are dedicated to rail, with a primary focus on highways and bridges)

- a. Established in 1998 by PennDOT to provide low-interest loans to sponsors of a variety of transportation investments, including railroads and shippers for freight rail infrastructure projects.
- b. The initial funding of \$0.5 million has increased through repaid loans and accumulated interest payments.

- 4. Infrastructure and Facilities Improvement Program (grants, tax incentive, and credits)
- 5. Tax Increment Financing Guarantee Program
- 6. Business in Our Sites (loans and grants with a focus on an inventory of ready sites)

Funding for freight rail improvements in the Marcellus Shale region is available through the Act 13 unconventional well fees. This program, started in 2012, provides \$1 million annually in the same manner as the RFAP program. **Table 5-16** summarizes the largest sources of Pennsylvania funding for freight railroads.

In addition, PennDOT has utilized other state and federal funding programs to complement these state budget-based programs. State funding includes multiple economic development loan and grant programs that are available to assist rail infrastructure expansions. These programs, administered by the *Department of Community and Economic Development (DCED)*, include the *Infrastructure and Facilities Improvement Program*, the *Tax Increment Financing Guarantee Program*, the *Business in Our Sites Program*, and the *Infrastructure Development Program*. PennDOT’s *Bureau of Freight Rail, Ports, and Waterways* maintains a *Rail Freight Properties Directory* to identify properties located along the regional and short line railroads with potential to be served by freight rail. Federal sources, among others, include the *Congestion Mitigation and Air Quality (CMAQ)* program of the *Moving Ahead for Progress in the 21st Century (MAP-21) Act*, and *TIGER* funding.

**Table 5-16: Major Dedicated State Assistance for Freight Rail in Pennsylvania, FY2012-2014 in millions of Year of Expenditure dollars**

Funding Source	Number of Funded Projects	Total Funding for Projects	State Share of Total Project Costs	Average Cost per Project	Average State Share per Project
<b>FY 2012</b>					
RFAP	18	\$8.7	\$6.1	\$0.49	\$0.34
RTAP (CB)*	21	\$63.5	\$44.4	\$3.02	\$2.12
<b>Total FY 2012</b>	<b>39</b>	<b>\$72.2</b>	<b>\$50.5</b>	<b>\$1.82</b>	<b>\$1.28</b>
<b>FY 2013</b>					
RFAP	15	\$8.4	\$5.9	\$0.56	\$0.39
RTAP (CB)*	14	\$39.2	\$27.4	\$2.80	\$1.96
<b>Total FY 2013</b>	<b>29</b>	<b>\$47.6</b>	<b>\$33.3</b>	<b>\$1.50</b>	<b>\$1.05</b>
<b>FY 2014</b>					
RFAP	26	\$11.4	\$8.0	\$0.44	\$0.31
RTAP (CB)*	13	\$51.3	\$35.9	\$3.95	\$2.76
<b>Total FY 2014</b>	<b>39</b>	<b>\$62.7</b>	<b>\$43.9</b>	<b>\$1.61</b>	<b>\$1.13</b>

\* Capital Budget (CB) – portion reserved specifically for freight rail.  
 Source: PennDOT Press Releases, [www.dot.state.pa.us](http://www.dot.state.pa.us), accessed June 17, 2015.



The following two sections identify cost estimates and funding needs of \$1.91 billion for the RSIP’s 5-Year and 20-Year elements. The 5-Year RSIP Financing Plan (**Section 5.6.2.4**) presents the strategy to finance these projects, with particular focus on freight rail improvements that are anticipated to be at least partially publicly-funded based on inclusion in the most recently adopted PennDOT’s *Twelve Year Program*. Cost estimates presented in the 5-Year financial plan section are adjusted to YOE dollars, in compliance with federal guidelines for the development of state rail plans. It should be noted that in most cases cost estimates are not based on detailed engineering estimates and only reflect costs within Pennsylvania, even for projects with segments in other states.

### 5.6.2.2 SHORT-TERM CAPITAL PROJECT FUNDING NEEDS (2015-2019)

The total known estimated cost to fully implement the 5-Year capital plan from 2015 to 2019 is \$463.3 million (in adjusted YOE dollars). By rail operator class, 55 percent of planned expenditures for the 5-Year RSIP are for Class III/short line projects, while by SRP Goal, 56 percent of estimated costs are for State of Good Repair work, followed by system enhancements at 32 percent (see **Table 5-17**).

Short-term capital spending by freight rail carriers tends to focus on smaller-scale projects aimed at maintaining and preserving their network to provide quality service to the customers. Freight railroads have experienced greater demand on their systems in recent years that might warrant the need to invest more heavily in capacity expansion and other capital investments but many of these system enhancements can be deferred until proven to be needed. Freight railroads generally operate at a profit and have a responsibility to their shareholders to remain profitable; while they remain committed to meeting increased demand, they have generally remained cautious in their capital spending forecasts.

**Table 5-17: Estimated Cost of Freight Rail Projects by Class and SRP Goals, 2015 to 2019 in millions of Year of Expenditure dollars**

Rail Class	SRP Goal				Class Distribution	Percentage by Class Distribution
	State of Good Repair	System Enhancements	Expansion Projects	Safety Improvements		
Class I	\$54.9	\$88.4	-	\$47.2	\$190.5	41.1%
Class II	\$15.3	\$1.7	-	\$0.3	\$17.3	3.7%
Class III/ Short Line	\$187.8	\$59.5	-	\$8.2	\$255.4	55.1%
<b>Total Projects</b>	<b>\$258.0</b>	<b>\$149.6</b>		<b>\$55.7</b>	<b>\$463.3</b>	<b>100%</b>
Percent Projects by Goal	55.7%	32.3%	0.0%	12.0%		100%

*Note: Totals represents only publicly known projects. Privately owned freight railroads are not required to disclose their capital improvement plans. Numbers may not add up due to rounding.*

### 5.6.2.3 LONG-TERM FREIGHT RAIL CAPITAL PROJECT FUNDING NEEDS (2020-2040)

The total known estimated costs to fully implement the 20-Year capital plan from 2020 to 2040 are more than \$1.5 billion (in 2015 dollars). In contrast to the 5-Year RSIP, by SRP Goal, 84 percent of long-term projects are system enhancements. Most of these projects are planned by Class I operators, followed by the state of good repair at 10 percent, as indicated in **Table 5-18**.

This stark difference can be partially explained by the fact that longer-term capital spending by large freight rail carriers focuses on larger projects aimed at larger-scale system enhancements. For instance, Norfolk Southern’s Crescent Corridor or CSX’s National Gateway projects are anticipated to be implemented with significant state and federal government contributions.



### Norfolk Southern train at 30th Street Station

Source: Jersey Mike

While Class I railroads may tap into the private capital markets to meet their capital and maintenance needs, it is more difficult for short line railroads to do so, and the terms of loans – if obtained – are generally not as favorable as for Class I operators.

**Table 5-18: Estimated Cost of Freight Rail Projects by Class and SRP Goals, 2020 to 2040 in millions (2015 dollars)**

Rail Class	SRP Goal				Class Distribution	Percentage by Class Distribution
	State of Good Repair	System Enhancements	Expansion Projects	Safety Improvements		
Class I	\$142.0	\$1,235.2	\$0.0	\$31.3	\$1,408.5	93.0%
Class II	-	-	\$30.0	-	\$30.0	2.0%
Class III/ Short Line	\$10.6	\$29.3	\$26.0	\$9.3	\$75.2	5.0%
<b>Total Projects</b>	<b>\$152.6</b>	<b>\$1,264.5</b>	<b>\$56.0</b>	<b>\$40.6</b>	<b>\$1,513.7</b>	<b>100%</b>
Percent Projects by Goal	10.1%	83.5%	3.7%	2.7%	100%	

Note: One quarter of the identified long-term freight rail projects have costs which are yet to be determined and, therefore, the total costs for this element of the SRP should be understood as a minimum.





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### Dillerville East Yard

Source: PennDOT

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#### 5.6.2.4 SHORT-TERM FREIGHT RAIL CAPITAL PROJECT FINANCING PLAN (2015-2019)

Information regarding capital financing plans for private investments in freight rail (Class I, II and III) tends to be private and proprietary. The future of capital investment in Pennsylvania's rail network depends on investments provided by the private sector along with the state and federal government. This section describes the financial plan for 25 Class I short-term projects (six with costs to be determined), 12 Class II short-term projects (six with costs to be determined), and 188 Class III short-term projects (31 with costs to be determined), all adding up to over \$463.3 million (in YOE dollars) in identified funding needs.

The large variety of projects, including grade separations, yard improvements, track improvements, and access projects will improve safety and rail and highway traffic flows through grade separation projects, supporting intermodal connections and continued expansion aimed at sustaining and gaining economic advantage. The details of these projects are included in **Appendix I**.

Of the 225 freight rail projects on the 5-Year RSIP, only 15 (7 Class I projects and 8 Class III projects) are currently included on PennDOT’s *Twelve Year Program* with programmed state funding. That leaves the other 210 projects in the short-term freight rail RSIP with uncertain financing. Future freight rail projects and customer facilities services across Pennsylvania are anticipated to be funded by a combination of private investments and federal, local, and state funds appropriated either through dedicated funding sources such as RFAP or the state portion of Capital Budget.

State funding assigned to freight rail projects through RFAP and RTAP for the next five years totals over \$248 million (estimate based on assessments of historical and anticipated funding allocations). This \$248 million, assuming similar funding levels are maintained in the next five years, will easily cover the total identified 5-Year financing need for the 7 Class I and 8 Class III / short line projects included on the *Twelve Year Program*, with YOE 2015-2019 total estimated costs of about \$100 million.

But implementing all proposed 5-Year RSIP projects – not just those already included on the PennDOT’s *Twelve Year Program* – would require significant matches of state funding. This 5-Year RSIP Base Case Scenario funding analysis is included in **Table 5-19**. The overall funding gap would need to be covered with additional state and local resources, private funding, other innovative funding approaches, or a combination of these.

Notably, there are 46 identified freight projects for which cost estimates are yet to be determined by the freight rail operators or could not be obtained. Those projects were not included in YOE financing plan estimates, so the actual number of freight rail projects in need of state funding assistance in the next five years is likely much higher.

**Table 5-19: Short-Term Freight Rail RSIP Analysis, 2015 to 2019 in millions of Year of Expenditure dollars**

Funding Gap Analysis	2015	2016	2017	2018	2019	Total 2015-2019 (YOE dollars)
Financing Need	\$129.9	\$112.2	\$80.3	\$76.2	\$64.8	\$463.3
Estimated State Funding Match*	\$90.9	\$78.5	\$56.2	\$53.3	\$45.3	\$324.3

\*Pennsylvania State funding is competitive and match is not guaranteed.



### 5.6.2.5 LONG-TERM FREIGHT RAIL CAPITAL PROJECT FINANCING PLAN (2020-2040)

PennDOT recognizes that a strong system comprised of large and small railroads is crucial to meeting the statewide transportation needs in a balanced way. The total known estimated costs to fully implement the 20-Year capital plan from 2020 to 2040 is \$1.50 billion (in 2015 dollars). Assuming PennDOT's existing dedicated freight rail funding sources remain intact and at recent historical levels, approximately \$1.46 billion in total dedicated freight rail funding (ranging from \$54 million in 2020 to \$95 million in 2040) over the long-term period of this plan is anticipated to be available to leverage private investments or serve as matching funds for federal grants and loans.

Federal programs such as TIGER grants and the currently unfunded *Rail Line Relocation and Improvement Program* could be used to partially meet the funding gap. Successfully pursuing local public and private matches to secure the largest federal match possible should be an objective for each proposed freight rail project. Industry-wide trends such as further consolidation among the freight rail operators might accelerate, increasing capital and operations and maintenance (O&M) efficiencies. A more recent trend in the railroad industry is for Class II and Class III railroads to partner with Class I railroads to make capital improvements. In exchange, the Class I railroad operator receives improved access to Regional Rail lines. Most of the situations in which this happens are when short lines own a strategic asset. In Pennsylvania, this can be a viable solution to bridge some of the funding gap in cases where Class I's competitive position and access to freight generators can be enhanced through joint use of their strategic infrastructure. When both freight operator parties become more competitive, it can result in more efficient and sustained operations and more predictable cash flows and funding streams.

As is the case with the Short-Term Freight Rail Capital Financing Plan, there are 21 identified freight projects for which cost estimates are not yet determined by the freight rail operators or could not be obtained for the long-term portion of the RSIP. Those projects were not included in financing plan estimates, so the actual costs of long-term freight rail projects is likely higher. Details for all of the long-term freight rail capital plan projects are included in **Appendix J**.

### 5.6.3 Freight Rail Public and Private Economic Benefits

A competitive, economically-viable freight rail system that moves goods efficiently to businesses and residents in Pennsylvania benefits and improves the overall business climate and quality of life for residents and visitors in the state. Implementation of the freight rail element of the RSIP will result in rail and highway safety enhancements, increased freight cargo throughput capacity, rail and highway congestion relief, and economic development and environmental benefits.

Freight benefits are calculated based on total network ton-miles for all freight flowing in and through Pennsylvania. Calculated at 372 billion ton-miles in 2015, this represents approximately 10 percent of national freight movement. Existing freight rail networks and customer service facilities in Pennsylvania are expected to contribute billions of dollars in total estimated economic impacts to Pennsylvania between now and 2040, reflecting operating cost savings to shippers (rail vs. truck), pavement maintenance costs (i.e. wear and tear on roads), collision reduction (increased safety), and pollutant emissions reductions. Expected state level benefits associated with the 5-Year freight rail RSIP are described in more detail in **Section 5.4**.



### Greater Erie Industrial Development Corporation railyard

Source: PennDOT

## 5.7 Rail Studies and Reports

As discussed in the previous sections, many projects have already been planned, scheduled, and funded within the short-term, five-year timeframe. Additional projects have been identified but lack dedicated funding and are on the long-term plan for 2020 to 2040. Further, conceptual projects remain under study and have not yet advanced to the phase of planning and design with certainty. This latter series of improvements are classified as “vision” projects because they represent a long-term vision that many planners, operators, elected officials, business owners, and residents of Pennsylvania would like to see realized for passenger and freight rail services.

Vision projects are primarily expansion and system enhancement projects meant to increase the geographic reach of passenger and freight rail transportation or improve operations and efficiency so much that rail transport can compete more effectively with cars, trucks, and air travel.

Many of these projects are advanced only to the conceptual stage, enjoying the strong interest and support of influential champions, but not having yet been the subject of detailed studies or planning. Other projects have advanced into a study phase that will extend beyond the publication date of the SRP. Still others have already been studied to the point where capital and operating cost estimates have been calculated and ridership forecasts completed, but without final recommendations having been funded and placed on a TIP or Long Range Transportation Program.





### East Penn Railroad

Source: PennDOT

In all of these cases, the proposed projects demonstrate serious commitments to expanding the reach and improving the efficiency and effectiveness of Pennsylvania’s passenger and freight rail systems, without having successfully proceeded to the development of a funding and financing plan that permits scheduling on the short-term or long-term rail projects lists.

## 5.7.1 Passenger Rail Vision Projects

At present, there are six passenger rail projects under study with study completion dates beyond the publication of this SRP (see **Table 5-20**). One example is the major inter-state *NEC FUTURE* study led by FRA. Its purpose is to define, assess, and prioritize future investments in passenger rail service in Amtrak’s NEC between Washington DC and Boston, Massachusetts. Alternatives from no-build to a multi-billion dollar investment in a new high speed rail system are being considered along this corridor. Additionally, there are five ongoing studies in the Greater Philadelphia region, two that would add multimodal connections in Philadelphia and Delaware Counties to SEPTA’s rail system and three that would provide significant enhancements to SEPTA and Amtrak rail station facilities.

The state’s rail vision also includes projects that have been studied in past years, but which have not advanced to the point of being funded and scheduled in MPO Transportation Improvement Programs or Long Range Transportation Plans. Each of the projects listed in **Table 5-21** already has the support of some transportation planners, advocacy groups, railroads, and elected officials, but will require additional study and investments in the coming years if they are to move from concepts to viable, funded projects.

**Table 5-20: Ongoing Passenger Rail Studies and Plans in Pennsylvania**

Study	Agency	Description	Projected Study Completion
<b>Amtrak's NEC</b>			
NEC FUTURE: A Rail Investment Plan for the NEC	Federal Railroad Administration (FRA)	This study will complete a Tier I EIS analysis of three alternatives for Amtrak's NEC which would either 1) maintain and improve existing NEC service, 2) increase rail's role in the corridor, or 3) transform the NEC with a high speed rail system to dramatically cut travel times between major destinations.	2016
<b>Greater Philadelphia Region Commuter Rail</b>			
Quakertown Rail Restoration – Alternatives Analysis	DVRPC, Montgomery and Bucks County Planning Commissions, TMA of Bucks County, SEPTA	Noted as an ongoing study in DVRPC's Fiscal Year 2016 Planning Work Program as one of "Other Major Planning Projects in the DVRPC Region." Sponsored by TMA Bucks (a local Transportation Management Association). Builds on previous Quakertown Rail study.	TBD
30th Street Station District Plan	Amtrak, Brandywine Realty Trust, Drexel University, PennDOT, SEPTA	Plan to create a single, integrated vision for 30th Street Station and the surrounding area in Philadelphia. The master planning process involves three main elements of analysis: transportation, the station and associated facilities, and commercial opportunities.	Spring 2016
Delaware Avenue Waterfront Trolley Feasibility Study	DVRPC	A project to assess passenger rail options for the Delaware Avenue corridor in Philadelphia, with a focus on extending existing/modernized SEPTA trolley service southward from Girard Avenue/Frankford Avenue and the possibility of sharing existing freight tracks through a temporal separation arrangement similar to NJ Transit's River Line service.	TBD
Ivy Ridge Station Intermodal Study	DVRPC	Development of a concept plan for a redesigned and expanded Ivy Ridge Station in Philadelphia, including structured parking, integrated bus, auto, and bike/ped access, and support for station-area or station-integrated development.	TBD
Radnor Station Connectivity Study	DVRPC	Study to evaluate and develop near- and long-term strategies to improve connectivity between the Radnor Regional Rail station and the Radnor Norristown High Speed Line (NHSL) station.	TBD

This list of 17 projects includes three in the Greater Philadelphia region, six in the Pittsburgh Metropolitan Region, three in the Keystone Corridor, two in Amtrak's Capitol Limited Corridor, two that would link Pennsylvania cities to New York City via extensions to NJ Transit's commuter rail network, and a project to create a Harrisburg commuter rail system. The majority of these projects—14 of 17—would extend or upgrade rail service; of the remaining three, two would establish new Amtrak stations and the last would improve Pittsburgh's existing train station, directly connecting it to other transit stations in the city's downtown. The geographic distribution of passenger rail improvements categorized as vision projects is shown in **Figure 5-7**.



**Table 5-21: Completed Passenger Rail Studies and Plans with Currently Unfunded Projects in Pennsylvania**

Study	Agency	Description	Estimated Capital Costs (in 2015 dollars) and Ridership
Norristown Line Service Extension Study	DVRPC, Montgomery County Planning Commission (MCPC)	Study of an extension of the SEPTA Norristown Regional Rail line along a Norfolk Southern-owned freight line to Pottstown and Reading, PA. Three alternatives were recommended for consideration. (Source: DMJM Harris for DVRPC and Montgomery County Planning Commission, 2009, <i>R6 Norristown Line Service Extension Study Final Report</i> )	\$29.7 to \$290.7 million; 292,500 to 1.4 million riders/year
Elwyn Line Extension from Wawa to West Chester	Chester County, DVRPC, SEPTA	Conceptual proposal to restore former passenger rail service along the corridor by extending service past the future Wawa Terminal (already under construction) to downtown West Chester, with service to Westtown, Cheyney, Locksley, and Glen Mills. (Source: DVRPC, 2011, <i>Wawa to West Chester Regional Rail Extension Ridership Forecast</i> )	Costs not evaluated; 1,910 riders/day
Lansdale-Quakertown Corridor Alternatives Analysis	DVRPC	Proposal to restore Regional Rail service between Lansdale and Quakertown, with three alternative build alternatives. (Source: DVRPC, 2011, <i>Draft Lansdale-Quakertown Corridor Alternatives Analysis</i> )	3,700 to 6,700 riders/day
Allegheny Valley Railroad (AVR) Commuter Rail	Allegheny County, SPC, Westmoreland County Transit Authority (WCTA)	Rebuild existing AVR freight line to accommodate new commuter service from Arnold to Pittsburgh, with potential service to the downtown Pittsburgh Amtrak station via the Norfolk Southern main line. (Source: HDR on behalf of Westmoreland County Transit Authority, 2009, <i>Allegheny Valley Railroad and Norfolk Southern Commuter Rail Interim Study</i> )	\$142.2 million; 2,700 riders/day
Greensburg-Pittsburgh Commuter Rail	Allegheny County, SPC, WCTA	Commuter service between Greensburg and the Pittsburgh Amtrak station would be provided via the existing Norfolk Southern (NS) Main Line, one of the most heavily used freight lines in Pennsylvania. (Source: HDR on behalf of Westmoreland County Transit Authority, 2009, <i>Allegheny Valley Railroad and Norfolk Southern Commuter Rail Interim Study</i> )	\$87.9 million 1,500 riders/weekday
Pittsburgh Rail Connection, Lawrenceville to Hazelwood	City of Pittsburgh Department of City Planning	A 4.2 mile rail shuttle within Pittsburgh along an active freight line owned by CSX and leased by Allegheny Valley Railroad. (Source: WR&A and Pittsburgh City Planning, 2010, <i>Pittsburgh Rail Connection: Connecting Hazelwood to Lawrenceville</i> )	\$81 million; 3,434 riders/weekday
Pittsburgh-Morgantown Commuter Rail	West Virginia Department of Transportation State Rail Authority	Conceptual proposal included in the West Virginia State Rail Plan for a commuter rail service along an existing CSX freight line from Pittsburgh to Morgantown, WV. (Source: 2013, <i>West Virginia State Rail Plan Commuter Rail Feasibility Assessment</i> )	Estimated capital costs and ridership not evaluated.

**Table 5-21: Completed Passenger Rail Studies and Plans with Currently Unfunded Projects in Pennsylvania, cont.**

Study	Agency	Description	Estimated Capital Costs (in 2015 dollars) and Ridership
Pittsburgh Grand Central Multimodal Transportation Hub	City of Pittsburgh, Southwestern Pennsylvania Commission (SPC)	Identified as “Potential Facility” for construction to create a multimodal hub connecting transit stations in downtown Pittsburgh. (Source: SPC, 2011, <i>2040 Transportation and Development Plan for Southwestern Pennsylvania</i> )	\$5 million; ridership not evaluated.
Butler County to Pittsburgh North Shore Commuter Rail	Butler Transit Authority	Identified as “Illustrative Major Transit Proposal” to build a commuter rail system from Butler County to the North Shore area of Pittsburgh. (Source: SPC, 2011, <i>2040 Transportation and Development Plan for Southwestern Pennsylvania</i> )	Estimated capital costs and ridership not evaluated.
Keystone West High Speed Rail Study	PennDOT	Examination of options for improving train service between Pittsburgh and Harrisburg, including regular station stops at Lewistown, Huntingdon, Altoona, Johnstown, and Greensburg, and Lewistown and flag stops at Tyrone and Latrobe. (Source: 2014, <i>Keystone West High Speed Rail Study</i> ) [See <b>Chapter 2</b> for additional information]	\$1.5 to \$13.1 billion; 88,945 additional riders/year in 2035
Paoli-Thorndale Line Extension to Atglen	DVRPC, Chester County Planning Commission	Extend SEPTA service along the existing Amtrak Keystone Corridor to two existing Amtrak stations in Parkesburg and Coatesville and a new station at Atglen. (Source: 2012, <i>Atglen Station Concept Plan</i> )	\$55.9 million; Annual operating cost \$1-2 million; 1,415 riders/day in 2020
Paradise Township Station Proposal	Lancaster County	Build a new train station along the Keystone Corridor in Paradise Township. The new station would allow passengers to transfer from Amtrak service to the Strasburg Railroad, which offers tourist train service in this predominantly rural area of Lancaster County. (Source: 2006 proposal by local and state agencies)	Estimated \$5 million; additional riders not estimated
Rockwood PA Amtrak Station Proposal	Somerset County	Assessment of feasibility of, and issues associated with, the creation of a new stop in Rockwood, Pennsylvania for Amtrak’s Capitol Limited service, which travels along CSX Transportation’s Baltimore to-Chicago line. (Source: Michael Baker Jr., Inc. for Somerset County, PA, 2012, <i>Rockwood AMTRAK Train Station Feasibility Study</i> )	\$1.7 million; 2,540 riders/year
Capitol Limited through service to New York	Amtrak	Improvements to Amtrak’s Capitol Limited train, including construction of new switching equipment in Pittsburgh to permit through service along route of the train. (Source: Amtrak, 2010, <i>PRIIA Capitol Limited Performance Improvement Plan</i> )	\$5 million; 20,400 additional riders/year

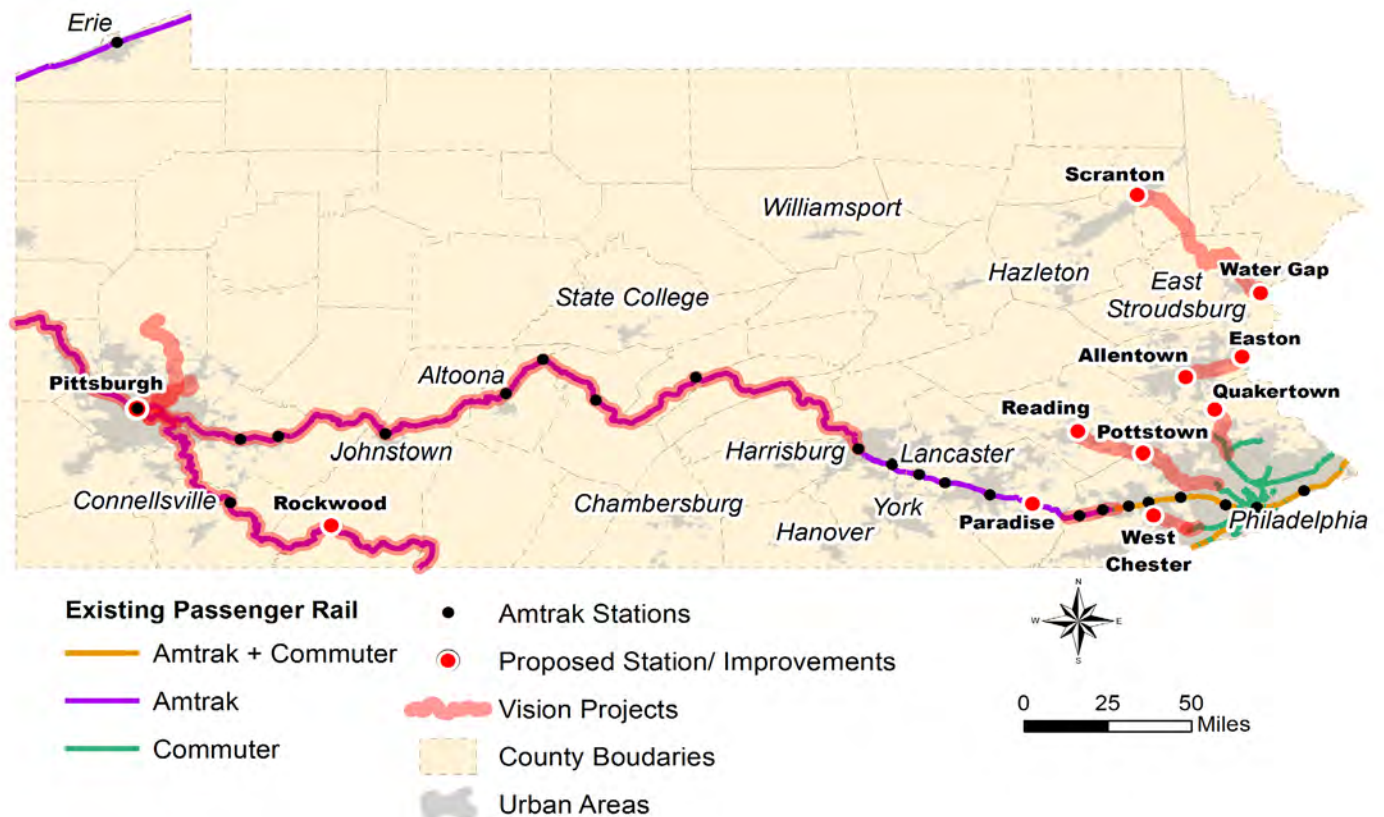


**Table 5-21: Completed Passenger Rail Studies and Plans with Currently Unfunded Projects in Pennsylvania, cont.**

Study	Agency	Description	Estimated Capital Costs (in 2015 dollars) and Ridership
Commuter Rail Service from Scranton to New York via Lackawanna Cut-Off	New Jersey Transit (NJT)	Proposal to restore commuter rail service between Scranton, Pennsylvania and New York, NY. (Source: NJ Transit, 2006, <i>New Jersey – Pennsylvania Lackawanna Cut-Off Passenger Rail Service Restoration Project: Environmental Assessment</i> ) [NJ Transit has authorized construction of a 7-mile section of the line to Andover, NJ]	\$650 million; 3,200 project boardings / average weekday in 2030 (Excluding Andover, NJ)
Raritan Valley Commuter Rail Extension to Allentown (Lehigh Valley)*	Northampton County	Extension of NJ Transit Raritan Valley Line for 17 miles from existing terminal in High Bridge, NJ to Allentown via an existing freight line. Proposed stations include Easton, Bethlehem, and Allentown. (Source: SYSTRA Consulting, Inc. for County of Northampton PA, 2010, <i>Central New Jersey/ Raritan Valley Transit Study – Pennsylvania Component Final Report</i> )	\$718.7 million; \$3.6 million in annual operating costs 1,600 / day in 2030
Harrisburg Commuter Rail System	Tri-County Regional Planning Commission (TCRPC)	Proposal to create a commuter rail system in the greater Harrisburg area to supplement existing Amtrak Keystone service. (Source: Harrisburg Area Transportation Study, 2014, <i>2040 HATS Regional Transportation Plan</i> )	\$650 million; potential ridership not yet modeled

\* PennDOT – Bureau of Public Transportation is preparing to further study this potential project in partnership with the Lehigh Valley Planning Commission.

**Figure 5-7: Passenger Rail Vision Projects in Pennsylvania**



## 5.7.2 Freight Rail Vision Projects

Given the ever-changing business, economic, and shipping environment within the freight rail industry, there are fewer projects identified for the very long-term and included in the RSIP. The vision freight rail projects included in this SRP focus on improvements such as double stack clearance, upgrading infrastructure to be 286k compliant and expanding track capacity by constructing second main and dedicated freight tracks. These projects are also included in the long-term RSIP, but are included in the vision freight rail section to highlight their potential to contribute to the overall state's strategy to reach its vision for freight rail. **Table 5-22** identifies seven Class I, one Class II, and three Class III/short line vision freight projects. The geographic distribution of freight rail improvements categorized as vision projects is shown in **Figure 5-8** and a full list of all SRP Vision projects is found in **Appendix K**.

**Table 5-22: Freight Rail Vision Projects**

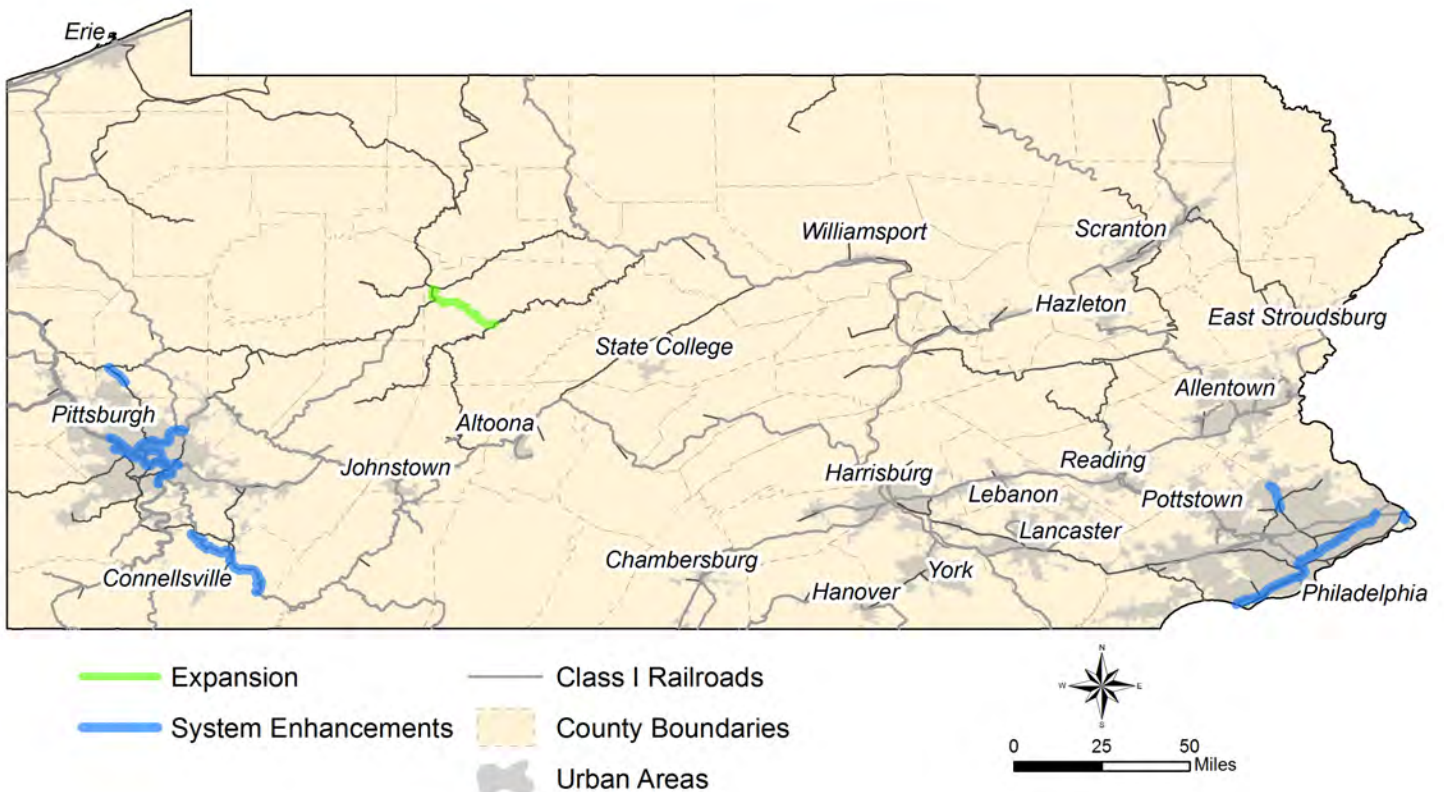
Railroad / Corridor	Project Description	Estimated Capital Costs (in millions; 2015 dollars)
<b>Class I Projects</b>		
CSX/I-95 - Southeast	Add second main track from Newtown Junction to CP Wood on CSX Trenton line (Source: DVRPC Long-Range Vision for Freight)	\$102.9
CSX/I-95 - Southeast	Add second main track from CP Belmont to CP Arsenal on CSX High line / CSX Trenton line (Source: DVRPC Long-Range Vision for Freight)	\$202.2
CSX/I-95 - Southeast	Add second main track from Delaware State Line to CSX Trenton Line on CSX Philadelphia Subdivision (Source: DVRPC Long-Range Vision for Freight)	\$40.0
CSX/I-95 - Southeast	Add dedicated freight track from Wilmington to Philadelphia (Source: DVRPC Long-Range Vision for Freight)	\$582.6
CSX/NS/I-95-Southeast/ NS Crescent	Keystone Industrial Port Complex (Morrisville Yard) rail improvements (Source: DVRPC Long-Range Vision for Freight)	\$32.0
NS Main Line	Eliminate 14 overhead bridges and other obstructions in Pittsburgh that prevent double stack trains from taking a direct, high speed route through the city. This would improve schedules by two to three hours. (Source: Southwest Pennsylvania Commission MPO)	\$80.0
CSX	Acquisition and maintenance of existing CSX main line railroad from the Allegheny and Beaver County lines. This rail line has been earmarked for abandonment by the CSX railroad, which could require two existing manufacturing businesses to relocate. (Source: SPC 2040 Plan)	TBD
<b>Class II Projects</b>		
Buffalo & Pittsburgh Railroad (BPRR)	Reactivate unused freight rail line between DuBois and Curwensville to connect to existing RJ Corman and Buffalo & Pittsburgh Railroads along the old C&M Junction Railroad in Clearfield County. Re-build 20 miles of railroad and retrofit bridge carrying Short Cut Road to allow for continuous train movements. Establish Regional Rail Authority to manage re-established connection. (Source: The North Central Regional Planning and Development Commission)	\$30.0



Table 5-22: Freight Rail Vision Projects, cont.

Railroad / Corridor	Project Description	Estimated Capital Costs (in millions; 2015 dollars)
<b>Class III/Short line Projects</b>		
Pennsylvania Northeastern Railroad (PN)	Bethlehem Branch Improvements: Dedicated Freight and Passenger Lanes for a portion of the Line, ideally between Lansdale and Hatfield. (Source: PN)	TBD
PN	Bethlehem Branch Improvements: Feasibility of current Lansdale freight yard arrangement and location (rearranged following the 1981 termination of passenger service). (Source: PN)	TBD
Various	Renovation of short line rail system to connect industrial sites to Class I carriers. (Source: SPC 2040 Plan)	TBD

Figure 5-8: Freight Rail Vision Projects in Pennsylvania





**Bridge on the Luzerne and Susquehanna Railway**

*Source: PennDOT*

### **5.7.3 Funding Passenger and Freight Rail Vision Projects**

These lists of vision projects consist of unfunded proposals which will require substantial new financial resources to advance towards construction. Federal and state funding has traditionally been instrumental to the funding of new passenger rail facilities and state funding has been important for Class III / short line freight rail projects. While state funding has increased and become more predictable with the passage of Act 89, it is expected that a funding gap will leave some projects with uncertain prospects.

In addition, the lack of long-term federal funding legislation—both MAP-21 and PRIIA reauthorizations are uncertain at this time—makes it difficult to forecast the level of federal funding that will be available for new projects. TIGER grants, New Starts and Small Starts federal funding, as well as MAP-21 programs that can be allocated to passenger rail projects (such as CMAQ funding) are all extremely competitive. Sponsors of freight and passenger rail vision projects will need to compete against other rail systems across the country for this limited amount of funding.





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### Amtrak passenger arriving at the Harrisburg Station on the Keystone Corridor

Source: PennDOT

For passenger rail, the New Starts and Small Starts evaluation process is especially rigorous, and projects must compete on project justification criteria including mobility improvements, environmental benefits, congestion relief, cost-effectiveness, economic development and land use, as well as the local financial commitment of the sponsoring transit agency. While champions of TIGER and New Starts applications in Pennsylvania have been successful in the past, funding is based on a competitive application process and not guaranteed.

For proposed new passenger rail service, an additional critical concern is how to fund annually recurring operating costs such as power and railroad operations staff salaries. There is currently no operating funding allocated for any new passenger rail service in Pennsylvania. Every passenger rail service (with the notable exception of Amtrak's NEC service) requires an annual operating subsidy to make up the difference between farebox revenue and operating costs.

Unlike capital costs, operating costs cannot be bonded and are generally ineligible for long-term federal funding. Potential new revenue sources that could be explored for these costs include new taxes and user fees, such as special use districts or private donations. New railroad service that demonstrates the ability to significantly improve air quality within areas with high levels of air pollution may qualify for federal CMAQ funding to help pay for operating costs for the first three to five years of operations, but grants for this funding source are highly competitive and a long-term revenue stream for operations costs would still be required.



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### Kiski Junction Railroad

Source: PennDOT

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## 5.8 Passenger and Freight Rail Capital Program

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Over 88 percent of the identified \$3.9 billion (adjusted YOE dollars) in total passenger and freight rail capital needs during the short-term period of the RSIP are to finance capital spending for passenger rail. Passenger rail projects listed in this program are generally focused on improving existing service rather than expanding service, and are therefore expected to have minimal requirements for new operating subsidies.

Freight rail needs will be largely financed by private rail operators, but the existence of Act 89 and the Capital Budget will allow the railroads to leverage their capital spending with state funding. Projects listed in the 20-Year program and vision projects might be advanced to a shorter time frame depending on availability of project financing. **Table 5-23** summarizes short-term capital needs and the estimated state funding share need for the RSIP passenger and freight rail elements.

Over 56 percent of the identified \$3.4 billion (2015 dollars) in total passenger and freight rail capital needs during the long-term period of the RSIP are to finance capital spending for SEPTA's Regional Rail system. Amtrak projects are not included in the long-term list of projects as they are currently being prepared by the *NEC FUTURE* study, to be completed after the SRP is published. Similar to short-term freight rail needs, long-term freight rail needs are assumed to be largely financed by private rail operators but their overall focus by total estimated capital cost will shift to meet future capital needs of Class I carriers as illustrated in **Table 5-24**.



**Table 5-23: Summary of Short-Term Passenger Rail and Freight Rail Needs, 2015 to 2019 in millions of Year of Expenditure dollars**

Project Type	Number of Projects	2015 YOE	2016 YOE	2017 YOE	2018 YOE	2019 YOE	Total Estimated Cost YOE	Estimated State Match*	Estimated State Match * Percent of Total
<b>Passenger</b>									
SEPTA Regional Rail	56	\$373.5	\$309.7	\$319.0	\$328.5	\$338.4	\$1,669.1	\$1,143.6	68.5%
Amtrak Keystone	51	\$78.5	\$80.9	\$83.3	\$85.8	\$233.3	\$561.8	\$15.6	2.8%
Amtrak NEC	85	\$233.9	\$240.9	\$248.2	\$255.6	\$263.3	\$1,241.9	\$1.7	0.1%
<b>Total Passenger Projects</b>	<b>192</b>	<b>\$685.9</b>	<b>\$631.5</b>	<b>\$650.4</b>	<b>\$670.0</b>	<b>\$835.0</b>	<b>\$3,472.8</b>	<b>\$1,160.9</b>	<b>33.4%</b>
<b>Freight<sup>^</sup></b>									
Class I	25	\$49.3	\$43.3	\$32.2	\$33.2	\$32.4	\$190.5	\$133.4	70.0%
Class II	12	\$3.3	\$3.4	\$3.5	\$3.6	\$3.7	\$17.3	\$12.1	70.0%
Class III / Short Lines	188	\$77.3	\$65.5	\$44.5	\$39.4	\$28.6	\$255.4	\$178.8	70.0%
<b>Total Freight Projects</b>	<b>225</b>	<b>\$129.9</b>	<b>\$112.2</b>	<b>\$80.3</b>	<b>\$76.2</b>	<b>\$64.8</b>	<b>\$463.3</b>	<b>\$324.3</b>	<b>70.0%</b>
<b>Total Passenger &amp; Freight Projects</b>	<b>417</b>	<b>\$815.8</b>	<b>\$743.7</b>	<b>\$730.7</b>	<b>\$746.2</b>	<b>\$899.8</b>	<b>\$3,936.1</b>	<b>\$1,485.2</b>	<b>37.7%</b>

Notes: Original costs from Amtrak and SEPTA Capital Plans, freight rail operators, and stakeholders.

Due to the interstate nature of Amtrak NEC, many NEC projects include division-wide work beyond Pennsylvania.

\*Pennsylvania State funding is competitive and match is not guaranteed.

<sup>^</sup> Due to overlap in implementation timeframe, 13 short-term projects are also included as long-term.

**Table 5-24: Summary of Long-Term Passenger Rail and Freight Rail Needs, 2020 to 2040 in millions of 2015 dollars**

Project Type	Number of Projects	Total Estimated Cost
<b>Passenger</b>		
SEPTA	38	\$1,940.1
<b>Freight*</b>		
Class I	32	\$1,408.5
Class II	1	\$30.0
Class III / Short Lines	43	\$75.2
<b>Total Freight Projects</b>	<b>76</b>	<b>\$1,513.7</b>
<b>Total Passenger &amp; Freight Projects</b>	<b>114</b>	<b>\$3,453.8</b>

Notes: Original costs from SEPTA Capital Plan, freight rail operators, and stakeholders.

\* Due to overlap in implementation timeframe, 13 short-term projects are also included as long-term.



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### Stakeholder meeting

Source: Sowinski Sullivan Architects

## Chapter 6. Coordination and Review

Participation by individuals, businesses, and public and private organizations interested in Pennsylvania's passenger and freight rail networks played an important role in the development of the *2015 Pennsylvania State Rail Plan* (SRP). Stakeholders and members of the general public were actively engaged in identifying important issues and developing lists of current and future projects. They posed questions and made contributions during two stakeholder meetings, at three open houses, and through review of a draft version of the SRP report that was available online. Nearly 230 people representing themselves or one of more than 100 public, private, and non-profit organizations participated in one or more of these events.

### 6.1 Public Participation Approach

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A key early task in the development of the SRP was the creation of a Public and Stakeholder Outreach Plan (PSOP). The PSOP was designed to provide effective opportunities for participation and contributions from a wide variety of interested parties, from members of the general public with broad interests in freight and passenger rail transportation to stakeholders with specialized knowledge in detailed aspects of the state's rail network.



The SRP public outreach efforts built upon an extensive public participation strategy that has been part of the *PA On Track Long Range Transportation and Comprehensive Freight Movement Plan*, which has included:

1. Four PA On Track Advisory Committees (an Executive Committee, Management Committee, Technical Advisory Committee; and Freight Advisory Committee)
2. The PA On Track website ([www.paontrack.com](http://www.paontrack.com)), email list, and comments page
3. Webinars conducted in 2013 and 2014, recorded and available for viewing on the PA On Track website
4. Presentations to industry stakeholder groups (downloadable files documenting the material covered in these meetings are available on the PA On Track website)

The *State Rail Plan* PSOP has a more narrow focus on rail transportation than the *PA On Track* initiative, but has made reference to the statewide multimodal planning effort for context and background.

The PSOP focuses on two elements: stakeholder involvement and public outreach.

*Stakeholders* were defined broadly for the purpose of developing this SRP. They included representatives of Pennsylvania's 55 Class I, II, and III freight railroads; Amtrak; SEPTA; federal agencies; Pennsylvania state departments and commissions; Metropolitan and Rural Planning Organizations (MPOs and RPOs); advocacy groups; transit agencies; unions, shippers; departments of transportation from neighboring states; and civic organizations. See **Appendix L** for lists of stakeholder organizations and of attendees at the two stakeholder meetings.

Stakeholders were contacted by e-mail messages to solicit their input. SRP project staff followed up with e-mail communication, telephone calls, and, in some cases, in-person interviews to obtain preliminary information on topics included in the SRP and to issue invitations to attend two stakeholder meetings in the spring and summer of 2015.

The general public was notified of opportunities to participate in the planning process via press releases and media announcements. The public was invited to attend one of three open houses in September 2015 and to review a draft version of the SRP report available online.

Comments from stakeholders and the public were received by e-mail, telephone, in person at stakeholder meetings and open houses, and via online comment forms.

## 6.2 Coordination with Neighboring States

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As part of the development of the *2015 Pennsylvania State Rail Plan*, SRP's from all of Pennsylvania's neighboring states were reviewed:

1. New Jersey State Rail Plan, Final Report, April 2015
2. Delaware State Rail Plan, Final Draft, April 2011
3. Maryland State Rail Plan (currently in draft form in June 2015, under review by FRA)
4. West Virginia State Rail Plan, Final Report, December 2013
5. Ohio Statewide Rail Plan, Final Report, May 2010
6. New York State Rail Plan, Final Report, 2009

This effort identified opportunities for the coordination of multi-state projects that include segments in both Pennsylvania and one or more other states. The final version of the SRP identifies existing rail service in Pennsylvania that crosses state boundaries – such as SEPTA’s Regional Rail lines that provide service to stations in New Jersey and Delaware and Amtrak’s Northeast Corridor and Lake Shore Limited routes – and documents proposals for future investments to improve passenger and freight rail service between Pennsylvanian cities and towns and destinations in New York, the rest of the Mid-Atlantic region, the Midwest, and beyond.

### 6.3 Stakeholder Involvement in the Development of the State Rail Plan

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The Public and Stakeholder Outreach Plan focused on preparing for 1) two stakeholder meetings, 2) a series of open house meetings in Western, Central, and Eastern Pennsylvania, and 3) the development of a State Rail Plan webpage with links to draft sections of the SRP.

The meetings in March and July were preceded in late 2014 and early 2015 by SRP project staff communications via e-mail, telephone, and in-person interviews with representatives of Amtrak, SEPTA, MPOs and RPOs across Pennsylvania, and private freight rail companies from the largest Class I railroads to the smallest Class III / Short line railroads.

This communication helped obtain three important types of information:

1. Lists of passenger and freight rail projects that have already been included in MPO and RPO Long-Range Transportation Plans (LRTPs) and Transportation Improvement Programs (TIPs)
2. Projects that have been studied at the local or regional level, but that have not yet advanced far enough in design or funding to be definitively placed on a TIP or LRTP (these are documented as “vision” projects in the SRP)
3. A clear understanding of statewide rail transportation needs and challenges as perceived by key stakeholders at the local, regional, and state levels

This work was instrumental in developing draft lists of short-term and long-term passenger and freight rail projects and investments that served as the basis of discussions at stakeholder meetings. This iterative process elicited additional information on projects that were added to the short-term, long-term, and vision lists of rail projects.

#### STAKEHOLDER MEETINGS

Two meetings with stakeholders were organized. Official invitations from the Pennsylvania Department of Transportation were issued to more than 150 organizations, including freight and passenger railroads, federal and state public agencies, planning organizations (MPOs, RPOs, and Transportation Management Agencies (TMAs)), and business and civic interest groups and organizations.





### Stakeholder meeting in Philadelphia

Source: Sowinski Sullivan Architects

The first meeting was held on March 24, 2015 at the Harrisburg Transportation Center in the Harrisburg Amtrak station. The meeting consisted of roundtable discussions and three breakout sessions to collect pertinent information that has since been incorporated into the SRP. Discussion topics included interview responses from the earlier, data-gathering phase of the project, common goals and obstacles, industry-wide issues, infrastructure needs, funding issues, and government involvement. Breakout sessions were then held to permit more in-depth and wide-ranging conversations. A total of 62 participants were present. See **Appendix L** for copies of the materials presented and collected at the meeting.

On July 20, 2015, the second meeting was held in the offices of SEPTA in Center City Philadelphia. This follow-up meeting focused on progress made on the SRP and specifically addressed the response rate to requests for information from private freight railroads in the state. No breakout sessions were organized, but plenary discussions provided an opportunity for all participants to raise issues and provide additional information. At the second stakeholder meeting, a total of 58 participants were present. **Appendix L** also includes copies of the materials presented and collected at this second meeting.

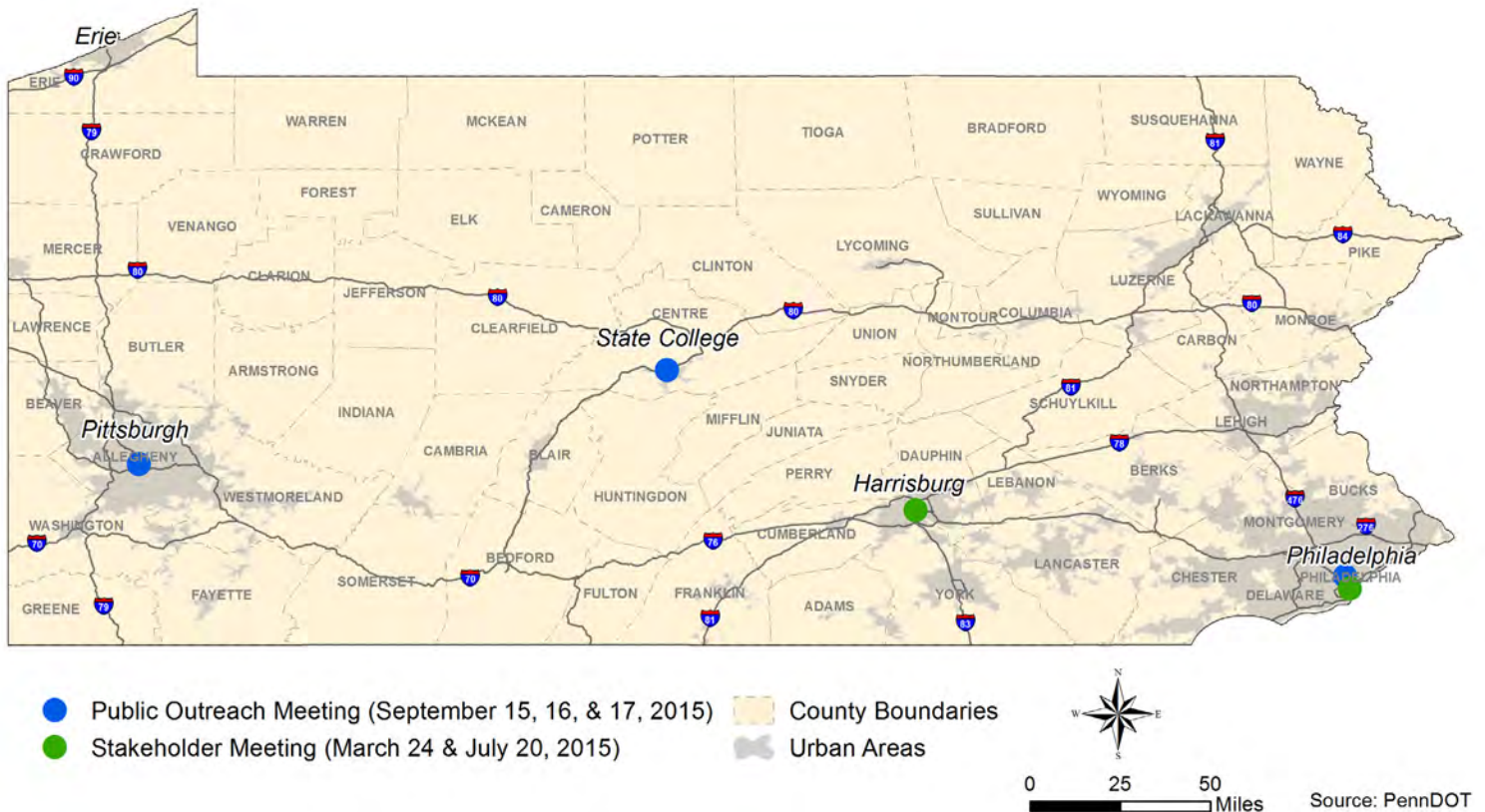
## 6.4 Open Houses

Three open house meetings were organized in mid-September 2015. Official invitations from PennDOT were issued to the same 150 organizations invited to the stakeholder meetings. Press releases were distributed to major media outlets in the Pittsburgh, State College, and Philadelphia metropolitan regions.

The open houses were held in Pittsburgh at the Pittsburgh Amtrak Station on September 15, 2015, in State College in the offices of the Centre Region Council of Governments on September 16, 2015, and in Philadelphia at Amtrak's 30th Street Station on September 17, 2015 (see **Figure 6-1** below). Each of the three meetings was scheduled from 6:00 pm to 8:00 pm. In all 109 people attended the meetings where they reviewed handouts and poster-sized maps, tables, and summaries of key elements of the SRP. All topics addressed in the SRP were covered, including current and projected future conditions of Pennsylvania's passenger and freight rail systems and short-term and long-term proposals for rail improvements across the state. Attendees asked questions of project staff and discussed issues and provided suggestions important to them. Comment forms were provided and comments were accepted verbally, in writing, and by e-mail. Copies of posters, handouts, sign-in sheets, and the comment form are included in **Appendix L**.

Images from the open house and stakeholder meetings are found on the next four pages. A synopsis of comments, questions, and suggestions made by attendees at the open houses is found in a report entitled **2015 Pennsylvania State Rail Plan: Open House Summary and Comment Response** that is available from PennDOT's Bureau of Public Transportation.

**Figure 6-1: Locations of Stakeholder Involvement & Open House Meetings**





**Pittsburgh Union (Penn) Station, Pittsburgh, PA Open House #1, Tuesday September 15, 2015**

Source: Sowinski Sullivan Architects



**Pittsburgh Union (Penn) Station, Pittsburgh, PA Open House #1, Tuesday September 15, 2015**

Source: Sowinski Sullivan Architects



Central Region Council of Governments, State College, PA Open House #2, Wednesday September 16, 2015

Source: Sowinski Sullivan Architects



Central Region Council of Governments, State College, PA Open House #2, Wednesday September 16, 2015

Source: Sowinski Sullivan Architects





**30th Street Station, Philadelphia, PA Open House #3, Thursday September 17, 2015**

*Source: Sowinski Sullivan Architects*



**30th Street Station, Philadelphia, PA Open House #3, Thursday September 17, 2015**

*Source: Sowinski Sullivan Architects*



**Stakeholder Meeting, March 24, 2015**

*Source: Sowinski Sullivan Architects*



**Stakeholder Meeting, July 20, 2015**

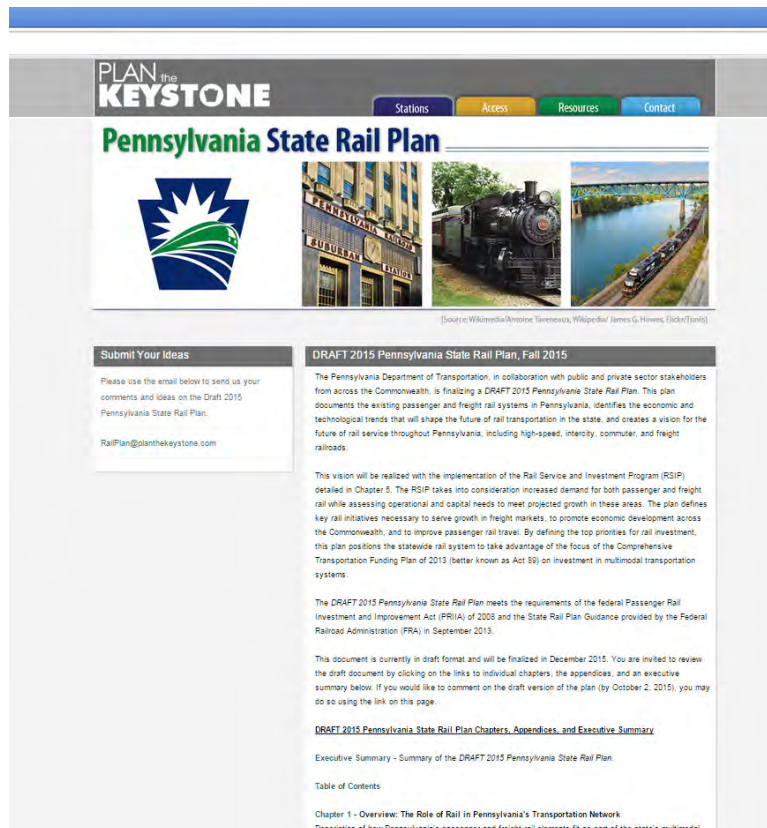
*Source: Sowinski Sullivan Architects*



## 6.5 Project Website

The draft document was made accessible on a dedicated project webpage on the *Plan the Keystone* website: [PlantheKeystone.com/StateRailPlan.html](http://PlantheKeystone.com/StateRailPlan.html) (See **Figure 6-2** below). The links to pdf-format downloadable documents for each of the six chapters of the SRP report, the technical appendices, and an executive summary were posted to inform and engage the public. The website provided the public the opportunity to submit comments and ideas about Pennsylvania's passenger and freight rail networks via electronic comment form. A total of 80 messages commenting on the draft *2015 Pennsylvania State Rail Plan* were submitted via the website, by e-mail, or in writing.

**Figure 6-2: State Rail Plan webpage on PennDOT's Plan the Keystone Project Website**



## 6.6 Topics of Concern Identified During the Rail Plan Process

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Stakeholders and members of the public who commented on the SRP were primarily concerned about four broad topics:

1. Amounts and sources of funding and financing for passenger and freight rail projects
2. Levels and extent of intercity passenger rail service
3. Lists of passenger and freight rail projects and investments planned for the short-term (2015 to 2019), the long-term (2020 to 2040), and beyond
4. Safety of the rail networks for rail users, travelers upon other modes of transportation, and the general public

The availability and quantities of federal funding for passenger and freight rail investments was of particular concern to many stakeholders, particularly given the uncertainty of the timing of reauthorization of federal surface transportation funding legislation and funding for the National Railroad Passenger Corporation. Continuing resolutions and short-term solutions have ensured that basic levels of support for rail and other modes of transportation have been sustained, but long-term legislative action would provide greater predictability and certainty for passenger and freight rail planning efforts.

Other, non-federal opportunities for obtaining grants, loans, and other sources of capital were also discussed by participants in the stakeholder meetings and open houses. Public private partnerships, infrastructure banks, TIFIA (Transportation Infrastructure Finance and Innovation Act) programs, the use of advertising revenue and other non-traditional sources of capital, bonding, and other strategies were suggested as ways to expand opportunities for completing projects.

Many attendees of the open houses, representing themselves as member of the public and sometimes also representing passenger rail advocacy organizations, requested that officials with state agencies and with Amtrak consider higher frequencies for intercity passenger rail service. This was particularly the case in Western Pennsylvania where Amtrak's Pennsylvanian train makes a single west-bound and a single east-bound trip each day. People who commented on this issue cited expected economic, travel, and tourism benefits they believe would result from more trains per day.

The two stakeholder meetings proved to be an important source of identifying and confirming rail investment projects, particularly in the area of freight rail transportation. Participation by Pennsylvania's private freight rail companies in identifying future investment plans was less than fifty percent after the first round of e-mail, telephone, and in-person interviews. FRA guidelines do not require private railroad to provide such information for SRP's and many Pennsylvania railroads did not do so. Additional projects were identified at the first of the two stakeholder meetings and at the second PennDOT officials encouraged freight rail companies that had not yet provided information on plans for future projects to do so.

Safety concerns were also a topic of concern to stakeholders and members of the general public. At-grade crossings were noted as needing safety improvements or, in some cases, elimination through grade separation projects. The transport of petroleum and natural gas products through Pennsylvania, particularly those trains destined for refineries in Southeast Pennsylvania, was of particular interest to many residents. Policies to require the retirement of outdated oil cars and the purchase of new, safer and more secure oil cars were noted.



## 6.7 Consideration and Incorporation of Stakeholder and Public Input

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All recommendations from key stakeholders were reviewed and evaluated by PennDOT and consultant staff. PennDOT planners provided written responses to documented questions and issues raised during stakeholder meetings and open houses (see **Appendix L**). Consultant staff incorporated all projects identified by stakeholders in the short-term, long-term, and vision passenger and freight rail project lists. Concerns and issues raised by stakeholders and members of the general public were noted in appropriate sections of the SRP.

## 6.8 State Rail Planning Coordination

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The Bureau of Rail Freight, Ports and Waterways and the Bureau of Public Transportation within PennDOT's Deputate for Multimodal Planning initiated and has maintained close linkages with the public and private sector stakeholder organizations identified in this chapter of the SRP. Federal, state, and regional agencies, civic and business associations, labor and private sector businesses all participated in developing the *2015 Pennsylvania State Rail Plan*. Their engagement in the process of planning for improved passenger and freight rail services has strengthened organizational linkages and will ensure ongoing collaboration as challenges and opportunities arise during the short-term and long-term time periods covered in the SRP.