P.R.I.I.A. Section 224 Pennsylvania Feasibility Studies Report

AMTRAK

October 16, 2009

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I. Executive Summary

A. Purpose of the Report

Enacted into law on October 16, 2008, the Passenger Rail Investment and Improvement Act of 2008 (PRIIA), Public Law 110-432 Division B, reauthorizes the nation's intercity passenger rail provider, Amtrak. PRIIA seeks to strengthen the U.S. intercity passenger rail system through development of new policies; authorization of operating and capital support for Amtrak; and sustained capital investment through new federal grant programs that provide funding for passenger rail improvements, administered by the United States Department of Transportation (USDOT) through the Federal Railroad Administration (FRA).

Additionally, PRIIA requires Amtrak to undertake a number of studies and deliver reports relating to various intercity passenger rail services. Section 224 (a) (3) to (6) requires Amtrak to furnish feasibility studies for passenger rail service as follows:

A. Between Cornwells Heights, Pennsylvania, and New York, New York, to determine whether to expand passenger rail service by increasing the frequency of stops or reducing commuter ticket prices for the route.
B. Between Princeton Junction, New Jersey, and Philadelphia, Pennsylvania, to determine whether to expand passenger rail service along the route.
C. Between Harrisburg and Pittsburgh, Pennsylvania, to determine whether to increase frequency of passenger rail service along the route or along segments of the route.
D. The Capitol Limited Route between Cumberland, Maryland, and Pittsburgh, Pennsylvania, to determine whether to reinstate a station stop at Rockwood, Pennsylvania.

Each feasibility study, contained in one chapter in this report, provides a detailed analysis and as applicable includes potential route infrastructure needs, projected yearly revenue, yearly ridership forecasts, proposed train schedules, and an objective assessment of passenger rail needs for each corridor in order to evaluate the potential for expanding rail service in these four areas.

This report fulfills the requirements of Section 224. It will be transmitted to the U.S. House of Representatives' Committee on Transportation and Infrastructure and the U.S. Senate Committee on Commerce, Science, and Transportation, as specified.

In order to prepare the report, Amtrak considered a variety of service scenarios for each of the four required study areas. At the conclusion of the studies, it was determined that stopping additional trains on the Northeast Corridor, at Cornwells Heights and Princeton Junction, would not be desirable, given the operating constraints, relatively small ridership gains, negative impacts to existing ridership, and equipment needs. However, for the other two studies (C and D), two potential new service scenarios were investigated and deemed worthy of further consideration:

- Adding a second Pennsylvanian from Pittsburgh to New York, and adding a round trip frequency to Altoona, Pennsylvania.
- Stopping the train that runs daily (two—one in each direction) on the Capitol Limited Route at Rockwood, Pennsylvania.

For each of these two scenarios, the report includes the estimated operating and capital costs associated with the service improvement along with the projections for ridership and revenues.

In developing the report, Amtrak consulted with representatives from the State of Pennsylvania. The Southeastern Pennsylvania Transportation Authority (SEPTA) and New Jersey Transit (NJ Transit) who provided ridership data for the Cornwells Heights and Princeton Junction stations, respectively, located on Amtrak's Northeast Corridor. The Delaware Valley Regional Planning Commission (DVRPC) provided demographic information for the area surrounding these two stations.

II. Study A: Cornwells Heights to New York

A. Background and History

Historically, the Cornwells Heights station in Bucks County has been served by Southeastern Pennsylvania Transportation Authority (SEPTA) and, in a much more limited way, Amtrak. Prior to 2005 the Amtrak trains which stopped were generally peak period coach-only trains operated under a ticket cross-honoring agreement with NJ Transit commonly referred to as Clockers.[1] The Amtrak-operated Clocker service utilized fares that were similar to NJ Transit's commuter fares into Manhattan. Although the trains originated in Philadelphia, the great majority of riders boarded at stations in New Jersey.

NJ Transit assumed operation of the Clockers in 2005 after acquiring sufficient equipment to integrate this service into its regular commuter service. Accordingly, the term Clocker left the Amtrak timetable when NJ Transit replaced their slots with express trains from Trenton to New York on approximately the same schedules in the Fall 2005 timetable.

Subsequently, with the NJ Transit trains now originating in Trenton, commuters from Cornwells Heights and surrounding communities had reduced options of a one-seat ride into Manhattan, but no reduction in the total trains on the line east of Trenton where capacity is at a premium. The current options are driving the entire distance, driving to a NJ Transit station in New Jersey (Trenton and Hamilton are the closest), or a two-seat ride into Manhattan. The two-seat ride into New York involves riding SEPTA's R7 service from Cornwells Heights to Trenton and transferring to a NJ Transit train to New York. This option is viable although it is a longer ride.

B. Current Conditions

The Cornwells Heights train station is located on Amtrak's Northeast Corridor at Milepost 72.5 next to I-95 in the Cornwells Heights-Eddington census-designated place within Bensalem Township. Bensalem Township is located in Bucks County, Pennsylvania, northeast of Philadelphia. The township is composed of many communities, including Bensalem, Trevose, Oakford, Cornwells Heights, Eddington, and Andalusia.[2]

As of 2005, the township had a total population of 59,530,[3] making it the largest municipality in Bucks County, and the tenth largest in Pennsylvania.[4]

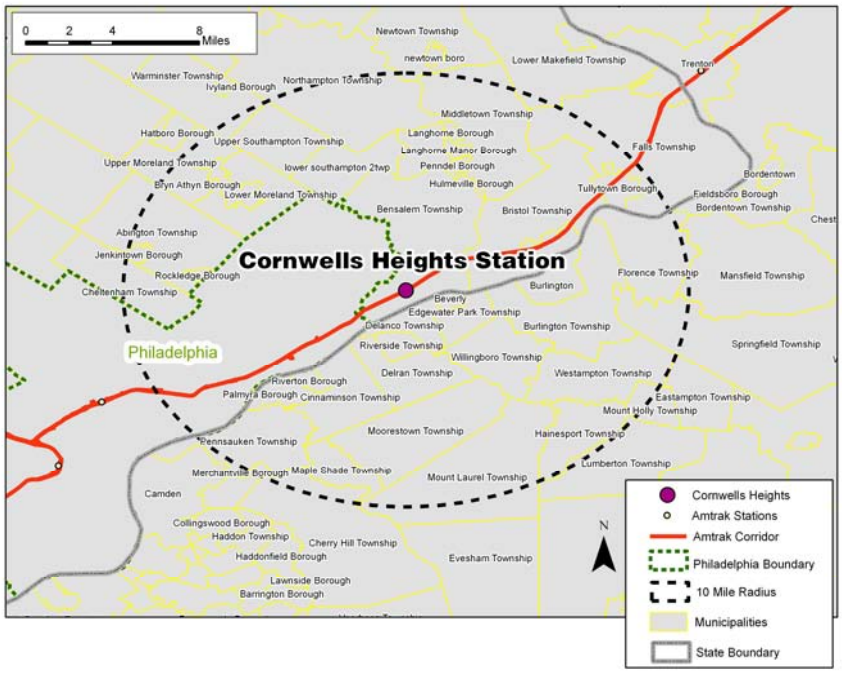
Bensalem Township consists primarily of middle-class single family homes. Its median family income in 1999 dollars was $58,771. Based on the 2000 census, the population density was 2,927 people per square mile (compared to adjacent townships). Of the 23,133 households, 92 percent have at least one automobile, suggesting heavy dependence on vehicular travel.[5]

Because of this station's proximity to I-95 and Route 63, the station draws commuters from a large catchment area, i.e., beyond Bensalem Township. In fact, the Cornwells Heights station is noted for the large park-and-ride facility accommodating 1,929[6] parking spaces, making it by far the largest parking lot

[1] The term "*Clocker*" originated from a Pennsylvania Railroad advertising campaign that stressed punctual service between New York and Philadelphia every hour.
[2] http://en.wikipedia.org/wiki/Bensalem_Township,_Bucks_County,_Pennsylvania
[3] Delaware Valley Regional Planning Commission (DVRPC)
[4] *Ibid*.
[5] U.S. Census Bureau
[6] http://www.septa.org/maps/click_map/cornwells_heights.html

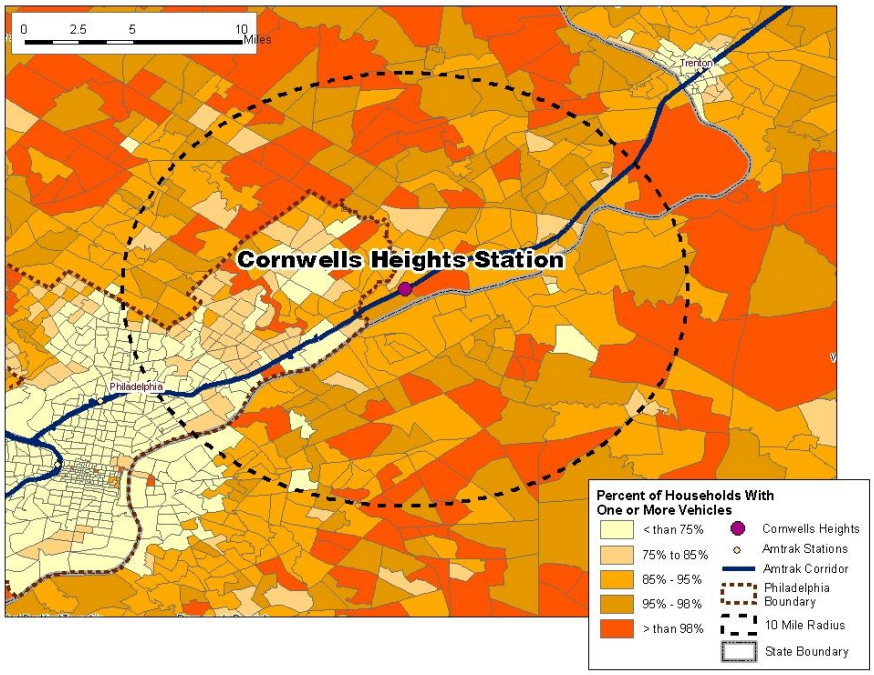
in the SEPTA system.[7] Currently, almost half of those parking spaces are available on a daily basis.[8] Nearly a million residents live within 10 miles of the station. As shown in Figure 2, most of these commuters have at least one car.

Figure 1: 10-Mile Radii around Cornwells Heights



[7] http://en.wikipedia.org/wiki/Cornwells_Heights_%28SEPTA_station%29
[8] http://www.septa.org/maps/click_map/cornwells_heights.html

Figure 2: Auto Ownership



While there are many employment centers in Bensalem Township (including Neshaminy Mall, the headquarters of Rita's Water Ice, and Charming Shoppes), many people commute outside of Bensalem Township: 52 percent work in Bensalem Township, two percent commute to Center City Philadelphia, and the remainder work in other areas.[9] According to 2005 data, there are less than 38,000 jobs in Bensalem.[10]

Commuters from the Cornwells Heights catchment area to New York City have the option of either driving or taking a train. The dominant train operator along this route is SEPTA from Cornwells Heights to Trenton and NJ Transit from Trenton to New York City. Amtrak also serves Cornwells Heights on a limited basis.

The distance between Cornwells Heights and downtown Manhattan is 82 miles, which takes approximately one hour and 40 minutes without traffic. During peak hour conditions in the New York metropolitan area, the commute can be closer to three hours. Using IRS-approved mileage rates, parking costs, and New Jersey Turnpike and Holland Tunnel tolls, the total one-way cost is approximately $80.[11]

The train station is served by Amtrak and SEPTA R7 service. Amtrak currently has two trains that stop at Cornwells Heights in the morning peak and two trains in the afternoon peak. All Amtrak trains provide a one-seat ride into New York Penn Station. The trip on Amtrak takes approximately 68 minutes and costs approximately $30 when Amtrak's monthly multi-ride Smart Pass is used.[12] Additionally, Amtrak provides

[9] DVRPC
[10] DVRPC
[11] Cornwells Heights to New York: 82 miles at $0.55; NJ Turnpike: $6.70; Holland Tunnel: $8; Parking in New York: average of $20
[12] Multi-ride monthly pass (Smart Pass) at $1,026/month; assumed 36 one-way trips per month; single trip ticket cost ranges from $40 to $71 depending on the Amtrak train selected. Also assumes $1 per day parking at Cornwells Heights.

one-seat service into New York from the Trenton Station. Passengers choosing this option pay $45 in total costs for a travel time of 89 minutes.[13]

Commuters can either take SEPTA R7 service to Trenton or drive to the Trenton train station (a 19-mile, 26-minute drive from Cornwells Heights) or Hamilton station (a 25-mile, 34-minute drive from Cornwells Heights). Both of these stations offer a one-seat ride via NJ Transit to New York Penn Station. NJ Transit runs trains with headways of 15 to 30 minutes into New York during peak hours.

The SEPTA R7 service has six northbound trains stopping at Cornwells Heights during the morning peak to Trenton and six trains during the afternoon peak from Trenton. Using SEPTA and NJ Transit connections, the trip time is between 105 and 135 minutes[14] and costs $13.00.[15]

Trenton parking fees are between $8 and $11 per day. Hamilton Station has lower parking fees of $6 per day. Driving to Trenton and then taking NJ Transit to New York Penn Station (NYP) takes between 101 and 131 minutes[16] and costs approximately $29.[17] Driving to Hamilton and then taking NJ Transit to New York Penn Station takes between 99 and 134 minutes[18] and costs approximately $29.[19]

The main benefit of using NJ Transit and/or SEPTA service is that they both offer less expensive commuter fares to New York. Even with a multi-ride pass, Amtrak intercity rail fares exceed those of NJ Transit or SEPTA. However, Amtrak service is significantly faster and allows commuters to park at the Cornwells Heights station. Table 1 provides a comparison of options in cost per hour demonstrating the relative value of travel time among the various options.

Table 1: Comparison of Options[20]

Options	Number of peak trains	One-way trip duration (in minutes)	One-way average trip cost	Cost per hour
Driving: Cornwells Heights to New York	--	150	$80	$32
Amtrak: Cornwells Heights to New York	2	68	$30	$26
Amtrak: Drive to Trenton; Amtrak to New York	5	89	$45	$30
SEPTA: Cornwells Heights to Trenton; NJ Transit: Trenton to New York	6 on SEPTA; 21 on NJ Transit	120	$13	$7

[13] Cornwells Heights (CWH) to NYP: CWH to TRE: 25 minutes; Amtrak TRE to NYP 54 minutes; layover time: 10 minutes.
[14] CWH to Trenton (TRE): 25 minutes; TRE to NYP: 70-100 minutes; layover time: 10 minutes
[15] Monthly pass cost per trip: CWH to TRE: $2.67; TRE to NYP: $9.78; Parking at CWH: $1.00
[16] CWH to TRE: 26 minutes; TRE to NYP: 70-100 minutes; layover time: 5 minutes
[17] CWH to TRE: 18.7 miles at $0.55; monthly pass cost/trip: TRE to NYP: $9.78; Parking at TRE: average of $9
[18] CWH to Hamilton: 34 minutes; Hamilton to NYP: 60-95 minutes; layover time: 5 minutes
[19] CWH to Hamilton: 25 miles at $0.55; monthly pass cost/trip: Hamilton to NYP: $9.44; Parking at Hamilton: average of $6
[20] All options represent an origin at the Cornwells Heights station; full daily parking costs are included.

Driving: Cornwells Heights to Trenton; NJ Transit: Trenton to New York	--	116	$29	$15
Driving: Cornwells Heights to Hamilton; NJ Transit: Hamilton to New York	21	117	$32	$16

The Cornwells Heights station is a low-level unstaffed platform station. It is owned by Amtrak but SEPTA is responsible for its maintenance. Access to the station is barrier free but the station is considered in minimal compliance with ADA regulations. According to a recent Amtrak report to Congress, total cost to make the station ADA compliant would be $1,366,000 in 2009 dollars.[21]

SEPTA commuter trains are the dominant user at Cornwells Heights and typically use the lower speed local tracks while Amtrak intercity trains use the inside, express tracks, where there are no platforms. Amtrak trains stopping at Cornwells Heights must be routed via the crossovers 12 miles to the north and five miles to the south of the station thus increasing the scheduled running time. The station at Cornwells Heights is equipped with low level platforms which require additional time for passenger boarding. The schedule impact of stopping Amtrak intercity trains at Cornwells Heights is an increase of five to seven minutes including added running times on the local tracks and the additional dwell times for the stop.

Figure 3: Existing Cornwells Heights, PA Station

[21] A Report on Accessibility and Compliance with the Americans with Disabilities Act of 1990, Amtrak, February 1, 2009

C. Market Demand

A large portion of the residents of Bensalem Township commute outside of the township for work. This trend is expected to continue in the future as the population is expected to grow. Figures 4 and 5 show population and employment density for 2005. Based on the Delaware Valley Regional Planning Commission (DVRPC) projections, the population in Bensalem Township is expected to increase by five percent while employment is expected to outpace population growth at 17 percent between 2005 and 2030.

Figure 4: Population Density, 2005

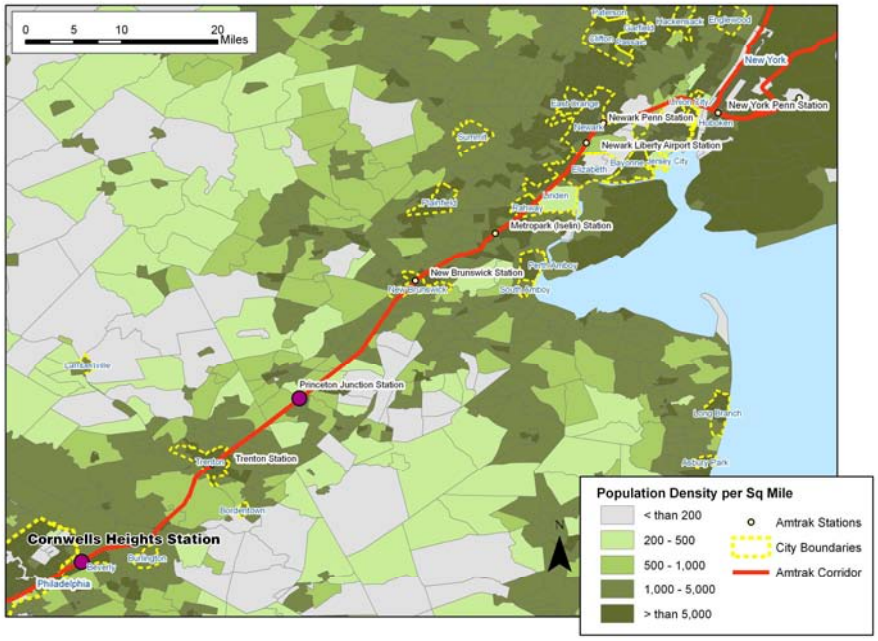
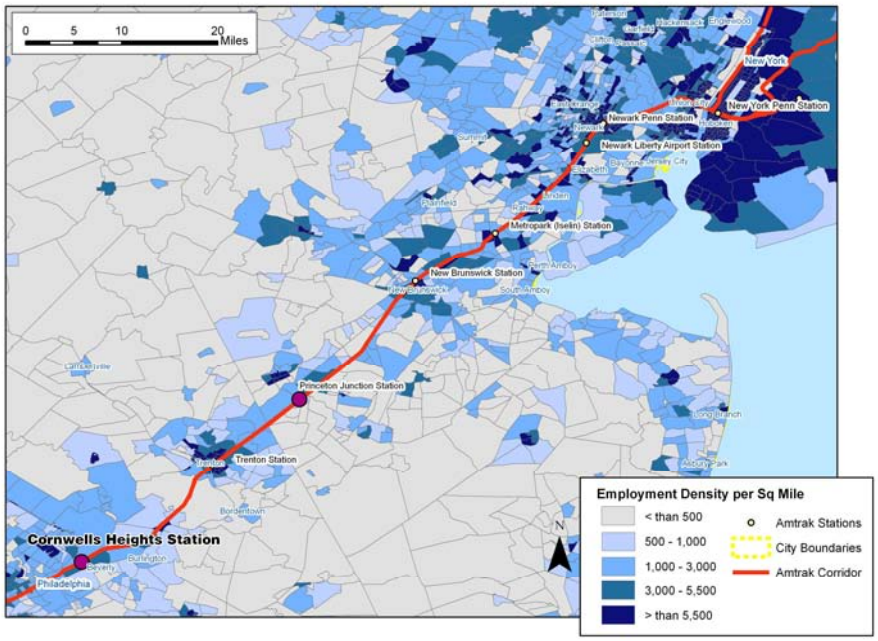


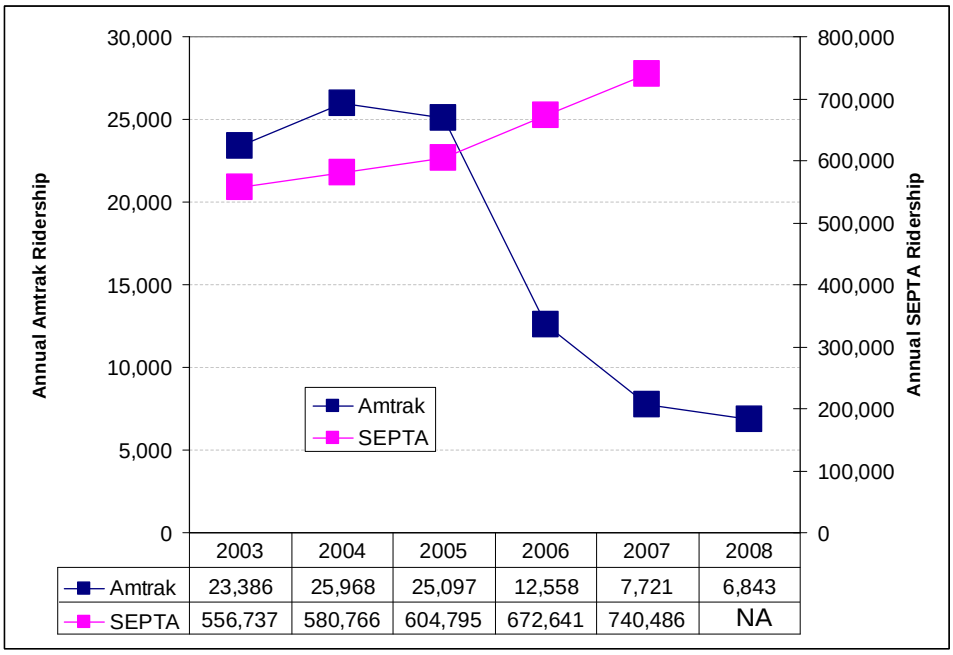
Figure 5: Employment Density, 2005



The Amtrak market served at Cornwells Heights is primarily made up of monthly Smart Pass commuters going from that area to NYP in the morning and returning in the evening. The Smart Pass is a monthly Amtrak pass that currently provides daily commuter passengers with a discount of approximately 50 percent off of the fares paid by single trip passengers. Prior to NJ Transit's assumption of the operation of the Amtrak Clocker service in 2005, the Cornwells Heights station had nearly 26,000 Amtrak trips annually. Following the transfer of the service, the number of Amtrak boardings and alightings dropped to 6,800 Amtrak trips in 2008.

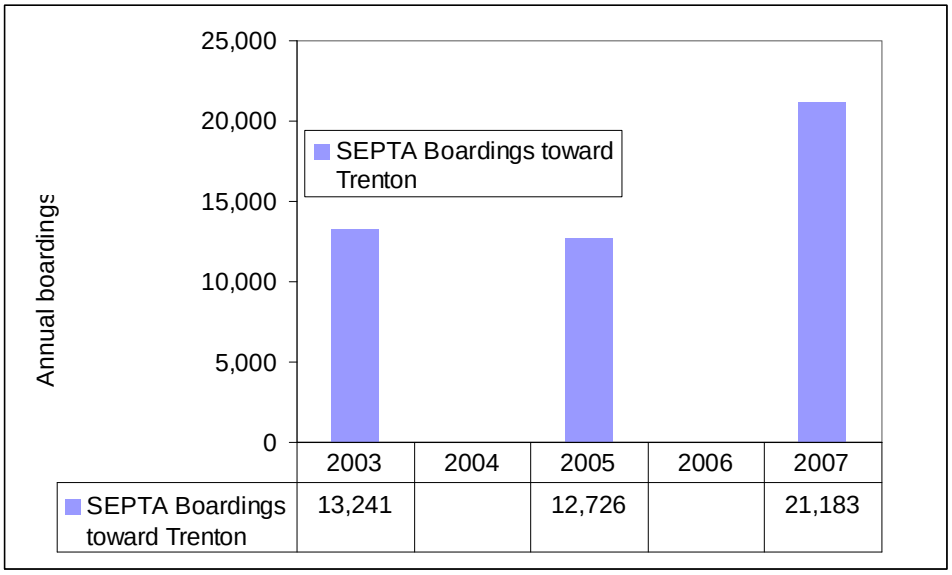
However, while Amtrak trips have decreased by approximately 17,400 passengers annually at Cornwells Heights, SEPTA has increased by 136,000 annual boardings between 2005 and 2007. Figure 6 summarizes historical ridership at the Cornwells Heights station.

Figure 6: Total Annual Boardings and Alightings



	2003	2004	2005	2006	2007	2008
Amtrak	23,386	25,968	25,097	12,558	7,721	6,843
SEPTA	556,737	580,766	604,795	672,641	740,486	NA

Figure 7: SEPTA Outbound Annual Boardings (Cornwells Heights to Trenton)



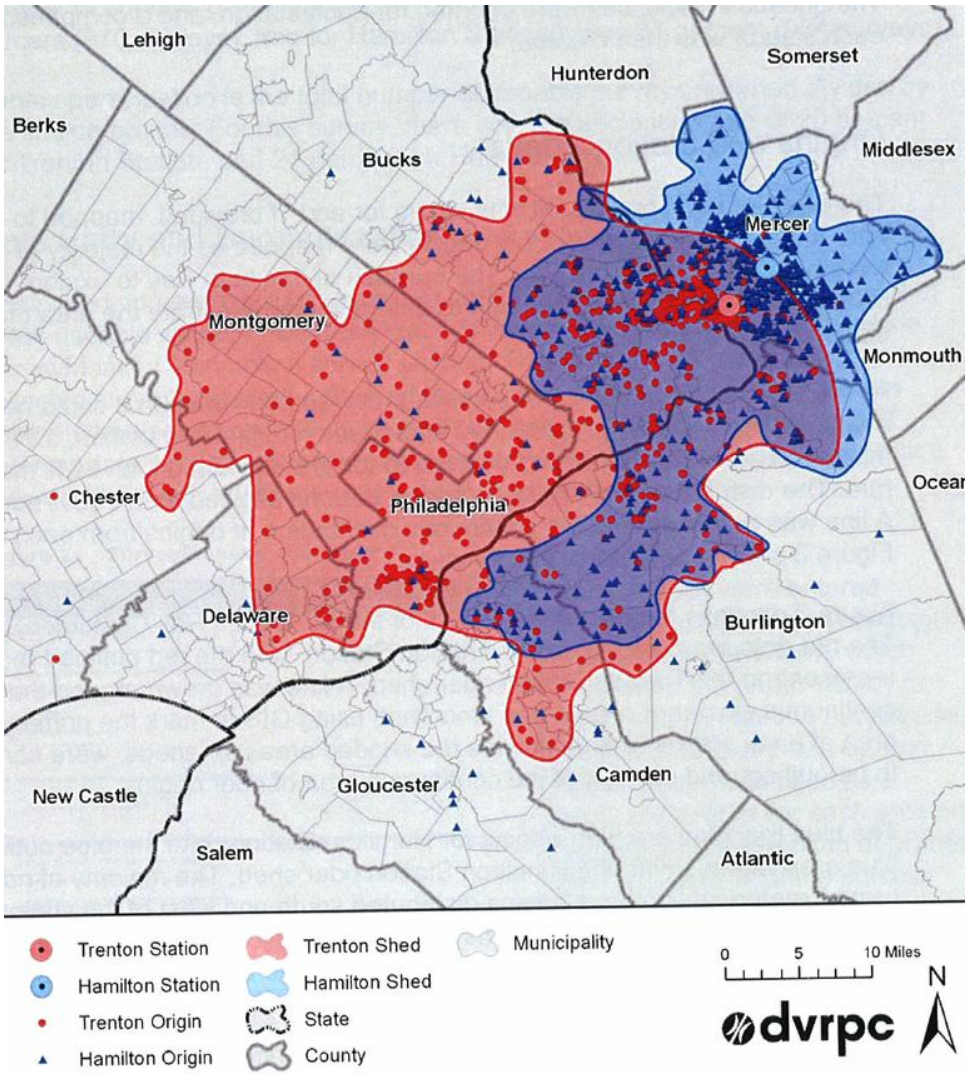
	2003	2004	2005	2006	2007
SEPTA Boardings toward Trenton	13,241		12,726		21,183

With the elimination of most Amtrak stops at Cornwells Heights it is likely that some northbound commuters from Pennsylvania now drive to New Jersey and park at a NJ Transit station, most commonly Trenton or Hamilton or now take a SEPTA train to connect at Trenton. Correspondingly, SEPTA reports show that annual boardings at Cornwells Heights in the direction of Trenton have nearly doubled after the termination of the Clocker service, from 12,700 annual boardings in 2003 to nearly 21,200 in 2007, as shown in Figure 7.

According to DVRPC's NJ Transit Rail Customer Survey completed in August 2009, the majority of NJ Transit riders at Trenton station have origins south and west of the station, with the greatest share originating in Pennsylvania. In fact, of the 815 patrons asked, 483, or 59 percent, came from Pennsylvania. The study also confirms that the majority of people who get on the NJ Transit train in Trenton or Hamilton stay on the train until they arrive at NYP (87 percent).[22]

[22] NJ Transit Rail Customer Survey, DVRPC, August 2009

Figure 8: Commutershed at Hamilton and Trenton Stations[23]



Note: Dark blue is where the two commutersheds overlap

It is not surprising that 82 percent and 87 percent of riders board the NJ Transit train at Trenton or Hamilton, respectively, to access their place of employment. Passengers using NJ Transit trains are also frequent weekly travelers using the train more than four times a week, suggesting that it is a common commuting pattern for most passengers (69 to 75 percent).

As an intercity passenger rail operator, Amtrak carries commuter traffic where practical and where it does not diminish the service provided to its intercity passengers. Additionally, Amtrak offers a number of pass programs or other discount programs designed to encourage travel by passengers that might not otherwise occur, on trains and at times where they would like to encourage more travel. By doing so, Amtrak can increase revenue at a minimal additional cost, consistent with its statutory requirement to

[23] NJ Transit Rail Customer Survey, DVRPC, August 2009

maximize revenues so as to minimize federal subsidies.[24] Amtrak maintains a monthly pass program (Smart Pass) for commuters by tradition and by popular demand. Based on an assumption of 18 round trips per month, the monthly pass offered until 2005 provided a 70 percent discount to users over regular fares. By definition, most commuters choose to travel on peak-time trains, particularly on the Northeast Corridor. Since these trains already perform well in terms of passenger and revenue levels, allowing monthly pass holders to ride at a 50 percent discount results in a reduction in the number of seats that can be provided to individual travelers who are paying full fares. On heavily patronized trains this program can work against Amtrak's goal of maximizing revenues and narrowing its operating loss.

Just as importantly, once the Clocker trains were eliminated, nearly all of the remaining candidate trains to stop at the station originated in Washington, D.C., or Harrisburg, PA, and carried many more time-sensitive riders when arriving at the station compared to the generally lightly-patronized Clocker trains at this point in their trip. Research has shown the additional running times makes the Regional train less attractive to these customers and they switch to alternate modes. Thus, on heavily patronized trains this program can work against Amtrak's statutory requirement of maximizing revenues and narrowing its operating loss.

In 2005 and 2006, Amtrak determined that offering deep-discount to Northeast Corridor commuters displaced higher-revenue intercity passengers traveling longer distances thereby reducing the revenue potential of Regional[25] trains.

From the fall of 2005 through February 2006 Amtrak reduced its monthly Smart Pass discount from 70 percent to 50 percent. The result has been that in addition to improved revenues from the change in monthly pass pricing, the additional seat capacity made available on the peak leg/peak direction trains (from reduced monthly ridership) meant that Amtrak could sell more single-trip tickets. A comparison of data for 10 trip and monthly Smart Pass passengers shows a revenue increase of 12 percent from $15.9M in FY05 to $17.8M in FY08. For the same period overall Regional ridership increased 9.3 percent and revenues were up 39.9 percent.

D. Recommendations

The study initially considered adding one or two additional train stops at this station in the morning and afternoon peak periods. However, Amtrak's ability to provide intercity rail service at Cornwells Heights is constrained by two primary issues, operating impacts and market demand suggesting a piece meal approach to the issue may not be appropriate, especially as ridership and services are expected to grow in coming years.

E. Operating Impact

Amtrak's Northeast Corridor between Philadelphia and New York typically consists of four parallel tracks—two inner tracks for express, through traffic (i.e., Amtrak Acela and Regional Service), and two outer tracks to support high-density rail commuter operations (NJ Transit in New Jersey and SEPTA in Pennsylvania) and scheduled train overtakes. Amtrak trains generally use the inner, express tracks which are capable of 125 mph speeds compared to the 90 mph speeds on the local tracks in order to minimize scheduled running times for the time-sensitive intercity passengers that are served.

[24] Rail Passenger Service Act 49 USC 24101 (c) and (d)
[25] Reference includes both current and past Northeast Corridor (NEC) non-premium Amtrak service: known as "Regional" in 2005, currently called "Northeast Regional."

Amtrak's scheduling process for the Northeast Corridor is complex, and requires coordination among all stakeholders including Amtrak, the commuter operators between Washington, D.C., and Boston, MA, and to some degree, the freight rail operators in the eastern U.S. The routing of a through Amtrak train from the inner tracks to an outer track in order to make a station stop can add from five to seven minutes to a schedule. Accordingly, Amtrak must be very selective about which trains are stopped at other than major station locations in order to maintain reliable intercity service patterns across the Northeast Corridor (NEC). Further, due to the high density of commuter rail traffic in existence on this route, the decision to route a through Amtrak intercity train to a station stop on what is predominately a commuter track can have negative impact on the performance of the commuter rail service serving the location as well. Unlike stations such as Trenton and Metro Park, which have crossovers bracketing the station at either end, Cornwells Heights has no comparable facilities. Thus, an intercity train must be routed to the local tracks at Morrisville, PA, when traveling south or at Holmesburg when traveling north—a significant complicating factor in coordinating schedules with SEPTA.

Adding six to eight minutes to a Regional train schedule to serve a relatively small intercity passenger rail market at Cornwells Heights generally has an undesirable impact on many other trains at many other locations, an impact that may outweigh the potential benefit of stopping a train there. Additionally all trains on the NEC are scheduled and routed through New York Penn Station, which is severely capacity constrained requiring careful consideration of any potential service changes or additions.

F. Market Demand

As described above, the public benefits that would be achieved by stopping additional Amtrak trains at Cornwells Heights are overshadowed by the small number of passengers that would board at this station. Given the current commuter rail service at this station, there are multiple rail options for the passenger desiring to make the trip to New York Penn Station via rail with a SEPTA connection to NJ Transit at Trenton. Adding Amtrak trains at this station can consume the available seat capacity for intercity Amtrak travelers and would potentially require the addition of another passenger car, driving up equipment and staffing costs. As stated previously, Amtrak is required to maximize revenues in order to minimize federal subsidies, and selling seats at high discounts to commuters traveling only a short distance generates much less revenue than selling those seats to full fare passengers traveling longer distances. A heavy emphasis on shorter distance service also diminishes Amtrak's ability to carry out its core mission of providing effective intercity service throughout the entire Washington – Boston region.

G. Alternative Service Concept and Recommendation

1. Mid and Longer Term Service

Since 2007, Amtrak has been leading the development of a Northeast Corridor Master Plan. It is a collaborative effort between 12 states, 8 commuter operators and all of the region's primary freight carriers. The initial release and study report is scheduled for this fall.

The Plan is being crafted to meet the Corridor's needs over the next 25 years—a period in which ridership is expected to grow by 60 percent and train movements by nearly 40 percent. As part of this development process, Amtrak has put forward for general consideration a service concept—likely jointly operated, aimed at meeting shorter-distance intercity market needs for passengers traveling along the NEC. Intended to bridge the gap between traditional commuter operations, which typically see station stops an average of every four miles and region-wide intercity operations, which average approximately 25 miles or greater between stops, this hybrid service could potentially provide trains stopping an average of every 10 miles and serve stations such as Cornwells Heights with effective, convenient service.

While there is considerable interest in seeing such a service among the rail stakeholders, numerous operational and institutional issues remain to be addressed before such a service is considered feasible. The Master Plan Working Group intends to evaluate this concept in further detail as part of its upcoming work program.

Amtrak recommends this hybrid service concept be considered among a potential range of initiatives that could provide additional intercity services to Cornwells Heights. Amtrak will consult with NJ Transit and SEPTA and offer to jointly develop concept schedules which would be compatible with each operator's respective future plans affecting Cornwells Heights.

III. Study B: Princeton Junction to Philadelphia

A. Background and History

This study investigates the options to expand passenger rail service along Amtrak's Northeast Corridor between Princeton Junction, New Jersey, and Philadelphia, Pennsylvania. The Princeton Junction station on the Northeast Corridor is a busy NJ Transit/Amtrak station, with total boardings of more than 7,600 daily in 2008, with NJ Transit handling the vast majority of passengers. Located 48 miles from Manhattan, most of Princeton Junction's passengers are bound for New York each weekday. Nevertheless, there are some Princeton Junction reverse commuters, with Philadelphia only 43 miles away.

Amtrak had been operating New York–Philadelphia trains called Clockers under a ticket cross-honoring agreement with NJ Transit, until Fall 2005 when NJ Transit received additional equipment deliveries that enabled them to replace the Amtrak-operated Clockers with Trenton express trains, capable of carrying more riders per train than ran in the Clocker slots. Currently, NJ Transit passengers have numerous one-seat rides from Princeton Junction to New York.

NJ Transit passengers traveling by rail from Princeton Junction to Philadelphia must change trains at Trenton. NJ Transit provides commuter rail service as far as Trenton, New Jersey. SEPTA operates commuter trains from Trenton to Philadelphia. Amtrak provides morning service at Princeton Junction consisting of three southbound trains to Philadelphia, Baltimore, and Washington, D.C. Amtrak fares on these trains are based on an intercity fare structure.

Commuters traveling by automobile can choose to drive the entire distance, or drive 10 miles to Trenton station or 25 miles to Cornwells Heights, Pennsylvania, in order to take the SEPTA R7 into Philadelphia.

B. Current Conditions

The Princeton Junction station is located within West Windsor Township, at Milepost 47.1 on Amtrak's Northeast Corridor Main Line. A 2.8-mile spur line, the Princeton Branch operated by NJ Transit, connects Princeton Junction to the Princeton University campus in the town of Princeton. Princeton is located in Mercer County and is comprised of two legally distinct areas: Princeton Township and the Borough of Princeton. Although Princeton University is a crucial element of Princeton's economy, there are other important institutions in the area, including the Institute for Advanced Study, Siemens Corporate Research, The Robert Wood Johnson Foundation, Dow Jones & Company, and many others.

The town is roughly equidistant between New York City and Philadelphia. The town is close to several major highways that can take residents to both locations. While the Amtrak travel time is similar to each city, the commuter train ride to New York—via NJ Transit's service—is generally much shorter than the equivalent train ride to Philadelphia, which involves a transfer to SEPTA trains in Trenton.[26]

There are 32,043 residents in Princeton, and Princeton University accounts for an additional 8,000 students.[27] There were 16,943 jobs in Princeton in 2005.[28] Princeton is a wealthy area with a median household income for the non-student population of $123,098.[29] Ninety-two percent of the town's households have at least one car available. However, university students are less likely to rely on automobiles and are much more transit dependent.

[26] http://en.wikipedia.org/wiki/Princeton_Junction_%28NJT_station%29
[27] http://en.wikipedia.org/wiki/Princeton_University
[28] DVRPC
[29] Census

Princeton commuters to Philadelphia generally have two options: either driving or taking a train. The distance between Princeton and Philadelphia is 46 miles, which takes approximately 55 minutes without traffic. Using IRS-approved mileage rates, and parking costs, the total one-way cost is approximately $40.[30]

Rail commuters can either take NJ Transit service to Trenton or drive to the Trenton train station (a 13-mile, 18-minute drive). There are more frequent NJ Transit trains to Trenton than there are SEPTA trains from Trenton. Trenton also offers more frequent Amtrak service and SEPTA R7 service into Philadelphia approximately every 30 minutes during peak hours. Using SEPTA and a NJ Transit connection, the trip time is approximately 78 minutes[31] and costs $17[32] each way.

Amtrak currently has three southbound trains that stop at Princeton Junction in the morning peak and two northbound trains in the afternoon peak. All Amtrak trains provide a one-seat ride to/from Philadelphia's 30th Street Station. The trip on Amtrak takes approximately 37 minutes and costs approximately $18 when Amtrak's monthly multi-ride Smart Pass is used.[33] Parking at Princeton Junction is approximately $4 per day.

The cost of driving to the Trenton Station includes parking fees at the Trenton Station of between $8 and $11 per day. Driving to Trenton and then taking SEPTA to Philadelphia takes approximately 73[34] minutes and costs $21.[35] Table 2 provides a comparison of options in cost per hour demonstrating the relative value and opportunity cost of travel time among the various options.

Parking at the Princeton Junction station is permit based. West Windsor Township residents have approximately a two-year wait to buy permits for $100 per quarter; nonresident permits cost $165 per quarter and have a waiting period twice as long. Daily parking is available for $4 in a close-in lot just north of the Princeton Branch platform.[36] It is important to note that parking demand is very high for this station, and the majority of parking spots are filled by 7 a.m.

Table 2: Comparison of Options[37]

Options	One-way trip duration (in minutes)	One-way average trip cost	Cost per hour
Driving: Princeton to Philadelphia	55	$40	$44
Amtrak: Princeton Junction to Philadelphia	37	$22	$36
NJ Transit: Princeton Junction to Trenton; SEPTA: Trenton to Philadelphia	78	$172	$9
Driving: Princeton to Trenton; SEPTA: Trenton to Philadelphia	73	$21	$17

[30] Princeton to Philadelphia: 46 miles at $0.55; Parking in Philadelphia: average of $15
[31] Princeton Junction (PJC) to TRE: 18 minutes; TRE to Philadelphia (PHL): 50 minutes; layover time: 10 minutes
[32] Monthly pass cost/trip: PJC to TRE: $2.94; TRE to PHL: $5.03; Parking at PJC: $4.00
[33] Multi-ride monthly pass (Smart Pass) at $648/month; assumed 36 one-way trips per month; single trip ticket cost is approximately $25
[34] Driving from Princeton to TRE: 18 minutes; TRE to PHL: 50 minutes; layover time: 5 minutes
[35] Driving from Princeton to TRE: 13 miles at $0.55; TRE to PHL: $5.03; Parking at TRE: average of $9
[36] http://en.wikipedia.org/wiki/Princeton_Junction_%28NJT_station%29
[37] All options represent an origin at the Princeton Junction station; full daily parking costs are included.

NJ Transit is the dominant user at Princeton Junction which is accessed via high level platforms adjacent to the two outer tracks. Access to the station is barrier free but the station is only considered in partial compliance with ADA regulations. The total cost to make the station ADA compliant is estimated to be $1,673,000 in 2009 dollars.[38]

Amtrak trains stopping at Princeton Junction must be routed from inner express tracks to the outer tracks in order to access these platforms. For example, a northbound Amtrak train that serves Princeton Junction must crossover at a reduced speed to the outer tracks to the north of Trenton Station, and operate over the outer track to Princeton Junction, make its stop, continue on the outer track to the next interlocking at Midway (Monmouth Junction, New Jersey), where it is routed back to the inner express track. The impact of operating over the 90 mph outer track versus the 125 mph express tracks to the schedule of the Amtrak train stopping at Princeton Junction is an increase of approximately six to eight minutes. Additionally, such a movement is likely to delay one or more of the many NJ Transit commuter trains that stop at Princeton Junction particularly during peak hours of operation.

C. Market Demand

Princeton is uniquely positioned between New York City and Philadelphia. Trips out of Princeton to those two employment markets are expected to continue at the same, if not higher, rate. The student population of Princeton University is likely to use transit to access other areas along the Northeast Corridor as well. However, the trend of increasing utilization of transit is expected to continue only if appropriate transit options are available.

Figures 9 and 10 show current population and employment density. Between 2005 and 2030, the population in Princeton is expected to increase by 1 percent, while the employment is expected to outpace population growth, at 11 percent.

[38] A Report on Accessibility and Compliance with the Americans with Disabilities Act of 1990, Amtrak, February 1, 2009

Figure 9: Population Density, 2005

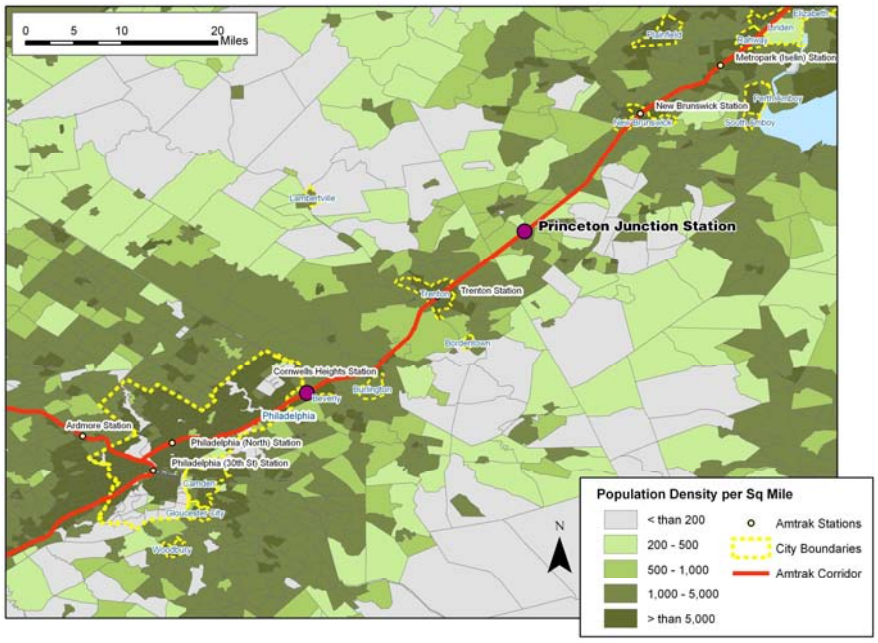
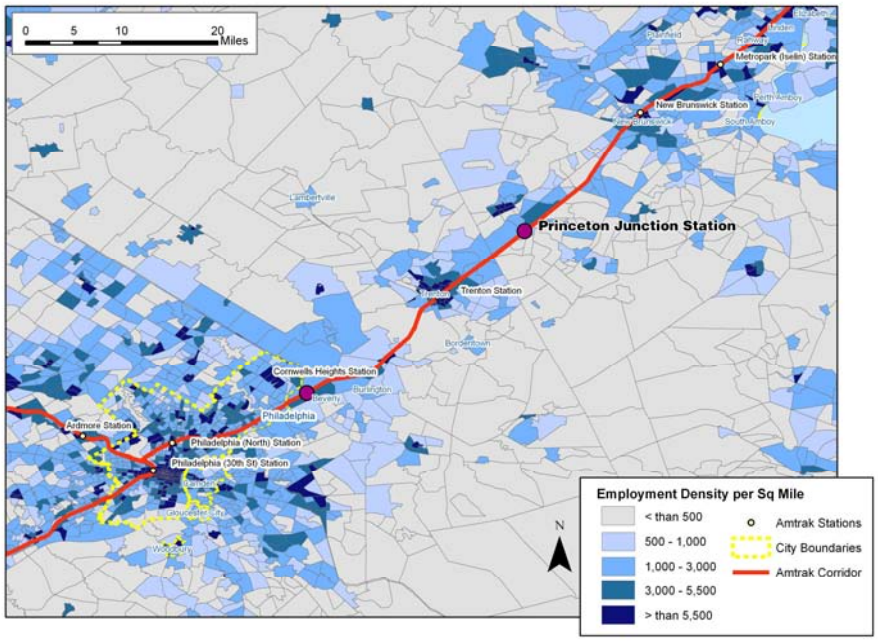
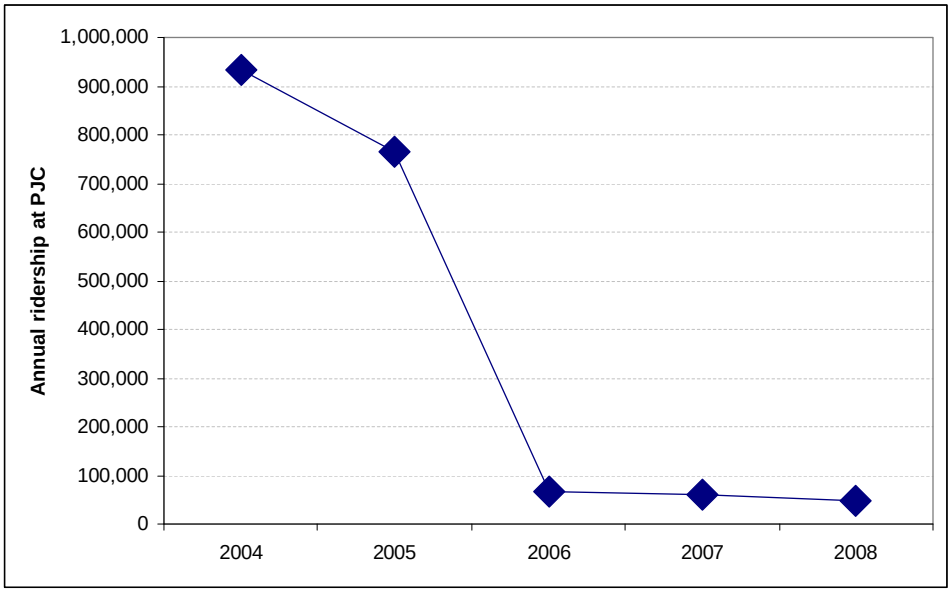


Figure 10: Employment Density, 2005



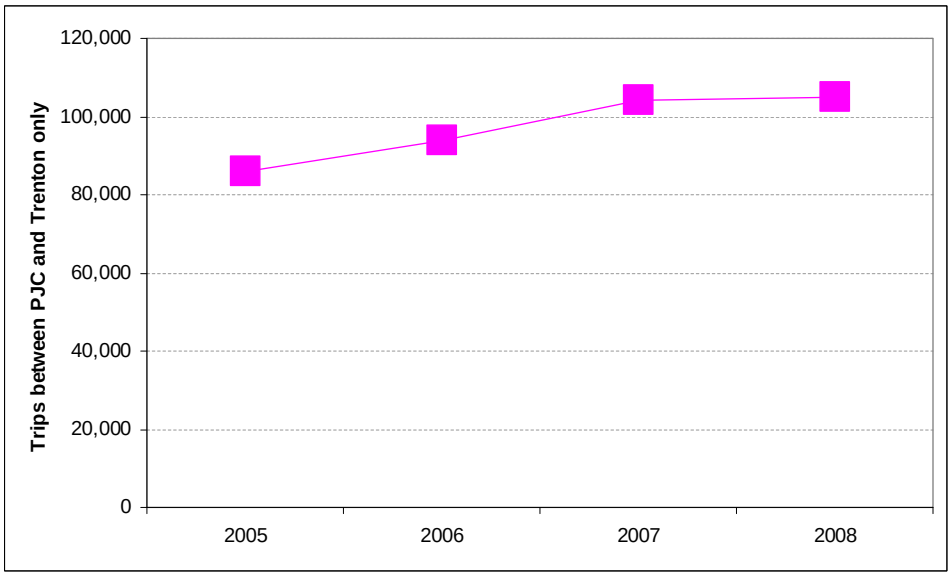
Since the Clocker service was replaced by NJ Transit, Amtrak experienced a steep decline in boardings at the Princeton Junction station: Amtrak reported 65,679 boardings and alightings at Princeton Junction for the year ending September 30, 2006, down from 764,805 for the same period in 2005. Figure 11 shows Amtrak trips from 2004 to the present at Princeton Junction.

Figure 11: Amtrak Ridership at Princeton Junction



In contrast, trips on the segment between Princeton Junction and Trenton on NJ Transit has grown by nearly six percent annually for the past five years, as seen in Figure 12. These are the passengers who get on or off at Princeton Junction and get off or on at Trenton.

Figure 12: NJ Transit Annual Ridership at Princeton Junction



As described in the Cornwells Heights chapter, as an intercity passenger rail operator, Amtrak carries commuter traffic where practical and where it does not diminish the service provided to its intercity passengers. Additionally, Amtrak offers a number of pass programs or other discount programs designed to encourage travel by passengers that might not otherwise occur, on trains and at times where they would like to encourage more travel. By doing so, Amtrak can increase revenue at a minimal additional cost, consistent with its statutory requirement to maximize revenues so as to minimize federal subsidies.[39]

Amtrak maintains a monthly pass program (Smart Pass) for commuters by tradition and by popular demand. Based on an assumption of 18 round trips per month, the monthly pass provides a 50 percent discount to users over regular fares. By definition, most commuters choose to travel on peak-time trains, particularly on the Northeast Corridor. Since these trains already perform well in terms of passenger and revenue levels, allowing monthly pass holders to ride at a 50 percent discount results in a reduction in the number of seats that can be provided to individual travelers who are paying full fares. On heavily patronized trains this program can work against Amtrak's goal of maximizing revenues and narrowing its operating loss.

Similar to as described in the Cornwells Heights chapter, once the Clocker trains were eliminated, nearly all of the remaining candidate southbound trains stopping at Princeton Junction originated in New York Penn Station or Boston. Research has shown that the additional running time makes the Regional train less attractive to these customers and they switch to alternate modes. In 2005 and 2006, Amtrak determined that offering deep-discount to Northeast Corridor commuters displaced higher-revenue intercity passengers traveling longer distances thereby reducing the revenue potential of a number of its Regional trains.

From the fall of 2005 through February 2006 Amtrak reduced its monthly Smart Pass discount from 70 percent to 50 percent. The result has been that in addition to improved revenues from the change in monthly pass pricing, the additional seat capacity made available on the peak leg/peak direction trains (from reduced monthly ridership) meant that Amtrak could sell more single-trip tickets. A comparison of data for 10 trip and monthly Smart Pass passengers shows a revenue increase of 12 percent from $15.9M in FY05 to $17.8M in FY08. For the same period overall Regional ridership increased 9.3 percent and revenues were up 39.9 percent.

D. Recommendations

Similar to the study at Cornwells Heights, this study initially considered adding one or two additional train stops at this station in the morning and afternoon peak periods. However, Amtrak's ability to provide intercity rail service at Princeton Junction is also constrained by two primary issues, operating impacts and market demand suggesting a piece meal approach to the issue may not be appropriate, especially as ridership and services are expected to grow in coming years.

E. Operating Impact

The basic operating issue with increased Amtrak service at Princeton Junction is equipment capacity and equipment utilization. The study evaluated Amtrak Keystone and Regional trains operating through Princeton Junction to determine if any additional trains can make stops. A driver for this decision is how much room is available on the trains involved to handle additional boardings from Princeton Junction headed towards Philadelphia.

[39] Rail Passenger Service Act 49 USC 24101 (c) and (d).

Amtrak's Northeast Corridor between Philadelphia and New York typically consists of four or six parallel tracks—two inner tracks for express, through traffic (i.e., Amtrak Acela and Regional Service), and two or four outer tracks to support high-density rail commuter operations (NJ Transit in New Jersey) and scheduled train overtakes. Amtrak trains generally use the inner, express tracks in order to minimize scheduled running times for the time-sensitive intercity passengers that they serve. Unlike stations such as Trenton and Metro Park, which have crossovers bracketing the station at either end, Princeton Junction has no comparable facilities. Thus, an intercity train must be routed to the local tracks at Trenton, when traveling south or at Midway when traveling north—a significant complicating factor in coordinating schedules with NJ Transit.

Amtrak's scheduling process for the Northeast Corridor is complex, and requires coordination among a number of stakeholders including Amtrak, the commuter operators between Washington, D.C., and Boston, MA, and to some degree, the freight rail operators in the eastern U.S. The routing of a through Amtrak train from the inner tracks to an outer track in order to make a station stop can add as much as six minutes to a schedule. Accordingly, Amtrak is very selective about which trains are stopped at other than major station locations. Further, due to the high density of commuter rail traffic in existence on this route, the decision to route a through Amtrak intercity train to a station stop on what is predominately a commuter track can have negative impact on the performance of the commuter rail service serving the location as well.

Adding a few minutes to a Regional train schedule to serve a relatively small intercity passenger rail market at Princeton Junction would have an undesirable impact on many other trains at many other locations, an impact that may outweigh the potential benefit of stopping a train there.

F. Market Demand

As described above, the public benefits that would be achieved by stopping additional Amtrak trains at Princeton Junction are overshadowed by small number of passengers that would board at this station. Given the current commuter rail service at this station, there are multiple rail options for the passenger desiring to make the trip to Philadelphia and points south via rail with a NJ Transit connection to SEPTA at Trenton. Adding Amtrak trains at this station can consume the available seat capacity for intercity Amtrak travelers and would potentially require the addition of another passenger car, driving up equipment and staffing costs. As stated previously, Amtrak is obligated by Congress to reduce its operating loss, and selling seats at high discounts to commuters traveling only a short distance generates much less revenue than selling those seats to full fare passengers traveling longer distances. A heavy emphasis on shorter distance service also diminishes Amtrak's ability to carry out its core mission of providing effective intercity service throughout the entire Washington – Boston region.

G. Alternative Service Concept and Recommendation

1. Mid and Longer Term Service

Since 2007, Amtrak has been leading the development of a Northeast Corridor Master Plan. It is a collaborative effort between 12 states, 8 commuter operators and all of the region's primary freight carriers. The initial release and study report is scheduled for this fall.

The Plan is being crafted to meet the Corridor's needs over the next 25 years—a period in which ridership is expected to grow by 60 percent and train movements by nearly 40 percent. As part of this development process, Amtrak has put forward for general consideration a service concept—likely jointly operated -aimed at meeting shorter-distance intercity market needs for passengers traveling along the NEC. Intended to bridge the gap between traditional commuter operations, which typically see station stops an average of every four miles and region-wide intercity operations, which average approximately

25 miles or greater between stops, this hybrid service could potentially provide trains stopping an average of every 10 miles and serve stations such as Cornwells Heights with effective, convenient service. While there is considerable interest in seeing such a service among the rail stakeholders, numerous operational and institutional issues remain to be addressed before such a service is considered feasible. The Master Plan Working Group intends to evaluate this concept in further detail as part of its upcoming work program.

Amtrak recommends this hybrid service concept be considered among a potential range of initiatives that could provide additional intercity services to Princeton Junction. Amtrak will consult with NJ Transit and SEPTA and offer to jointly develop concept schedules which would be compatible with each operator's respective future plans affecting Princeton Junction.

IV. Study C: Harrisburg to Pittsburgh

A. Background and History

Amtrak has experienced impressive ridership growth in its Keystone Corridor from Philadelphia to Harrisburg, particularly at the western end between Lancaster and Harrisburg. Amtrak's ridership gains are attributable in large part to significant capital improvements projects funded jointly by Amtrak and the Commonwealth of Pennsylvania. These improvements restored the Keystone service from Harrisburg to Philadelphia with electrified motive power which reduced trip times and increased service frequencies. This study looks west of Harrisburg to Pittsburgh and investigates an increase in the frequency of passenger rail along the route or segments of the line.

In 1971, with the formation of Amtrak there were two passenger trains between Harrisburg and Pittsburgh which were fulfilling the "Basic System" requirements for service connecting New York City with Chicago, Washington, D.C., and St. Louis. One set of trains, numbered 40 and 41, the Broadway Limited, operated from New York City (and Washington, D.C.) to Chicago. The other set, numbered 30 and 31, the National Limited, operated from New York City (and Washington, D.C.) to St. Louis.

In 1980 the Commonwealth of Pennsylvania contracted with Amtrak to operate the current daily Pennsylvanian between (New York) Philadelphia and Pittsburgh, the only rail passenger service connecting Harrisburg and Pittsburgh.

Until 2005, this same level of service was maintained in each direction between Harrisburg and Pittsburgh, though their names and composition changed as service requirements evolved.

Table 3 summarizes the passenger service on this corridor.

Table 3: History of Passenger Service between Harrisburg and Pittsburgh

Date	Service
1948	Pennsylvania Railroad operated 24 daily trains between Philadelphia and Pittsburgh.
1969	Penn Central operated a dwindling number of long-distance trains. 12 trains daily just before Amtrak.
1971 (Amtrak)	Two trains: Broadway Limited and National Limited
1979	National Limited discontinued
1980	State-supported Pennsylvanian began
Mid-1980s	Pennsylvanian turned back and stored overnight at Altoona. The ALT-PGH train was known as the Fort Pitt.
1993	Pennsylvanian ceased to be state-supported
1995	Broadway Limited discontinued. Replaced with a coach train, the Three Rivers.
2005 to present	Three Rivers discontinued when Amtrak stops hauling mail and express. Pennsylvanian: One daily frequency in each direction between PGH and NYP via 30th Street Station in Philadelphia.

B. Current Conditions

1. Existing railroad infrastructure and operating characteristics

There are significant differences between passenger rail operations on the Keystone West corridor (Harrisburg to Pittsburgh) and the Keystone East corridor (Harrisburg to New York Penn Station/Philadelphia). These differences include:

1. Route Ownership - Amtrak ownership stops at Harrisburg. Norfolk Southern owns the lines west of Harrisburg to Pittsburgh.
2. Motive Power - The route between Philadelphia and Harrisburg is electrified. Trains operating west of Harrisburg utilize diesel locomotives. Diesel locomotives do not have the horsepower or the acceleration capabilities of electric locomotives.
3. Rail Traffic - There is a significant amount of local and through freight traffic west of Harrisburg, while the freight traffic east of Harrisburg is local and utilizes other routes to access major markets. Freight traffic on the Amtrak route is minimal and generally operates over relatively short distances.
4. Topography - The route west of Harrisburg is mountainous and necessitates slower speeds due to numerous curves and restrictions.

Initiating additional passenger service between Harrisburg and Pittsburgh requires that Amtrak reach agreement with Norfolk Southern. Currently, an average of 39.8 Norfolk Southern freight trains traverse the distance between Harrisburg and Pittsburgh each day, totaling 106 Annual Million Gross Tons (MGT).[40]

Norfolk Southern's Pittsburgh Line from Harrisburg to Pittsburgh is essentially double track with three tracks over the most mountainous portion west of Altoona. There are secondary routes such as Main Line Conemaugh (Johnstown-Pittsburgh) and the Port Perry Branch (Pitcairn-Pittsburgh) that provide alternate routings for freight trains, in effect creating more line capacity. In the double-tracked segments, there are crossovers located approximately every 10 miles throughout the line.

Figure 13: Sharing of Track with Freight Traffic

[40] Norfolk Southern 2007 tonnage data

Originally, nearly the entire distance between Harrisburg and Pittsburgh was four-tracked. This route is heavily used for freight rail operating at varying speeds, which necessitates frequent crossovers by passenger rail service and limits the ability to schedule additional rail service. In creating the double-tracked segments, generally the middle tracks (Tracks 2 and 3) were kept and the outside tracks (Tracks 1 and 4) were removed.

The line between Harrisburg and Pittsburgh is cab-signaled throughout its length. In double-track territory, both tracks are signaled in both directions. In triple-track two of the tracks are signaled in one direction only, with the third track signaled in both directions. There is no electrification present along the line west of Harrisburg, currently prohibiting the extension of Keystone Service's all-electric trains directly to Pittsburgh.

Operating speeds along the line are nominally 70 or 79 mph for passenger trains, with many civil restrictions of 60 mph for intermodal trains. These also include 50 mph for other freight and 45 mph for mineral freight. These differences in speed pose a significant operating challenge, particularly in double track territory.

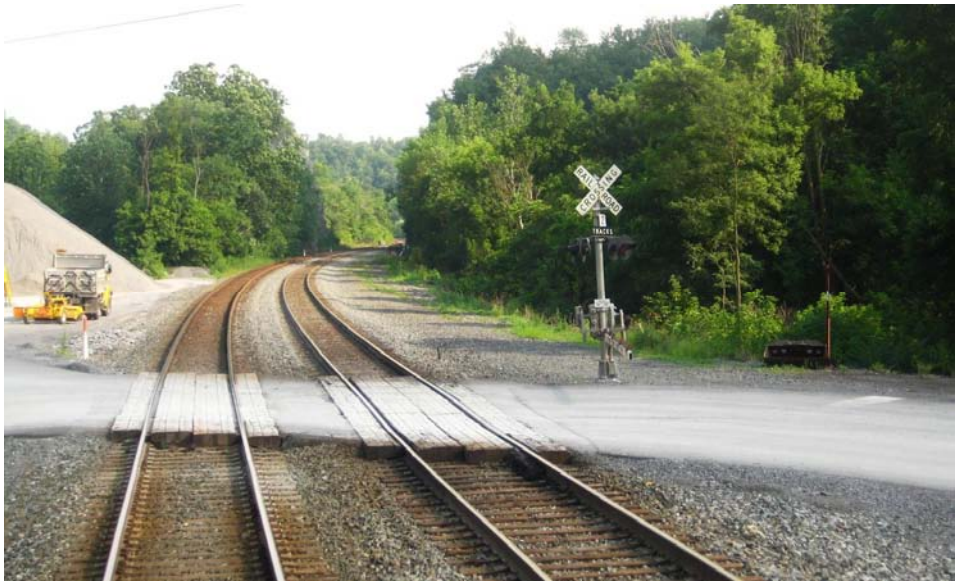
Table 4 depicts on-time performance (OTP) of the Pennsylvanian over the past five fiscal years. In addition, ridership on the Pennsylvanian grew, on average, more than nine percent between 2006 and 2008. Nationally (and on the Norfolk Southern Pittsburgh line), host railroad managements have greatly increased focus on Amtrak operations. This has resulted in significant reductions in delays to Amtrak trains, and improved Amtrak OTP.

Table 4: Pennsylvanian On-Time Performance (OTP) and Ridership[41]

Year	OTP	Ridership
2006	71%	184,000
2007	72%	180,000
2008	87%	201,000

[41] Includes only trips west of Philadelphia, excluding trips that were NEC spine only.

Figure 14: Typical Grade Crossing on the Pennsylvanian



2. Stations

There are nine stations located between Harrisburg and Pittsburgh, ranging from large staffed stations to passenger shelters. Table 5 provides information on size, ridership, revenues, and ownership/responsibility for each of these stations.

Altoona, Tyrone, and Huntingdon have platforms on one side only. This dictates that trains crossover in one direction or another to be on the track where the platform is located. This rigid track selection requirement can consume additional line capacity versus locations where platforms are located on both tracks.

Figure 15: Lewistown Station

A major concern with any improvements to this corridor is the need to provide stations that are compliant with the Americans with Disabilities Act of 1990 (ADA). Per ADA, all passenger rail stations (other than flag stops) are to be readily accessible to individuals with disabilities by July 26, 2010.[42] Between Harrisburg and Pittsburgh, two stations, Tyrone and Latrobe, are designated as "flag stops" and therefore are not covered under this law. Amtrak is currently working with local partners for the remaining stations to secure funding to provide accessibility and ADA compliance. For several of the stations along this corridor, the platforms, station structure, and parking facility are owned by different parties, which adds to the complexity of making improvements, as a lack of funding by one or more of the responsible parties could delay improvements by others. Amtrak requested that the federal government provide dedicated funding through Section 219 of PRIIA and extend the compliance date to September 30, 2015.

[42] Amtrak Report on Accessibility and Compliance with ADA 2-01-09 new version.

Table 5: Amtrak Stations, Harrisburg to Pittsburgh

Station Name	Mile-post	Classification	FY 08 Ridership	FY 08 Revenue	Ownership			Responsibility		
					Station Structures	Platforms	Parking Facilities	Station Structures	Platforms	Parking Facilities
Harrisburg	195	Large - Staffed	527,056	$10,833,637	Amtrak	Amtrak	Amtrak	HRA/Amtrak	Amtrak	Amtrak
Lewistown	256	Medium - Caretaker	10,674	$370,094	PRTHS	Norfolk Southern	PRTHS	Amtrak/PRTHS	Amtrak	Amtrak/PRTHS
Huntingdon	293	Medium - Caretaker	5,290	$182,959	Amtrak	Norfolk Southern	Norfolk Southern	Amtrak	Amtrak	Amtrak
Tyrone	313	Small-Unstaffed-Flagstop	2,985	$107,487	Amtrak	Norfolk Southern	Norfolk Southern	Not Required	Not Required	Not Required
Altoona	327	Medium - Staffed	25,415	$865,993	Redevelopment Authority of Altoona, PA	Norfolk Southern	Redevelopment Authority of Altoona, PA	Redevelopment Authority of Altoona, PA	Amtrak	Redevelopment Authority of Altoona, PA
Johnstown	366	Medium - Staffed	19,206	$690,137	SFB Partnership	Norfolk Southern	SFB Partnership	Amtrak	Amtrak	Amtrak
Latrobe	403	Small-Unstaffed-Flagstop	4,253	$155,944	Guy & Rita DiSalvo	Norfolk Southern	Guy & Rita DiSalvo	Not Required	Not Required	Not Required
Greensburg	413	Small - Station - Caretaker	12,882	$535,774	Westmoreland Trust	Norfolk Southern	Westmoreland Trust	Westmoreland Trust/Amtrak	Amtrak	Westmoreland Trust/Amtrak
Pittsburgh	444	Large - Staffed	142,828	$7,211,804	Amtrak	Amtrak/ Norfolk Southern	Amtrak/Historic Landmarks Realty Growth Fund (The Pennsylvanian)	Amtrak	Amtrak	Amtrak/Historic Landmarks Realty Growth Fund (The Pennsylvanian)

FY08 Ridership for all

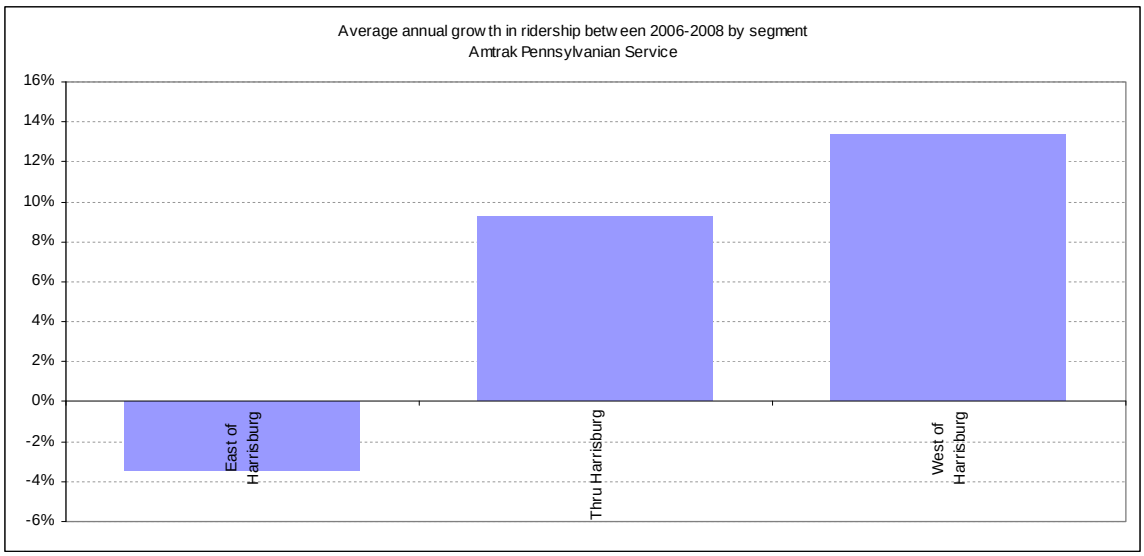
Source: Amtrak Report on Accessibility and Compliance with ADA 2-01-09 new version.

C. Market Demand

1. Historic Ridership

Ridership numbers for the Pennsylvanian (trains 42, 43, and 44) show that the service continues to grow in popularity, with an average of seven percent growth each year between 2006 and 2008. Figure 16 shows the average annual growth in ridership. Amtrak measures ridership on this train in three segments. It is important to note that while it appears that growth in the segment east of Harrisburg has declined, this is likely due to the ridership shifting to the higher-frequency Keystone Corridor trains between Harrisburg and New York.

Figure 16: Average Annual Growth in Ridership, 2006-2008



2. Travel Comparison with Other Modes

Rail

The current travel time between Harrisburg and Pittsburgh is 5 hours and 30 minutes and costs $36 each way for Reserved Coach and $53 for a Business Class seat.

Automobile

The travel time between Harrisburg and Pittsburgh by car is approximately 3 hours, 30 minutes and costs $125 each way.[43]

Bus

Greyhound is the main provider of intercity bus service between Pittsburgh and Harrisburg. Table 6 shows that there are a total of six buses that run from Harrisburg to Pittsburgh, while Table 7 shows that there are eight buses that run from Pittsburgh to Harrisburg daily. The time it takes to travel from the two

[43] Driving from Harrisburg to Pittsburgh: 205 miles at $0.55 plus $12.50 Pennsylvania Turnpike toll

cities is between four to seven hours depending on the number of stops. The cost of these trips varies depending on how the ticket is purchased (online or at a station) and whether it is nonrefundable or refundable. Table 8 shows the cost of a one-way ticket on the Greyhound bus.

Table 6: Greyhound Bus Travel – Harrisburg to Pittsburgh

Frequency	Travel Time
4	4 hours, 15 minutes
2	7 hours, 5 minutes

Table 7: Greyhound Bus Travel – Pittsburgh to Harrisburg

Frequency	Travel Time
6	4 hours to 4 hours, 15 minutes
2	7 hours to 7 hours, 5 minutes

Table 8: Greyhound One-Way Ticket Price between Pittsburgh and Harrisburg

Web Nonrefundable	Nonrefundable	Refundable
$37.19	$43.75	$50.75

The Steel City Flyer, a private intercity bus, ran between Pittsburgh and Harrisburg between November 2008 and July 2009. Aimed at business travelers, the service cost $69 each way and was time-competitive with the automobile. Low ridership numbers ultimately forced the service to be discontinued in the summer of 2009.[44]

One additional provider, Fullington Trailways, provides tour buses and State College student travel in the areas around Pittsburgh and Harrisburg.

Air

Currently there are no direct flights between Harrisburg and Pittsburgh. US Airways offered a direct flight between the two cities but it was suspended in September 2008. There are several choices for connecting flights via Washington, D.C. (IAD), Philadelphia (PHL), Chicago (ORD), and Charlotte (CLT). While these flights are an option, their relatively high cost and circuitous routing limits their use as a viable travel option.

D. Potential Service Scenarios

Several service options were investigated as part of this feasibility study, with assumptions that these could be implemented in the short-term via conventional rail, i.e., a maximum authorized speed of 90 mph.

The first additional train is train 47 (replaces Keystone train 647) with departure from New York Penn Station at 2:11 p.m. and arrival in Pittsburgh at 11:09 p.m. This scenario is beneficial in that it allows for a relatively convenient connection with the westbound Capitol Limited to Chicago, which departs Pittsburgh

[44] http://www.pittsburghlive.com/x/pittsburghtrib/business/s_597349.html
http://www.rrdc.com/op_steel_city_flyer.html

at 11:55 p.m. In the Eastbound direction, a new daily train (train 44) is added that replaces Keystone train 618 on Monday to Thursday, Keystone train 658 on Friday and Keystone train 610 on Saturday. It leaves Pittsburgh at 1:00 p.m. and arrives in New York City at 10:30 p.m.

Also considered was an extension of service west from Harrisburg by one train per day in each direction as far as Altoona. For example, extending the origination of Keystone train 644 to Altoona would provide passengers near Altoona with an additional frequency that would allow for convenient morning arrivals in Harrisburg, Philadelphia, and New York City.

These scenarios all involve an engine change at Philadelphia or Harrisburg, as the Pennsylvanian does today.

Table 9 depicts a potential schedule showing proposed westbound service and the additional frequencies to Pittsburgh via extended or new trains. Table 10 shows the potential service eastbound. [45] These schedules are for illustrative purposes only and subject to refinement and negotiation with the railroad. Amtrak and Norfolk Southern, as the infrastructure owner, would need to reach agreement on this additional service.

[45] Potential extension of service to Altoona is not included in these schedules.

Table 9: Westbound Schedule

	601 M-F	605 M-F	607 M-F	611 Sat	661 SaSu R	641 M-F R	609 M-F	663 SaSu R	643 M-F R	43 Daily R	645 M-F R	615 Sun	665 SaSu R	47 Daily R	649 M-F R	667 SaSu R	651 M-F R	653 M-F R	669 SaSu R	655 M-F R	671 SaSu R	659 M-F R	639 M-F R	637 Sun R
Connecting Train	*67*	*151*	*111*	*121*			*185*					*157*												
New York Penn Sta	*3.00*	*4.40*	*5.30*	*5.45*	7.00A	7.25A	*8.10*	9.09A	9.30A	10.50A	**12.05P**	*12.05*	**1.17P**	**2.11P**	**2.44P**	**3.13P**	**4.03P**	**5.10P**	**5.17P**	**6.30P**	**7.15P**	**8.45P**	**11.15P**	**11.58P**
Newark	*3.20*	*4.57*	*5.46*	*6.02*	R 7.17A	R 7.42A	*8.27*	R 9.27A	R 9.46A	R 11.07A	**R 12.22P**	*12.22*	**R 1.35P**	**R 2.28P**	**R 2.59P**	**R 3.32P**	**R 4.20P**	**5.27P**	**R 5.34P**	**R 6.48P**	**R 7.32P**	**R 9.06P**	**R 11.32P**	R 12.15A
Newark Intl. Airport					…	…	*8.32*	…	…	…	…	*12.28*	…		**3.04P**	…			…		…		**11.37P**	…
Metropark	*3.39*	*5.16*	*6.02*	*6.20*	…	…	*8.45*	…	…	…	…	*12.42*	…		…	…			…		…		**11.50P**	12.32A
New Brunswick																								
Princeton Jct			*6.21*			8.15A		10.01A																
Trenton	*4.06*	*5.39*	*6.30*	*6.43*	7.56A	8.24A	*9.07*	10.10A	10.23A	11.46A	**12.59P**	*1.05*	**2.14P**	**3.02P**	**3.38P**	**4.11P**	**4.53P**	**6.02P**	**6.12P**	**7.24P**	**8.12P**	**9.45P**	12.12A	12.55A
Cornwells Heights																				**D 7.38P**				
North Phila.															**D 3.59P**			**D 6.22P**		**D 7.51P**				
Phila. 30th St.	*4.38*	*6.06*	*6.57*	*7.09*	8.24A	8.50A	*9.34*	10.38A	10.50A	**12.16P**	**1.25P**	*1.32*	**2.42P**	**3.30P**	**4.10P**	**4.39P**	**5.21P**	**6.30P**	**6.40P**	**8.00P**	**8.40P**	**10.30P**	12.42A	1.23A
Phila. 30th St.	5.25A	6.25A	7.25A	7.25A	8.35A	9.00A	10.00A	10.55A	11.00A	**12.42P**	**1.35P**	**1.55P**	**3.00P**	**3.45P**	**4.45P**	**4.55P**	**5.35P**	**6.42P**	**6.55P**	**8.15P**	**8.55P**	**10.45P**		
Ardmore	5.37A	6.37A		7.37A	8.47A								**3.12P**		**4.57P**	**5.07P**	**5.47P**	**L 6.54P**	**7.09P**	**8.27P**	**9.07P**	**L 10.57P**		
Paoli	5.51A	6.51A	7.51A	7.50A	8.59A	9.23A	10.23A	11.19A	11.23A	**1.12P**	**1.59P**	**2.22P**	**3.25P**	**4.09P**	**5.11P**	**5.20P**	**6.01P**	**7.07P**	**7.22P**	**8.40P**	**9.20P**	**L 11.10P**		
Exton	5.58A	6.59A	…	7.57A	9.07A	9.30A	10.30A	11.26A	11.30A	…	**2.06P**	**2.30P**	**3.33P**	**4.17P**	**5.18P**	**5.28P**	**6.08P**	**7.14P**	**7.30P**	**8.47P**	**9.28P**	**L 11.18P**		
Downingtown	6.03A	7.03A	…	8.01A	9.11A	9.35A	…	…	11.35A	…	**2.11P**	**2.34P**	**3.37P**	…	**5.23P**	**5.32P**	**6.12P**	**7.19P**	**7.34P**	**8.52P**	**9.32P**	**L 11.22P**		
Coatesville	6.09A	7.09A	…	8.07A	9.17A	…	10.39A	…	…		**2.17P**	**2.40P**	**3.43P**	…	**5.29P**	**5.38P**	**6.18P**	**7.25P**	**7.40P**	**8.59P**	**9.38P**	**F 11.28P**		
Parkesburg	6.15A	7.14A	…	8.13A	9.23A	9.45A	…	11.39A	11.45A		**2.22P**	**2.45P**	**3.49P**	…	**5.34P**	**5.44P**	**6.24P**	**7.30P**	**7.46P**	**9.05P**	**9.44P**	**L 11.34P**		
Lancaster	6.35A	7.35A	8.28A	8.34A	9.44A	10.05A	11.03A	**12.00P**	**12.06P**	**1.52P**	**2.43P**	**3.06P**	**4.10P**	**4.51P**	**5.56P**	**6.05P**	**6.45P**	**7.51P**	**8.07P**	**9.25P**	**10.05P**	**L 11.55P**		
Mount Joy	6.45A	7.45A	…	8.43A	9.53A	…	11.12A	…	…		**2.52P**	**3.15P**	**4.19P**	…	**6.05P**	**6.14P**	**6.54P**	**8.00P**	**8.16P**	**9.34P**	**10.14P**	F 12.04A		
Elizabethtown	6.51A	7.51A	8.43A	8.50A	10.00A	10.20A	11.19A	**12.15P**	**12.20P**	**2.06P**	**3.00P**	**3.23P**	**4.26P**	**5.05P**	**6.12P**	**6.21P**	**7.01P**	**8.07P**	**8.23P**	**9.41P**	**10.21P**	L 12.11A		
Middletown	6.59A	7.59A	…	8.57A	10.07A	10.26A	11.26A	**12.21P**	**12.27P**	…	**3.06P**	**3.29P**	**4.33P**	**5.12P**	**6.19P**	**6.28P**	**7.08P**	**8.14P**	**8.30P**	**9.48P**	**10.28P**	F 12.18A		
Harrisburg	7.10A	8.10A	9.00A	9.10A	10.20A	10.40A	11.40A	**12.35P**	**12.40P**	**2.26P**	**3.20P**	**3.45P**	**4.45P**	**5.30P**	**6.30P**	**6.40P**	**7.20P**	**8.27P**	**8.42P**	**10.00P**	**10.40P**	12.29A		
										2.36P				**5.40P**										
Lewistown										**3.46P**				**6.50P**										
Huntingdon										**4.22P**				**7.26P**										
Tyrone										**F 4.48P**				**F 7.52P**										
Altoona										**5.06P**				**8.09P**										
Johnstown										**6.00P**				**9.04P**										
Latrobe										**F 6.41P**				**F 9.45P**										
Greensburg										**6.52P**				**9.56P**										
Pittsburgh										**8.05P**				**11.09P**										

Table 10: Eastbound Schedule

	640	600	660	642	662	644	664	646	648	666	650	42	668	670	652	654	672	656	44	620	660	612	622
	M-F	M-F	SaSu	M-F	Sat	M-F	SaSu	M-F	M-F	SaSu	M-F	Daily	Sun	SaSu	M-F	M-F	SaSu	M-F	Daily	M-Th	Fri	SaSu	M-F
												R							R				
Pittsburgh												7.20A							**1.00P**				
Greensburg												8.01A							**1.41P**				
Latrobe												F 8.11A							**F 1.51P**				
Johnstown												8.54A							**2.34P**				
Altoona												9.49A							**3.29P**				
Tyrone												F 10.05A							**F 3.43P**				
Huntingdon												10.32A							**4.12P**				
Lewistown												11.09A							**4.49P**				
Harrisburg												**12.45P**							**6.25P**				
	5.00A	6.30A	7.20A	8.00A	8.20A	9.00A	9.30A	10.00A	11.00A	11.20A	**12.00P**	**1.00P**	**1.10P**	**3.05P**	**3.20P**	**4.30P**	**5.05P**	**5.35P**	**6.40P**	**8.15P**	**8.15P**	**8.20P**	**9.15P**
Middletown	5.10A	6.40A	7.30A	…	8.30A	9.10A	9.40A	…	11.10A	11.30A	**12.10P**	…	…	**3.15P**	**3.30P**	**4.40P**	**5.15P**	**5.45P**	**6.50P**	**8.25P**	**8.25P**	**8.30P**	**9.25P**
Elizabethtown	5.17A	6.47A	7.37A	8.16A	8.37A	9.17A	9.47A	10.16A	11.17A	11.37A	**12.17P**	**1.18P**	**1.26P**	**3.22P**	**3.37P**	**4.47P**	**5.22P**	**5.52P**	**6.57P**	**8.32P**	**8.32P**	**8.37P**	**9.32P**
Mount Joy	5.23A	6.53A	7.43A	…	8.43A	…	9.53A	…	11.23A	11.43A	**12.23P**	…	…	**3.28P**	**3.43P**	**4.53P**	**5.28P**	**5.58P**	…	…	…	**8.43P**	…
Lancaster	5.35A	7.06A	7.55A	8.32A	8.55A	9.33A	10.03A	10.32A	11.34A	11.55A	**12.35P**	**1.35P**	**1.42P**	**3.40P**	**3.54P**	**5.05P**	**5.40P**	**6.10P**	**7.12P**	**8.47P**	**8.47P**	**8.55P**	**9.47P**
Parkesburg	5.54A	7.25A	8.14A	…	9.14A	9.51A	…	…	11.52A	**12.14P**	…	…	**2.00P**	**3.58P**	**4.13P**	**5.23P**	**5.58P**	**6.28P**	**7.30P**	**L 9.05P**	**9.05P**	**9.14P**	**L 10.05P**
Coatesville	5.59A	7.30A	8.19A	…	9.19A	…	…	…	…	**12.19P**	…	…	…	**4.04P**	…	**5.29P**	**6.04P**	**6.34P**	…	…	…	**9.19P**	…
Downingtown	6.05A	7.37A	8.25A	…	9.25A	10.01A	10.30A	…	**12.02P**	**12.25P**	**1.01P**	…	**2.10P**	**4.10P**	**4.22P**	**5.35P**	**6.10P**	**6.40P**	**7.40P**	**L 9.15P**	**9.15P**	**9.25P**	**L 10.15P**
Exton	6.10A	7.44A	8.32A	…	9.32A	10.07A	10.36A	…	**12.08P**	**12.32P**	**1.07P**	**2.07P**	**2.16P**	**4.16P**	**4.28P**	**5.41P**	**6.16P**	**6.46P**	**7.46P**	**L 9.21P**	**9.21P**	**9.32P**	**L 10.21P**
Paoli	6.19A	7.53A	8.41A	9.10A	9.41A	10.16A	10.45A	11.10A	**12.17P**	**12.41P**	**1.16P**	**2.19P**	**2.25P**	**4.25P**	**4.37P**	**5.50P**	**6.25P**	**6.55P**	**7.55P**	**L 9.29P**	**9.29P**	**9.41P**	**L 10.29P**
Ardmore	6.31A		8.53A		9.53A					**12.53P**			**2.38P**	**4.37P**	**4.49P**	**6.04P**	**6.37P**	**7.07P**				**9.53P**	
Phila. 30th St.	6.45A	8.19A	9.09A	9.35A	10.09A	10.41A	11.10A	11.35A	**12.43P**	**1.09P**	**1.42P**	**2.50P**	**2.53P**	**4.53P**	**5.05P**	**6.25P**	**6.53P**	**7.23P**	**8.20P**	**9.55P**	**9.55P**	**10.10P**	**10.55P**
Connecting Train		*130*																		*198*		*198*	*66*
Phila. 30th St.	7.00A	*8.30*	9.23A	9.45A	10.30A	10.55A	11.25A	11.45A	**1.00P**	**1.30P**	**2.05P**	**3.25P**	**3.05P**	**5.10P**	**5.15P**	**6.50P**	**7.10P**	**7.40P**	**8.55P**	*10.45*	**10.05P**	*10.45*	*12.13*
North Phila.	7.10A																						
Cornwells Heights	7.22A																						
Trenton	7.35A	*9.01*	9.52A	10.12A	11.00A	11.24A	11.55A	**12.13P**	**1.27P**	**2.00P**	**2.33P**	**3.56P**	**3.35P**	**5.39P**	**5.43P**	**7.19P**	**7.39P**	**8.09P**	**9.26P**	*11.14*	**10.35P**	*11.14*	*12.48*
Princeton Jct			10.00A												**5.51P**								
New Brunswick															**D 6.03P**								
Metropark		*9.25*									…				**D 6.13P**	…				*11.36*		*11.36*	*1.15*
Newark Intl. Airport		*9.36*	L 10.26A								…	…			…	…							
Newark	L 8.09A	*9.43*	L 10.32A	L 10.48A	L 11.39A	L 11.59A	**L 12.30P**	**L 12.49P**	**L 2.05P**	**L 2.38P**	**L 3.11P**	**D 4.38P**	**L 4.12P**	**L 6.13P**	**L 6.32P**	**L 7.55P**	**L 8.14P**	**L 8.42P**	**10.08P**	*11.51*	**11.12P**	*11.51*	*1.32*
New York Penn Sta	D 8.28A	*10.01*	D 10.50A	D 11.08A	D 11.57A	**D 12.17P**	**D 12.48P**	**D 1.07P**	**D 2.23P**	**D 2.56P**	**D 3.30P**	**D 5.00P**	**D 4.32P**	**D 6.34P**	**D 6.50P**	**D 8.14P**	**D 8.34P**	**D 9.02P**	**10.30P**	*12.10*	**11.32P**	*12.10*	*1.50*

Friday operation replaced with 660

Add Saturday frequency

1. Short-term

Ridership and revenue for this additional service was estimated utilizing models and data Amtrak has developed to measure the impact of new or changed services. The inputs include surveys of Amtrak's passengers, socio-economic data, and forecasts of population and income in the areas served by each station. The models take into account variations in ridership demand that are attributable to factors such as ticket prices, services offered by competing modes, the time of day at which stations are served, and whether potential passengers are required to change trains in order to reach their destination, which negatively impacts ridership.

Using the models and data described above and FY 2009 as the baseline, Amtrak developed annual ridership and ticket revenue forecasts for the two increased service options. The forecasted results are outlined in Table 11 and indicate that an additional Pennsylvanian frequency would net an additional 144,400 riders annually, with ticket revenues of $6,661,000. By adding an additional frequency to Altoona, with a potential bus connection to State College, the number of riders increases by 36,000 for a total of 180,400 passengers and $7,886,000 in ticket revenue.

These forecast results show the net incremental change and take into consideration the number of existing riders currently traveling between New York Penn Station and Pittsburgh that would now ride the new service.

Table 11: Forecasted Ridership and Revenues[46]

	Riders	Ticket Revenue	Passenger Miles
***Pennsylvanian* & Keystone (Baseline)**	2,008,800	$60,399,000	206,660,000
Additional Annual Increments with Increased Service			
Annual Increments (Add Second Pittsburgh Frequency)	144,400	$6,661,000	37,590,000
Annual Increments (Add Altoona)	36,000	$1,225,000	7,840,000
Total Annual Increments (Add Second Pittsburgh Frequency & Altoona)	180,400	$7,886,000	45,430,000
Additional Annual Totals with Increasing Service			
New Total for Pennsylvania & Keystone (Add Second Pittsburgh Frequency)	2,153,200	$67,060,000	244,250,000
New Total for Pennsylvania & Keystone (Add Second Pittsburgh Frequency & Altoona)	2,189,200	$68,285,000	252,090,000

[46] Source: AECOM Consult 09/22/09

E. Financial Analysis

1. Operating Costs

The addition of a second Pennsylvanian frequency yields approximately $6.7 million in annual new ticket revenues, with just over 140,000 annual riders. When a frequency to Altoona is added on top of the new Pennsylvanian, Amtrak yields an additional $1.1 million and another 36,000 riders. The Altoona service includes an Altoona Thruway Bus connection to/from State College, which would yield $56,000 and 6,000 riders, which is included in the $1.1 million figure.

The operating costs were also estimated for providing this additional service between Harrisburg and Pittsburgh, with the total operating costs for both services estimated at $16.7 million. This results in a net impact (loss) of $8.7 million. Table 12 presents the revenues and costs for each service.

Table 12: Operating Costs and Revenue Comparison

Incremental Financial Impact	Additional Pennsylvanian	Harrisburg-Altoona Service
Total Revenue (millions)	$7.0	$1.3
Total Allocated Direct Costs (millions)	$13.7	$3.0
Net Impact (Revenue – Direct Costs) (millions)	- $6.7	- $1.7
Farebox Recovery Ratio	51%	42%

Operating costs include expenses such as payment to the host railroad (in this case Norfolk Southern), fuel, train and engine labor, yard operations, transportation management and training, on-board services labor, and mechanical and station services.

In addition to the annual operating costs, implementing these proposed services would also require one-time training/qualification costs of $1.5 million as well as capital costs, which are described below.

2. Capital Costs

Unlike the coaches-only of the Keystone Service between New York City and Harrisburg, extending service to Pittsburgh, or even Altoona, involves providing onboard food service. Table 13 below identifies the expected increase in the active fleet. The equipment capital costs are considered as part of capital costs and are $88 million for the Pennsylvanian and $40 million for the Harrisburg-Altoona service.

Table 13: Incremental Equipment Requirements

Additional Units Required	Additional Pennsylvanian	Harrisburg - Altoona
Diesel Locomotive	3	2
AME 7 Locomotive	3	0
Coaches	10	5
Food Service Cars	3	2
Total	19	9

Amtrak would need to reach agreement with infrastructure owner Norfolk Southern for any service change and capital improvements that would be needed. A study commissioned by Norfolk Southern in 2005 and carried out by the Woodside Group estimated that $110 million in capital improvements would be required. However, that study assumed a total of four passenger trains per day between Harrisburg and Pittsburgh and significant freight traffic growth from a higher base of freight volume. Conditions have changed since the report was developed and the analysis should be updated to develop a more current estimate. A first step would be negotiations with Norfolk Southern for restoration of a baseline service in an environment of decreased train movements. A program of capital improvements for additional service from that point could be negotiated from there.

In August 2009 PennDOT submitted an application for the High Speed Intercity Passenger Rail (HSIPR) Program, Track 3 – Planning for the Keystone West Corridor. Identified in this application is the need to further develop capital and operating cost estimates for each of the alternatives developed. It is likely that the at least one of the alternatives examined for this project would include addition of service similar to what is proposed in this Amtrak report.

F. Implementation Requirements

1. Staffing

An analysis of incremental headcount was performed for this study and determined that a total of 22 new full time equivalent employees would be needed for the Pennsylvanian along with 9 for the Harrisburg to Altoona service. This count includes station staff, train and engine crew, on-board services, and mechanical employees.

2. Equipment Procurement

As mentioned earlier, the projected capital cost of the additional equipment required is $88 million for the Pennsylvanian and $40 million for the Harrisburg-Altoona service. This projection assumes procurement of new passenger cars and locomotives. Amtrak's current equipment fleet is insufficient to meet existing and projected passenger demand and operating requirements for existing services.

G. Public Benefits

Providing additional rail service along the Keystone West Corridor could provide a modest increase in mobility for travelers between Harrisburg and Pittsburgh and an additional option for travelers between New York City, Philadelphia, and Pittsburgh. It could also provide additional public transportation in communities that have little intercity public transportation service.

Additional passenger rail service provided in these smaller communities could be accompanied by actions to enhance intermodal connectivity at the rail stations to better integrate passenger rail service with other modes. Additionally, the expenditures for station ADA compliance and associated state-of-good-repair work would enhance mobility for disabled individuals.

In general, investments in rail would improve safety on the greater transportation network by diverting automobile trips to safer intercity passenger rail. Safety improvements would also be realized by improving track movements and conditions that allow for safe travel at higher speeds.

Specifically in the case of the Harrisburg – Pittsburgh corridor, the Pennsylvania Department of Transportation (PennDOT) expressed interest in considering stations where there may be an opportunity to provide a transit connection to State College, Pennsylvania, home of Pennsylvania State University and a growing technology corridor and employment center. While outside the scope of this feasibility study, there is value in examining Harrisburg, Lewistown, Tyrone, and Altoona as potential "gateway" station locations for this multimodal connection.

The Pennsylvanian's ticket fares are relatively competitive with air travel between Pittsburgh and Philadelphia. Given the recent termination of the privately-run intercity bus, the Steel City Flyer, it would be prudent for Amtrak with PennDOT's support to further examine service expansions that would best serve market demand based on travel time and cost.

1. Economic

Whether additional service would produce economic stimulus benefits depends partially upon whether new public funding is made available for associated capital and operating costs. Any required improvements would need to be accomplished using funds in addition to those already authorized for Amtrak, including sources other than Amtrak. These could include federal, state, local or private sources

Additional passenger rail service would create jobs and increase state and local tax revenues, although it would require higher levels of public funding. Station and track improvement costs were not estimated for this study, but would also need to be considered when comparing benefits versus cost.

Investment in stations stimulates public and private investment that creates jobs and expands business opportunities in the surrounding region. These direct expenditures would lead to potential spillover economic benefits.

2. Energy and Environmental

Environmental benefits can result from a reduction in the number and share of trips made by automobiles and airplanes, which are less efficient than passenger rail in terms of per capita emissions and energy use.[47] Diverting trips from automobiles to passenger rail may also lead to reductions in congestion and delay on heavily-traveled highway corridors resulting in a reduction of emissions and wasted fuel from slow-moving or idling vehicles. The decrease in energy use resulting from growing ridership on more energy-efficient trains ultimately reduces dependence on foreign oil, a key goal of the current state and federal administrations.[48]

It is important to note that the relatively circuitous route between Harrisburg and Pittsburgh climbs and turns through mountains and tunnels to navigate the steep terrain. The distance between Harrisburg and Pittsburgh is longer by rail (248.5 miles) than by highway (200 miles), which means that between those cities, the greater energy efficiency of intercity rail is offset, at least in part, by the longer distance trains must travel to connect them. Thus, the current alignment is less conducive to contributions to reductions in energy consumption and emissions than would be a rail alignment that is a straight line between both cities. Also, given that the current air service between Harrisburg and Pittsburgh requires transfers in indirect locations, air travel can be eliminated as an energy-efficient travel choice.

[47] High Speed Intercity Passenger Rail (HSIPR) Program Application Form Track 3 – Planning Program – Keystone Corridor – Keystone West, 8/24/09, Version 3

[48] *Ibid*.

Increased investment in this corridor will encourage integrated private development and put an emphasis on creating livable communities that provide options other than the single-occupant automobile. Intermodal connections would also likely follow to further link these rail stations with the local and intercity bus systems that further extend the reach of transit options in Pennsylvania.

H. Conclusion

In accordance with Section 224 of PRIIA, this feasibility study provides for an examination to determine whether to increase frequency of passenger rail service along the route between Harrisburg and Pittsburgh, or along segments of the route. Two options for service were identified along with the costs and potential schedules for each.

This feasibility study was completed before the October 16, 2009, Congressional deadline as specified in Section 224. With growth in ridership averaging nine percent a year, providing additional cross-state service, as well as connections to the Northeast via Amtrak's Northeast Corridor and trains to the Midwest, could be a beneficial investment in Pennsylvania's mobility.

The ability to increase rail service on this corridor is largely dependent on: 1) the physical requirements, i.e., equipment and crew availability, the ADA-required improvements to train stations and platforms, capital costs for new infrastructure, etc., and, 2) the funding levels that may be available to operate these state-supported services .

The projected costs associated with an increase in service between New York City and Pittsburgh are estimated at $13.7 million per year and annual operating losses are estimated at $6.7 million annually. The projected costs associated with an increase in service between New York City and Altoona are $3M per year and annual operating losses are estimated at $1.7 million annually. Additional Harrisburg-Altoona-Pittsburgh service would have to be state-supported. Section 209 of the Passenger Rail Investment and Improvement Act of 2008 requires Amtrak and states to develop and implement a uniform methodology to allocate operating and capital costs of existing and future Amtrak routes less than 750 miles in length, and that, by 2013, all states pay an equivalent share of the costs of such routes that are not covered by farebox revenues.

If policymakers determine that Amtrak should increase service along this corridor, it is anticipated that state legislative action will be required to provide one-time and on-going funding.

In light of these conclusions, Congress and the Commonwealth of Pennsylvania will need to determine whether passenger service should be increased between New York City and Pittsburgh, and, if so:

1. Identify the preferred option for additional service, and
2. Provide additional funding for capital and ongoing operating costs that will be required to implement that option.

I. Next Steps

While not included in the scope of this study, but based upon some of the findings which came from it, Amtrak also recommends PennDOT consider development of a fully integrated scheduled bus/rail service between State College and Harrisburg. Similar to many operations across the country (notably California), such a service would take advantage of the existing high-frequency and fast trips provided by the Keystone Corridor between New York and Harrisburg with high quality bus connections to State College. Harrisburg already has an excellent multi-modal station which would provide very convenient transfers

between the two services. Only a potential investment in bus equipment and operating costs of the bus connections would be required. It could also work in a complementary way with a similar service connecting to trains at Altoona enabling passenger travel from both the eastern and western portions of the state to State College.

In addition to the short-term options that were examined as part of this feasibility study, there is a desire by Amtrak and PennDOT to conduct an in-depth study of mid-term and longer-term service expansion options. For the longer-term, there is interest in understanding the improvements and their related costs for making the rail travel time between Harrisburg and Pittsburgh more competitive with automobile travel times. Future studies will need to identify the capacity and trip-time improvements needed to achieve higher-speed service.

It is also desirable that any improvements made in the short-term would also be used for mid- and longer-term service enhancements. This incremental improvement approach would be beneficial in that early expenditures would directly be used in future projects. Potential improvements could include possible full electrification, construction of additional passenger-only tracks, major interlocking improvements, concrete tie installation, and rolling stock acquisition.

Table 14 summarizes two potential scenarios for both emerging and true high-speed rail that could encourage additional rail travel between key cities such as Harrisburg, Altoona, and Pittsburgh.

Table 14: Potential Scenarios for High-Speed Rail (HSR)

Timeframe	Description	Maximum Authorized Speed	Trains/day	Key Improvements Needed
Mid-range	Emerging HSR between PGH and HAR	110 mph	2-8	Upgrades to ROW, signals
Long-Range	HSR regional Service between PGH and HAR	110-150 mph	8-10	Separate ROW or combination of dedicated and shared ROW

As a step forward in the planning process, Pennsylvania Department of Transportation (PennDOT) is currently pursuing federal funds under the Federal Railroad Administration's (FRA's) High Speed Intercity Passenger Rail (HSIPR) Track 3 – Planning Program with the Keystone Corridor West application. Under this application, PennDOT is requesting FRA to match a state-provided $750,000 to prepare a Service Development Plan (SDP) and a Programmatic NEPA document in response to FRA's Track 2 Corridor Programs and would serve as a base for future service improvements.

V. Study D: Rockwood, PA Stop on Capitol Limited

A. Background and History

Amtrak has conducted this study in order to determine whether to reinstate a station stop in Rockwood, Pennsylvania, pursuant to the Passenger Rail Investment and Improvement Act of 2008 (Public Law 110-432 Division B – Amtrak Sec 224 (a) (6)).

Rockwood is located in Somerset County, in the Laurel Highlands of southwestern Pennsylvania, just off PA Route 653. The 2000 census counted 954 people living within the borough. Rockwood sits along the Great Allegheny Passage, which is part of a 335-mile hiking and bicycling trail connecting Pittsburgh, Pennsylvania, and Washington, D.C.

Rockwood is located along CSX Transportation's Baltimore-to-Chicago main line at MP BF 226.8 (mileage from Baltimore) between Cumberland, Maryland, and Connellsville, Pennsylvania. It is a heavily-utilized freight corridor with an average of 53 freight trains a day and annual million gross tons of 79.8 between Cumberland, Maryland, and Braddock, Pennsylvania. Amtrak's Capitol Limited runs this route, but does not currently stop at Rockwood. The nearest stops are Cumberland, 48.6 miles east of Rockwood and Connellsville, 42.9 miles west of Rockwood.

Amtrak has never had a passenger station stop at Rockwood. An Amtrak predecessor, the Baltimore and Ohio Railroad (B&O) had passenger service to Rockwood. On the last day of B&O operation in 1971, Rockwood was a flag stop for Washington–Akron day trains 7 and 8, which stopped westbound at 1:13 p.m. and eastbound at 12:25 p.m.

While Amtrak began operating that same year, there was no passenger service at all on the line for 10 years. The current Amtrak Capitol Limited began operation along the route on October 1, 1981, and continues as an all-reserved train from Washington, D.C. to Chicago, offering coach service, sleeping car service, dining and lounge service, and baggage service.

Historically, Rockwood served Somerset (population 6,762), the county seat, nine miles away, and was an inside gateway to Johnstown, Pennsylvania, 45 miles away (population 144,319). Today, Rockwood is a destination in itself because of its strategic location on the Great Allegheny Passage trail. Over the past seven years, local advocacy groups have sought to have Rockwood added as a stop on the Capitol Limited.

B. Current Conditions

In addition to being a potential access point for the Great Allegheny Passage trail, Rockwood offers lodging, a hostel for cyclists traveling on the trail, shopping, and many other attractions within a short distance.

The B&O train station is still in place, but is in such a state of disrepair that it cannot be used as a passenger station. It serves as a headquarters for the local maintenance-of-way employees and for train and engine crews that work the CSX branch to Johnstown.

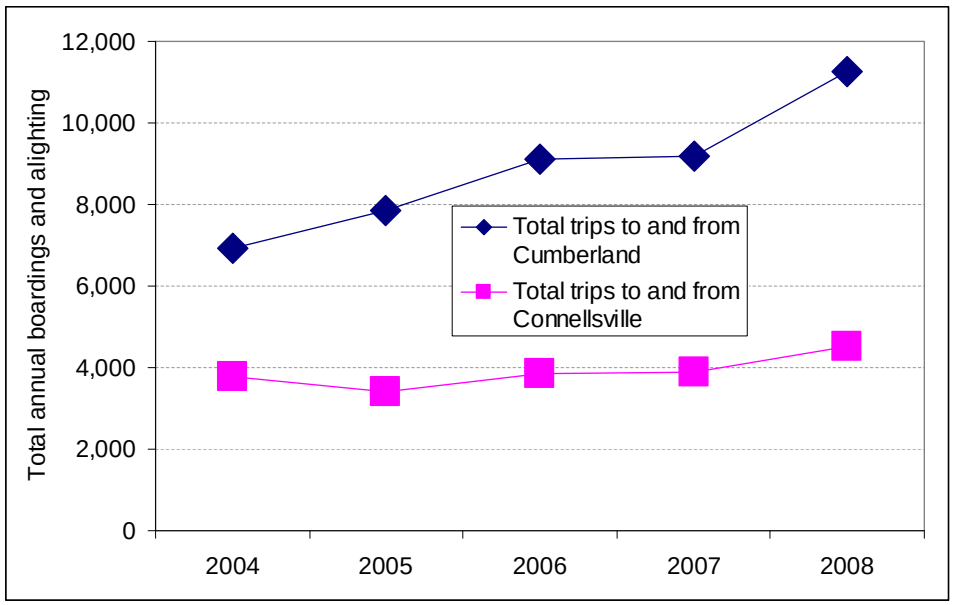
The station is located within the rail wye tracks leading to CSX's S&C subdivision leading to Somerset and then northwards towards Johnstown. The station is at the end of a gravel road in a gravel parking lot. Accessibility is a major issue with this site.

Figure 17: Existing Rockwood, PA Station (owned by CSX)

C. Market Demand

Total boardings and alightings at the nearest two stations—Cumberland and Connellsville—have been increasing from 2004 to 2008. In fact, ridership at the Cumberland station grew by more than 60 percent from 2004 to 2008 and ridership at the Connellsville station grew by 20 percent for the same time period, as shown in Figure 18. At the same time, total ridership on the entire corridor grew by approximately 20 percent—from 180,810 in 2004 to 216,350 in 2008.

Figure 18: Total Annual Boardings and Alightings



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Similar to the Harrisburg to Pittsburgh corridor presented in this report, ridership and revenue for adding a stop at Rockwood was estimated using models and data that Amtrak has developed to measure the impact of new or changed services. The inputs include surveys of Amtrak's long distance passengers, socio-economic data, and forecasts of population and income in the areas served by each station. The models take into account variations in ridership demand that are attributable to factors such as ticket prices, services offered by competing modes, the time of day at which stations are served, and whether potential passengers are required to change trains in order to reach their destination, which negatively impacts ridership.

Using the models and data described above and FY 2009 as the baseline, Amtrak developed annual ridership and ticket revenue forecasts for the additional station stop. The forecasted results include a yield of 2,100 new riders annually and approximately $123,000 in new ticket revenue. This incremental figure reflects the net impact of this stop on route-wide ridership and revenues, and does not include passengers currently using the Connellsville or Cumberland stops that would now board or alight at Rockwood.

D. Potential Service Scenarios

1. Stop on Existing Daily Service

The service option that would be available for Rockwood is a stop on Amtrak trains 29 and 30, the Capitol Limited. Table 15 inserts the approximate Rockwood times into the existing schedule. The additional time in the schedule would be approximately five minutes, each way. This schedule is for illustrative purposes only and subject to refinement and negotiation with the railroad. Amtrak would need to reach agreement with the owner of the infrastructure, CSX, regarding provision of this stop.

Table 15: Approximate Rockwood Schedule

	Train # modified					
	29			30		
Washington	Dp	4:05 PM		Ar	1:15 PM
Cumberland	Ar	7:14 PM		Dp	*9:38 AM*
	Dp	7:19 PM		Ar	*9:34 AM*
Rockwood	Dp	**8:40 PM**		Dp	**8:20 AM**
Connellsville	Dp	*9:47 PM*		Dp	7:09 AM
Pittsburgh	Ar	*11:48 PM*		Dp	5:30 AM
	Dp	11:55 PM		Ar	5:15 AM
Cleveland	Ar	2:48 AM		Dp	2:04 AM
	Dp	2:54 AM		Ar	1:55 AM
Chicago	Ar	8:40 AM		Dp	6:50 PM

E. Financial Analysis

As described previously, the incremental annual revenue to be gained by adding a stop at Rockwood on the Capitol Limited is estimated at $123,000 with 2,100 total riders. Direct and shared costs are estimated at $67,000 per year and include expenses such as fuel, on-board services, station utilities, and ongoing station maintenance. This would result in a net increase of $56,000 per year to Amtrak and a farebox recovery ratio of 184 percent.

1. Capital Costs

The Rockwood, PA, Station Report prepared for Amtrak in September 2009 confirms that the current station location and its deteriorated condition warrant consideration of an alternative station site, most likely at or near the location of the Rockwood Opera House.[49] The cost to construct a prototype station in compliance with ADA is estimated at $2.2 million.[50] This estimate includes expenses for site development work; host railroad protection; and pathway, platform, and station structure construction.

[49] Amtrak Station Rockwood, PA Inspection Report, SYSTRA Consulting, September 18, 2009
[50] SYSTRA, October 13, 2009

Table 16: Rockwood Station Construction Costs[51]

Element	($2009)
Station Structure	$ 553,483
Pathways	$ 331,051
Platforms	$ 1,354,285
TOTAL	**$ 2,238,819**

No additional equipment would be needed.

F. Implementation Requirements

The feasibility study assessed both the existing station building location as well as adjacent land parcels for suitable station locations. The existing station is in poor condition. Moreover, it is located next to a railroad wye, making access by pedestrians—and even automobiles—difficult. Passengers would be required to cross several sidings in order to access the platform from the public streets.

A field investigation performed at a nearby site suggested that the Opera House property may be a suitable location for establishing a Rockwood station stop. A former lumber yard, this building now houses a restaurant, performance hall, shops, and an exercise club. There is potential to lease space at the rear of this building for a waiting area, as well as ample space for parking and platforms.

Figure 19: Potential Space behind Opera House

[51] *Ibid.*

It is Amtrak's belief that adding a stop on the existing service at Rockwood would not likely have a significant adverse impact to CSX's operations in this area, but agreement with CSX for the station plans, construction and train operation would be needed. Amtrak would need to enter into an agreement with the municipality to provide for annual operating and maintenance costs to ensure the station facility remains in a state of good repair.

1. Funding

G. Public Benefits

Adding a station stop at Rockwood, Pennsylvania, could provide a modest increase in mobility for travelers between Washington, D.C. and Chicago. Benefits to the local businesses could be seen in the relatively large numbers of tourists that pass through the area and could use Rockwood as the start or end of their trip. Cyclists in particular could take advantage of Rockwood's proximity to the Great Allegheny Passage trail and avoid using a car to access this facility.

Whether a stop in Rockwood would produce economic stimulus benefits depends partially on whether new public funding would be made available for the associated capital costs. A stop in Rockwood could increase state and local tax revenues, as investment in stations stimulates public and private investment which creates jobs and expands business opportunities in the surrounding region. These direct expenditures lead to potential spillover economic benefits.

The addition of a station stop at Rockwood would have a modest effect on diverting trips from automobiles to passenger rail. This would produce environmental benefits due to a reduction in the number and share of trips made by other less fuel efficient modes, including automobiles and airplanes.

Increased investment in this corridor could encourage additional private development and emphasize the creation of livable communities that provide transportation options other than the single-occupant automobile. Intermodal connections (including private shuttles from local resorts) could also follow to further extend the reach of transit options in the region.

H. Conclusion

In accordance with Section 224 of PRIIA, this feasibility study provides for an examination to determine whether to reinstate a station stop on the Capitol Limited Route at Rockwood, Pennsylvania. A schedule was developed showing the additional stop and its impacts on the daily train traveling in each direction.

A station stop on the Capitol Limited at Rockwood would increase ridership by approximately one percent per year. Adding a station stop at Rockwood primarily involves the capital investment of $2.2 million needed to construct a platform, and parking and station waiting areas. The net benefit of such an investment is expected to total $56,000 per year.

In conclusion, this stop is operationally feasible, given:

1. A source of federal, state, local, or private funding for establishing and maintaining an unstaffed flag stop at Rockwood with adequate parking.
2. CSX agreement with Amtrak for the station plans, construction, and train operation.