

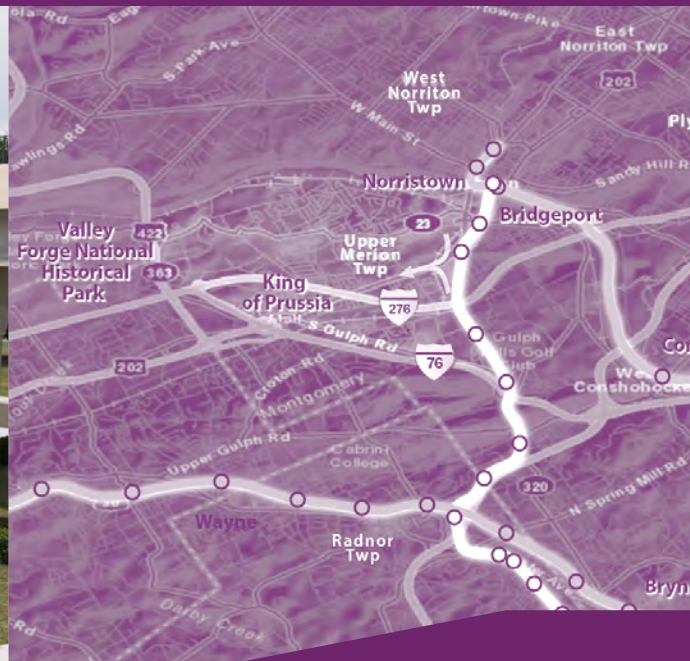
King of Prussia Rail Extension Project

An Extension of the Norristown High Speed Rail Line



January 2021

Combined Final Environmental Impact Statement/Record of Decision



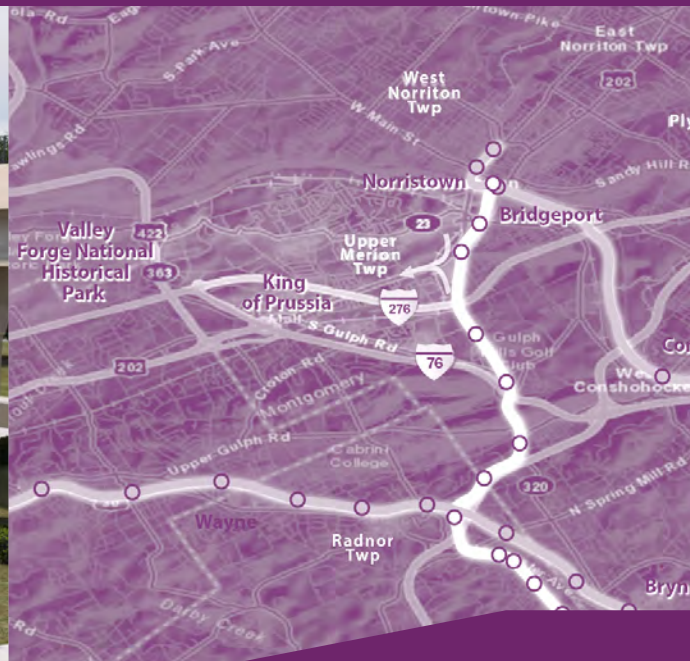
King of Prussia Rail Extension Project

An Extension of the Norristown High Speed Rail Line



January 2021

Final Environmental Impact Statement



KING OF PRUSSIA RAIL EXTENSION PROJECT

Upper Merion Township, Montgomery County, and Upper Darby Township, Delaware County,
Pennsylvania

Combined Final Environmental Impact Statement/Record of Decision and Final Section 4(f) Evaluation

Prepared pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended, [42 U.S.C. § 4321 et seq.]; Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act [40 CFR Parts 1500-1508]; Federal Transit Administration Standard Operating Procedures for Managing the Environmental Review Process (August 2016); Fixing America's Surface Transportation (FAST) Act [Public Law 114-94]; Public Transportation Laws [49 U.S.C. § 5323(c) and § 5309]; Section 4(f) requirements [49 U.S.C. § 303]; National Historic Preservation Act of 1966 [54 U.S.C. § 300101 et seq.], Section 106 [16 U.S.C. § 470f]; Executive Order 11990 (Protection of Wetlands); Executive Order 11988 (Floodplain Management); Clean Water Act [33 U.S.C. § 1251 et seq.]; Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority and Low Income Populations); the Endangered Species Act of 1973 [16 U.S.C. § 1531]; and the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 [42 U.S.C. § 4601 et seq.], among others.

Prepared by the
Federal Transit Administration
U.S. Department of Transportation



and



Southeastern Pennsylvania Transportation Authority

A handwritten signature in blue ink, reading "Theresa Garcia Crews".

Theresa Garcia Crews
Regional Administrator
Federal Transit Administration, Region III

01/08/2021

Date

A handwritten signature in blue ink, reading "Leslie S. Richards".

Leslie S. Richards
General Manager
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01/08/2021

Date

Abstract

The Federal Transit Administration (FTA) as the lead Federal agency, in cooperation with Southeastern Pennsylvania Transportation Authority (SEPTA) as the local Project sponsor, have prepared this combined Final Environmental Impact Statement/Record of Decision (combined FEIS/ROD) and Final Section 4(f) Evaluation for the King of Prussia Rail Extension Project (Project) in Upper Merion Township, Montgomery County, and Upper Darby Township, Delaware County, Pennsylvania. This combined FEIS/ROD was prepared in accordance with regulations developed by the Council on Environmental Quality for the National Environmental Policy Act (NEPA) and the FTA's Environmental Impact and Related Procedures (23 CFR Parts 771 and 774). The combined FEIS/ROD complies with 23 U.S.C. § 139(n)(2) as amended by the Fixing America's Surface Transportation (FAST) Act (Public Law 114-94).

The Project will extend existing Norristown High Speed Line (NHSL) service to the King of Prussia-Valley Forge area of Upper Merion Township, a distance of approximately 3.5 miles. The FEIS evaluates the environmental, transportation, social, and economic benefits and impacts of the Project, including the Preferred Alternative and the No Action Alternative.

Comments

The DEIS was made available to the public on October 17, 2017 for a public review and comment period that ended on December 4, 2017. The DEIS identified a locally recommended alternative and environmentally preferable alternative as the PECO/TP-1st Ave. Two public hearings were conducted during the DEIS public comment period on November 13, 2017 and November 15, 2017. The DEIS was also made available at three local libraries, and online at www.kingofprussiarail.com. Following the DEIS comment period, the SEPTA Board of Directors adopted the PECO/TP-1st Ave. alternative as the Preferred Alternative with refinements made in response to public and agency comments. The FEIS includes a summary of comments received on the DEIS, and FTA's and SEPTA's responses to substantive comments.

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Appendix B – Technical Memorandums and Reports

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Appendix D – Comments on the Draft Environmental Impact Statement

Appendix E – List of Preparers

Appendix F – List of Recipients

Appendix G – Acronyms

Appendix H – Glossary of Terms

Appendix I – References

Executive Summary

The King of Prussia Rail Extension Project (Project) combined Final Environmental Impact Statement/Final Section 4(f) Evaluation (FEIS)/Record of Decision (ROD) describes the benefits and impacts of extending the Norristown High Speed Line (NHSL) to the King of Prussia/Valley Forge area of Upper Merion Township, Montgomery County, Pennsylvania (**Figure ES-1**). The Federal Transit Administration (FTA) is the lead federal agency for the Project, and the Southeastern Pennsylvania Transportation Authority (SEPTA) is the Project sponsor. This combined FEIS/ROD has been prepared pursuant to 23 U.S.C. § 139(n)(2), which requires that FTA prepare a combined FEIS/ROD to the maximum extent practicable.

The combined FEIS/ROD summarizes the changes to the Project since the 2017 *King of Prussia Rail Extension Draft Environmental Impact Statement/Final Section 4(f) Evaluation* (DEIS) and the identification of the Preferred Alternative. No substantial changes to the proposed action have occurred since the DEIS and identification of the Preferred Alternative, and there are no new, significant circumstances or information related to the Project pursuant to 23 CFR 771.129 and 130. The FEIS provides responses to comments on the DEIS, and identifies the commitments SEPTA has made as part of the Project to address Project impacts. The ROD, which is part of the combined FEIS/ROD for the Project, states FTA's decision and the alternatives considered in reaching its decision regarding the Project as required by 23 CFR § 771.127. The combined FEIS/ROD is available on the Project website (www.kingofprussiarail.com).

ES-1 Purpose of the Final Environmental Impact Statement

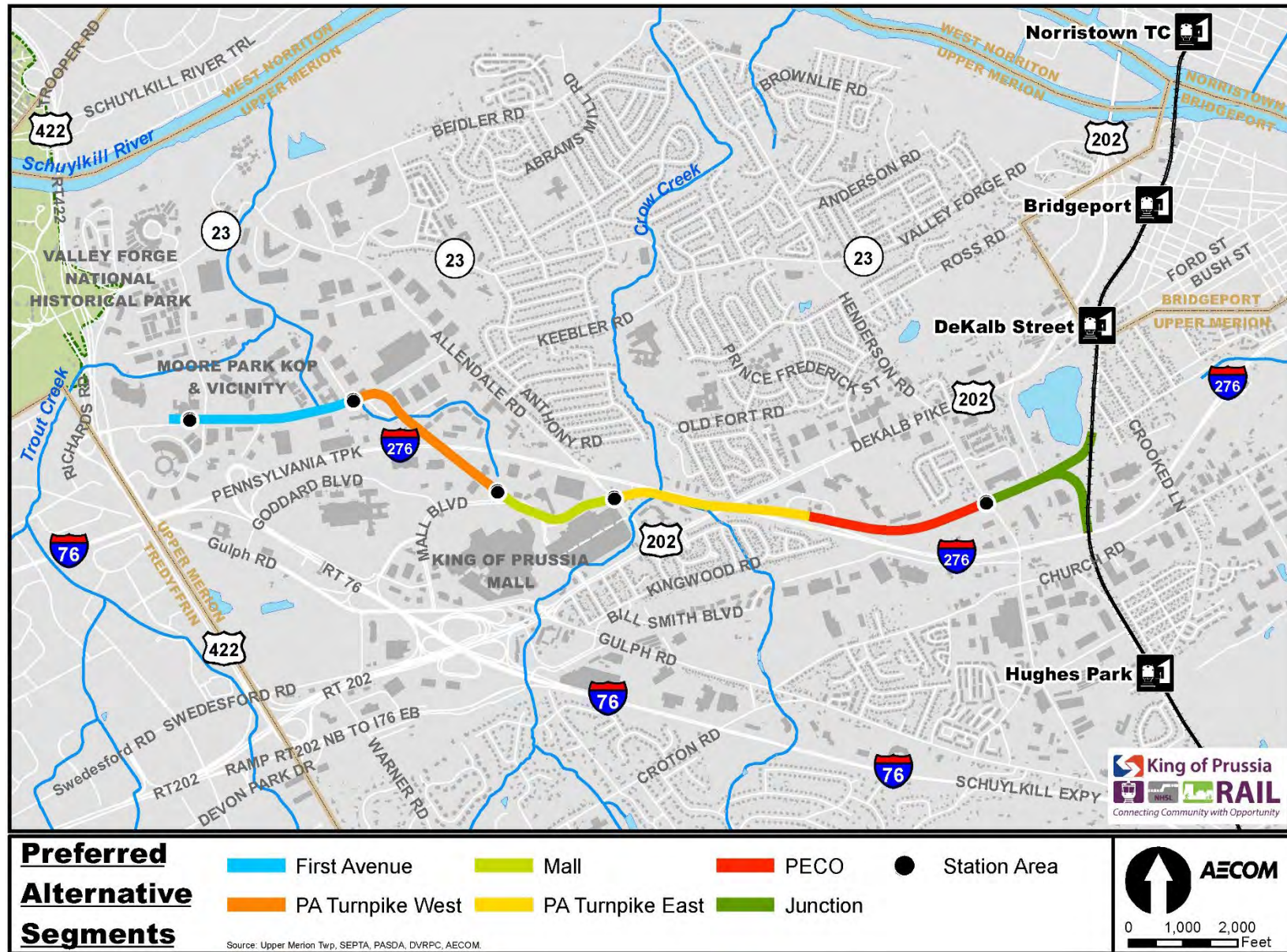
This FEIS was prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) and FTA's NEPA regulations at 23 CFR Part 771. It includes a Final Section 4(f) Evaluation, prepared in accordance with Section 4(f) of the U.S. Department of Transportation Act of 1966, as well as other applicable laws. The Final Section 4(f) Evaluation is a Technical Memorandum (FEIS Appendix B).

ES-1.1 Project Purpose and Need

The Project purpose and need was developed in 2012 prior to the NEPA process; no changes to the Project purpose and need were made during the NEPA process. The purpose of the proposed Project is to provide faster, more reliable public transit service to the King of Prussia/Valley Forge area that:

- Offers improved transit connections to the area from communities along the existing NHSL, Norristown, and Philadelphia;
- Improves connectivity between defined key destinations within the King of Prussia/Valley Forge area; and
- Better serves existing transit riders and accommodates new transit patrons.

Figure ES-1: Preferred Alternative



The need for expanded transit service in Montgomery County has been identified for more than 20 years in regional studies and local plans. The Project need stems from existing transit service deficiencies that are expressed by long travel times, delays due to roadway congestion, required transfers leading to two or more seat trips, and destinations that are underserved or currently not served by public transit. These needs are compounded by growing population and employment in the area, concentrations of major commercial development in King of Prussia and significant planned development for the area, which are described in this FEIS.

ES-2 Alternatives Development and Selection of the Preferred Alternative

In 2012, prior to the initiation of the NEPA process, SEPTA began evaluating the potential to extend NHSL rail transit service to the King of Prussia/Valley Forge area. This planning work included developing the Project purpose and need, and evaluating a list of alternatives, which included alternatives from SEPTA's 2003 *Norristown High Speed Line (Route 100) Extension Draft Alternatives Analysis*, new concepts SEPTA developed, and ideas identified through agency, stakeholder, and public outreach activities. The Project purpose and need focuses on rail service, not a bus mode, because SEPTA provides six different bus routes to the King Prussia/Valley Forge area, including express bus service from Center City Philadelphia. As described in Sections 1.2.5 and 3.1, extensive existing roadway congestion makes additional bus service not a feasible alternative.

The list of 30 alternatives was then screened through a three-tiered evaluation process consisting of progressively more detailed levels of scrutiny. Tier 1 screening (October 2012 – January 2014) eliminated alternatives that did not achieve the Project purpose and need or would not be reasonable to build, operate or maintain. Tier 2 (February 2014 – December 2014) examined the surviving alternatives for engineering/right-of-way needs, markets to be served, system connectivity, support for transit-oriented development, and community and environmental impacts. As a result of Tier 2 analysis, all but the five Action Alternatives that were considered in the DEIS were eliminated; the alternatives that were eliminated did not perform as well as the five alternatives that were retained in terms of the engineering, transportation, and natural and built environment factors applied during Tier 2.

On June 27, 2013, FTA and SEPTA formally initiated the NEPA process for the Project with a Notice of Intent (NOI) published in the Federal Register (Volume 78, No. 124, Page 38796, June 27, 2013). Tier 3 analysis (January 2015 – December 2017) was conducted as part of the DEIS process, and included a detailed analysis of the five Action Alternatives, along with the No Action Alternative. Tier 3 identified the potential benefits and impacts of each of the five Action Alternatives on the transportation, natural and human environments. SEPTA refined the Action Alternatives based on input received from the public, agencies, and other stakeholders.

After considering not only the Tier 3 screening process results, but also the input received from agencies, stakeholders and the public (FEIS Chapter 5), SEPTA identified the PECO/TP-1st Ave as the recommended locally preferred alternative (LPA) and as the environmentally preferable alternative in the DEIS. Compared to the other DEIS alternatives, the recommended LPA was identified as best meeting the purpose and need while avoiding or minimizing impacts and being

responsive to agency, stakeholder, and public concerns. SEPTA also identified and evaluated two minimization design options for the recommended LPA: the PA Turnpike North/South Option and the 9/11 Memorial Avoidance Option. Each of the recommended LPA design options would modify a portion of the recommended LPA; the remainder of the recommended LPA would be unchanged.

The DEIS was published in the Federal Register on October 17, 2017 initiating a public comment period for interested parties to review the DEIS and provide comments until December 4, 2017. Following the close of the comment period on December 4, 2017, FTA and SEPTA reviewed comments received during the DEIS public comment period. On January 25, 2018, SEPTA adopted the recommended LPA as its Preferred Alternative; the recommended LPA was adopted as presented in the 2017 DEIS as the PECO/TP-1st Ave. Action Alternative with the PA Turnpike North/South Option. SEPTA's LPA resolution acknowledges the DEIS findings, noting that the Project will provide benefits to the region, including providing travelers with a rail transit alternative to congested roadway travel, attracting new transit riders, supporting economic development opportunities, and meeting regional sustainability and livability goals. Among the DEIS alternatives, the recommended LPA was determined to best address the Project purpose and need; it was determined to best achieve the most important factors for broad acceptance by key stakeholders and political leaders; and it was determined to perform as well as or better than the other Action Alternatives in each of the most important natural and built environment factors, except wooded areas and potential threatened and endangered species habitat impacts (DEIS, Chapter 8).

Following the DEIS public comment period and SEPTA's adoption of the recommended LPA as the Preferred Alternative, FTA and SEPTA evaluated the Preferred Alternative at a higher level of planning and engineering pursuant to 23 U.S.C. § 139(f)(4)(D). SEPTA's activities in this evaluation included:

- Responding to substantive comments made during the DEIS comment period (related to access and connections; development potential around stations; avoiding or minimizing impacts to traffic, noise, vibration, visual and property; and Project costs);
- Updating supporting information, including but not limited to: ridership projections, bus and shuttle routes, land use data, traffic analysis, Project operation plan, and Project costs;
- Providing improved operations and fewer impacts;
- Committing to specific minimization and mitigation measures; and,
- Developing and evaluating construction and operation designs to 15 percent.

The FEIS evaluates the Preferred Alternative, as well as the No Action Alternative, and demonstrates why the PECO/TP-1st Ave. Action Alternative remains the Preferred Alternative. The other Action Alternatives in the DEIS remain unchanged and are hereby incorporated by reference into this FEIS. The other Action Alternatives are: PECO-1st Ave., PECO/TP-N. Gulph, US 202-1st Ave., US 202-N. Gulph, and the 9/11 Memorial Avoidance Option for the recommended LPA.

ES-2.1 Descriptions of the Preferred and No Action Alternatives

The FEIS evaluates the benefits and impacts of the Preferred Alternative and the No Action Alternative. The Preferred Alternative and No Action Alternative are described in the following subsections. SEPTA identified a transportation study area for analysis of the FEIS alternatives that encompasses the greater King of Prussia/Valley Forge area. The transportation study area is bounded roughly by the Schuylkill River, US Route 422, Schuylkill Expressway (I-76), and the existing NHSL.

ES-2.1.1 No Action Alternative

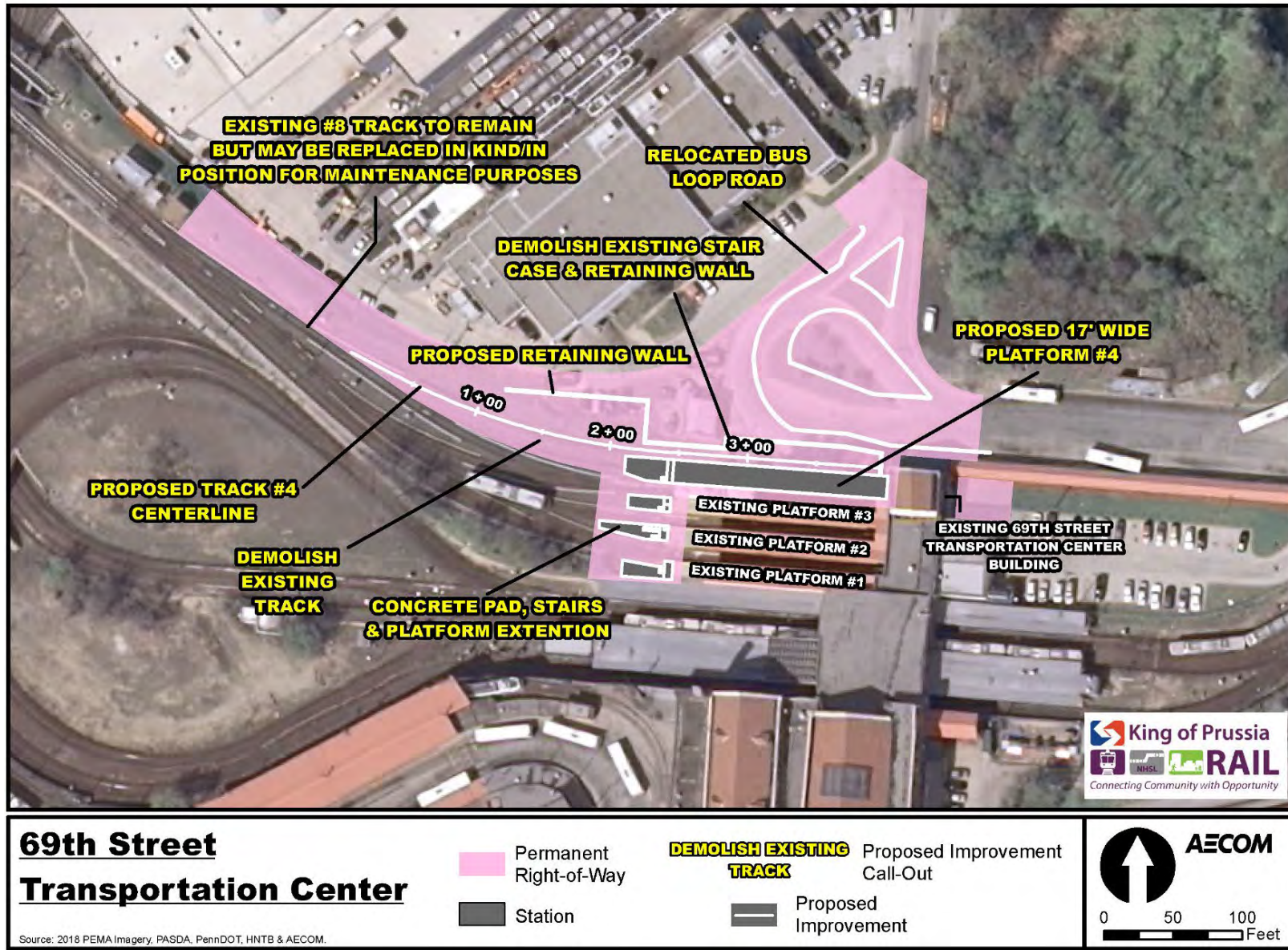
The No Action Alternative is the 2040 condition of transportation facilities and services within the transportation study area if the Project is not implemented. The No Action Alternative assumes that, with the exception of the Project, all other major regional committed projects listed in the financially constrained element of the *Connections 2045 Plan for Greater Philadelphia*, the long-range transportation plan of the Delaware Valley Regional Planning Commission (DVRPC), are built and operating. The No Action Alternative consists of roadway and transit networks, transit service levels, traffic volumes, and forecasted demographics for the horizon year 2040. SEPTA has no control over the scope, timing, implementation or effects of the listed committed projects. The No Action Alternative provides the basis against which the Action Alternatives and recommended LPA design options are compared.

ES-2.1.2 Preferred Alternative

The Preferred Alternative will consist of 3.5 miles of new double-track guideway, five new stations, renovation of the existing 69th Street Transportation Center, and new supporting facilities (**Figure ES-1** and **ES-2.2-1**). Collectively, the proposed guideway, stations, and supporting structures are referred to as the “Project” in this FEIS to distinguish Project elements from the existing NHSL; the Preferred Alternative will have the following infrastructure and design elements:

- **ROW** – The Project will primarily use existing transportation and utility rights-of-way in the transportation study area.
- **Primarily elevated guideway** – Use of an elevated, dedicated guideway structure for most of the alignment will avoid impacting the operation of existing roadways and other transportation systems.
- **Stations** - Five stations will be provided in the transportation study area. Station areas were selected based on their potential to attract ridership, access and safety, engineering feasibility, and local planning.
- **Park-and-ride Facilities** - One park-and-ride facility will be provided in the vicinity of the Valley Forge Casino Resort. A second park-and-ride facility will be at the Henderson Road Station. Park-and-ride facilities will also provide for drop-off and pick-up of riders by bus and automobile.

Figure ES-2.2-1: 69th Street Transportation Center



- **Kiss-and ride Facilities** - Proposed stations without park-and-ride facilities will be kiss-and-ride facilities with pedestrian and bicycle access; kiss-and-ride facilities will provide for drop-off and pick-up of riders by bus and automobile, with no park-and-ride component.
- **69th Street Transportation Center in Upper Darby Township, Delaware County** - One new station track will be provided along the north side of the existing NHSL tracks, ending at the existing station building. The new track will serve the existing northern platform on its north side. The platform will be widened to serve the new track. Improvements to the interior of the existing station building will be made to accommodate Project service.
- **NHSL** – SEPTA will upgrade the signal system on the NHSL to accommodate the Project.
- **Vehicles** – For the Project, SEPTA will use its existing fleet of N5 rail vehicles that operates on the NHSL (**Figure ES-2.2-2**), plus six new N5 vehicles. New vehicles will be serviced at the existing SEPTA NHSL maintenance facility, approximately 0.25 mile from the 69th Street Transportation Center in Upper Darby Township.
- **Support Facilities** - Facilities to support Project operations along the proposed guideway will include guideway crossover tracks, traction powered substations (TPSS), communications equipment, stormwater management facilities, and landscaping. Crossover tracks will allow rail vehicles to move from one track to the other track on the guideway. TPSS will be provided at approximately 1.0 mile intervals along the proposed guideway alignment. Communications equipment will operate rail vehicle signals as well as connect rail vehicle operators with SEPTA's existing NHSL operations center. Drainage from the proposed park-and-ride facilities, stations, and guideway will be managed by stormwater management facilities that will be provided near these facilities.

Figure ES-2.2-2: SEPTA N5 Vehicle



Note: Photo of existing SEPTA N5 vehicle.
Source: SEPTA, 2015.

The Preferred Alternative is the 2040 condition with the Project; it assumes the other major regional committed projects in the No Action Alternative will occur.

ES-2.2 Effectiveness in Achieving the Purpose and Need

Chapter 8 of the DEIS provided a detailed analysis of how well each alternative analyzed in the DEIS achieved the purpose and need of the Project. After publication of the DEIS and review of

substantive public comments, the recommended Locally Preferred Alternative, or Preferred Alternative, was determined as still best meeting the Project purpose and need among the Action Alternatives. A comparative analysis of how well the Preferred Alternative and No Action Alternative achieve each element of the Project purpose and need is included below.

ES-2.2.1 The Need for Faster, More Reliable Public Transit Service to the Area

No Action Alternative

The No Action Alternative will not provide faster, more reliable public transit service to, from or within the transportation study area. As described in FEIS Sections 1.2.2 and 3.1.2.2, existing roadway-based transit service problems related to on-time performance, reliability and travel times will be worse by 2040 as traffic congestion and delays increase as a consequence of foreseeable growth and development.

Preferred Alternative

The Preferred Alternative will provide faster, more reliable public transit service. The Preferred Alternative will reduce travel time on transit to the King of Prussia Mall by 26 minutes from Center City Philadelphia, 23 minutes from Norristown Transportation Center, and 9 minutes from 69th Street Transportation Center. The Preferred Alternative will reduce travel time on transit to Moore Park KOP by 38 minutes from Center City, 23 minutes from Norristown Transportation Center, and 12 minutes from 69th Street Transportation Center. The Preferred Alternative will provide transit travel time savings for existing bus riders (217,000 travel hours annually) and travel time savings for existing motor vehicle travelers who shift to using the Project (2.0 million hours annually). the Preferred Alternative will eliminate the extra time experienced by existing bus service operating on congested roadways, such as on the I-76, as well as the unpredictability of travel time because of variable travel conditions on roadways.

ES-2.2.2 The Need for Improved Transit Connections To, From and Within the King of Prussia/Valley Forge Area

No Action Alternative

The No Action Alternative will not improve transit connections to and within the transportation study area. Depending on the bus route, riders will continue to transfer among two or more bus routes to get to their destinations. The No Action Alternative will not change existing connections between transit, bicycle and pedestrian networks in the transportation study area.

Preferred Alternative

The Preferred Alternative will improve transit connections to and within the transportation study area by:

- Providing direct, rail transit service between the 69th Street Transportation Center and King of Prussia as well as between Norristown Transportation Center and King of Prussia while continuing to provide service between 69th Street Transportation Center and Norristown Transportation Center; and

- Serving three defined key destinations: King of Prussia Mall (by the Allendale Road and Mall Blvd Stations), Moore Park King of Prussia (KOP) (known in the DEIS as the King of Prussia Business Park) and Valley Forge National Historical Park (by the First & Moore and First & American Stations), and destinations in the Henderson Road portion of the transportation study area (Henderson Road Station).



Conceptual rendering of what the Allendale Road Station pedestrian bridge to the King of Prussia Mall could look like.

Source: HNTB, 2020.

ES-2.2.3 The Need to Better Serve Existing Transit Patrons and Accommodate New Patrons

No Action Alternative

The No Action Alternative will not better serve existing transit patrons and accommodate new patrons. Forecasted growth and foreseeable development in the transportation study area through 2040 will place more demands on the transportation system than it can accommodate. Adding buses to the transit system serving the transportation study area to meet future demand is not a viable solution as it is not possible to overcome the roadway congestion problem.

Preferred Alternative

Compared to the No Action Alternative, the Preferred Alternative will better serve existing transit patrons and accommodate new patrons by providing direct rail transit service to transportation study area destinations, and providing additional transit service capacity beyond what SEPTA can accommodate today by increasing its bus services to the maximum extent practicable.

ES-2.3 Transportation and Safety Effects

Based on the current impacts of the recent social response to the COVID-19 virus and the resulting decline in travel demand, it is impossible to predict any future changes to the Determination and Findings of the project that may result from a COVID-19 response of an unpredictable nature and length. Should significant changes in the planning assumptions, project schedule, project scope, or surrounding project environment result because of a prolonged COVID-19 response, SEPTA will consider additional project evaluation and public input consistent with NEPA. The traffic impact and ridership forecasting work described herein have a base year or existing condition representing 2019, which is the pre-pandemic condition.

ES-2.3.1 Public Transportation

The following bus, rail, and bus shuttle services operate in the transportation study area:

- **Bus** - SEPTA operates six bus routes to, from and within the transportation study area. Each route serves the King of Prussia Mall; however, only three serve all three key destinations in the transportation study area. Three bus routes connect to Center City Philadelphia via the I-76. Total average weekday ridership across the six bus routes exceeds 6,300 passenger trips.
- **Rail Transit** - SEPTA's NHSL operates along 13.5 miles of dedicated rail guideway between the 69th Street Transportation Center in Upper Darby and the Norristown Transportation Center. The NHSL skirts the eastern edge of the transportation study area and does not directly serve the key destinations within it. Currently, NHSL riders destined to or from the transportation study area must transfer to SEPTA bus service at the Gulph Mills, DeKalb Street or Norristown Transportation Center stations. Average weekday ridership on the NHSL was 10,525 in 2018 and increased to 11,135 in 2019. The NHSL is ranked highest in terms of average daily ridership of all SEPTA's Suburban Transit Routes in 2019.
- **Shuttles** - Three shuttle services operate in the transportation study area, providing connections between some transportation study area destinations and SEPTA's NHSL and Regional Rail services.

In the existing condition, bus riders are subject to the same roadway congestion delays as motorists because buses share roadway travel lanes with general traffic. Existing travel speed survey data show low average vehicular speeds of 20 miles per hour along the I-76 eastbound during the morning peak period; slow travel speeds result in four of the six bus routes having average on-time performance rates of 60 percent to 78 percent, below SEPTA's standard of 80 percent. In the transportation study area, delays occur in the existing condition at key roadway intersections that buses travel through, such as First Avenue/Moore Road and US Route 202/Henderson Road. Travel times on existing bus routes vary from ride to ride depending on roadway traffic conditions, time of day, weather and other factors. As a result, bus travel times are unreliable.

The King of Prussia/Valley Forge area is expected to experience continued growth in population and employment through the year 2040. In 2016, DVRPC prepared projections for future employment and population in the region at the county and municipal levels. The municipal-level employment forecasts show that Upper Merion Township's employment will rise from 57,038 (estimated in 2015) to 65,430 in 2040, a 14.7 percent increase. The absolute increase of 8,292 represents the highest absolute employment growth in that period forecasted for municipalities in Montgomery County. In terms of future population growth, the DVRPC's adopted forecasts project that Upper Merion Township's population will increase from 28,620 from the 2015 Census estimate to 34,003 in 2040, which is an increase of 18.8 percent, or 0.76 percent annually. The population and employment forecasts translate to growth in traffic volumes in the transportation study area by 2040, which will increase roadway congestion and cause longer and more unreliable bus travel times.

No Action Alternative

In the No Action Alternative, SEPTA will continue to operate the NHSL and the six bus routes that serve the transportation study area. The No Action Alternative includes no projects to improve the transit system in the transportation study area beyond rehabilitation and maintenance projects in SEPTA's capital budget. No improvements in transit travel conditions (service frequency, travel time savings, travel connections, ridership or mode shift) are contained within the No Action Alternative. Existing bus on-time performance problems, slow average bus travel speeds and unreliability attributable to roadway congestion will persist and worsen as traffic congestion and delays increase over time. Destinations in the transportation study area that are not currently well-served by transit will continue being not well-served.

Preferred Alternative

Project Ridership

The Preferred Alternative will have the following transit service benefits:

- **Create “Trips on the Project”** - The results of ridership forecasting indicate 6,755 “Trips on the Project” in 2040 (average weekday passenger trips). “Trips on the Project” is the total number of average weekday passenger trips in 2040 that will use any of the five Project stations.
- **Increase Transit Mode Share** - The Preferred Alternative will create 4,556 new transit riders in 2040 compared to the No Action Alternative.
- **Serve Travel Markets and Key Destinations** - The Preferred Alternative will increase transit travel options to, from and within the transportation study area, the largest suburban employment center in the Greater Philadelphia region. The Preferred Alternative will provide transit stations within ½ mile of the three key transportation study area destinations: King of Prussia Mall, Moore Park KOP, and Valley Forge National Historical Park. As indicated by the ridership forecasts, Project stations and park-and-ride facilities within the transportation study area will improve the ability of residents and other travelers to walk to stations or to park at a rail transit facility within the transportation study area, as opposed to having to travel to find rail transit access and park-and-ride facilities.
- **Modify Existing SEPTA Bus Service** - As part of the Preferred Alternative, SEPTA will make several changes to its bus routes to eliminate service redundancies created by the Project, adjust routes to serve proposed stations and park-and-ride facilities, and optimize operating efficiency in light of these changes. Buses will be routed to serve Project stations as well as to complement Project service to key destinations.
- **Reduce Transit Travel Time** - The Preferred Alternative will reduce transit travel times to, from and within the transportation study area. For example, the estimated travel time using the Preferred Alternative between Center City and the King of Prussia Mall (53 minutes) contrasts with existing bus service travel time on SEPTA routes 124 and 125, which can range from a scheduled run time of 97 minutes up to 1 hour and 45 minutes due primarily to traffic congestion on I-76.

As reported by the Economy League of Greater Philadelphia and shown in **Table ES-2.3-1**, the shift of existing bus riders to using the Project rail service will save 217,000 hours per year in travel time to and from the transportation study area. For existing automobile drivers, the shift to using the Project rail service will save 2.1 million hours annually for travel to and from the transportation study area.

- **Improve Transit Service Reliability** - the Preferred Alternative will eliminate the extra travel time experienced by existing bus service operating on congested roadways, such as on the I-76, as well as the unpredictability of travel time because of variable travel conditions on roadways.

ES-2.3.2 Roadways

Transportation study area highways (the Pennsylvania Turnpike (I-276), I-76, Pottstown Expressway (US Route 422), and DeKalb Pike (US Route 202)) experience heavy volumes of traffic and congestion, especially during peak travel periods. I-76, for example, functions at or near capacity during most peak periods and many non-peak travel periods under existing conditions. By 2040, I-76 will function at capacity in nearly all travel periods. In addition, portions of key transportation study area roadways operate at or near capacity in the existing condition as modeled by DVRPC. By 2040, growth in roadway traffic volumes will increase the amount of congestion on roads such as US Route 202, Henderson Road, Saulin Boulevard, Moore Road, and First Avenue.

No Action Alternative

In the No Action Alternative, some committed projects, such as the addition of travel lanes on US Route 422, will increase roadway capacity. Others, such as the proposed Lafayette Street extension and new Turnpike exit in Norristown, will address specific access needs. Despite these projects, capacity analysis of key transportation study area intersections indicates that increased traffic volumes will cause more intersections to operate at or near capacity, with more congestion and longer travel delays compared to the existing condition.

Preferred Alternative

The Preferred Alternative will be on an elevated guideway, which will help to avoid some roadway and traffic impacts. SEPTA's assessment of Project-related traffic in the vicinity of stations identified mitigation at affected intersections as part of the Project to address impacts of the Preferred Alternative from traffic accessing the stations. Analysis indicates that most intersection operations will be the same or better with the intersection improvements proposed by SEPTA as part of mitigation for the traffic impacts of the Preferred Alternative. Where poor intersection operations remain despite optimization, congestion and travel delays will be experienced.

ES-2.3.3 Pedestrian and Bicycle Facilities

Pedestrian and bicycle facilities in the transportation study area include sidewalks and multi-use trails such as Montgomery County's section of the Chester Valley Trail. Sidewalks are present in some areas and absent in others, resulting in a discontinuous pedestrian and bicycle network in terms of serving destinations.

No Action Alternative

One project in the No Action Alternative will improve pedestrian and bicycle accommodations in the transportation study area: the planned Chester Valley Trail Extension by Montgomery County. This project will increase pedestrian and bicycle access and connections to some destinations. However, existing pedestrian and bicycle facility deficiencies that are not specifically addressed by the committed projects in the No Action Alternative will remain. The No Action Alternative will have no impact on pedestrian and bicycle facilities.

Preferred Alternative

The Preferred Alternative will be on an elevated guideway over pedestrian and bicycle facilities, which will avoid potential adverse impacts on pedestrian and bicycle facilities. Proposed stations and park-and-ride facilities will have multi-modal access and appropriate pedestrian and bicycle facilities that will be connected to the existing, adjacent sidewalk network. Existing pedestrian and bicycle facility deficiencies that are not specifically addressed by the Project or the committed projects in the No Action Alternative will remain.

ES-2.3.4 Public Parking Facilities

No existing public on-street parking or public parking garages, or planned public parking projects, are within the proposed limits of temporary or permanent disturbance of the Preferred Alternative. Existing parking areas are private and associated with commercial and office land uses. The No Action Alternative and the Preferred Alternative will have no impact on public parking facilities.

ES-2.3.5 Railroad Facilities and Operations

Two active NS rail freight lines traverse the transportation study area. The Harrisburg Line runs along the east and north sides of the study area, and in the northern portion of the transportation study area it serves Abrams Yard, a key freight activity center. The Dale Secondary runs through the southern portion of the transportation study area. In addition, the transportation study area includes two former rail freight corridors, the former Chester Valley Branch and the former North Abrams Industrial Track. SEPTA regional rail serves Norristown Transportation Center; SEPTA trolley service serves the 69th Street Transportation Center.

No Action Alternative

No planned freight, passenger or commuter railroad projects or changes to such facilities are included in the No Action Alternative. Montgomery County owns a portion of the former Chester Valley Branch right-of-way and plans to extend the Chester Valley Trail on the former railroad corridor.

Preferred Alternative

The Preferred Alternative will not directly impact active freight or passenger rail operations. The Preferred Alternative will be aligned along a small portion of the former North Abrams Industrial Track corridor north of the PA Turnpike. SEPTA is coordinating with NS regarding the use of that portion of their unused corridor.

ES-2.3.6 Safety and Security

The existing transportation system in the study area includes design and operational elements that promote safe operation and interaction among the multiple modes that are present. Examples of such elements include roadway intersection signalization, pedestrian walk signals and striped crosswalks. Existing fire, rescue and police services rely on the existing transportation network to provide their services to the transportation study area, such as responding to incidents.

No Action Alternative

Safety and security for the No Action Alternative will include the existing policies and operational elements that are present in the transportation study area. The sponsors of each No Action Alternative project are expected to promote safe operations of the new facilities in the context of the transportation study area environment. Existing fire, rescue and police services will continue to operate within the existing roadway network. Growth in transportation study area roadway congestion has the potential to increase response times.

Preferred Alternative

The elevated guideway of the Preferred Alternative will separate Project operations from other modes, thereby avoiding potential for at-grade crossing conflicts. Grade-separation using the elevated guideway also allows SEPTA to separate the proposed vehicle power source from places that people typically occupy.

The Preferred Alternative will be designed and operated in accordance with SEPTA's existing rail operations safety and security protocols and procedures for the NHSL, which will be updated to include specific requirements for the Project prior to revenue service. The Project will be designed in accordance with SEPTA's *Design Criteria Manual*, as amended, for the NHSL.

ES-2.4 Impacts to the Natural and Human Environment

The benefits and impacts of the Preferred Alternative in regard to the natural and human environment categories and factors is presented in **Table ES-2.3-1**. The effects of the other Action Alternatives are detailed in Chapter 8 of the DEIS.

ES-2.4.1 No Action Alternative

The No Action Alternative will be partly consistent with local and regional plans and will partly support economic development because transit service improvements that are integral to these plans are not part of the No Action Alternative. The No Action Alternative will have low to no visual impacts as a result of planned transportation projects, but it will not reduce vehicle miles traveled or benefit air quality. The No Action Alternative may have localized noise impacts near planned transportation project work areas, and it will not reduce fuel costs incurred by the traveling public or road and pavement costs.

ES-2.4.2 Preferred Alternative

This section summarizes the environmental effects of the Preferred Alternative. **Table ES-2.3-1** provides more detail regarding the environmental effects of the Preferred Alternative, as

reported in the FEIS. **Table ES-2.3-2** provides more detail regarding SEPTA's commitments as part of the Project to minimize or mitigate Project impacts.

The Preferred Alternative will have the following benefits:

- Increase access to transit with proposed stations in the King of Prussia/Valley Forge area;
- Create 6,755 average weekday "Trips on the Project" and reduce average weekday vehicle miles traveled in 2040 by 61,303 miles;
- Connect to bus and shuttle services; and connect to the existing bicycle and pedestrian network;
- Maintain or improve affected roadway intersection levels of service in 2040;
- Be consistent with Township and County land use plans;
- Provide rail stations within ½ mile of 15 million non-residential square feet; and providing two stations within Upper Merion Township's Mixed Use (KPMU) zoning district;
- Provide rail stations within ½ mile of seven community facilities and five parks; not impacting existing parks;
- Maintain access to businesses during Project construction;
- Potentially support economic development by extending rail transit service to King of Prussia in terms of employment and earnings;
- Preserve access across transportation and utility rights-of-way during operations;
- Reduce growth in average weekday miles traveled, reduce greenhouse gas emissions from motor vehicle use; and
- Reduce energy consumption, annual automobile and bus miles traveled, and motor vehicle fuel costs.

In addition, the Preferred Alternative is favored by key stakeholders and political leaders because it will not be aligned along US Route 202, it will be behind the King of Prussia Mall, it will use First Avenue and will serve Moore Park KOP, and it will have fewer visual and traffic impacts than the other action alternatives.

The Preferred Alternative will have no impact in the following resource areas:

- Avoid splitting or fragmenting residential or business communities;
- Not cause an air quality impact during Project operations;
- Not cause operational noise impacts with mitigation;
- Not cause operational vibration impacts;
- Not impact threatened or endangered species;
- Not impact existing wellhead protection areas; and

- Not have disproportionately high and adverse effects on environmental justice populations.

In consideration of SEPTA's minimization and mitigation commitments as part of the Project, the Preferred Alternative will have impacts in the following resource areas:

- Three community facility properties: will involve acquiring a portion of land from the Philadelphia Suburban Water (Aqua America) reservoir; full property acquisition and relocation of King of Prussia Volunteer Fire Company and the 9/11 Memorial (on the Fire Company property);
- Property acquisitions and displacements;
- Four Section 4(f) property impacts: the Chester Valley Trail Extension; Philadelphia and Western Railway (NHSL); PA Turnpike: Delaware River Extension; and PNJ Interconnection;
- Visual impacts;
- Geological conditions: Risk of sinkholes;
- Four elevated crossings over waterways;
- Floodplains: Impact to 1,580 linear feet of floodplains;
- Wetlands: Potential impact to 0.08 acres of wetlands;
- Groundwater: Reduce area for groundwater replenishment by 6.0 acres of new impervious surfaces;
- Wooded areas and fields: Impact to 20.3 acres of wooded area and 11.1 acres of fields;
- Potential for contaminated materials impacts: potential for oils and lubricants to drip from operating Project rail vehicles;
- Potential to impact or be impacted by existing areas of contamination concern;
- Historic property and utility impact: Removal of four PECO transmission towers; and
- Potential for an indirect and cumulative effects of enhancing and encouraging development and redevelopment near Project stations; potential change in property values; and potential for a moderate, cumulative noise impact along the existing NHSL.

During Project construction, the Preferred Alternative will require building an elevated guideway over the existing transportation system; will require temporary easements for construction work areas that will temporarily affect land use, access, and private parking on affected properties; potentially will temporarily change access to communities and community facilities because of construction work areas; and potentially will impact air quality, noise, vibration, and utilities.

ES-2.5 Public Involvement and Outreach

Since the initiation of the Project's NEPA process, SEPTA has undertaken a robust public involvement and agency outreach program, holding over 100 public meetings, including pre-scoping and scoping meetings, public information sessions, public meetings and

workshops, committee meetings (steering, technical advisory, stakeholder advisory and agency coordination committees), agency coordination meetings, elected officials' briefings, public hearings, community working group meetings, neighborhood meetings and backyard visits.

The DEIS was available for a 53-day comment period (October 17, 2017 to December 4, 2017) during which the public, stakeholders, and agencies were invited to review the DEIS and provide written and verbal comments. A total of 279 public comments were provided by 216 public commenters.

Of the 216 public and stakeholder commenters, 121 support the Project, with an additional eight comments that specifically support the recommended LPA and five that support one or both recommended LPA design options. Ten public comments were received supporting DEIS Action Alternatives that would use US Route 202 and/or would have a station along N. Gulph Road to serve the Village at Valley Forge.

Among the comments made, 40 comments do not support the Project. Five comments indicated no preference among the DEIS Action Alternatives and recommended LPA design options (but indicated the need for further consideration of specific issues or concerns during subsequent design (such as the need to coordinate with the PA Turnpike and Aqua Pennsylvania). Fourteen comments asked questions about the Project (but did not provide an opinion about the Project or the alternatives and design options. Six comments related to the public outreach process and another seven comments discussed issues that are outside the Project scope (such as the condition of Route 422). In addition to public comments, SEPTA received two resolutions of support, 53 letters of support, two public petitions objecting to the Project, and 24 comments by letter or email from three agencies.

The FEIS provides details on the public involvement and outreach activities, especially as they relate to minority and low-income populations. The FEIS also documents activities undertaken to engage the public. Among the key outcomes of the public involvement process were design refinements to avoid or reduce proximity effects such as noise, visual and privacy impacts, as well as safety. For example, SEPTA adopted the PA Turnpike North/South Option as part of the Preferred Alternative because it reduces potentially negative proximity effects by increasing the distance between the Preferred Alternative and residential properties.

ES-2.6 Project Costs and Funding

SEPTA developed preliminary capital costs as well as operations and maintenance costs (O&M) of the Preferred Alternative that are shown in **Table ES-2.3-1**. SEPTA estimates the capital cost of the Preferred Alternative will be \$2.08 billion in 2025 dollars (mid-point of construction); and the O&M cost estimate is \$10.87 million annually in 2019 dollars.

Building large-scale transit projects typically requires transit agencies to combine multiple funding types (e.g. grants and loans) and sources (federal, state, regional, local and/or private). SEPTA is planning to pursue Project funding through the FTA's Capital Investment Grant program (also known as "New Starts") and will consider other federal support as available. The remainder of Project funding must come from non-federal sources—state, regional, local and other sources.

ES-3 Balancing Benefits and Impacts

The Preferred Alternative will best achieve the Project's purpose and need because, compared to the No Action Alternative, the Preferred Alternative will provide:

- Faster, more reliable public transit service to the Project Area: These benefits are measured by transit travel time savings;
- Improved transit connections to, from and within the King of Prussia/Valley Forge Area: These benefits are measured by the Preferred Alternative serving the three key destinations in the transportation study area, and by the Preferred Alternative providing direct rail transit service between the transportation study area and Norristown Transportation Center and 69th Street Transportation Center; and
- Better service to existing transit patrons and accommodation of new patrons: These benefits are measured by the additional transit service capacity the Preferred Alternative can provide beyond what SEPTA can achieve by existing bus service, and by the direct rail service the Preferred Alternative will provide by being an extension of the existing NHSL.

Compared to the No Action Alternative and as described in Section ES-2.4, the Preferred Alternative will have potential benefits as well as impacts on the natural and human environment in the transportation study area, which are summarized in **Table ES-2.3-1**.

FTA and SEPTA considered the input from the public and agencies during the DEIS public comment period. Key concerns regarding Project impacts on the natural and built environment included visual, noise, geologic risk, and property acquisitions. During the FEIS, SEPTA evaluated the Preferred Alternative at a higher level of planning and engineering and refined the Preferred Alternative. The FEIS reports the results of additional analyses of the Preferred Alternative that SEPTA completed regarding public and agency concerns. In addition, SEPTA identified specific commitments as part of the Preferred Alternative to address these concerns and Preferred Alternative impacts. SEPTA's commitments to minimize and mitigate the impacts of the Preferred Alternative on the natural and human environment are listed in **Table ES-2.3-2**. Three timeframes are identified when SEPTA will complete the commitments:

- During subsequent design, which means after FTA approves the combined FEIS/ROD and before Project construction activities begin. During that time, SEPTA will complete engineering design of the Project, prepare Project construction plans, and acquire the property on which the Project will be built;
- During construction, which means during the time that SEPTA is building the Project; and
- During operations, which means during the time after Project construction is completed when the Project is providing rail transit service as described in the FEIS.

Table ES-2.3-1: Summary of Effects of Preferred Alternative

Description of Preferred Alternative Effects	
Transportation (Chapter 3)	
▪ Benefit: Increases access to transit with proposed stations in the King of Prussia/Valley Forge area (Section 3.1.3.2)	
▪ Benefit: Creates 6,755 average weekday “Trips on the Project” and reduces average weekday vehicle miles traveled in 2040 by 61,303 miles (Section 3.1.3.2)	
▪ Benefit: Connects to bus and shuttle services; changes to bus and shuttle services will occur; see SEPTA’s commitments (Section 3.1.3.2)	
▪ Benefit: Connects to the existing bicycle and pedestrian network; bicycles will be accommodated at proposed stations (Section 3.3.3.2)	
▪ No impact: Maintains or improves affected roadway intersection levels of service in 2040 with mitigation; see SEPTA’s commitments (Section 3.2.3.2)	
▪ Impact: Temporary impacts to the existing transportation system will occur during Project construction; see SEPTA’s minimization commitments (Section 2.3.2.9 and Chapter 3)	
Land Use Patterns and Consistency with Plans (Section 4.2)	
▪ Benefit: Consistent with Township and County land use plans (Section 4.2.3.2)	
▪ Benefit: Proposed stations are within ½ mile of 15 million non-residential (commercial and industrial) square feet (DEIS Section 8.2.2)	
▪ Benefit: Proposed stations are within ½ mile of seven community facilities (Section 4.4.2)	
▪ No impact: Temporary changes in access to businesses will occur during construction, but access will be maintained; see SEPTA’s minimization commitments (Section 4.3.3.2)	
▪ Impact: Construction easements will temporarily change land use, access, and private parking on affected properties; features on that land (such as trees or buildings) may be removed if their presence conflicts with temporary Project construction needs; see SEPTA’s minimization commitments (Section 4.2.3.2 and Section 4.5.3.2)	
Economic Development (Section 4.3)	
▪ Benefit: Two stations are within Upper Merion Township’s Mixed Use (KPMU) zoning district (Section 4.2.3.2)	
▪ Benefit: Project could support future economic development in the Project study area by extending rail transit service to King of Prussia (Section 4.3.3.2)	
▪ Potential impact: Project operations could affect private property values as a result of direct or proximity effects (Section 4.3.3.2)	
▪ Impact: Potential for temporary access impacts to businesses during construction; see SEPTA’s minimization commitments (Section 4.3.3.2)	
Community Cohesion and Facilities (Section 4.4)	
▪ No impact: Avoids splitting or fragmenting residential or business communities (Section 4.4.3.2)	

Description of Preferred Alternative Effects
<ul style="list-style-type: none"> ▪ No impact: Preserves access across existing transportation and utility rights-of-way during operations (Section 4.4.3.2)
<ul style="list-style-type: none"> ▪ Impact: Three community facility properties will be directly impacted: Philadelphia Suburban Water (Aqua Pennsylvania) reservoir (portion of land), King of Prussia Volunteer Fire Company (relocation), and the 9/11 Memorial (on the Fire Company property) (relocation); see SEPTA's minimization and mitigation commitments (Section 4.4.3.2)
<ul style="list-style-type: none"> ▪ Impact: Potential for temporary changes to access to communities and community facilities; see SEPTA's minimization commitments (Section 4.4.3.2)
Property Acquisitions and Displacements (Section 4.5)
<ul style="list-style-type: none"> ▪ Impact: Number of potential permanent partial property (parcel) acquisitions; see SEPTA's commitments (Section 4.5.3.2): <ul style="list-style-type: none"> ▪ 8 Residential; 33 Commercial; 13 Other; 54 Total
<ul style="list-style-type: none"> ▪ Impact: Number of potential permanent full property (parcel) acquisitions; see SEPTA's commitments (Section 4.5.3.2) <ul style="list-style-type: none"> ▪ 1 Residential; 11 Commercial; 1 Other; 13 Total
<ul style="list-style-type: none"> ▪ Impact: Number of potential permanent displacements; see SEPTA's commitments (Section 4.5.3.2): <ul style="list-style-type: none"> ▪ 8 Residential, 22 Commercial, 1 Other; 31 Total
<ul style="list-style-type: none"> ▪ Impact: Number of temporary construction easement impacts; see SEPTA's commitments (Section 4.5.3.2): <ul style="list-style-type: none"> ▪ 6 Residential, 30 Commercial, 8 Other; 44 Total
<ul style="list-style-type: none"> ▪ Impact: Non-residential property acquisitions could impact private parking; see SEPTA's commitments (Section 4.5.3.2)
<ul style="list-style-type: none"> ▪ No impact: Project does not require transit rider use of private parking areas near stations; see SEPTA's commitments (Section 4.5.3.2)
Parks, Recreational Land, and Open Space (Section 4.6)
<ul style="list-style-type: none"> ▪ Benefit: Proposed stations are within ½ mile of five parks: Walker Field, the Chester Valley Trail Extension, the former Burgess Arboretum property, Betzwood Park, and Valley Forge National Historical Park (Section 4.6.3.2)
<ul style="list-style-type: none"> ▪ No impact: No parks directly or indirectly impacted (Section 4.6.3.2)
<ul style="list-style-type: none"> ▪ Impact: One park crossed: Chester Valley Trail Extension; see SEPTA's commitments (Section 4.6.3.2)
Historic and Archeological Resources (Section 4.7)
<ul style="list-style-type: none"> ▪ No impact: Low potential for archaeological sites within the limits of disturbance (Section 4.7.3.2)
<ul style="list-style-type: none"> ▪ Impact: Three historic properties will be impacted; see SEPTA's commitments (Section 4.7.3.2): <ul style="list-style-type: none"> ▪ Philadelphia and Western Railway (NHSL); PA Turnpike: Delaware River Extension; and PNJ Interconnection
<ul style="list-style-type: none"> ▪ Impact: An adverse impact will occur to one historic property as defined by Section 106: PNJ Interconnection; see SEPTA's commitments (Section 4.7.3.2)

Description of Preferred Alternative Effects	
Visual and Aesthetic Resources (Section 4.8)	
<ul style="list-style-type: none"> Impact: Visual impacts will occur during construction and operations; see SEPTA's minimization commitments (Section 4.8.3.2) 	
Air Quality (Section 4.9)	
<ul style="list-style-type: none"> Benefit: Project operations will reduce the growth of average weekday vehicle miles traveled by 61,603 miles in 2040; reduced growth in vehicle miles traveled will reduce vehicular emissions (Section 4.9.3.2) 	
<ul style="list-style-type: none"> No impact: Project operations will not cause an air quality impact (Section 4.9.3.2) 	
<ul style="list-style-type: none"> Impact: Potential for temporary air quality impacts during construction; see SEPTA's minimization commitments (Section 4.9.3.2) 	
Noise and Vibration (Section 4.10)	
<ul style="list-style-type: none"> No impact: The Project will not cause operational vibration impacts (Section 4.10.3.2) 	
<ul style="list-style-type: none"> Impact: Potential number of noise impacts during construction and operation (Category 2 = where people sleep such as residences; Category 3 = daytime institutional or office use); see SEPTA's commitments: <ul style="list-style-type: none"> King of Prussia - Moderate operational noise impacts: 51 Category 2; 2 Category 3 King of Prussia – Moderate construction noise impacts: 13 Category 2 (daytime); 119 Category 2 (nighttime); 2 Category 3 (daytime) (Section 4.10.3.2) 	
<ul style="list-style-type: none"> Impact: Potential number of vibration impacts during construction (Category 2 = where people sleep such as residences; Category 3 = daytime institutional or office use); see SEPTA's commitments: <ul style="list-style-type: none"> King of Prussia – Construction vibration impacts: 57 Category 2; 16 Category 3 (Section 4.10.3.2) 	
Natural Resources (Section 4.11)	
<ul style="list-style-type: none"> No impact: Project area is unlikely to support the State-threatened red-bellied cooter turtle; see SEPTA's commitments (Section 4.11.3.2) 	
<ul style="list-style-type: none"> No impact: The Project will not impact existing wellhead protection areas (4.11.3.2) 	
<ul style="list-style-type: none"> Potential impact: Potential for impacts to natural resources during Project construction: soils, sole source aquifers, waterways, floodplains, wetlands, and wooded areas; see SEPTA's commitments (Section 4.11.3.2) 	
<ul style="list-style-type: none"> Potential impact: Risk regarding underlying geologic conditions during construction and operation; see SEPTA's commitments (Section 4.11.3.2) 	
<ul style="list-style-type: none"> Impact: Six acres of new impervious surfaces; see SEPTA's commitments (Section 4.11.3.2) 	
<ul style="list-style-type: none"> Impact: 20.3 acres of potential wooded area disturbance; see SEPTA's commitments (Section 4.11.3.2) 	
<ul style="list-style-type: none"> Impact: 11.1 acres of potential field disturbance (Section 4.11.3.2) 	
<ul style="list-style-type: none"> Impact: 1,580 linear feet of waterways and floodplains potentially affected; see SEPTA's commitments (Section 4.11.3.2) 	
<ul style="list-style-type: none"> Impact: 0.08 acres of potential wetlands disturbance; see SEPTA's commitments (Section 4.11.3.2) 	

Description of Preferred Alternative Effects	
Contaminated Materials and Hazardous Waste (Section 4.12)	
<ul style="list-style-type: none"> No impact: Project operations will not be a source of accidental fuel spills because the power source will be electricity (4.12.3.2) 	
<ul style="list-style-type: none"> No impact: The Preferred Alternative will not impact the Henderson Road Superfund (NPL) site (Section 4.12.2) 	
<ul style="list-style-type: none"> Potential impact: Potential to introduce oils and lubricants that could drip from operating Project rail vehicles (Section 4.12.3.2) 	
<ul style="list-style-type: none"> Potential impact: Potential to impact or be impacted by 17 areas of contaminated materials concern within the limits of disturbance during construction; see SEPTA's commitments (Section 4.12.3.2) 	
Utilities and Energy Use (Section 4.13)	
<ul style="list-style-type: none"> Benefit: Growth in passenger vehicle energy consumption by 2040 will be reduced by an estimated 165,200 megawatt hours per year (Section 4.13.3.2) 	
<ul style="list-style-type: none"> Benefit: Annual automobile vehicle miles traveled will be reduced by 17.5 million miles (Section 4.13.3.2) 	
<ul style="list-style-type: none"> Benefit: Annual bus vehicle miles traveled will be reduced by 86,000 miles (Section 4.13.3.2) 	
<ul style="list-style-type: none"> Benefit: Annual cost savings for motor vehicle fuel will be \$3 million (Section 4.13.3.2) 	
<ul style="list-style-type: none"> Potential impact: Potential to disrupt existing utilities during Project construction; see SEPTA's commitments (Section 4.13.3.2) 	
<ul style="list-style-type: none"> Impact: Approximately four PECO transmission towers will be replaced; see SEPTA's commitments (Section 4.13.3.2) 	
Environmental Justice (EJ) (Section 4.14)	
<ul style="list-style-type: none"> Impact: No disproportionately high and adverse effects on environmental justice populations; see SEPTA's commitments (Section 4.14.3.2) 	
Irreversible and Irretrievable Commitment of Resources (Section 4.15)	
<ul style="list-style-type: none"> Benefit: Permanent, positive employment, earnings and output effects to King of Prussia: <ul style="list-style-type: none"> 900 to 1,500 new jobs annually 17,000 to 29,000 new employees over 20 years \$79.1 million to \$132.6 million in earnings annually (Section 4.15.2) 	
<ul style="list-style-type: none"> Impact: Permanent commitment of natural, material and financial resources (Section 4.15.3.2) 	
Final Section 4(f) Evaluation (Technical Memorandum)	
<ul style="list-style-type: none"> Impact: Project will permanently use portions of three Section 4(f) properties: Philadelphia and Western Railway (NHSL) (<i>de minimis</i> impact); PA Turnpike: Delaware River Extension (<i>de minimis</i> impact); and PNJ Interconnection (not <i>de minimis</i> impact); see SEPTA's commitments (Final Section 4(f) Evaluation) 	

Description of Preferred Alternative Effects	
Indirect and Cumulative Impacts (Section 4.16)	
<ul style="list-style-type: none"> Potential impact: Potential for an indirect and cumulative operational effect of enhancing and encouraging development and redevelopment near Project stations (Section 4.16) 	
<ul style="list-style-type: none"> Potential impact: Potential for a moderate, cumulative operational noise impact along the existing NHSL; see SEPTA's commitments (Section 4.16.6.7) 	
Preliminary Cost Estimates (Chapter 6)	
<ul style="list-style-type: none"> Impact: Preliminary capital cost estimate for Project is \$2.08 billion (Chapter 6) 	
<ul style="list-style-type: none"> Impact: Preliminary annual increase in NHSL operations and maintenance cost estimate is \$10.87 million (Chapter 6) 	

Sources: SEPTA, AECOM, and HNTB, 2020; 2017 King of Prussia Rail Extension Draft Environmental Impact Statement

Table ES-2.3-2: Summary of Commitments and Mitigation for the Preferred Alternative

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
Transportation (Chapter 3)	
<ul style="list-style-type: none"> During subsequent design, SEPTA will develop a program of bus service changes to eliminate service redundancies created by Project operations, adjust routes to serve proposed stations and park-and-ride facilities, and optimize operating efficiency. During subsequent design, SEPTA will coordinate with the Greater Valley Forge Transportation Management Association (GVFTMA) and King of Prussia Business Improvement District (KOP-BID) to plan appropriate shuttle service modifications to serve Project stations. During subsequent design, SEPTA will prepare a Transportation Management Plan to minimize the potential impacts of construction on the transportation system. The plan will include a temporary transit service plan developed by SEPTA in coordination with shuttle operators. This plan will identify potential service changes, and include actions to minimize or mitigate temporary impacts, such as bus re-routing and adjusted service schedules. During subsequent design, SEPTA will update the NHSL operating plan to accommodate Project service. If NHSL schedule adjustments are required, SEPTA will issue service advisories in advance of the temporary schedule impact occurring and implement substitute bus service, where necessary. To the extent reasonably feasible, temporary suspension of rail service will occur during off-peak hours to minimize impacts to transit riders. In all cases, the plan will 	<ul style="list-style-type: none"> During construction, SEPTA will implement the Transportation Management Plan. During operations, SEPTA will implement its program of bus service changes and will coordinate with the GVFTMA and KOP-BID to implement appropriate shuttle service modifications to serve Project stations.

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
<p>include a public outreach and information component to inform the public of unavoidable short-term changes in transit (bus and NHSL) and shuttle bus systems before they occur.</p> <ul style="list-style-type: none"> • During subsequent design, SEPTA will coordinate with state and local officials to determine the need for improvements to mitigate traffic impacts on roadways and intersections affected by Project stations, and design the specific improvements to the roadways and intersections affected as part of the Highway Occupancy Permit process. • During subsequent design, SEPTA will coordinate with PennDOT, Montgomery County, Upper Merion Township, and the PA Turnpike Commission as it develops a Transportation Management Plan for affected roadways during construction with the goals of maintaining traffic operations and minimizing additional congestion to the extent reasonably feasible. The plan will identify specific impacts to roadways (such as lane or street closures) and specific actions SEPTA will implement to minimize and mitigate temporary construction impacts on roadways. Such actions could include, but may not be limited to: <ul style="list-style-type: none"> • Ensuring access to residences and businesses is maintained during Project construction; • Ensuring emergency access for fire-fighting equipment and evacuations is maintained during construction; • Implementing temporary routing and circulation, as needed, with directional signing; • Installing temporary traffic control devices to improve construction-related congestion impacts or other temporary traffic flow problems; • Providing a public outreach and information component to inform the public of changes in the roadway system before they occur; and • Restoring affected roadways upon completion of construction. <p>As part of the plan, SEPTA will identify and implement temporary traffic re-routing or roadway closures, signing, and public outreach as needed to inform the public of temporary roadway changes before they occur. Roadway closure times and durations will be determined in coordination with the public agency with jurisdiction over the particular roadway and will occur during late night hours to minimize disruption of travel operations.</p>	<ul style="list-style-type: none"> • During construction, SEPTA will construct the specific improvements to roadways and intersections affected by the Project per the requirements of the Highway Occupancy Permit. • During construction, SEPTA will coordinate with PennDOT, Montgomery County, Upper Merion Township, and the PA Turnpike Commission as it implements the Transportation Management Plan for affected roadways during construction.
<ul style="list-style-type: none"> • During subsequent design, SEPTA will work with PennDOT, the County, and the Township to accommodate pedestrian and bicycle movements at intersections the Project will affect, design pedestrian and bicycle routing along and across roadways at appropriate locations near Project station facilities, and make connections to sidewalks adjacent to Project station facilities and to the elevated boarding platforms at stations. 	<ul style="list-style-type: none"> • During construction, SEPTA will implement the Transportation Management Plan.

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
<ul style="list-style-type: none"> During subsequent design, SEPTA will develop a Transportation Management Plan, which will include temporary bicycle and pedestrian accommodation in areas affected by construction. SEPTA will work with Upper Merion Township, Montgomery County, and PennDOT to identify and implement temporary routing, signing, and public outreach as needed to inform the public of temporary changes before they occur. 	
<ul style="list-style-type: none"> During subsequent design, SEPTA will continue to coordinate with NS regarding proposed use of a portion of their North Abrams Industrial Track corridor. 	<ul style="list-style-type: none"> None warranted.
<ul style="list-style-type: none"> During subsequent design, SEPTA will develop construction protocols and procedures prior to the start of construction with the goal of providing a safe and secure environment in and near the Project construction site. SEPTA will incorporate its standard worksite safety procedures into the Project-specific plan. The protocols and procedures will be Project-specific and will focus on worker and public safety, securing work and staging areas including equipment, materials, and permanent elements of the Project. Temporary fencing with locking gates around construction staging areas is an example of a typical technique to secure a work area. SEPTA will incorporate its standard worksite safety procedures into the Project-specific plan. SEPTA will also work with Upper Merion Township law enforcement personnel and emergency service providers in developing and implementing its Project safety plan to ensure it is consistent and coordinated with local safety and emergency response procedures, including monitoring and reporting. During subsequent design, SEPTA will evaluate and design appropriate operational safety elements, modify existing incident management plans, coordinate with emergency response personnel, and develop operational protocols and procedures to be followed. 	<ul style="list-style-type: none"> During construction, SEPTA will implement the project-specific safety plan. SEPTA's construction contractor(s) will be required to adopt SEPTA's procedures and protocols, including monitoring and reporting. During operations, SEPTA will implement its operational safety plans, protocols, and procedures.
<p align="center">Land Use Patterns and Consistency with Plans (Section 4.2)</p>	
<ul style="list-style-type: none"> During subsequent design, SEPTA will coordinate with the Township and County to align final design with future land use planning, such as the Township's land use planning for Moore Park KOP. 	<ul style="list-style-type: none"> None warranted.
<ul style="list-style-type: none"> During subsequent design, SEPTA will develop a construction plan and right-of-way plans that refine temporary construction right-of-way needs, including specific locations of temporary staging areas and construction access points. SEPTA will coordinate with Upper Merion Township, PennDOT, the PA Turnpike Commission and other potentially affected property owners in this activity. To the extent reasonably feasible, SEPTA will identify such areas within the Project ROW or on vacant or publicly-owned property. During subsequent design, SEPTA will develop a plan to restore properties affected by temporary, construction easements to an 	<ul style="list-style-type: none"> During construction, SEPTA will implement construction activities in accordance with all real estate agreements. Prior to the end of Project construction, SEPTA will implement the plan to restore properties affected by temporary easements to an acceptable pre-construction

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
<p>acceptable pre-construction condition at the end of construction activities, in accordance with individual easement agreements.</p> <ul style="list-style-type: none"> • At public outreach events during subsequent design, SEPTA will provide a real estate representative to explain SEPTA's construction easement acquisition process. • During subsequent design, SEPTA will initiate the real estate acquisition process, during which time SEPTA will work with each affected property owner to achieve construction easement acquisition agreements. 	<p>condition, in accordance with individual easement agreements.</p>
<ul style="list-style-type: none"> • During subsequent design, SEPTA will coordinate with impacted property owners to develop an operational parking management plan to discourage transit rider use of private parking areas. 	<ul style="list-style-type: none"> • During operations, SEPTA will implement the operational parking management plan.
<p style="text-align: center;">Economic Development (Section 4.3)</p>	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will develop a business mitigation plan in coordination with the KOP-BID to address temporary construction impacts related to access to businesses. 	<ul style="list-style-type: none"> • During construction, SEPTA will implement its business mitigation plan for the Project.
<p style="text-align: center;">Community Cohesion and Facilities (Section 4.4)</p>	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will examine opportunities to further minimize and mitigate for community impacts and incorporate feasible and reasonable measures into the construction and operations plans for the Project. 	<ul style="list-style-type: none"> • During Project construction, SEPTA will implement minimization and mitigation measures for community impacts related to construction. • During Project operations, SEPTA will implement minimization and mitigation measures for community facility impacts related to operations.
<ul style="list-style-type: none"> • During subsequent design, SEPTA will work with the Upper Merion Township's Unified Safety Department's Public Safety Director and the Fire & Emergency Service Department as they identify a suitable location for the fire company and 9/11 Memorial and undertake the relocation process. SEPTA will provide the funds for relocation of the King of Prussia Fire Company and 9/11 Memorial. • During subsequent design, SEPTA will coordinate with emergency service providers in the Township to identify and develop their emergency response plans regarding provider access and circulation in the Project construction and operational plans. 	<ul style="list-style-type: none"> • During Project construction, SEPTA will continue coordination with the Township and the King of Prussia Volunteer Fire Company as SEPTA implements relocation of the existing functions of the King of Prussia Fire Company and 9/11 Memorial. • During Project construction, SEPTA will continue coordinating with Township emergency service providers

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
	<p>as it implements the Project construction plan.</p> <ul style="list-style-type: none"> • During Project operations, SEPTA will continue coordinating with Township emergency service providers as it implements the Project operations plan.
Property Acquisitions and Displacements (Section 4.5)	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will refine permanent right-of-way needs and develop right-of-way plans, and prepare a real estate acquisition management plan. • During subsequent design, SEPTA will refine the area of permanent land acquisition to be provided to PECO to offset permanent right-of-way needs for the Project on the PECO property. • During subsequent design, SEPTA will initiate the real estate acquisition and relocation process, during which time SEPTA will work with each affected property owner to achieve permanent real estate acquisition agreements. SEPTA's property acquisition activities will occur in accordance with the Uniform Act as amended and FTA Circular 5010.1E, Award Management Requirements and State laws that establish the process through which SEPTA may acquire real property through a negotiated purchase or through condemnation (ROD Section 1.3.5.1). • See the commitments for temporary construction phase mitigation in this table under Land Use Patterns and Consistency with Plans. • SEPTA will coordinate with potentially impacted property owners during subsequent design to develop an operational parking management plan prior to Project operations to discourage transit rider use of private parking areas. 	<ul style="list-style-type: none"> • See commitments for temporary construction phase mitigation in this table under Land Use Patterns and Consistency with Plans. • Regarding the potential for Project riders to use private parking areas near stations, SEPTA will continue coordinating with potentially impacted property owners during Project construction to develop an operational parking management plan prior to Project operations to discourage transit rider use of private parking areas.
Parks, Recreational Land, and Open Space (Section 4.6)	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will develop the Project design at the crossing of the planned Chester Valley Trail Extension in coordination with Montgomery County at major milestones (30%, 60%, 90% and final plan, specifications and estimates). • During subsequent design, SEPTA will develop the Project construction plan for the crossing of the planned Chester Valley Trail Extension in timely coordination with Montgomery County. • During subsequent design, SEPTA will develop a cost reimbursement agreement with Montgomery County to reimburse the County for expenses incurred by the County's engineering consultant or other County consultants deemed necessary by Montgomery County and SEPTA for coordination and services related to: reviewing Project construction plans and specifications; 	<ul style="list-style-type: none"> • During construction, SEPTA will implement its Project construction plan in the area of the planned Chester Valley Trail Extension. SEPTA will coordinate with Montgomery County during Project construction. All costs to construct the Project at the planned Chester Valley Trail Extension crossing will be the responsibility of SEPTA.

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
<p>coordinating with SEPTA during Project design and construction phases; and potentially implementing temporary modifications (such as but not limited to: signage, re-routing, restoration, striping) to the planned Chester Valley Trail Extension to accommodate Project construction. All planning and design costs for the Project related to its impact upon the planned Chester Valley Trail Extension, including consultant fees as described above, shall be borne by SEPTA.</p>	
<p align="center">Historic and Archeological Resources (Section 4.7)</p>	
<ul style="list-style-type: none"> During subsequent design and prior to demolition of any PECO transmission towers as part of the Project, SEPTA will implement the terms of the Section 106 Memorandum of Agreement (11/25/2020 – Appendix C). 	<ul style="list-style-type: none"> None warranted
<p align="center">Visual and Aesthetic Resources (Section 4.8)</p>	
<ul style="list-style-type: none"> During subsequent design, SEPTA will continue to examine the feasibility of providing a higher parapet wall/barrier on the elevated guideway to block rider views of residential neighborhoods. During subsequent design and prior to the start of Project construction, SEPTA will develop and implement a Project construction plan. The plan will identify procedures and protocols for avoiding impacts to the transportation, natural and human environments during Project construction, including visual impacts. As part of the plan, SEPTA will require the Project contractor(s) to assess the potential for visual impacts during construction and identify means to minimize or mitigate temporary visual impacts. Examples of potential mitigation strategies that SEPTA will require the Project contractor(s) to consider include storage of equipment and materials in designated staging areas only, use of opaque fencing to visually screen staging areas, soil containment to avoid migration of soils onto public roads as required by erosion control regulations, and permanent landscaping or seeding of disturbed areas as soon as construction work is completed. 	<ul style="list-style-type: none"> During construction, SEPTA will implement visual mitigation according to the design plans.
<p align="center">Air Quality (Section 4.9)</p>	
<ul style="list-style-type: none"> During subsequent design, SEPTA will identify air quality control measures and best management practices for control of dust and vehicle emissions during Project construction. SEPTA will include these measures and practices in the Project construction plan. 	<ul style="list-style-type: none"> During Project construction, SEPTA will implement air quality control measures and best management practices according to the Project construction plan.

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
<p align="center">Noise and Vibration (Section 4.10)</p>	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will continue to assess the potential for noise impacts as a result of further design of the Project, and will evaluate the need for and design of mitigation for noise impacts. SEPTA will report the results of the evaluation on the Project website. • The following noise mitigation and minimization measures will be assessed by SEPTA during subsequent design to determine their feasibility and reasonableness: Parapet Walls on Guideway - Solid parapets in lieu of open safety railings would eliminate noise impacts from train operations along the guideway. Increasing the height of the proposed edge of the guideway from 2.2 feet above top of rail to 6 feet above top of rail at the following locations would eliminate all predicted moderate noise impacts: <ul style="list-style-type: none"> • Valley Forge Homes <ul style="list-style-type: none"> • Station No. 227+00 to 247+00 (south side) • 37 residential impacts • Brandywine Village <ul style="list-style-type: none"> • Station No. 243+00 to 250+00 (north side) • 11 residential impacts • Allendale Road Station <ul style="list-style-type: none"> • Station No. 259+00 to 269+00 (south side) • 3 residential impacts • 1 office impact Because the Valley Forge Homes and Brandywine Village neighborhoods currently benefit from a highway noise barrier, the effectiveness of parapet walls on the guideway will need to be investigated in more detail during subsequent design by SEPTA. • Station-specific Noise Control – SEPTA will investigate the feasibility and reasonableness of station-specific noise minimization and mitigation measures for Allendale Road Station during subsequent design. • During subsequent design, SEPTA will continue to evaluate the potential for temporary construction noise and vibration impacts and identify measures to minimize or mitigate construction impacts as warranted. SEPTA will also continue the Project public outreach program during construction to inform the public about the schedule of activities and provide for public input. SEPTA will include control measures in their procurement specifications and construction plans, and report the results of the evaluation on the Project website. During Project construction, SEPTA will implement the control measures according to the Project construction plan. 	<ul style="list-style-type: none"> • During Project construction, SEPTA will implement noise and vibration commitments according to the Project construction plan.

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
<ul style="list-style-type: none"> • The following noise and vibration mitigation and minimization measures will be assessed by SEPTA during subsequent design to determine their feasibility and reasonableness: <ul style="list-style-type: none"> • At staging and laydown areas, consider installing acoustical curtains or other temporary noise shields along perimeter fencing to act as a temporary noise barrier. • Strategic placement of containers or other barriers along the perimeter of staging areas would shield nearby residences from construction activities within the laydown area. • Substituting impulsive equipment such as pile drivers and hoe rams with augers and vibratory pile drivers whenever possible. • In general, utilize equipment enclosures or shrouds for all exposed stationary equipment while other solutions (such as portable acoustical curtains hung from cranes) may be more practical for mobile sources. • All equipment should include properly tuned exhaust mufflers or attenuators that comply with the local and municipal noise ordinances. • Additionally, utilize regional roadways rather than local streets for excavation of spoils and new deliveries to further minimize the construction impacts (i.e., noise, vibration, air quality, visual, traffic, etc.) on the nearby community. 	
<p style="text-align: center;">Natural Resources (Section 4.11)</p>	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will complete a geotechnical investigation to identify soils and geological conditions within the Project limits of disturbance (LOD). The investigation will use subsurface testing and laboratory analysis to determine soil and rock properties (such as water, chemical and mineral contents, soil and rock strength, depth of rock, and delineation of karst features). This information will assist SEPTA in designing the Project to location-specific soil and geological conditions. • During subsequent design, SEPTA will develop a plan of action in the event of a geological event, such as a sinkhole, during Project construction. The program of actions will include the following elements: communication protocol, securing the site of the sinkhole, implementing an action plan to resolve the issue, and restoring construction activities. • During subsequent design, SEPTA will develop an operations plan in the event of a geological event, such as a sinkhole. The program of actions will include the following elements: communication protocol, securing the site of the sinkhole, implementing an action plan to resolve the issue, and restoring normal activities. 	<ul style="list-style-type: none"> • During construction, SEPTA will implement the construction plan related to geological conditions. • During operations, SEPTA will implement the operations plan related to geological conditions.
<ul style="list-style-type: none"> • During subsequent design, SEPTA will consider means to further reduce the amount of new impervious surfaces. • During subsequent design, SEPTA will prepare PA-approved erosion and sediment control plans and applicable stormwater 	<ul style="list-style-type: none"> • During construction, SEPTA will implement the Project in accordance with the provisions and conditions of

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
<p>management plans during Project construction. These plans will identify appropriate best management practices to reduce erosion, control sedimentation, and maintain water quality.</p> <ul style="list-style-type: none"> • During subsequent design, SEPTA will design stormwater best management practices to reduce Project runoff impacts. 	<p>all permits and approvals related to waterways and floodplains.</p> <ul style="list-style-type: none"> • During construction, SEPTA will implement the approved erosion and sediment control plan. • During operations, SEPTA will implement the Project stormwater management plan.
<ul style="list-style-type: none"> • During subsequent design and to the extent reasonably feasible, SEPTA will identify additional means to avoid or minimize impacts to existing wooded areas through design refinements. • During subsequent design, SEPTA will develop a construction plan that limits disturbance of 20.3 acres of wooded area within the proposed construction area and provides for protection of such areas that are adjacent to and outside the construction area. 	<ul style="list-style-type: none"> • During construction, SEPTA will implement the construction plan elements that protect wooded areas from Project impacts. • During construction, SEPTA will implement the Project in accordance with the provisions and conditions of all permits and approvals related to wooded areas.
<ul style="list-style-type: none"> • During subsequent design, SEPTA will comply with Executive Order 11988 and applicable state laws and implementing regulations regarding Project activities in existing Federal Emergency Management Agency (FEMA)-mapped floodplains. 	<ul style="list-style-type: none"> • During operations, SEPTA will implement the Project in accordance with the provisions and conditions of all permits and approvals related to waterways and floodplains.
<ul style="list-style-type: none"> • During subsequent design, SEPTA will obtain and comply with Pennsylvania Water Obstruction and Encroachment Permit and a US Army Corps of Engineers (USACE) Section 404 Nationwide Permit as required by the USACE and PA Department of Environmental Protection (PADEP) for activities in waterways and wetlands. 	<ul style="list-style-type: none"> • During construction, SEPTA will implement the Project in accordance with the provisions and conditions of all permits and approvals related to waterways and wetlands.
<ul style="list-style-type: none"> • During subsequent design, SEPTA will coordinate with the PA Fish & Boat Commission in regard to the presence/absence of State-threatened northern red-bellied cooter. If present, SEPTA will assess the potential for adverse impacts to the species, and identify appropriate minimization and mitigation measures. 	<ul style="list-style-type: none"> • If warranted as a result of further coordination with the PA Fish & Boat Commission in regard to the State threatened northern red-bellied cooter, SEPTA will implement appropriate minimization and mitigation measures during Project construction.

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
Contaminated Materials and Hazardous Waste (Section 4.12)	
<ul style="list-style-type: none"> • During subsequent design and prior to right-of-way acquisition, SEPTA will complete a Phase II Environmental Site Assessment for properties that will be acquired by SEPTA. • During subsequent design, SEPTA will seek input from EPA regarding the Henderson Road Superfund Site to minimize the potential for the Preferred Alternative to adversely affect the hydrological conditions controlling the contaminant plume at the site. • During subsequent design and if warranted as a result of the Phase II assessment, SEPTA will examine means to avoid or minimize and mitigate impacts if the Preferred Alternative has the potential to impact a site with potential contaminated materials and hazardous waste concerns. SEPTA will select appropriate strategies in coordination with Federal and state regulators to meet applicable laws. SEPTA will incorporate appropriate strategies as minimization and mitigation measures into the Project design and construction plans. • During subsequent design, SEPTA will develop an Asbestos Abatement Plan and a Lead-Based Paint Assessment Plan for structures to be demolished during construction. The plans will document methodologies for surveying, containing, and remediating such materials as warranted. • During subsequent design, SEPTA will develop and implement Health and Safety Plans and Materials Management Plans for use during construction and operation phases. 	<ul style="list-style-type: none"> • During construction and if warranted as a result of the Phase II assessment, SEPTA will implement commitments to address contaminated materials and hazardous waste concerns. • During construction, SEPTA will implement the following plans developed during subsequent design for structures to be demolished: Asbestos Abatement Plan and a Lead-Based Paint Assessment Plan. • During construction, SEPTA will implement Project health and safety plans. • During operation, SEPTA will implement Project health and safety plans.
Utilities and Energy Use (Section 4.13)	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will continue coordinating with utility service providers to verify the locations of existing utilities, and develop construction and operations plans related to utilities. • During subsequent design, SEPTA will plan and schedule Project construction activities to avoid or minimize utility service disruptions. • During subsequent design, SEPTA will coordinate with and obtain approvals from each affected utility owner regarding Project activity related to utilities. 	<ul style="list-style-type: none"> • During construction, SEPTA will implement the construction phase utility plan and the conditions of each utility approval. • During construction, SEPTA will comply with utility owner notification requirements and the PJM Interconnection outage planning process regarding potential utility outages required by the Project.

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
Environmental Justice (Section 4.14)	
<ul style="list-style-type: none"> • During subsequent design, Project construction, and Project operations, SEPTA will continue public outreach activities. The goals of SEPTA's public outreach activities will continue to be public awareness of Project activities, opportunity for the public to share concerns with SEPTA related to Project construction, and an avenue for SEPTA to address those concerns. 	<ul style="list-style-type: none"> • During Project construction, SEPTA will continue public outreach activities. • During Project operations, SEPTA will continue public outreach activities.
Section 4(f) (Technical Memorandum)	
<ul style="list-style-type: none"> • See commitments for Historic and Archaeological Resources. • Chester Valley Trail Extension: During subsequent design, SEPTA will develop the Project design at the crossing of the planned Chester Valley Trail Extension in coordination with Montgomery County at major milestones (30%, 60%, 90% and final plan, specifications and estimates). • During subsequent design, SEPTA will develop the Project construction plan for the crossing of the planned Chester Valley Trail Extension in timely coordination with Montgomery County. • During subsequent design, SEPTA will develop a cost reimbursement agreement with Montgomery County to reimburse the County for expenses incurred by the County's engineering consultant or other County consultants deemed necessary by Montgomery County and SEPTA for coordination and services related to: reviewing Project construction plans and specifications; coordinating with SEPTA during Project design and construction phases; and potentially implementing temporary modifications (such as but not limited to: signage, re-routing, restoration, striping) to the planned Chester Valley Trail Extension to accommodate Project construction. All planning and design costs for the Project related to its impact upon the planned Chester Valley Trail Extension, including consultant fees as described above, shall be borne by SEPTA. 	<ul style="list-style-type: none"> • See commitments for Historic and Archaeological Resources. • During Project construction, SEPTA will implement its Project construction plan in the area of the planned Chester Valley Trail Extension. SEPTA will coordinate with Montgomery County during Project construction. All costs to construct the Project at the planned Chester Valley Trail Extension crossing will be the responsibility of SEPTA.

Notes: During subsequent design is meant to represent the period after which FTA approves the combined FEIS/ROD and before Project construction activities begin. During that time, SEPTA will complete engineering design of the Project, prepare Project construction plans, and acquire the property on which the Project will be built. During construction is meant to represent the period after which SEPTA is building the Project; and during operations is meant to represent the period after Project construction is completed when the Project is providing rail transit service as described in the FEIS.

Sources: SEPTA, AECOM, and HNTB, 2020; 2017 King of Prussia Rail Extension Draft Environmental Impact Statement

Chapter 1 Purpose and Need

The King of Prussia Rail Extension Project (Project) will extend Norristown High Speed Line (NHSL) rail service to the King of Prussia Mall and other destinations in the King of Prussia/Valley Forge area of Upper Merion Township, Montgomery County, Pennsylvania. The Council on Environmental Quality (CEQ) regulations implementing the National Environmental Policy Act (NEPA) require an environmental impact statement (EIS) to state the underlying purpose and need of the proposed action by the Federal Transit Administration (FTA) in cooperation with the Southeastern Pennsylvania Transportation Authority (SEPTA) (40 CFR 1502.13). The Project purpose and need is the foundation of the NEPA process; it provides the rationale and justification for the proposed action, and forms the basis for the range of alternatives to be studied in the NEPA process.

This section presents the Project purpose and need, and the context for the purpose and need, including land use, planned development, population and employment growth, existing transit services and markets, and roadway conditions. The Project purpose and need focuses on rail service, not a bus mode, because SEPTA provides six different bus routes to the King of Prussia/Valley Forge area, including express bus service from Center City Philadelphia. As described in Sections 1.2.5 and 3.1, extensive existing roadway congestion makes additional bus service not a feasible solution. The Project purpose and need was developed in 2012 prior to the NEPA process; no changes to the Project purpose and need were made during the NEPA process.

In this Final Environmental Impact Statement/Section 4(f) Evaluation (FEIS), FTA and SEPTA evaluate the Preferred Alternative for its ability to achieve the Project purpose and need, as well as for its benefits and impacts on the natural and built environment, compared to the No Action Alternative.

1.1 Purpose of the Project

The Project purpose and need was developed in 2012 prior to the NEPA process; no changes to the Project purpose and need were made during the NEPA process. The purpose of the proposed Project is to provide faster, more reliable public transit service to the King of Prussia/Valley Forge area that:

- Offers improved transit connections to the area from communities along the existing NHSL, Norristown, and Philadelphia;
- Improves connectivity between defined key destinations within the King of Prussia/Valley Forge area; and
- Better serves existing transit riders and accommodates new transit patrons.

The need for expanded transit service in Montgomery County has been identified for more than 20 years in regional studies and local plans. The Project need stems from existing transit service deficiencies that are expressed by long travel times, delays due to roadway congestion,

required transfers leading to two or more seat trips, and destinations that are underserved, or currently not served, by public transit. These needs are compounded by growing population and employment in the area, concentrations of major commercial development in King of Prussia, and significant planned development for the area, which are described in this FEIS.

1.2 Context

1.2.1 Existing Land Use

SEPTA, in coordination with FTA, developed the transportation study area for the Project, which is the same in the FEIS as it was in the Draft Environmental Impact Statement (DEIS). The transportation study area encompasses the greater King of Prussia/Valley Forge area and is bounded roughly by the Schuylkill River, US Route 422, Schuylkill Expressway (I-76), and the existing NHSL. Most of the transportation study area is located within Upper Merion Township, while small portions lie within Bridgeport and Norristown. Predominant land uses within the transportation study area are residential (29 percent), commercial (23 percent), and manufacturing (five percent (see **Figure 1.2-1**).

The greater King of Prussia/Valley Forge area is at the intersection of several major highways: the Pennsylvania Turnpike, I-76, US Route 422, and US Route 202 (DeKalb Pike). Located in southeastern Pennsylvania, it is about 15 miles from Center City Philadelphia. Over the past five decades, the area has developed into one of the most important activity centers in the greater Philadelphia region in terms of employment, shopping, and visitor destinations; other commercial activities; and resident population. Outside of Philadelphia, Upper Merion Township, including the greater King of Prussia/Valley Forge area, is the largest suburban employment market in the Philadelphia region with 57,038 jobs (2015 estimate, DVRPC, October 27, 2016, *Analytic Data Reports 023*).

Three key destinations in the transportation study area are the King of Prussia Mall, the Moore Park KOP business area (formerly the King of Prussia Business Park), and Valley Forge National Historical Park (VFNHP) (see **Figure 1.2-2**). The King of Prussia Mall and nearby development provide approximately 10,200 jobs (U.S. Census using OnTheMap, 2017). With more than 2.9 million square feet, the King of Prussia Mall has more retail space than any other shopping attraction in the United States (Simon Property Group, 2019). The mall attracts about 22 million visitors annually, or about 60,000 per day (Simon Property Group, 2019).

Nearby, Moore Park KOP supports over 19,500 jobs among its business, office, hotel, light industrial, and warehouse uses (U.S. Census using OnTheMap, 2017). VFNHP, with a main entrance at the western periphery of the transportation study area, is a premier historical, cultural, and recreational destination. The park attracts 2.1 million visitors annually (VFNHP, 2018).

Figure 1.2-1: Existing Land Use

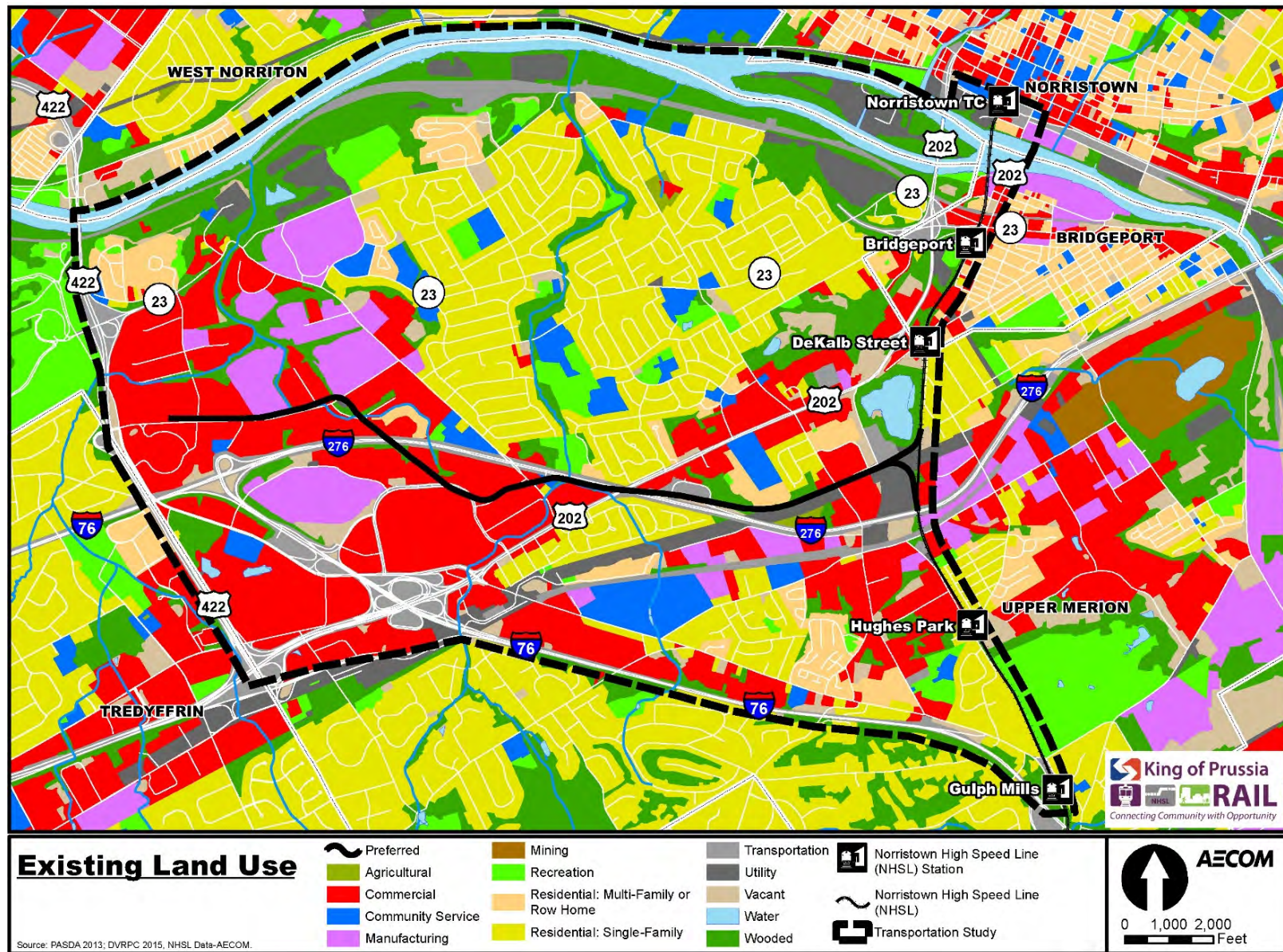
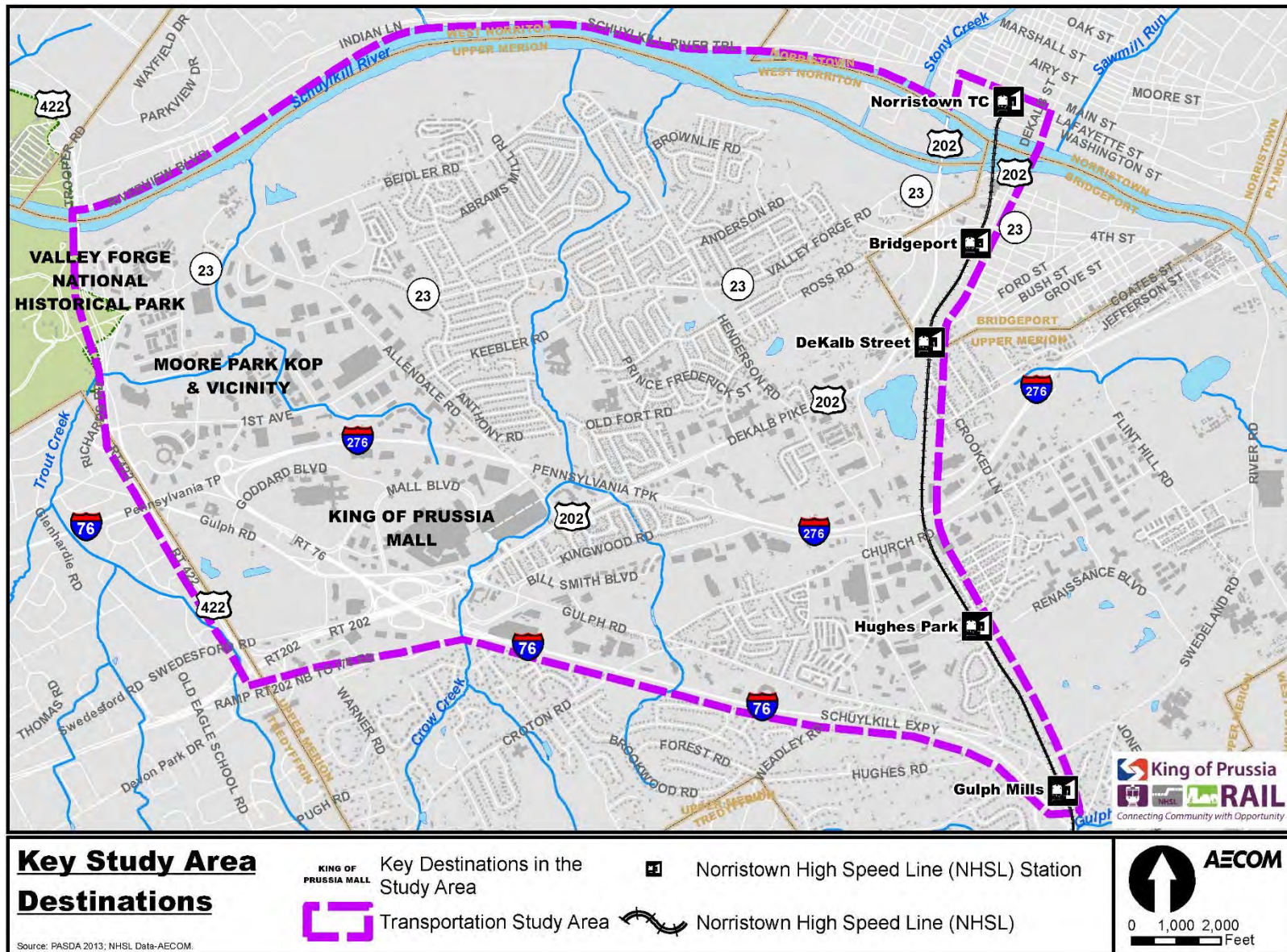


Figure 1.2-2: Key Study Area Destinations



1.2.2 Planned Development and Changing Land Use

The transportation study area is mostly developed with minimal available vacant land; Upper Merion Township's Final Draft *Act 209 Land Use Assumptions Report* (2017) estimated vacant land at less than five percent. Despite this fact, Upper Merion Township continues to receive numerous land development proposals each year, with most development in the form of intensification and redevelopment of previously developed properties.

Major recent and redevelopment activities include expansion of the King of Prussia Mall and construction of the Village at Valley Forge mixed-use development. The mall completed a 155,000-square foot expansion in 2016, and the Village at Valley Forge is approved for over 2,500 residential units, 500,000 square feet of retail, two hotels, and 1,000,000 square feet of mid-rise office and health care space (Village at Valley Forge website, 2019).

Upper Merion Township's *Land Use Plan* (2005), zoning ordinance, and 2020 *Vision Plan* provide the framework for potential future growth. A goal of the *Land Use Plan* is to create a sustainable environment and create more compact, mixed-use development in the KOP area. To achieve this goal, the *Land Use Plan* contains a "Transit-Oriented, Mixed-Use" land use designation that is intended to encourage compact, walkable development around future train stations and the existing station at Hughes Park. To further the *Land Use Plan* goals, Upper Merion Township, in cooperation with the King of Prussia District (KOP-BID), revised the Township's zoning code to guide future land use in Moore Park KOP. The revised code lays out a vision for future land use in this area, encourages walking and public transportation use, and allows for mixed-use development. The Township is currently preparing a new *Upper Merion Township Comprehensive Plan*, and a draft of that plan is available for review on the Township's website (https://www.umtownship.org/wpfb-file/upper-merion-comp-plan-draft_web-pdf/). As the new plan is not yet adopted by the Township, this FEIS relies on the Township's 2005 *Land Use Plan* (<https://www.umtownship.org/departments/public-works/planning-and-development/township-plans/>).

DVRPC designates the King of Prussia/Valley Forge area as a Metropolitan Subcenter, which is defined in their long-range, nine-county regional plan entitled *Connections 2045 Plan for Greater Philadelphia*. A Metropolitan Subcenter is a place recognized in the plan as a focal point for organizing and planning development as well as infrastructure, such as transportation. The plan indicates that a Metropolitan Subcenter provides many amenities that people want, such as walkability, unique architectural character, access to transit, social connections, and a mix of housing stock, including affordable housing that is well connected to employment opportunities.

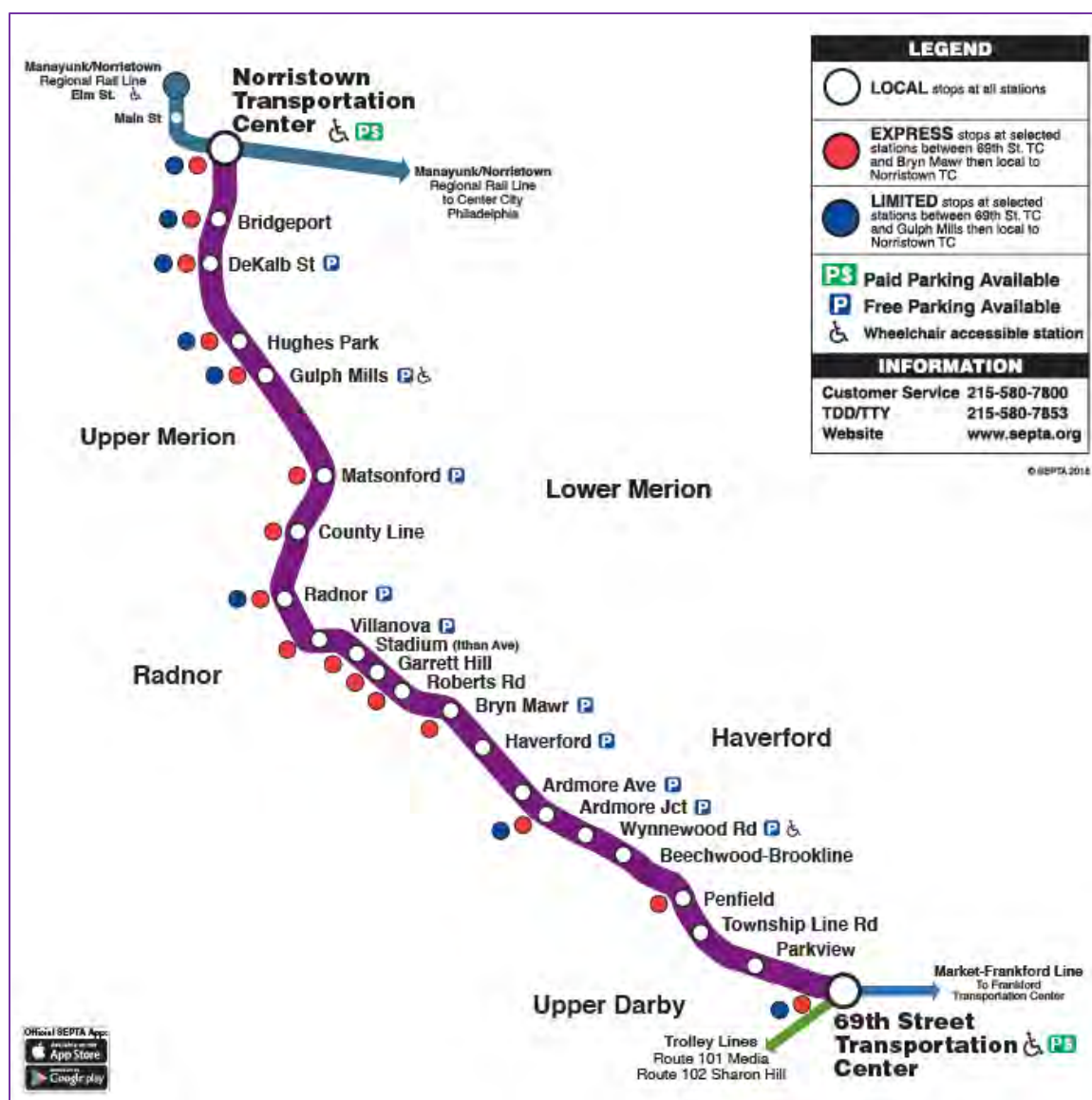
1.2.3 Population and Employment Growth

DVRPC forecasts show that Upper Merion Township's population will increase from 28,620 (2015 Census estimate) to 34,003 in 2040, an increase of 18.8 percent. Other municipalities along the NHSL have forecasted overall population increases ranging from 2.08 percent in Haverford to 24.26 percent in Bridgeport (DVRPC, 2016). DVRPC's adopted municipal-level employment forecasts show that between 2015 and 2040 employment in Upper Merion Township will increase from 57,038 to 65,430, a 14.7 percent increase (DVRPC, 2016).

1.2.4 Existing Rail Transportation

Within the transportation study, the NHSL operates between the 69th Street Transportation Center in Upper Darby Township, Delaware County, and the Norristown Transportation Center in the Municipality of Norristown, Montgomery County (see **Figure 1.2-3**). Connections to SEPTA's Regional Rail system are available at the Norristown Transportation Center via transfer to the Manayunk/Norristown Line, a commuter rail line providing service between Norristown and Center City Philadelphia. A connection also is available, by means of a short walk, between the Radnor Station on the NHSL and the Radnor Station on the Paoli-Thorndale Regional Rail line. At the 69th Street Transportation Center, connections are available to Center City Philadelphia via SEPTA's Market-Frankford Line and to other parts of Delaware and Chester Counties via SEPTA's Route 101 and 102 Trolleys and 18 SEPTA bus routes.

Figure 1.2-3: Norristown High Speed Line



Source: SEPTA 2019.

Besides service to Norristown and Upper Darby, the NHSL serves other important origins and destinations including academic institutions such as Haverford College, Bryn Mawr College, Villanova University, Eastern University, Cabrini College and Rosemont College; Bryn Mawr Hospital; and several Main Line communities with dense population and employment.

Although the NHSL passes through Upper Merion Township, the rail line runs a few miles east of the King of Prussia Mall. Reaching the King of Prussia Mall and other destinations in the transportation study area from the NHSL requires a transfer to/from bus service.

Table 1.2-1 shows the 2018 average weekday passenger loads at each NHSL station in both the northbound and southbound directions. These data show that the busiest stations, after the 69th Street Transportation Center and Norristown Transportation Center are Bryn Mawr, Gulph Mills, Ardmore Junction, Hughes Park, and Radnor.

When the NHSL was first constructed and for many years that followed, the predominant direction of travel was the traditional peak-direction, suburb-to-city commute to the 69th Street Transportation Center with a transfer to Center City via the Market-Frankford Line in the morning and the reverse pattern in the late afternoon. However, beginning in the 1970s and into the 1980s, the passenger flow gradually shifted to include a reverse commute pattern from Philadelphia. The reverse commute phenomenon reflected intensive office development near the Radnor Station and service sector employment at locations such as Bryn Mawr Hospital. Subsequent extensive land development in Upper Merion Township and in the transportation study area contributed to new work and shopping trips. However, NHSL passengers must transfer to a bus at Gulph Mills, DeKalb Street, or the Norristown Transportation Center to reach the King of Prussia Mall and other destinations in the transportation study area. Average weekday ridership on the NHSL increased from 8,395 in 2010 to 11,135 in 2019, which is an increase of 2,740 average weekday passenger trips. The NHSL is ranked highest in terms of average daily ridership of all SEPTA's Suburban Transit Routes in 2019.

1.2.5 Existing Bus Transportation

Six SEPTA bus routes serve the transportation study area; they are bus routes 92, 99, 123, 124, 125, and 139 (see **Figure 1.2-4**). **Table 1.2-2** provides data for each route including the number of daily trips, number of trips on the I-76, total mileage traveled on the I-76, average speed on the I-76, average weekday ridership, cumulative on-time performance, and annual ridership. Ridership on SEPTA's six transportation study area bus routes has increased over the past two years (SEPTA, Annual Service Plans, 2017-2019). Total average weekday ridership across the six bus routes exceeds 6,700 passenger trips (see **Table 1.2-2**).

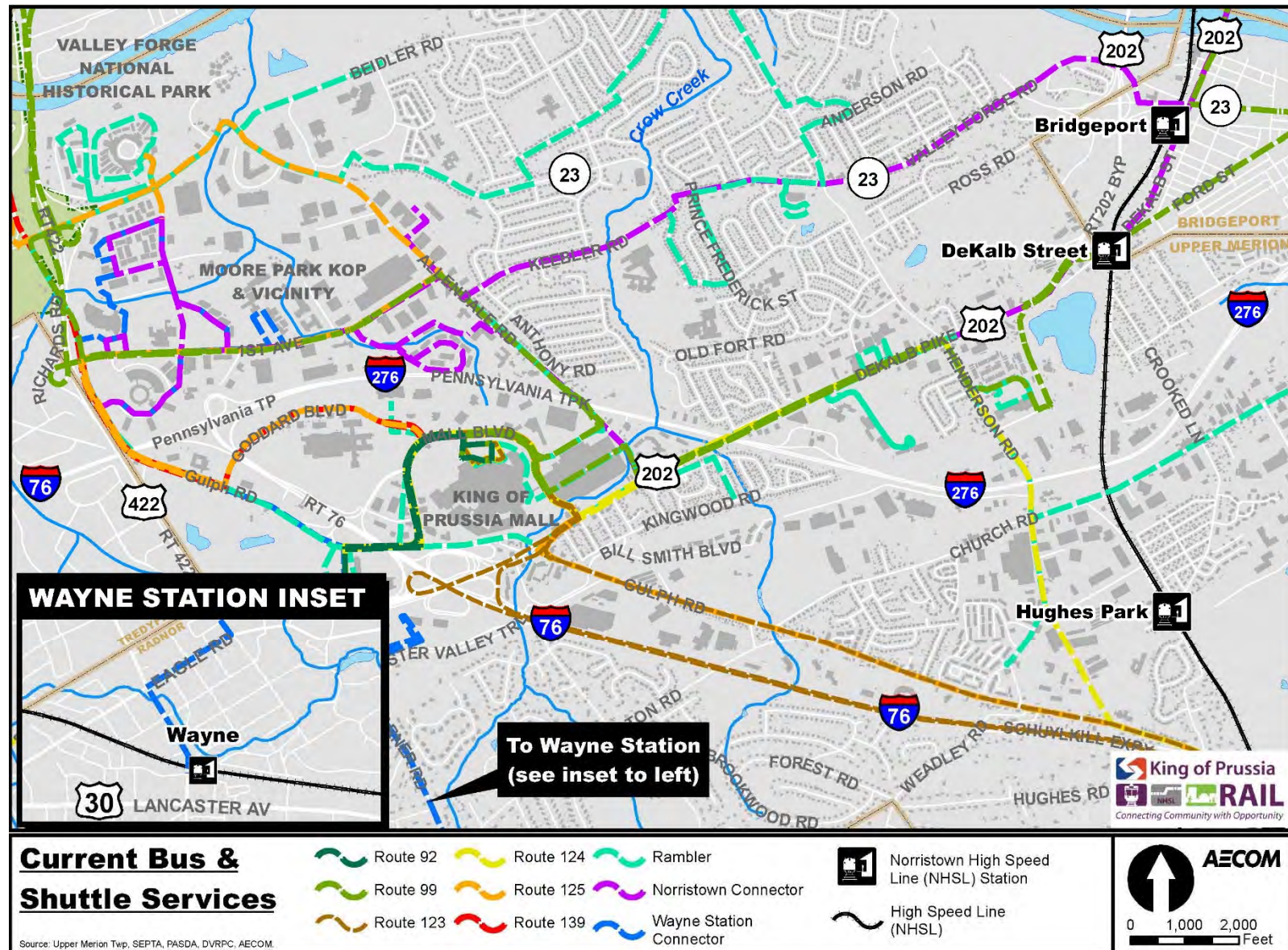
Table 1.2-1: NHSL 2018 Average Weekday Ridership

Station	Northbound			Station	Southbound		
	Boards	Leaves	On Board		Boards	Leaves	On Board
69th St. Transportation Center	4,651	0	4,651	Norristown Transportation Center	1,516	0	1,516
Employee platform	56	64	4,643	Bridgeport	144	12	1,647
Parkview	55	23	4,676	DeKalb Street	346	18	1,976
Township Line Road	73	68	4,680	Hughes Park	441	36	2,382
Penfield	40	262	4,458	Gulph Mills	648	46	2,984
Beechwood-Brookline	32	163	4,327	Matsonford	40	5	3,020
Wynnewood Road	61	156	4,232	County Line	26	6	3,040
Ardmore Junction	129	398	3,962	Radnor	423	83	3,381
Ardmore Avenue	19	89	3,892	Villanova	295	41	3,636
Haverford	26	154	3,765	Stadium	*/		
Bryn Mawr	140	534	3,371	Garrett Hill	158	20	3,774
Roberts Road	32	60	3,343	Roberts Road	69	20	3,823
Garrett Hill	35	114	3,264	Bryn Mawr	464	70	4,217
Stadium	*/			Haverford	143	14	4,346
Villanova	52	269	3,047	Ardmore Avenue	113	21	4,439
Radnor	77	310	2,814	Ardmore Junction	471	72	4,837
County Line	8	17	2,805	Wynnewood Road	155	22	4,971
Matsonford	4	23	2,786	Beechwood-Brookline	170	18	5,122
Gulph Mills	95	558	2,322	Penfield	262	23	5,361
Hughes Park	57	391	1,988	Township Line Road	82	31	5,411
DeKalb Street	20	192	1,816	Parkview	42	24	5,430
Bridgeport	10	71	1,755	Employee platform	45	23	5,451
Norristown Transportation Center	0	1,760	0	69th St. Transportation Center	0	5,460	0
Totals	5,670	5,675	0	Totals	6,055	6,064	0

*/ Stadium Station temporarily closed on March 12, 2018, for station improvement project.

Source: SEPTA, March 2019. Based upon all weekday service on the NHSL in fall 2018.

Figure 1.2-4: Transportation Study Area SEPTA Bus Routes and Shuttle Services



1.2.5.1 Travel Time and Reliability

Buses are subject to the same congestion delays as motorists, as buses share roadway travel lanes with general traffic. As **Table 1-2.2** indicates, 180 buses from SEPTA bus routes 123, 124 and 125 travel 1,935 miles each weekday on the I-76. Previous travel speed survey data show low average vehicular speeds along I-76 eastbound during the morning peak period and westbound during the evening peak period. As a result, bus routes 124 and 125, which run the longest distance on I-76 (14 miles per one-way trip), have some of the lowest cumulative on-time performance in the entire SEPTA bus system. SEPTA's on-time performance standard for bus service is 80 percent, but the on-time performance rates for these routes are below that at 64 percent and 60 percent, respectively. Travel times on existing bus routes vary depending on roadway traffic conditions. During periods of heaviest congestion, such as in poor weather or during accident events, travel times are longer. Peak hour roadway congestion also varies depending on various factors, such as personal schedules and roadway maintenance activities. As a result, bus travel times tend to be unreliable.

1.2.5.2 Travel to and Among Key and other Study Area Destinations

Existing travelers on the NHSL must transfer to SEPTA bus service from NHSL stations to reach key and other destinations in the transportation study area. SEPTA bus routes 124 and 125 currently connect with the NHSL at the Gulph Mills Station, while route 99 connects with the NHSL at the DeKalb Street Station and Norristown Transportation Center. The required transfer introduces inconvenience and additional travel time in order to complete the entire trip.

For existing bus riders on three of SEPTA's six bus routes, only one key destination in the transportation study area (the King of Prussia Mall) is served. As a result, bus riders traveling to Moore Park KOP, VFNHP, and other destinations in the transportation study area on these three routes, must transfer to another bus route to complete their travel. Adding these other destinations to existing bus routes by changing bus routing is not a practical solution because total travel times for passengers destined elsewhere on these routes can become long, and routing changes may eliminate service to other existing stops. Two of the six bus routes serve the US Route 202 area, and one route serves the Henderson Road area. Each transfer adds to a rider's overall travel time. Having to make a transfer and then waiting at a bus stop for the next bus to arrive reduces the convenience of transit travel. Comment from some transit users during the DEIS public comment period noted that using transit can take longer, sometimes much longer, to reach destinations in the transportation study area than travel by personal automobile. Because of the inconvenience of longer travel times and transfers, bus can be a less desirable and less competitive travel mode than driving.

Table 1.2-2: Summary of Bus Service Levels and Operations

Bus Route	Number of Weekday Bus Trips	Number of Trips on I-76	Total Miles on I-76	Avg. Speed on I-76 EB AM (mph)	Avg. Speed on I-76 WB PM (mph)	Avg. Speed on I-76 WB AM (mph)	Avg. Speed on I-76 EB PM (mph)	Weekday Ridership	On-Time Performance	Number of Saturday Bus Trips	Number of Sunday Bus Trips	Annual Ridership
92	25	No service along I-76						396	76%	20	n/a	112,070
99	62	No service along I-76						1,552	78%	55	33	405,600
123	54	54	216	20.3	16.9	47.4	15.5	902	71%	57	41	257,970
124	61	61	834	20.3	16.9	47.4	15.5	1,535	64%	57	41	400,860
125	70	65	885	20.3	16.9	47.4	15.5	1,845	60%	58	47	523,980
139	32	No service along I-76						488	81%	21	n/a	138,100
Total Weekday Ridership:								6,718				

Sources: SEPTA *Route Statistics*, bus schedules (2019), Annual Service Plan (FY 2019), AECOM/M&S travel time study (2012).

1.2.6 Shuttle Service

King of Prussia District's "theconnector," a commuter transit shuttle service, connects Moore Park KOP to SEPTA's rail system at the Norristown Transportation Center and Wayne Station. The KOP-BID provides this service as a complement to SEPTA transit services. Shuttle buses serve a different function than SEPTA services. While SEPTA services provide a connection between King of Prussia and other areas in the Philadelphia region, shuttle buses primarily provide "last mile" connections between nearby transit stations and employment areas or residential areas. The shuttle enables transit travelers, particularly workers, to access destinations in Moore Park KOP. This service operates Monday-Friday during the morning and evening peak periods. It operates in roadway traffic, experiencing the same congestion and delays as traveling by motor vehicle.

Another shuttle route is also offered, the Upper Merion Rambler. However, it is not directed toward the commuter market. The Upper Merion Rambler is managed by the Greater Valley Forge Transportation Management Association (GVFTMA) and provides local circulation during midday weekdays among residential neighborhoods and key destinations within Upper Merion Township.

1.2.7 Transit Service Markets

Changing land use patterns in the Philadelphia region have led to increased suburb-to-suburb travel to and from key and other destinations in the transportation study area and increased urban-to-suburban travel (reverse trip-making) from urban centers (Norristown, Upper Darby, and Philadelphia) to suburban centers (King of Prussia/Valley Forge). The diversity of land uses in the transportation study area means that both origins and destinations for transit patrons are present. With 57,038 jobs in the transportation study area and 31,056 residents, there are three distinct travel markets:

- **Travel from within the transportation study area to destinations outside the transportation study area** — This pattern reflects people traveling from the transportation study area, such as residents and employees, to destinations along the NHSL and to Philadelphia. This travel pattern is typically a relatively short to moderate-length trip across a portion of the transportation study area as part of a longer trip outside the transportation study area. Trips are characteristically from residential communities in the transportation study area to access the NHSL and bus services, or travel by personal vehicle.
- **Travel from outside the transportation study area to key and other destinations in the transportation study area** — This pattern reflects employees, shoppers, and other travelers from outside the transportation study area, especially from locations along the NHSL and Philadelphia to destinations in the transportation study area, such as the King of Prussia Mall and Moore Park KOP. These trips use buses, the NHSL with a transfer to bus services or shuttle, or personal vehicle to access transportation study area destinations. These trips involve relatively short distance travel within the transportation study area as part of a longer trip.

- **Travel within the transportation study area** — Some travel occurs entirely within the transportation study area, involving residents, employees and shoppers traveling from residential communities to destinations within the transportation study area. Characteristically, this travel is by personal vehicle, unless bus service is convenient to both travel ends.

Consistent with the second market, the ridership data for the six existing SEPTA bus routes in the transportation study area (shown in **Table 1.2-2**) and the ridership data for the existing NHSL (shown in **Table 1.2-1**) indicate that a transit market exists for trips destined to the transportation study area, to and from Philadelphia, Upper Darby and Norristown, and from other points along the NHSL.

A transit market exists for trips destined to the King of Prussia/Valley Forge area, to and from Philadelphia, Upper Darby, and Norristown, and from other points along the NHSL.

Transit-dependent persons are a population sector found in each of the three transit market sectors previously described. Transit-dependent persons are defined as those persons in households with no cars or persons in households below the poverty line. The transit-dependent populations in the transportation study area, as well as the urbanized centers of Philadelphia, Upper Darby, and Norristown, are adversely affected by limited connectivity and the unreliability of the existing transit services to and from the transportation study area.

1.2.8 Roadways

I-76 is the major freeway facility connecting the transportation study area to Center City Philadelphia, serving as a gateway from the rest of Pennsylvania and southern New Jersey. Three SEPTA bus routes serve the transportation study area and travel on I-76. I-76 functions at or near capacity in both directions during most peak periods and many non-peak travel periods under Base Year (2019) conditions. By 2040, I-76 will function at capacity in both directions in nearly all travel periods. As traffic volumes increase and no change in roadway capacity occurs, travel times and delays for buses and other vehicles will increase.

High volumes of traffic traveling to, from, and within the transportation study area cause a significant amount of traffic congestion on area roadways in the existing condition. DVRPC analysis verifies this condition, as reported in AECOM's 2013 *Norristown High Speed Line Extension Existing Conditions and Future "No Build" Conditions Technical Memorandum*. Existing traffic volumes approach and in some locations exceed the capacity of area roadways. The roadways most affected are I-76, I-276, US Route 422, US Route 202, and PA Route 23. Other transportation study area roadways, such as Gulph Road, Henderson Road and First Avenue, also experience congestion, particularly in peak travel periods. By 2040, forecasted growth in traffic volumes will cause area roadways to be more congested, with increased delays over more and longer roadway segments.

Traffic trying to avoid these most affected roadways creates congestion problems on other roads, such as Croton and King of Prussia roads, Henderson and Church roads, or within VFNHP. When crashes or incidents occur or traffic is rerouted for other reasons, many other

roads and intersections in the transportation study area bear the burden of significant congestion problems.

1.3 Project History

Deficiencies in transit service to, from, and within the transportation study area have been identified in various forms for more than 20 years in regional transportation studies and in Upper Merion Township's adopted 2005 *Land Use Plan*. As early as 1996, SEPTA and its partners in the region explored potential solutions reported in the 1998 *Norristown High Speed Line (Route 100) Extension Feasibility Study*, followed by the 2003 *Norristown High Speed Line (Route 100) Extension Draft Alternatives Analysis*. These studies examined the potential extension of NHSL rail transit service to the transportation study area. Concurrently, the 2001 *Schuylkill Valley Metro Major Investment Study/Draft Environmental Impact Statement* and 2003 *Cross County Metro Alternatives Analysis/Draft Environmental Impact Statement* were undertaken, which among other findings, pointed to the need for transit improvements to better serve the transportation study area.

Based on SEPTA's 2003 *Norristown High Speed Line (Route 100) Extension Draft Alternatives Analysis*, SEPTA decided to pursue Alternative A1, which will extend NHSL service to the transportation study area using part of the two Norfolk Southern corridors in the area, making stops at King of Prussia Road, the King of Prussia Mall, the Moore Park KOP and the vicinity of PA Route 23 near Mancill Mill Road, (near VFNHP). However, SEPTA did not adopt Alternative A1 as the LPA. At that time, SEPTA's focus was on applying its limited capital funds to maintenance and repair of its existing infrastructure rather than on investment in expansion projects. This decision resulted in the extension of the NHSL being included as an unfunded project in the original DVRPC *Connections 2040 Plan*. However, with the passage of Pennsylvania's Act 89 legislation and a doubling of SEPTA's capital budget, the *Connections 2040 Plan* was amended in 2013 to show the Project as a funded project, and the Project continues to be shown as a funded project in DVRPC's current long range plan, *Connections 2045*.

In 2012, prior to the initiation of the NEPA process, SEPTA began evaluating the potential to extend NHSL rail transit service to the King of Prussia/Valley Forge area. This planning work included developing the Project purpose and need, and evaluating a list of alternatives, which included alternatives from SEPTA's 2003 *Norristown High Speed Line (Route 100) Extension Draft Alternatives Analysis*, new concepts SEPTA developed, and ideas identified through agency, stakeholder, and public outreach activities. The Project purpose and need focuses on rail service, not a bus mode, because SEPTA provides six different bus routes to the King Prussia/Valley Forge area, including express bus service from Center City Philadelphia. As described in Sections 1.2.5 and 3.1, extensive existing roadway congestion makes additional bus service not a feasible solution.

The Project need has three components:

- (1) the need for faster, more reliable public transit service;
- (2) the need for better transit connections to and within the transportation study area; and
- (3) the need for transit service to better serve existing patrons and accommodate new patrons.

The list of 30 alternatives was then screened through a three-tiered evaluation process consisting of progressively more detailed levels of scrutiny. Tier 1 screening (October 2012 – January 2014) eliminated alternatives that did not achieve the Project purpose and need or would not be reasonable to build, operate or maintain. Tier 2 (February 2014 – December 2014) examined the surviving alternatives for engineering/right-of-way needs, markets to be served, system connectivity, support for transit-oriented development, and community and environmental impacts. As a result of Tier 2 analysis, all but the five Action Alternatives that were considered in the DEIS were eliminated; the alternatives that were eliminated did not perform as well as the five alternatives that were retained in terms of the engineering, transportation, and natural and built environment factors applied during Tier 2. More discussion of NEPA initiation and screening activities for the Project is provided in Section 2.1.

On June 27, 2013, FTA and SEPTA initiated the NEPA process for the Project with a Notice of Intent (NOI) in the Federal Register (Volume 78, No. 124, Page 38796, June 27, 2013). Tier 3 analysis (January 2015 – December 2017) was conducted as part of the DEIS process, and included a detailed analysis of the five Action Alternatives, along with the No Action Alternative. Tier 3 identified the potential benefits and impacts of each of the five Action Alternatives on the transportation, natural and human environments. SEPTA refined the Action Alternatives based on input received from the public, agencies, and other stakeholders.

After considering not only the Tier 3 screening process results, but also the input received from agencies, stakeholders and the public (FEIS Chapter 5), SEPTA identified a recommended Locally Preferred Alternative (LPA) as the environmentally preferable alternative in the DEIS. Compared to the other DEIS alternatives, the recommended LPA was identified as best meeting the purpose and need while avoiding or minimizing impacts and being responsive to agency, stakeholder, and public concerns. SEPTA also identified and evaluated two design options for the recommended LPA: the PA Turnpike North/South Option and the 9/11 Memorial Avoidance Option. Each of the recommended LPA design options would modify a portion of the recommended LPA; the remainder of the recommended LPA would be unchanged. Either or both design options could be applied to the recommended LPA as a minimization strategy.

The DEIS was published by FTA on October 17, 2017. A public comment period following publication of the DEIS provided an opportunity for interested parties to review the DEIS and provide comments. Following the close of the comment period on December 4, 2017, FTA and SEPTA reviewed comments received during the DEIS public comment period. On January 25, 2018, SEPTA adopted the recommended LPA as its Preferred Alternative; the recommended LPA was adopted as presented in the 2017 DEIS and also referred to as the PECO/TP-1st Ave. Action Alternative with the PA Turnpike North/South Option. SEPTA's LPA resolution acknowledges the DEIS findings, noting that an extension of the NHSL to King of Prussia will provide benefits to the region, including providing travelers with a rail transit alternative to congested roadway travel, attracting new transit riders, supporting economic development opportunities, and meeting regional sustainability and livability goals. Among the DEIS alternatives, the recommended LPA was determined to best address the Project purpose and need; it was determined to best achieve the most important factors for broad acceptance by key stakeholders and political leaders; and it was determined to perform as well as or better than the

other Action Alternatives in each of the most important natural and built environment factors, except wooded areas and potential threatened and endangered species habitat impacts.

Following the DEIS public comment period and SEPTA's adoption of the recommended LPA as the Preferred Alternative, FTA and SEPTA evaluated the Preferred Alternative at a higher level of planning and engineering pursuant to 23 U.S.C. § 139(f)(4)(D) to provide improved operations and fewer impacts. SEPTA's activities in this evaluation included:

- Responding to substantive comments made during the DEIS comment period (related to access and connections; development potential around stations; avoiding or minimizing impacts to traffic, noise, vibration, visual and property; and Project costs);
- Updating supporting information, including but not limited to: ridership projections, bus and shuttle routes, land use data, traffic analysis, Project operation plan, and Project costs;
- Committing to specific minimization and mitigation measures; and,
- Developing and evaluating construction and operation designs to 15 percent.

The FEIS evaluates the Preferred Alternative, as well as the No Action Alternative, and demonstrates why the PECO/TP-1st Ave. Action Alternative with the PA Turnpike North/South Option remains the Preferred Alternative. The other Action Alternatives in the DEIS remain unchanged and are hereby incorporated by reference into this FEIS. The other Action Alternatives are: PECO-1st Ave., PECO/TP-N. Gulph, US 202-1st Ave., US 202-N. Gulph, and the 9/11 Memorial Avoidance Option for the recommended LPA.

1.4 Need for the Project

As shown in the description of the transportation study area in Section 1.2, the market exists for expanding transit service to, from, and within the transportation study area. This market currently is not served well due to capacity and roadway congestion conditions in the existing transportation infrastructure. Specifically, the need for expanded transit service has three components: (1) faster, more reliable public transit service; (2) better transit connections to and within the transportation study area; and (3) transit service to better serve existing patrons and accommodate new patrons.

1.4.1 Need for Faster, More Reliable Public Transit Service to the King of Prussia/Valley Forge Area

Existing bus and complementary "last mile" shuttle bus services are the only transit options for access to key and other transportation study area destinations. Bus riders are subject to the same roadway congestion delays as motorists, as buses share roadway travel lanes with general traffic. As **Table 1.2-2** indicates, existing travel speed survey data show bus routes 123, 124, and 125 have low average vehicular speeds during peak periods. Slow travel speeds result in on-time performance rates for the six bus routes of 60 percent to 81 percent depending on the route. Routes 124 and 125, which use I-76, have the poorest average on-time performance rates of 64 percent and 60 percent, respectively.

The developed character of land use and challenging physical geography alongside I-76 provide little opportunity to increase and assure more roadway capacity or provide a dedicated, parallel transit corridor. It is for these reasons that Pennsylvania Department of Transportation (PennDOT) has no currently programmed investments to widen I-76. However, PennDOT has initiated the “Transform 76” Integrated Corridor Management Plan for I-76. This program is seeking to design and implement various “smart corridor” technologies to improve roadway operations, but such improvements can be expected to generate limited travel time savings. Thus, another transit solution is needed to overcome these deficiencies.

Travel times on existing bus routes vary depending on roadway traffic conditions, driver schedules, weather and other factors. As a result, bus travel times are unreliable. The inability of some SEPTA bus routes to achieve SEPTA’s on-time performance standard and the occurrence of slow peak period travel speeds cause travel time by bus to be lengthy and unreliable. Expected future growth in roadway volumes, described in Section 1.2.8, will increase roadway congestion, causing longer and more unreliable bus travel times. As a result, there is a need for a faster, more reliable, public transit service, one with travel times that are competitive with travel times by personal automobile.

SEPTA annually reviews its service plan and makes service adjustments to optimize, or rationalize, its transit services serving the transportation study area in terms of service frequency, destinations served and connections between bus and NHSL modes. Rationalization means that SEPTA provides the number of buses, scheduled bus trips and stops necessary to efficiently meet transit demand given the characteristics of the existing roadway network and its operating capabilities.

Despite SEPTA’s rationalization of its transit systems, the inability of many SEPTA bus routes serving the area to achieve SEPTA’s on-time performance standard and the occurrence of slow peak period travel speeds, particularly along I-76, results in lengthy and unreliable travel times by bus. It is infeasible to overcome the problems SEPTA’s bus transit service experiences by only considering the bus mode. Another transit solution is needed to address these deficiencies.

1.4.2 Need for Improved Transit Connections to and within the King of Prussia/Valley Forge Area

As described in Section 1.2.5, some bus routes only serve the King of Prussia Mall, while other bus routes serve other destinations. As a result, a rider may have to transfer to another bus route to access some destinations or to travel between key or other destinations. Because of the inconvenience of longer travel times and transfers, the bus is a less desirable and less competitive travel mode to driving.

Second, existing NHSL riders from communities along the NHSL, from Norristown, and from Upper Darby must transfer to bus service to reach transportation study area destinations (Section 1.2.5). In making this transfer, additional travel time is required to connect to key destinations that are only a few miles from the existing NHSL line. For NHSL riders from Philadelphia traveling to key destinations within the transportation study area, this is the second transfer to a third transit service to make the trip (SEPTA’s Market-Frankford Line, the NHSL

and then bus). Each transfer adds to a rider's overall travel time and reduces the convenience of transit travel.

For these reasons and with growing travel demand to key and other transportation study area destinations, there is a need for transit services to connect to these destinations in a manner that is more convenient and time-competitive with personal automobile travel and reduces the need for transfers among transit modes to reach transportation study area destinations.

1.4.3 Need to Better Serve Existing Transit Patrons and Accommodate New Patrons

Ridership on SEPTA's six transportation study area bus routes has increased over the past two years (SEPTA, 2019 Route Statistics). Recent and forecasted growth and development, the recent mixed-use re-zoning of Moore Park KOP in anticipation of future redevelopment, increased retail opportunities and new residential development at the Village at Valley Forge will place more demands on the transportation system. With six bus routes and an increasingly congested roadway network, the market for improved transit service as an alternative to travel by personal automobile to, from, and within the transportation study area will continue to grow.

Bus service capacity is a function of vehicle size and the number of possible daily and peak hour trips. As described in Section 1.4.1, SEPTA has already rationalized its transit network serving the existing transportation study area demand in terms of service frequency, destinations served and connections between bus and NHSL modes.

Adding buses to the transit system serving the transportation study area to meet future demand is not a viable solution as it is not possible to overcome the roadway congestion problem. Thus, there is a need for another solution that will both increase transit service capacity and enhance service quality to better serve existing transit patrons and to accommodate new transit riders traveling to, from, and within the transportation study area.

Chapter 2 Alternatives Considered

This chapter describes the alternatives considered in the King of Prussia Rail Extension Project (Project), summarizes the planning process used to identify, develop and compare alternatives, describes the identification of the recommended Locally Preferred Alternative (LPA) and refinements made to it after the Draft Environmental Impact Statement (DEIS).¹ This chapter describes SEPTA's Preferred Alternative, which is the recommended LPA that SEPTA developed to a 15 percent level of design refinement. Finally, this chapter summarizes the evaluation of the Final Environmental Impact Statement (FEIS) alternatives. This chapter is organized by the following sections:

- Section 2.1 Summary of the Planning and DEIS Processes;
- Section 2.2 Refinements to the Recommended LPA After the DEIS;
- Section 2.3 Alternatives Considered in the FEIS; and
- Section 2.4 Evaluation of the FEIS Alternatives.

2.1 Summary of the Planning and DEIS Processes

In 2012, prior to the initiation of the NEPA process, SEPTA began evaluating the potential to extend NHSL rail transit service to the King of Prussia/Valley Forge area. This planning work included developing the Project purpose and need, and evaluating a list of alternatives, which included alternatives from SEPTA's 2003 *Norristown High Speed Line (Route 100) Extension Draft Alternatives Analysis*, new concepts SEPTA developed, and ideas identified through agency, stakeholder, and public outreach activities. The Project purpose and need focuses on rail service, not a bus mode, because SEPTA provides six different bus routes to the King of Prussia/Valley Forge area, including express bus service from Center City Philadelphia. As described in Sections 1.2.5 and 3.1, extensive existing roadway congestion makes additional bus service not a feasible solution.

The list of 30 alternatives was then screened through a three-tiered evaluation process consisting of progressively more detailed levels of scrutiny. Tier 1 screening (October 2012 – January 2014) eliminated alternatives that did not achieve the Project purpose and need or would not be reasonable to build, operate or maintain. Tier 2 (February 2014 – December 2014) examined the surviving alternatives for engineering/right-of-way needs, markets to be served, system connectivity, support for transit-oriented development, and community and environmental impacts. As a result of Tier 2 analysis, all but the five Action Alternatives that were considered in the DEIS were eliminated; the alternatives that were eliminated did not perform as well as the five alternatives that were retained in terms of the engineering, transportation, and natural and built environment factors applied during Tier 2.

On June 27, 2013, the Federal Transit Administration (FTA) and SEPTA formally initiated the National Environmental Protection Administration (NEPA) process for the Project with a Notice

¹ FTA and SEPTA, 2017. *King of Prussia Rail Extension Draft Environmental Impact Statement*.

of Intent (NOI) in the Federal Register. Tier 3 analysis (January 2015 – December 2017) was conducted as part of the DEIS process, and included a detailed analysis of the five Action Alternatives, along with the No Action Alternative. Tier 3 identified the potential benefits and impacts of each of the five Action Alternatives on the transportation, natural and human environments. SEPTA refined the Action Alternatives based on input received from the public, agencies, and other stakeholders.

After considering not only the Tier 3 screening process results, but also the input received from agencies, stakeholders and the public (FEIS Chapter 5), SEPTA identified a recommended locally preferred alternative (LPA) as the environmentally preferable alternative in the DEIS . Compared to the other DEIS alternatives, the recommended LPA was identified as best meeting the purpose and need while avoiding or minimizing impacts and being responsive to agency, stakeholder, and public concerns. SEPTA also identified and evaluated two design options for the recommended LPA: the PA Turnpike North/South Option and the 9/11 Memorial Avoidance Option. Each of the recommended LPA design options would modify a portion of the recommended LPA; the remainder of the recommended LPA would be unchanged. Either or both design options could be applied to the recommended LPA as a minimization strategy.

The DEIS was published in the Federal Register on October 17, 2017. A public comment period following publication of the DEIS provided an opportunity for interested parties to review the DEIS and provide comments. Following the close of the comment period on December 4, 2017, FTA and SEPTA reviewed comments received during the DEIS public comment period. On January 25, 2018, SEPTA adopted the recommended LPA as its Preferred Alternative; the recommended LPA was adopted as presented in the 2017 DEIS as the PECO/TP-1st Ave. Action Alternative with the PA Turnpike North/South Option. **Figure 2.1-1** shows the recommended LPA, and **Figure 2.1-2** shows the PA Turnpike North/South option.

SEPTA's LPA resolution acknowledges the DEIS findings, noting that an extension of the NHSL to King of Prussia will provide benefits to the region, including providing travelers with a rail transit alternative to congested roadway travel, attracting new transit riders, supporting economic development opportunities, and meeting regional sustainability and livability goals. Among the DEIS alternatives, the recommended LPA was determined to best address the Project purpose and need; it was determined to best achieve the most important factors for broad acceptance by key stakeholders and political leaders; and it was determined to perform as well as or better than the other Action Alternatives in each of the most important natural and built environment factors, except wooded areas and potential threatened and endangered species habitat impacts (DEIS, Chapter 8).

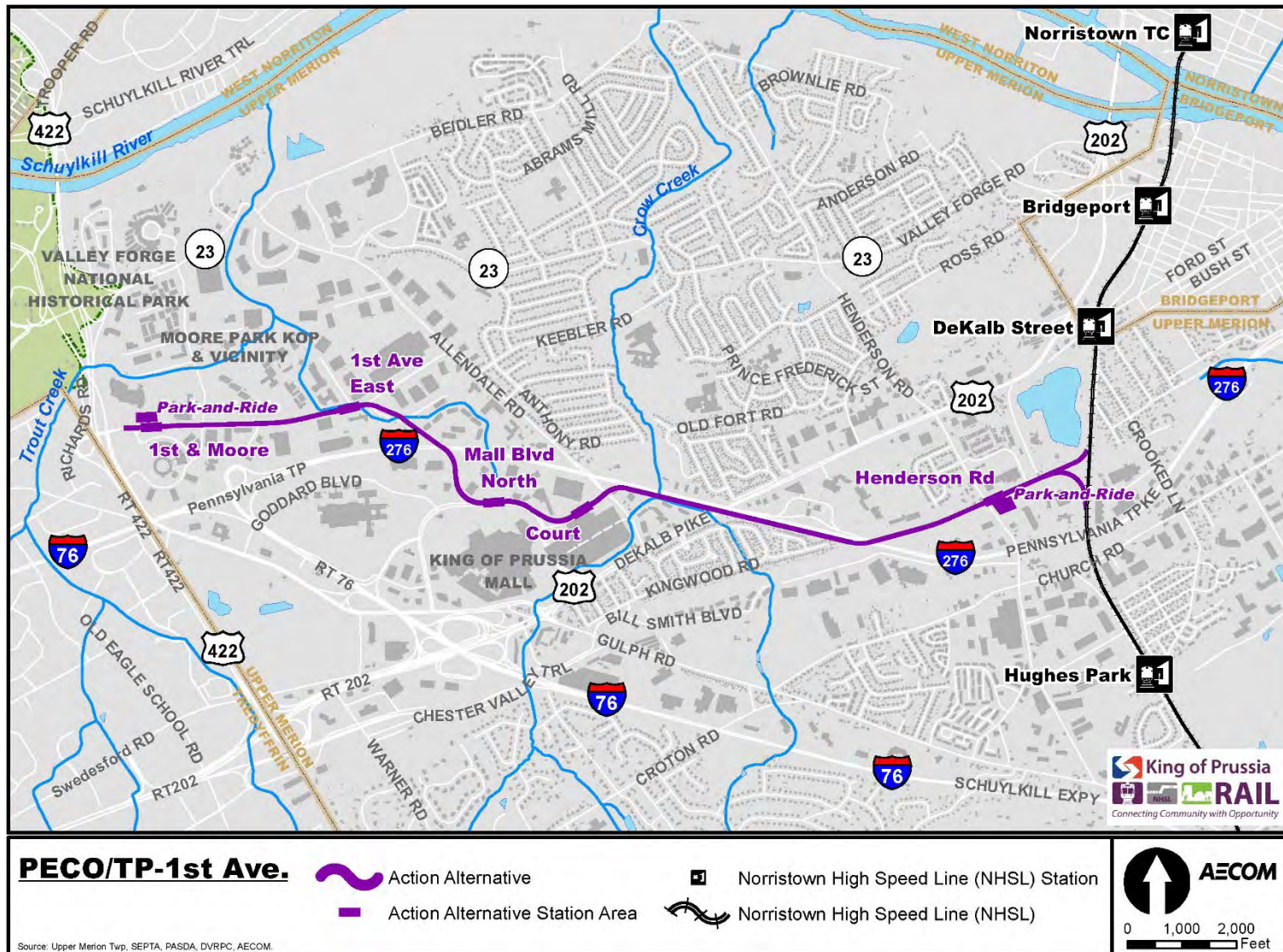
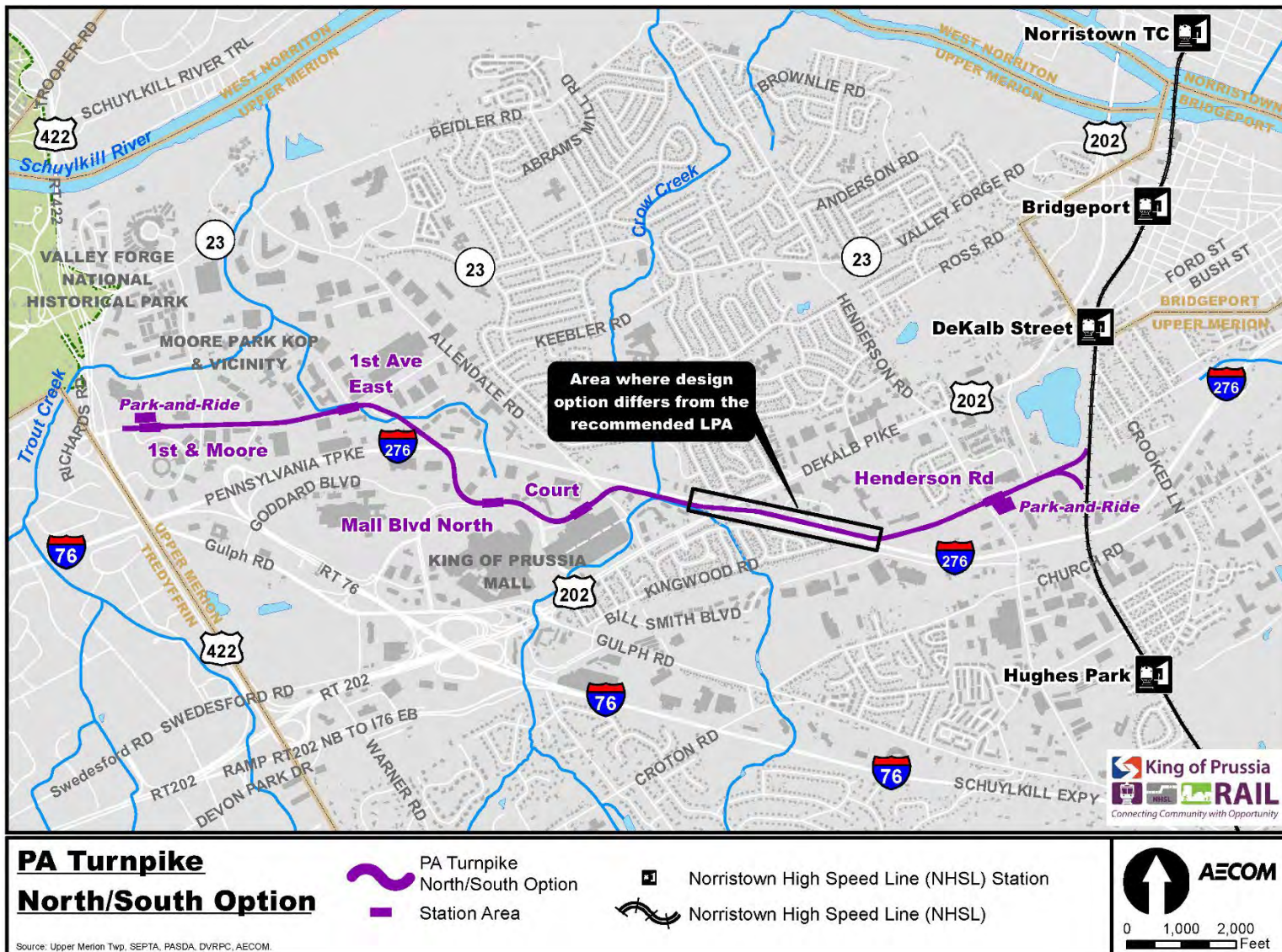
Figure 2.1-1: Recommended LPA (PECO/TP-1st Ave.)

Figure 2.1-2: PA Turnpike North/South Option



Source: AECOM 2017

2.2 Refinements to the Recommended LPA After the DEIS

Following the DEIS public comment period and SEPTA's adoption of the recommended LPA as the Preferred Alternative, FTA and SEPTA evaluated the Preferred Alternative at a higher level of planning and engineering. SEPTA's activities in this evaluation included:

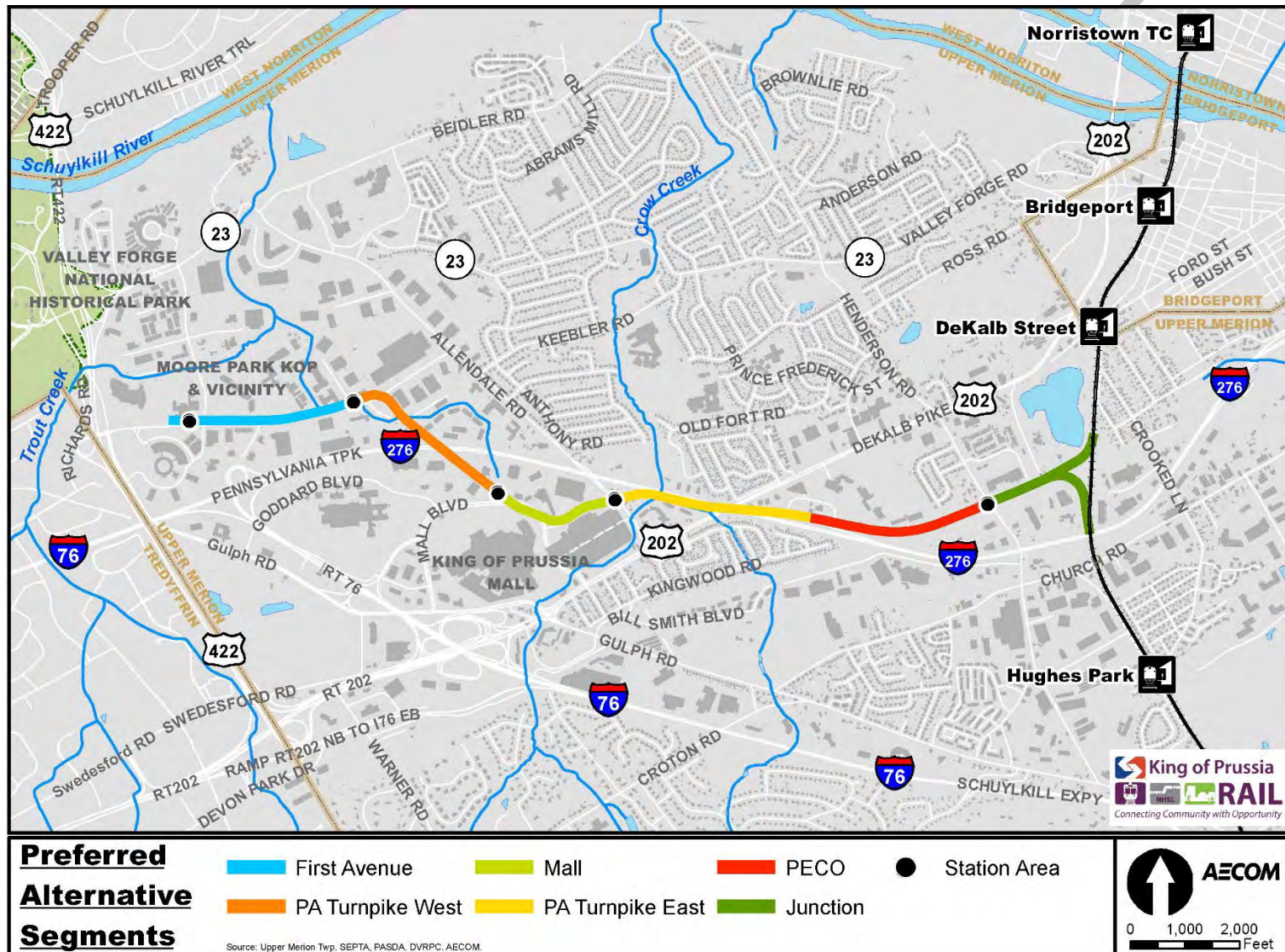
- Responding to substantive comments made during the DEIS comment period (related to access and connections; development potential around stations; avoiding or minimizing impacts to traffic, noise, vibration, visual and property; and Project costs);
- Updating supporting information, including but not limited to: ridership projections, bus and shuttle routes, land use data, traffic analysis, Project operation plan, and Project costs;
- Committing to specific minimization and mitigation measures; and
- Developing and refining construction and operation designs to 15 percent.

These activities enabled SEPTA to refine the Preferred Alternative to provide improved operations and fewer impacts. The Preferred Alternative consists of 3.5 miles of new, double-track guideway from the existing NHSL to First Avenue. Along the guideway, five new stations are proposed: Henderson Road, Allendale Road, Mall Blvd, First & American and First & Moore. Also, as part of the Project, SEPTA will renovate the existing 69th Street Transportation Center to accommodate the new Project service. New, supporting facilities along the guideway will include park-and-ride facilities for 500 vehicles each at two locations (Henderson Road Station and First & Moore Station), three traction power substations, communications and signals equipment, and stormwater management facilities. The guideway is defined and described in this FEIS according to six geographic segments (**Figure 2.2-1**):

- Junction: NHSL to Henderson Road Station
- PECO: Henderson Road Station to PA Turnpike Service Plaza
- PA Turnpike East: PA Turnpike Service Plaza to Allendale Road Station
- Mall: Allendale Road Station to Mall Blvd Station
- PA Turnpike West: Mall Blvd Station to First & American Station
- First Avenue: First & American Station to First & Moore Station

Detailed descriptions of these Preferred Alternative elements are provided in Section 2.3.2. More detail regarding these refinements is provided in Section 2.3.2 and **Table 2.3-2** of this FEIS; the effects of the Preferred Alternative are discussed in subsequent chapters of the FEIS.

Figure 2.2-1: Preferred Alternative Guideway Segments



Source: AECOM 2020

2.3 Alternatives Considered

In 2012 prior to initiating the NEPA process, SEPTA developed the Project purpose and need, and began an alternatives development and screening process along with a public and agency outreach program. DEIS Chapter 2 provides more detail regarding the alternative's development and screening process. Of the thirty initial alternatives that were examined during that process, eighteen did not achieve the Project purpose and need or were not reasonable to build, operate, and maintain; these alternatives were eliminated from further consideration.

The twelve alternatives SEPTA retained for further study, plus four additional, at-grade alternatives that were identified and added in response to public input received during scoping, were studied in more detail. In further study, the alternatives that shared significant portions of the same alignment were grouped. The grouped alternatives were evaluated to comparatively assess engineering/right-of-way needs, markets served, system connectivity, support for transit-oriented development, and community and environmental impacts. Using this approach, SEPTA identified five alternatives that best represented the groups of alignments using the assessment factors. Eleven alternatives were eliminated from further consideration.

The five Action Alternatives from the alternatives development and screening process were evaluated in the DEIS as Action Alternatives. Each Action Alternative would extend NHSL rail service to King of Prussia for a distance of approximately 3.5 miles to the area of the Valley Forge Casino Resort (VFCR). Each Action Alternative had a dedicated, elevated guideway, and five or six proposed stations, two of which would have park-and-ride facilities. Each Action Alternative had at least one station at the King of Prussia Mall. The Action Alternatives differ in portions of alignment and station locations. In addition, the DEIS evaluated two design options and the No Action Alternative. As required by 40 CFR § 1502.14(d), SEPTA identified a recommended locally preferred alternative (LPA) in the DEIS; the recommended LPA is the PECO/TP-1st Ave. Action Alternative with a design option known as the PA Turnpike North/South Option. SEPTA identified PECO/TP-1st Ave. with the PA Turnpike North/South Option as the recommended LPA and the environmentally preferable alternative in the DEIS because, compared to the other Action Alternatives and the No Action Alternative, it best achieved the Project purpose and need; it best achieved against the most important evaluation factors for broad acceptance by key stakeholders and political leaders and it would avoid or minimize impacts on the natural and built environment. Each alternative and design option is described below:

- **PECO-1st Ave:** The PECO-1st Ave. Action Alternative would use a portion of the PECO electric utility corridor, passing in front of (to the south of) the King of Prussia Mall, turning north to cross over the PA Turnpike before turning west along First Avenue and ending near the intersection of First Avenue and N. Gulph Road near the VFCR.
- **PECO/TP-1st Ave:** SEPTA identified the PECO/TP-1st Ave. Action Alternatives as the recommended LPA in the DEIS. The PECO/TP-1st Ave. Action Alternative would use portions of the PECO electric utility corridor and PA Turnpike, passing behind (to the north of) the King of Prussia Mall, turning north on a portion of the former industrial track right-of-way before turning west along First Avenue and ending near the intersection of First Avenue and N. Gulph Road near the VFCR.

- PA Turnpike North/South Option: SEPTA identified the PA Turnpike North/South Option as part of the recommended LPA in the DEIS. As the recommended LPA alignment approaches the PA Turnpike crossing, the transition to the PA Turnpike North/South Option would begin. The guideway support would change from at-grade to a single concrete column structure to carry the guideway along the north side of the PA Turnpike. West of the US Route 202 overpass, the elevated guideway would cross over the PA Turnpike to the south side, resuming the recommended LPA alignment within the PA Turnpike ROW Alternative.
- 9/11 Memorial Avoidance Option: The 9/11 Memorial Avoidance Option would cross the King of Prussia Volunteer Fire Company property east of the 9/11 Memorial and cross Allendale Road, heading west toward the King of Prussia Mall. Just east of proposed Court Station, the 9/11 Memorial Avoidance Option would end, and the recommended LPA alignment would resume.
- PECO/TP-N. Gulph: The PECO/TP – N. Gulph Action Alternative would use portions of the PECO electric utility corridor and PA Turnpike as its Trunk, passing behind (to the north of) the King of Prussia Mall, turning south to connect to N. Gulph Road before turning west along N. Gulph Road and ending near the intersection of First Avenue and N. Gulph Road near the Convention Center.
- US 202-1st Ave.: The US 202-1st Ave. Action Alternative would use portions of the US Route 202 corridor and the PA Turnpike right-of-way as its Trunk, passing behind (to the north of) the King of Prussia Mall, turning north to use a small portion of the NS Railroad Industrial Track before turning west along First Avenue and ending near the intersection of First Avenue and N. Gulph Road near the VFCR.
- US 202-N. Gulph: The US 202-N. Gulph Action Alternative would use portions of the US Route 202 corridor and PA Turnpike right-of-way as its Trunk, passing behind (to the north of) the King of Prussia Mall, turning south to connect to N. Gulph Road before turning west along N. Gulph Road and ending near the intersection of First Avenue and N. Gulph Road near the VFCR.
- No Action Alternative: The No Action Alternative is the 2040 condition without the Project; it assumes the other major regional committed projects will occur. The No Action Alternative serves as a baseline for comparing the Action Alternatives. In addition to the major regional committed projects, the No Action Alternative consists of roadway and transit networks, transit service levels, traffic volumes, and forecasted demographics for the horizon year 2040.

FTA published the DEIS on October 17, 2017. A public comment period following publication of the DEIS provided an opportunity for interested parties to review the DEIS and provide comments. Following the close of the comment period on December 4, 2017, FTA and SEPTA considered the findings of the DEIS and the comments received during the DEIS public comment period. On January 25, 2018, SEPTA adopted the recommended LPA (the PECO/TP-1st Ave. Action Alternative with the PA Turnpike North/South Option) as the Preferred Alternative. The FEIS evaluates the Preferred Alternative as well as the No Action Alternative. During the FEIS, SEPTA evaluated the Preferred Alternative at a higher level of planning and

engineering and refined the Preferred Alternative to provide improved operations and fewer impacts.

The Preferred Alternative and the No Action Alternative are described in the following sections.

2.3.1 No Action Alternative

The No Action Alternative is the 2040 condition without the Project; it assumes the other major regional committed projects will occur. The No Action Alternative serves as a baseline for comparing the Preferred Alternative. The No Action Alternative in the FEIS is the same in principle as the No Action Alternative considered in the DEIS.

The major regional committed projects consist primarily of planned capacity and operational improvements to regional and local study area roadways, particularly US Route 422 and the PA Turnpike (see **Table 2.3-1**). All but one roadway project operates at the periphery of the transportation study area. Though not a major regional project, Montgomery County's Chester Valley Trail Extension is also within the transportation study area. In addition to the major regional committed projects, the No Action Alternative consists of roadway and transit networks, transit service levels, traffic volumes, and forecasted demographics for the horizon year 2040. With the exceptions of the NHSL Bridgeport Viaduct and NHSL Transit System Preservation projects, SEPTA has no control over the scope, timing, implementation or effects of the listed committed projects.

Table 2.3-1: Transportation Study Area Major Regional Committed (Funded) Projects by 2040

Project	Type	Description
I-276 and Lafayette Street / Ridge Avenue	Roadway	New interchange for Norristown
Henderson Road, Roadway System Expansion	Roadway	Widen Henderson Road from South Gulph Road to Shoemaker; Widen South Gulph Road from Crooked Lane to I-76 Gulph Mills intersection
I-76 PA Turnpike	Roadway	Reconstruct and widen the Turnpike from Morgantown, Berks County to Valley Forge
Traffic Management Center, Roadway Operational Improvement	Roadway	New regional traffic management center at PennDOT District 6 Headquarters
US 422 Bridge and PA 23 Interchange (River Crossing), Roadway System Expansion	Roadway	Bridge replacement and new bridge over Schuylkill River - existing bridge is 5 lanes, new bridge will have 6 lanes; Intersection/interchange improvements at US 422 and PA 23 Interchange
PA 23 and Trout Creek Road, Roadway System Expansion	Roadway	Replace weight restricted bridge on a new alignment; realign roadway between Moore Road and Vandenberg Road providing two westbound lanes and one eastbound lane

Project	Type	Description
I-76 Integrated Corridor Management, Roadway System Expansion	Roadway	Variable speed limits, queue detection, dynamic lane assignments, junction control improvements, adaptive ramp metering, continuous monitoring systems, responsive traffic control, coordination with SEPTA, biking enhancements, and full safety analysis
Lafayette Street, Roadway System Expansion	Roadway	Extend roadway from Barbados Street to Diamond Avenue
NHSL Bridgeport Viaduct, Transit System Preservation	Transit	Rehabilitate Bridgeport Viaduct over Schuylkill River and Bridge 0.15 over 69th Street yard tracks on existing line
NHSL, Transit System Preservation	Transit	Tie Replacement and Continuous Welded Rail on existing line

Source: DVRPC, Connections 2045 Plan for Greater Philadelphia, access July 28, 2020 via Amended Major Regional Projects.

2.3.2 Preferred Alternative

After adopting the recommended LPA as the Preferred Alternative on January 25, 2018, SEPTA refined the design of the Preferred Alternative to improve safety and operations, reduce Project cost, address public and agency comments to the DEIS, and reduce or eliminate impacts to the natural and human environment. The design refinements did not change the general route of the proposed guideway or the general locations of proposed stations. **Table 2.3-2** summarizes the key design refinements. The design refinements generally reduce the impacts of the Preferred Alternative compared to recommended LPA (the PECO/TP 1st Ave. Action Alternative with the PA Turnpike North/South Option) that were identified in the DEIS.

The Preferred Alternative is the 2040 condition with the Project; it assumes the other major regional committed projects in the No Action Alternative will occur (Section 2.3.1). This section is organized according to the following Project elements:

- Section 2.3.2.1 Guideway
- Section 2.3.2.2 Stations and Park-and-Ride Facilities
- Section 2.3.2.3 69th Street Transportation Center
- Section 2.3.2.4 Support Facilities
- Section 2.3.2.5 Vehicles
- Section 2.3.2.6 Operating Plan
- Section 2.3.2.7 Bus and Shuttle Service Modifications
- Section 2.3.2.8 Relocation of Existing Facilities
- Section 2.3.2.9 Overview of Construction Plan

Table 2.3-2: Refinements to the Preferred Alternative

Project Element	Refinements	Reasons for Refinement
Junction Segment	<ul style="list-style-type: none"> Refined track geometry and connections to existing NHSL 	<ul style="list-style-type: none"> Improve rail operations and NHSL connections Provide traction power substation (TPSS) Provide stormwater management facility
Henderson Road Station	<ul style="list-style-type: none"> Station shift to straddle Henderson Road 	<ul style="list-style-type: none"> Reduce station height Improve pedestrian access from west Improve location in relation to proposed PA Turnpike ramp Reduce parking requirement to 500 spaces Provide bus service accommodation Provide stormwater management facility
PECO Segment	<ul style="list-style-type: none"> Refined track geometry 	<ul style="list-style-type: none"> Improve rail operations Minimize ROW needs from PECO Minimize impacts to developed properties outside PECO right-of-way
PA Turnpike East Segment	<ul style="list-style-type: none"> Refined track geometry and structure 	<ul style="list-style-type: none"> Improve rail operations Simplify structure Reduce impacts to PA Turnpike Service Area
Allendale Road Station	<ul style="list-style-type: none"> Station shift to straddle Allendale Road 	<ul style="list-style-type: none"> Eliminate station structure over Mall Boulevard Reduce Costco driveway impacts Improve passenger circulation Improve passenger access from the east Reduce traffic impacts during construction Reduce permanent impacts during Project operations Provide stormwater management facility Provide TPSS near station
Mall Segment	<ul style="list-style-type: none"> Improved guideway geometry 	<ul style="list-style-type: none"> Remove guideway along and over Wills and Mall Boulevards Eliminate three horizontal curves Improve rail operations Reduce property impacts Reduce traffic operation impacts on Wills and Mall Boulevards Increase distance between Mall stations Reduce potential noise and vibration
Mall Blvd Station	<ul style="list-style-type: none"> Station shift to between Atrium Building and Capital Grille 	<ul style="list-style-type: none"> Eliminate station structure over Mall Boulevard Reduce costs to construct and maintain Improve passenger circulation

Project Element	Refinements	Reasons for Refinement
		<ul style="list-style-type: none"> • Provide pedestrian crossing over Mall Boulevard • Improve station access to and from the north side of Mall Boulevard • Provide bus service accommodation
PA Turnpike West Segment	<ul style="list-style-type: none"> • Improved guideway geometry 	<ul style="list-style-type: none"> • Reduce height of structure over PA Turnpike • Reduce costs to construct and maintain • Enable interlocking for operational flexibility
First & American Station	<ul style="list-style-type: none"> • Station shift to north side of First Avenue 	<ul style="list-style-type: none"> • Eliminate structure along and over First Avenue • Reduce costs to construct and maintain • Reduce construction impacts to traffic on First Avenue
First Avenue Segment	<ul style="list-style-type: none"> • Guideway shift to north side of First Avenue 	<ul style="list-style-type: none"> • Improve track geometry and rail operations • Improve constructability • Reduce costs to construct and maintain • Eliminate structure along and over roadway • Reduce operational traffic impacts on First Avenue • Reduce construction impacts to traffic on First Avenue • Minimize impacts to Trout Creek
First & Moore Station	<ul style="list-style-type: none"> • Station shift to corner of First Avenue and Moore Road • Reduced structure for tail track 	<ul style="list-style-type: none"> • Eliminate structure along and over First Avenue • Reduce costs to construct and maintain • Eliminate traffic impacts on First Avenue • Reduce construction impacts to traffic on First Avenue • Accommodate potential PA Turnpike interchange ramp to First Avenue • Improve passenger circulation • Increase access to properties along Moore Road • Improve transit-oriented development (TOD) potential • Reduce parking requirement to 500 spaces • Provide bus service accommodation • Provide stormwater management facility • Provide TPSS near station
69 th Street Transportation Center	<ul style="list-style-type: none"> • Expand station concourse and Platform 4 access 	<ul style="list-style-type: none"> • Accommodate increase in passengers and rail service

Source: KOP Rail Basis of Design Report, 2019 and KOP Rail 15% Design Drawings, HNTB 2019

Sources of the information presented in this section are the following, which are available on the Project website (www.kingofprussiarail.com): *King of Prussia Rail Basis of Design Report, Volumes I and II*, prepared by HNTB; and *NHSL – King of Prussia Rail Extension 15% Design Submission*, prepared by HNTB.

2.3.2.1 Guideway

As described in Section 2.2, the Preferred Alternative guideway consists of six segments; a description of the alignment and characteristics of each segment is provided below. A quick guide to the guideway is presented in **Table 2.3-3**; and previously shown in **Figure 2.2-1**.

Table 2.3-4 presents key guideway design criteria.

Table 2.3-3: Quick Guide to the Guideway

Segment Name	Location	Key Features and Operations
Junction	Existing NHSL to planned Chester Valley Trail Extension	<ul style="list-style-type: none"> • Wye connection to NHSL • Wye elevated on fill or retained fill • Supporting Facilities: TPSS, stormwater management (SWM) • Max Operating speed: 15 mph
PECO	Planned Chester Valley Trail Extension to near 251 DeKalb apartments	<ul style="list-style-type: none"> • Guideway along north edge of PECO utility corridor • Guideway on elevated structure over Henderson Road (14' 9" vertical clearance at Henderson Road) and to the east • Guideway at grade or in cut west of Henderson Road (maximum 60-foot cut depth) • Elevated structure provides clear spans over Henderson Road and planned Chester Valley Trail Extension • Stations: Henderson Road Station elevated over Henderson Road • Supporting Facilities: SWM • Max Operating speed: 35 mph
PA Turnpike East	Near 251 DeKalb apartments east of Allendale Road	<ul style="list-style-type: none"> • Guideway along north side of PA Turnpike, then crossing over to south side of PA Turnpike • Guideway on retained fill between PECO and PA Turnpike Service Plaza • Guideway on elevated structure over ramps and SWM facilities at PA Turnpike Service Plaza • Guideway on elevated structure over US 202 and PA Turnpike crossing (with median pier): 16' 6" vertical clearance to US 202, 60 feet vertical clearance to PA Turnpike and Crow Creek • Stations: None • Supporting Facilities: radio tower, SWM • Max Operating speed: 45 to 55 mph
Mall	Allendale Road to Mall Blvd Station	<ul style="list-style-type: none"> • Guideway on elevated structure over Allendale Road, Wills Boulevard, Mall Boulevard and private driveways (14' 9" vertical clearance) • Stations: Allendale Road Station and Mall Blvd Station • Supporting Facilities: TPSS, SWM • Max Operating speeds: 30 mph

Segment Name	Location	Key Features and Operations
PA Turnpike West	West of Mall Blvd Station to First & American Station	<ul style="list-style-type: none"> • Guideway over PA Turnpike, American Avenue, Trout Creek, First Avenue and along north side of First Avenue • Guideway on elevated structure with vertical clearances: 16' 6" over PA Turnpike (with median pier), 14' 9" over American Avenue, First Avenue and private driveways • Stations: Mall Blvd Station and First & American Station • Supporting Facilities: Midline interlocking, signal huts, SWM • Max Operating speed: 40 to 50 mph
First Avenue	First & American Station to First & Moore Station	<ul style="list-style-type: none"> • Guideway along north side of First Avenue • Guideway on elevated structure with vertical clearances: 14' 9" over Clark Avenue, Moore Road and private driveways • Stations: First & American Station to First & Moore Station • Supporting Facilities: TPSS, signal huts, SWM • Operating speed: 15 to 50 mph

Notes:

mph = miles per hour

SWM = stormwater management facility

TPSS = traction power substation

Source: KOP Rail Basis of Design Report, 2019 and KOP Rail 15% Design Drawings, HNTB 2019

Table 2.3-4: Key Guideway Design & Operating Criteria

Key Guideway Design & Operating Criteria
<ul style="list-style-type: none"> • Track type: continuous welded rail • Maximum operating speed: 55 mph; Design speed: 70mph • Minimum track curve radius: 400 feet • Maximum track grade (general): 2.5% • Distance between track centers: 12 feet, 6 inches • All exclusive right-of-way: no public at-grade crossings • All grade-separated track: structured crossings over ten roadways and 25 driveways • Minimum vertical clearance over roadways: 14 feet 9 inches • Guideway pier locations: applied PennDOT's Clear Zone Criteria for safety; maximum 120-foot spacing between piers • Guideway and support structure materials: concrete and steel • PECO cut depth: maximum 60 feet with concrete retaining walls

Source: KOP Rail Basis of Design Report, HNTB 2019

- **Junction:** The guideway will turn off the existing NHSL corridor between the NHSL DeKalb Street and Hughes Park Stations, curving west to pass along the south side of the old quarry property to the point where it will cross over the planned Chester Valley Trail Extension (maps, Appendix A).

To enable the Project to serve the Norristown Transportation Center to the north and 69th Street Transportation Center to the south, two pairs of track connections with the existing NHSL are required, forming a Y-shaped connection. The southern track pair (from 69th

Street Transportation Center) will turn off the NHSL just north of the point where the NHSL crosses I-276. The northern track pair (from Norristown Transportation Center) will turn west off the NHSL south of the intersection of Glenwood Road and David Road. The two track pairs will curve to the west and merge into one track just east of the planned Chester Valley Trail Extension. The design of the Junction segment is guided by the following physical constraints and railroad operating condition requirements:

- Existing bridges over the NHSL south of the Junction: the Church Road bridge, the Norfolk Southern Trenton Cut-off bridge and the PA Turnpike bridge;
- The proximity of the Aqua Pennsylvania, Inc. property to the north and west;
- Existing transmission tower array in the PECO utility corridor (Section 2.3.2.8); and
- Railroad grade and geometry requirements.

Working within these constraints, SEPTA proposes to shift the portion of existing NHSL tracks in the Junction segment area approximately five feet to the west to accommodate the new tracks that will form the Project connection to the existing NHSL. To overcome differences between the elevation of the existing NHSL tracks and the elevation of the Project tracks, SEPTA will raise the elevation of the existing NHSL tracks in the Junction segment area approximately three feet between the Norfolk Southern Trenton Cut-off Bridge and a point approximately 500 feet north of the PA Turnpike bridge. The Project tracks in the Junction segment will be elevated on fill or retained fill east of the planned Chester Valley Trail Extension. Prior to crossing over the trail, the track support will transition from fill to an elevated guideway structure.

- **PECO:** The guideway will be along the northern edge of the PECO utility corridor. The guideway will span over the planned Chester Valley Trail Extension and over Henderson Road. The Henderson Road Station will occupy the elevated guideway over Henderson Road (Section 2.3.2.2). West of the station, the guideway will continue west along the northern edge of the PECO electric utility corridor. As the guideway approaches the PA Turnpike near the 251 DeKalb apartments, the guideway will curve northwest off the PECO corridor to run along the north side of the PA Turnpike (maps, Appendix A).

The design of the PECO segment is guided by physical constraints within and adjacent to the PECO utility corridor, including:

- The existing lattice transmission tower array (see Section 2.3.2.8);
- The planned Chester Valley Trail Extension crossing;
- The Henderson Road crossing;
- The 251 DeKalb apartment complex on a bluff to the north of the PECO corridor; and
- Substantial changes in terrain elevation along the PECO segment.

Working within these constraints and in coordination with PECO, SEPTA refined the guideway alignment to minimize use of land within the PECO right-of-way as well as additional right-of-way needs from other properties. SEPTA's design transitions the

guideway from an elevated structure at the Henderson Road crossing to below ground in a cut with retaining walls along the remaining length of the segment. The depth of the cut at its deepest point will be approximately 60 feet below the existing ground surface at the top of the hill near the 251 DeKalb apartments.

- **PA Turnpike East:** From the PECO segment, the guideway will continue west on the north side of the PA Turnpike, emerging from the cut and transitioning to elevated guideway as the terrain slopes down just east of the PA Turnpike Service Plaza. The PA Turnpike East segment follows the alignment of the DEIS PA Turnpike North/South Option on the north side of the PA Turnpike to the PA Turnpike Service Plaza. Beginning at the PA Turnpike Service Plaza, and continuing as a refinement to the DEIS PA Turnpike North/South Option, the guideway will be along the north side of the PA Turnpike, crossing over the service plaza ramps and drainage structures, before crossing over the PA Turnpike and US 202, and following along the south side of the PA Turnpike to just east of Allendale Road (maps, Appendix A). **Figure 2.3-1** and **Figure 2.3-2** are illustrative renderings of the PA Turnpike East segment crossing the PA Turnpike and US 202.

Figure 2.3-1: PA Turnpike East Rendering



Source: HNTB 2020

Figure 2.3-2: Preferred Alternative Crossing the PA Turnpike Rendering

Source: HNTB 2020

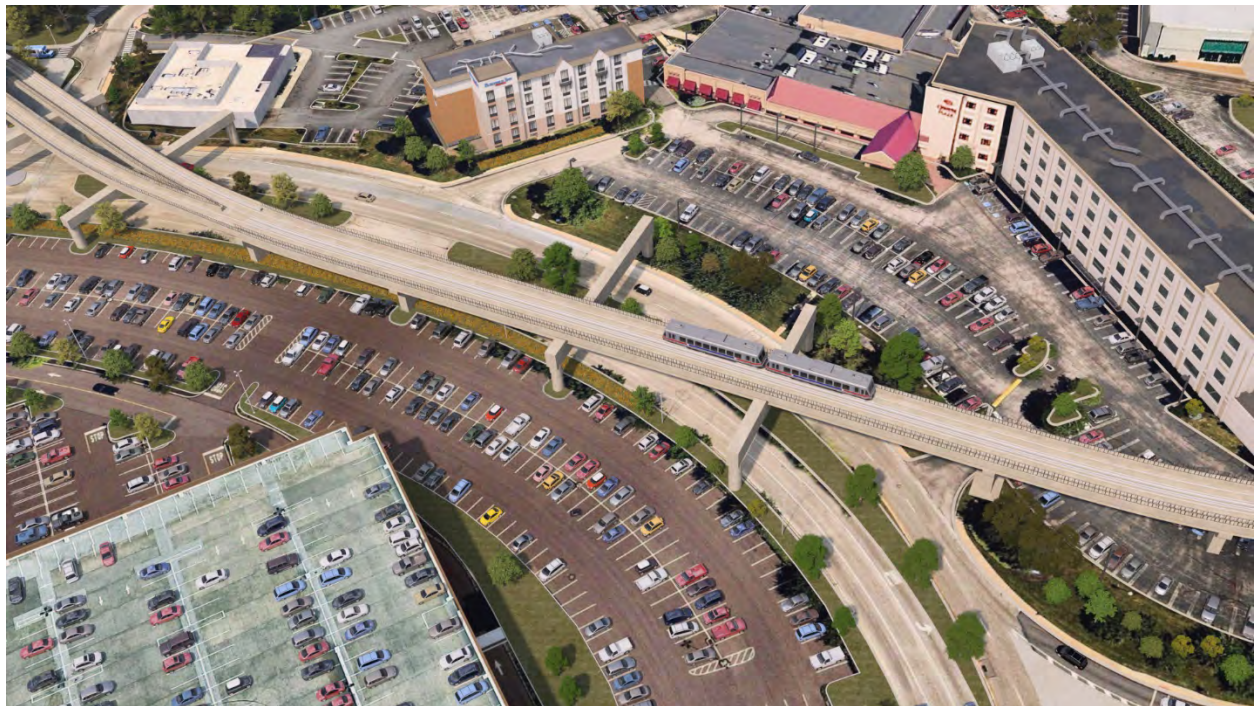
The design of the PA Turnpike East segment is guided by physical constraints, including US 202, the PA Turnpike, service plaza ramps and drainage basins, and Crow Creek, which parallels the south side of the PA Turnpike east of Allendale Road. In coordination with the PA Turnpike Commission and PennDOT, SEPTA refined the guideway alignment to accommodate these constraints by simplifying the guideway structure and aligning the guideway along but outside the PA Turnpike and creek. In particular, the guideway is refined to cross over the PA Turnpike and US 202 simultaneously. The height of the guideway will be approximately 60 feet above the PA Turnpike and 16 feet 6 inches over US 202 (**Figure 2.3-3**). Due to the length of the crossing, a straddle bent support will be required to support the guideway at the point where the centerlines of the guideway, the PA Turnpike, and US 202 cross. Thus, the guideway will span the travel lanes of each roadway.

Figure 2.3-3: PA Turnpike over US 202 (Dekalb Pike) Rendering

Source: HNTB 2020

After crossing back to the south side of the PA Turnpike, the guideway will be adjacent to but outside of the PA Turnpike shoulder, and outside Crow Creek.

- **Mall:** The elevated guideway will continue west from the PA Turnpike East segment, crossing the King of Prussia Volunteer Fire Company property and Allendale Road. The proposed Allendale Road Station will occupy the guideway at the Allendale Road crossing (Section 2.3.2.2). West of Allendale Road, the elevated guideway will cross to the north side of Wills Boulevard, parallel Wills Boulevard on the north side, then curve north before crossing over Mall Boulevard in two locations, before arriving at the proposed Mall Blvd Station between the Capital Grille (236 Mall Boulevard) and the Hyatt House Hotel (240 Mall Boulevard) (maps, Appendix A). **Figure 2.3-4** is an illustrative rendering of the Mall segment crossing Mall Boulevard.

Figure 2.3-4: Mall Segment Rendering

Source: HNTB 2020

The design of the Mall segment is guided by physical constraints: existing roadways; existing businesses along Wills and Mall Boulevards; plans by Simon to redevelop the surface parking lot along Mall Boulevard; and driveways, parking layouts and parking capacity requirements for each business. In coordination with the Mall and other business owners, SEPTA refined the guideway alignment after the DEIS to accommodate these constraints by shifting the guideway to the north side of Wills Boulevard, and aligning it through the Costco parking lot and a portion of the Crowne Plaza parking lot. SEPTA also refined the alignment to reduce the number of curves and provide a more direct route toward First Avenue, thereby improving operations and reducing Project costs.

- **PA Turnpike West:** The guideway will continue north from the Mall Blvd Station over the PA Turnpike, American Avenue and First Avenue where it will turn west along the north side of First Avenue to the First & American Station (maps, Appendix A). **Figure 2.3-5** is an illustrative rendering of the PA Turnpike West segment crossing the PA Turnpike.

Figure 2.3-5: PA Turnpike West Rendering

Source: HNTB 2020

The design of the PA Turnpike West segment is guided by physical constraints: existing businesses along American Avenue, existing roadways, driveways, parking layouts and parking capacity requirements for each business, and the existing PECO substation. In coordination with the PA Turnpike Commission, Upper Merion Township, and business owners, SEPTA refined the guideway alignment to accommodate these constraints by orienting the guideway along the eastern property line of the Hyatt Place Hotel (440 American Avenue) and the adjacent apartment building and office building complex. The guideway will continue north over American Avenue and follow the property line between Gatti-Morrison Construction Service (801 First Avenue East) and the adjacent PECO substation property.

North of the Mall Blvd Station, the height of the elevated guideway will increase to provide the vertical clearance required to cross the PA Turnpike. Between the PA Turnpike crossing and the First & American Station, the guideway will remain elevated, but will descend following the existing terrain.

- **First Avenue:** West of the First & American Station, the guideway will continue west along the north side of First Avenue, crossing Moore Road, to the western terminus at the proposed First & Moore Station, to be located at the northwest corner of First Avenue and Moore Road (See **Figure 2.3-6** and maps - Appendix A).

The design of the First Avenue segment is guided by physical constraints, including traffic operations, several roadways and business driveways, existing businesses, a planned greenway along the north side of First Avenue, Trout Creek and the PECO substation in the southeast corner of First and American Avenues. In coordination with Upper Merion

Township and business owners, SEPTA refined the guideway alignment to accommodate these constraints by shifting the guideway off the centerline of First Avenue, thereby eliminating roadway and traffic operational impacts associated with the DEIS recommended LPA alignment, which was over First Avenue. The guideway will be elevated, thereby maintaining access to existing private driveways, and will cross over Trout Creek, which is adjacent to the Metropolitan Business Center (860 First Avenue).

Figure 2.3-6: First Avenue Guideway Rendering



Source: HNTB 2020

2.3.2.2 Stations and Park-and-Ride Facilities

As described in Section 2.2, the Preferred Alternative will provide five new stations along the proposed guideway, with park-and-ride facilities at two of the stations. In addition, SEPTA will modify the existing 69th Street Transportation Center to accommodate the proposed Project.

New Stations

SEPTA developed concepts for the new stations with the goal of providing consistent function and appearance among the stations. To achieve this goal, the following standard station design elements were applied:

- **Appearance:** Building architecture, massing and materials will be consistent among the stations to identify stations as being part of the Project, enhance passenger experience and provide a sense of arrival.
- **Entrances:** Station entrances will be consistent with passenger circulation routes (pedestrian and bicycle, bus connections, drop-off/pick-up and park-and-ride). Where reasonably feasible, stations will be located over existing roadways to enable passenger

access from each side of the roadway. This configuration eliminates the need for at-grade pedestrian road crossings. Stations that will be adjacent to rather than over existing roadways will require an at-grade roadway crossing for station access from the opposite side of the roadway. Station entrances will be visible and identifiable; understandable wayfinding elements will be provided.

- **Vertical Circulation:** At each end of the platforms, vertical circulation elements consisting of elevators and stairs between street level and station platforms will provide passenger access and circulation directly to the platforms. Vertical circulation elements will be sized to accommodate forecasted ridership.

A typical station rendering can be found in **Figure 2.3-7**. A description of each station is provided below. A quick guide to the stations is presented in **Table 2.3-5**; and previously shown in **Figure 2.2-1** the station locations. **Table 2.3-6** presents key station design criteria.

Figure 2.3-7: Typical Station Rendering



Source: HNTB 2020

Table 2.3-5: Quick Guide to Stations

Station Name	Location	Key Features and Operations
Henderson Road (Park-and-ride)	Over Henderson Road, south of Saulin Boulevard (PECO segment)	<ul style="list-style-type: none"> • Station elevated over Henderson Road • Two tracks, one center platform • Access from both sides of Henderson Road to station by stairs and elevators • Dedicated drop-off/pick-up driveway off Saulin Boulevard

Station Name	Location	Key Features and Operations
		<ul style="list-style-type: none"> • Park-and-ride facility: 500 spaces in a four-level parking structure west of the Henderson Road/Saulin Boulevard intersection • Bus berths on each side of Henderson Road • Accommodates future PA Turnpike interchange improvements at Henderson Road and Saulin Boulevard
Allendale Road	East side of Allendale Road at Wills Boulevard (Mall segment)	<ul style="list-style-type: none"> • Station elevated over Allendale Road • Two tracks, one center platform • Access from both sides of Allendale Road to station by stairs and elevators • Pedestrian bridge connection to Mall • Sidewalk and crosswalk connections along Allendale Road • Dedicated drop-off/pick-up driveway from Allendale Road • No park-and-ride facility • No bus service accommodation
Mall Blvd	Northwest side of Mall Boulevard, north of Capital Grille Restaurant (Mall segment)	<ul style="list-style-type: none"> • Station elevated • Two tracks, one center platform • Access from both sides of Mall Boulevard by stairs and elevators • Pedestrian bridge connection to Mall across Mall Boulevard • Sidewalk and crosswalk connections along Mall Boulevard • Dedicated drop-off/pick-up driveway from Mall Boulevard • No park-and-ride facility • Bus berths (2), layby (parking) and bus operator room
First & American	Northwest corner, First Avenue and American Avenue (PA Turnpike West segment)	<ul style="list-style-type: none"> • Station elevated • Two tracks, one center platform • Access from both sides of Clark Avenue by stairs and elevators • Sidewalk and crosswalk connections along and across First Avenue • Dedicated drop-off/pick-up driveway from First Avenue • No park-and-ride facility • No bus service accommodation
First & Moore (Terminal Station with park-and-ride)	Northwest corner, First Avenue and Moore Road (First Avenue segment)	<ul style="list-style-type: none"> • Station elevated • Three tracks, two platforms: center and side • Access to both ends of station platform by stairs and elevators

Station Name	Location	Key Features and Operations
		<ul style="list-style-type: none"> • Park-and-ride facility: 500 spaces in a 4-level parking structure; access from First Avenue • Dedicated drop-off/pick-up area in parking structure • Bus berths (4) in parking structure • Pedestrian bridge between station and parking structure • Single track extension west of station for train storage: approximately 228 feet • Energy-absorbing bumpers at track termini
69 th Street Transportation Center	6901 Market Street, Upper Darby PA	<ul style="list-style-type: none"> • Existing station • Extend existing track to station • Reconstruct Platform 4 to be 17 feet wide • Extend lengths of Platforms 1 through 4 to for flexibility in Project service to station • Expand fare array on concourse • Expand access between concourse and Platform 4 • Remove existing stair to ground level • Relocate existing employee facilities within station to accommodate improvements • Add new emergency egress stair • Modify existing bus turnaround

Source: KOP Rail Basis of Design Report, 2019 and KOP 15% Design Drawings, HNTB 2019.

Table 2.3-6: Key Station Design Criteria

Key Station Design Criteria
<ul style="list-style-type: none"> • Drop-off/pick-up facilities: all stations • Park-and-ride facilities: First & Moore (structure), Henderson Road (structure) • Bus accommodation: First & Moore, Mall Blvd, Henderson Road • Stations over roadways: First & American, Allendale Road, Henderson Road • Pedestrian bridges at stations: First & Moore, Mall Blvd, Allendale Road • Platforms: <ul style="list-style-type: none"> ○ Station platform type: center platforms between eastbound and westbound tracks (additional side platform at First & Moore Station) ○ Station platform lengths: 225 feet (accommodate a three-car train) ○ Center platform width at mid-line: 22 to 24 feet (20 feet at terminal stations) ○ Side platform width at First & Moore (western terminal) Station: 12 feet ○ Access and vertical circulation at each end of platforms

Source: KOP Rail Basis of Design Report, HNTB 2019.

- **Henderson Road Station (Station and Park-and-Ride)** - The Henderson Road Station in the PECO segment will be elevated over the southern approach of Henderson Road to the Henderson Road/Saulin Boulevard intersection (**Figure 2.3-8** and **Figure 2.3-9**). The

platforms will cross over Henderson Road, thereby providing passenger access to the station from both sides of Henderson Road without having to cross Henderson Road at grade.

Figure 2.3-8: Aerial View of Henderson Road Station Rendering



Source: HNTB 2020

Figure 2.3-9: View West of Henderson Road Station Rendering



Source: HNTB 2020

As an intermodal hub, the Henderson Road Station will provide an off-street park-and-ride facility, accommodate bus operations, and provide for passenger drop-off/pick-up service. SEPTA refined the parking amount at this location from 750 spaces for the recommended LPA in the DEIS to 500 spaces for the Preferred Alternative. SEPTA reduced the parking space amount while still satisfying forecast parking demand at the station. SEPTA will provide a parking structure in the northwest quadrant of the existing Henderson Road/Saulin Boulevard intersection, on property occupied by several businesses including BJ Kitchen Floor, Inc. To accommodate the proposed parking space count, the structure will be approximately four levels in height. Access to the parking structure will be from Henderson Road. A dedicated drop-off/pick-up driveway will be provided in front of the parking structure on Henderson Road. Just to the south of the station, a bus berth will be provided on each side of Henderson Road to provide bus connections to the station.

The proposed Henderson Road Station will not preclude a future PA Turnpike interchange with Henderson Road. Roadway and intersection improvements will be made along Saulin Boulevard and at the Henderson Road/Saulin Boulevard intersection to accommodate the proposed station and park-and-ride facility if planned intersection improvements as part of a Taco Bell development do not occur (Chapter 3).

- **Allendale Road Station** – Allendale Road Station in the Mall segment will be elevated over Allendale Road just south of the Allendale Road/Wills Boulevard intersection (**Figure 2.3-10**). The platforms will cross over Allendale Road, thereby providing passenger access to the station from both sides of Allendale Road without having to cross Allendale Road at grade. A dedicated drop-off/pick-up driveway will be provided off Wills Boulevard on the property of the existing King of Prussia Volunteer Fire Company, providing passenger access to the station at the east end of the platform. Passengers from the Mall area will have access to the west end of the platform from a station entry point in an existing parking lot on the west side of Allendale Road. A pedestrian bridge will provide the connection between the Allendale Road Station and the second floor of the Mall. No passenger parking will be provided at the station. No SEPTA bus service is planned for the Allendale Road Station. Roadway and intersection improvements will be made at the Allendale Road/Wills Boulevard intersection (Chapter 3).

Figure 2.3-10: Allendale Road Station Rendering

Source: HNTB 2020

The location of the Allendale Road Station has been refined after the DEIS to straddle Allendale Road. The reasons for shifting the station location are to provide access to the station from both sides of Allendale Road, and to minimize impacts on redevelopment plans in the Mall area. In this location, the station will provide better access to existing businesses and will have a lower cost. A portion of the proposed station is on the property of the existing King of Prussia Fire Company and 9/11 Memorial, which will be relocated as part of the Project (Section 2.3.2.8).

- Mall Blvd Station** - The location of the Mall Blvd Station in the Mall segment has been refined after the DEIS recommended LPA to be just north of Mall Boulevard, along the refined Mall segment (**Figure 2.3-11**). The station will be adjacent to the Capital Grille restaurant building (236 Mall Boulevard). A pedestrian bridge will provide a connection over Mall Boulevard between the station and the Mall property. No passenger parking will be provided at the station. Mall Blvd Station will provide two bus berths to enable bus connections to Project service. Additional bus service-related facilities at Mall Blvd Station will include a bus operator's facility, and bus laybys. The bus facilities will occupy a portion of property previously occupied by Joe's Crab Shack. The Project will signalize the Mall Boulevard/former Toys R Us driveway and coordinate the timing of other signals along Mall Boulevard (Chapter 3).

Figure 2.3-11: Mall Blvd Station Rendering

Source: HNTB 2020

- **First & American Station** - The location of the First & American Station in the PA Turnpike West segment has been refined after the DEIS to the property at 840 First Avenue, at the northeast corner of the intersection of Clark and First Avenues (**Figure 2.3-12**). The property is currently occupied by the Escape Room and other businesses. The refinement eliminates the station in the median of First Avenue. In that original location, grade requirements will have required the station to be more than 50 feet above the roadway, which is undesirable for passenger access and will have added to the Project cost and visual impacts. Shifting the station to the north side of First Avenue provides more distance for the tracks to descend from the PA Turnpike and a more reasonable station height of approximately 35 feet above the existing ground.

A dedicated drop-off/pick-up driveway to the main station entry will be provided off of First Avenue with a connection to Clark Avenue; pedestrian circulation will also be by means of the main station entry. No passenger parking will be provided at the station. As part of the Project, the existing traffic signal at the First Avenue/American Avenue intersection will be upgraded.

Figure 2.3-12: First & American Station Rendering

Source: HNTB 2020

- First & Moore Station (Terminal Station and Park-and-Ride)** - The location of the First & Moore Station in the First Avenue segment is refined to be at the northwest corner of First Avenue and Moore Road on the property of Devon Pharmaceuticals (**Figure 2.3-13**). This refinement is related to the refinement of the track to be on the north side of First Avenue. SEPTA retained the three-track program for this station as indicated in the DEIS, with the provision for a center platform to access the two main tracks and a side platform to access the third track. Access to the platforms will be provided by stairs at the west ends of the platforms. As an intermodal hub, First & Moore Station will provide an off-street park-and-ride facility, accommodate bus operations, and provide for passenger drop-off/pick-up service. The park-and-ride facility will consist of a four-level parking structure (approximately 52 feet tall) with a pedestrian bridge connecting to the station. The ground level of the parking structure will provide bus berths and bus layover facilities, including dedicated bus lanes with bus berths. A separate drive lane will be provided for passenger drop-off/pick-up service.

Figure 2.3-13: First & Moore Station Rendering

Source: HNTB 2020

SEPTA made an additional refinement by eliminating the length and amount of tail track west of the station. In this refinement, one track will extend beyond the end of the platform for a distance sufficient to accommodate a 3-car train (approximately 228 feet). An energy-absorbing bumper system will be provided at the end of each track. These refinements support planned operations while reducing Project costs, maintenance and visual impacts.

First & Moore Station will provide two platforms, a central platform to accommodate service to and from 69th Street Transportation Center, and a side platform to accommodate service between the Project and Norristown. The platforms will be 44 feet above the existing ground.

As the western terminal station for the Project, SEPTA will provide a 500-space park-and-ride structure at the First & Moore Station. As part of the Project, the First Avenue/proposed garage driveway intersection will be signalized, and signal timings at two existing intersections along the First Avenue corridor will be coordinated: First Avenue/Moore Road and First Avenue/American Avenue.

2.3.2.3 69th Street Transportation Center

SEPTA identified the need to make several improvements to the existing 69th Street Transportation Center to accommodate the Project and its passengers. These improvements are shown in **Figure 2.3-14** and **Figure 2.3-15**, and include:

- **Track:** SEPTA will extend one existing track to Platform 4 to serve Project trains.
- **Platform:** SEPTA will widen Platform 4 from the existing one-sided operation (serving Track 3) to a two-sided operation (serving Tracks 3 and 4). The wider platform will provide for pedestrian circulation to trains on both sides of the platform.
- **Concourse:** SEPTA will expand the existing fare array on the concourse to provide bays for Project service. To accommodate the additional space, SEPTA will relocate a staff breakroom and locker room within the station area. In addition, an existing stair connecting to the ground floor will be removed from the existing space and reconstructed as an enclosed egress stair to the east of the station.
- **Bus loop:** Extending the existing track to a widened Platform 4 will physically impact the portion of the existing bus loop near the north side of the station building. SEPTA will shift the bus loop approximately 20 feet compared to its existing location. The operation of the bus loop and access to and from the bus loop will be unchanged.

2.3.2.4 Support Facilities

As described in Section 2.2, the Preferred Alternative will provide facilities to support Project operations along the proposed guideway, including guideway crossovers, power and TPSS, communications equipment, SWM facilities and landscaping. The design refinement plans provide concepts for these facilities including locations and dimensions. A quick guide to each support facility is presented in **Table 2.3-7**.

Figure 2.3-14: 69th Street Transportation Center

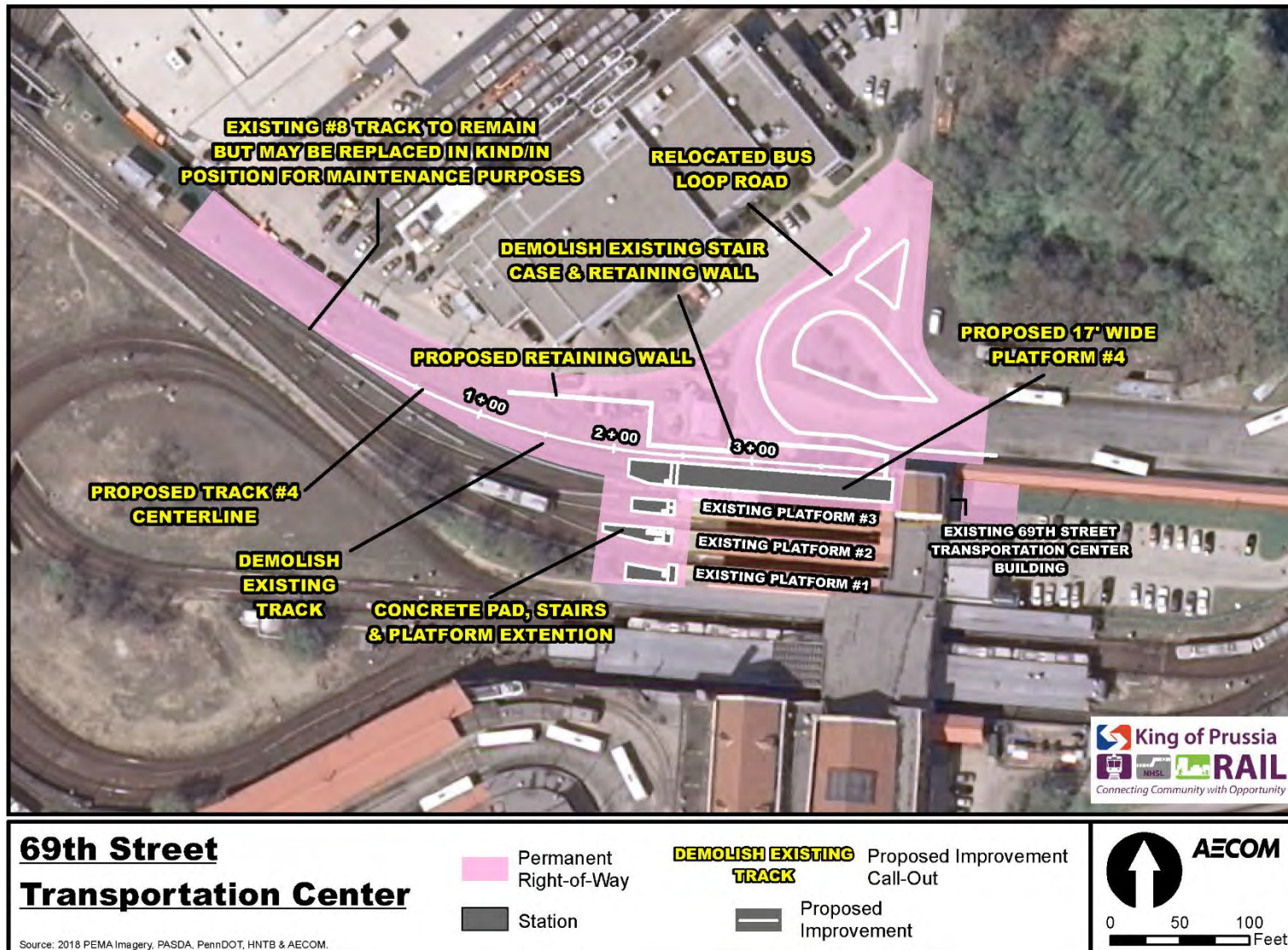
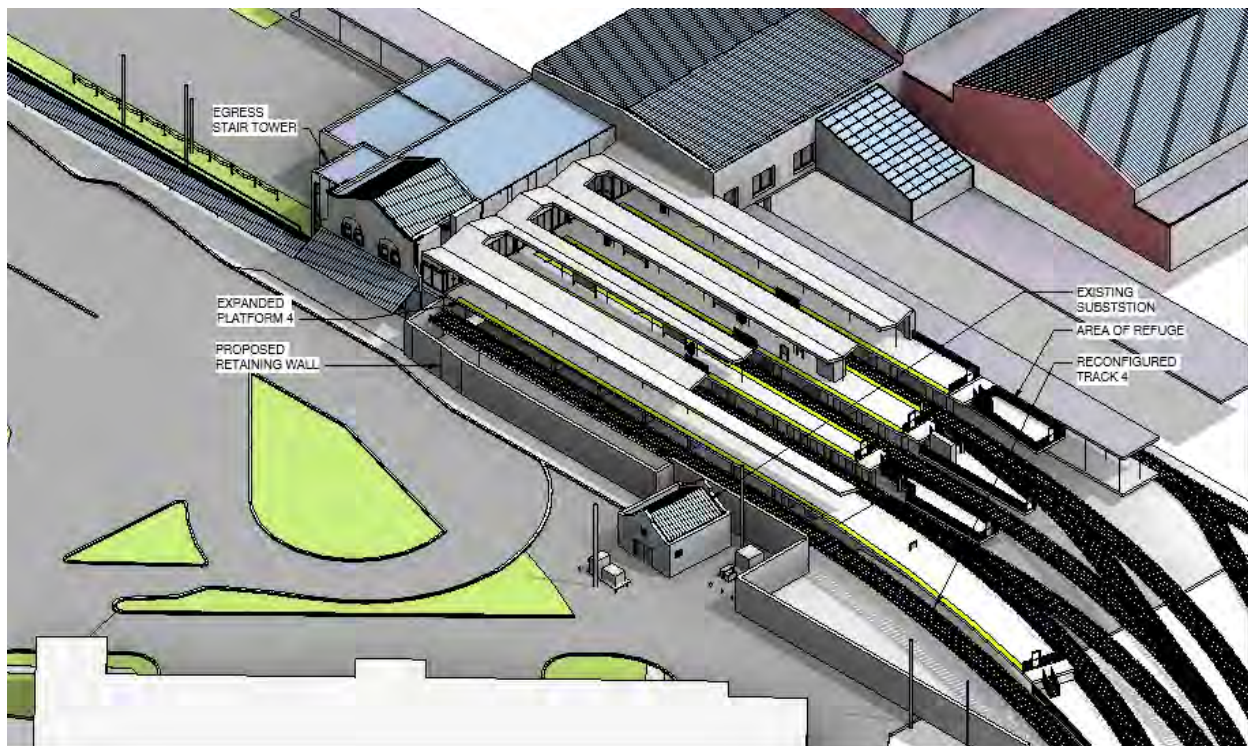


Figure 2.3-15: Rendering of 69th Street Transportation Center Improvements

Source: HNTB 2020

Table 2.3-7: Quick Guide to Supporting Facilities

Facility Type	Descriptions
Guideway Crossover Tracks	<ul style="list-style-type: none"> • Purpose: provides connections between the proposed two-track system; enables SEPTA to move trains from one track to another • Crossover track locations (2): east of First & Moore Station, east of Mall Blvd Station (potential for a third crossover east of PA Turnpike Service Plaza) • Crossovers on viaduct or retained fill at same elevation as two-track system
Power and TPSS	<ul style="list-style-type: none"> • Purpose: provide power to the Project • System power type: electric (sourced from PECO) • Vehicle power technology: third rail at track level (same as NHSL) • Power converter facility: TPSS <ul style="list-style-type: none"> ○ TPSS Locations (3): First & Moore Station, Allendale Road Station, Junction segment ○ Building type: stick built or prefabricated ○ Building size: 50' by 56', or 35' by 75' depending on site ○ Building site: 70' by 80', or 50' by 100' depending on site

Facility Type	Descriptions
	<ul style="list-style-type: none"> ○ Access: Fenced and gated; access driveway by SEPTA personnel only from station driveways (from Saulin Boulevard in Junction segment)
Communications Equipment	<ul style="list-style-type: none"> • Purpose: a signaling system that manages train traffic • Integrate with SEPTA's existing Suburban Operations Control Center Centralized Traffic Control System (existing NHSL control location) • New equipment along guideway: signal huts at intervals along guideway; radio station east of the PA Turnpike Service Plaza • Radio station elements: tower and equipment building <ul style="list-style-type: none"> ○ Tower dimensions: 11' by 11' base; approximately 200 feet tall ○ Equipment building: 8' by 10' ○ Radio station site: 17' by 28' ○ Radio station access: Fenced and gated; access driveway by SEPTA personnel only from station driveways (from PA Turnpike Service Plaza) • Signal huts: shown on 15% plans as "Com Hut," "CIL" and "Signal Hut" • Communications rooms in stations • Fare vending system: compatible with SEPTA's existing NHSL service
Stormwater Management (SWM)	<ul style="list-style-type: none"> • Purpose: convey runoff from new impervious surfaces (buildings, parking and guideway); apply best stormwater management practices to reduce potential for impacts to water resources (Chapter 4). • Drainage systems along guideway: ditches, swales • Detention basins: <ul style="list-style-type: none"> ○ Above-ground basin locations: Junction segment, near PA Turnpike Service Plaza, PA Turnpike East segment near highway crossing, Allendale Road Station, PA Turnpike West segment near highway crossing, First Avenue near Trout Creek ○ Below-ground basin locations: Henderson Road park-and-ride, Mall Blvd Station, First & Moore Station
Landscaping	<ul style="list-style-type: none"> • Purpose: Complement the Project using plant materials; provide visual screening of some support facilities • Landscaping locations: stations, SWM facilities, appropriate locations along the guideway, screening around TPSS facilities

Source: KOP Rail Basis of Design Report, 2019 and KOP 15% Design Drawings, HNTB 2019.

2.3.2.5 Vehicles

SEPTA proposes to provide Project service using its existing fleet of N5 rail vehicles that operate on the NHSL (**Figure 2.3-16**), plus six new, N5 vehicles. The N5 vehicles, manufactured by ABB Traction, provide level floor boarding at station platforms and are equipped for electrical power by third rail, as currently used by SEPTA on the NHSL. Each vehicle has a seating capacity of 60 passengers and a total capacity of 100 passengers including standing capacity. Vehicles are climate-controlled with heating and air conditioning. Each vehicle is equipped with signaling and automatic train control. The vehicles can be run individually or coupled together to form 2-car or 3-car trains.

Figure 2.3-16: SEPTA N5 Vehicle



Note: Photo of existing SEPTA N5 vehicle.
Source: SEPTA 2015.

2.3.2.6 Operating Plan

The Preferred Alternative will provide “one seat ride” service from the 69th Street Transportation Center or the Norristown Transportation Center to any proposed Project station using the NHSL and the proposed extension. The NHSL currently runs 13.5 miles between the 69th Street Transportation Center in Upper Darby and the Norristown Transportation Center in Norristown. When Project service is implemented, it will operate during the same hours as the NHSL. The NHSL currently operates from approximately 4:00 a.m. to 2:00 a.m., providing approximately 22 hours of service per day. Current service frequency varies from approximately seven to 60 minutes depending on the time of day, the day of the week and service type. Service types include limited service, express service, and local service, each with differing stop patterns. Weekend service is primarily local service. Service is bi-directional, with trains originating and/or terminating at the Norristown Transportation Center, the 69th Street Transportation Center, Bryn Mawr Station or Hughes Park Station.

Proposed service frequency with the Project is the following:

- Norristown Transportation Center to King of Prussia:
 - 10-minute headways each way during peak periods (6:00am–10:00am and 3:00pm–7:00pm)
 - 20-minute headways for all other times

- 69th Street Transportation Center to King of Prussia:
 - 10 minute headways each way during peak periods (extension of Hughes Park service, some existing trains and new trains)
 - 20 minute headways all other times (includes extension of Hughes Park service, some existing trains and new trains)

The Preferred Alternative operating plan reflects peak period service delivery goals of six trains per hour per direction (TPHPD) between 69th Street Transportation Center and King of Prussia (10 minute headways in peak period), as well as three TPHPD between Norristown Transportation Center and King of Prussia (10 minute headways in peak period). The future operating plan increases service on the existing corridor through the introduction of extension trips. The four Hughes Park trains that operate during the peak period will be replaced by six trains per hour to King of Prussia. In the off-peak, the future operating plan calls for three TPHPD between 69th Street Transportation Center and King of Prussia. In addition, three TPHPD will be scheduled to operate between Norristown Transportation Center and King of Prussia for the duration of the day.

Table 2.3-8 presents the number of trains per hour (TPH) along specific NHSL segments. Specifically, the conceptual operating plan for the Project for each direction of travel involves six TPH between the transportation study area and 69th Street Transportation Center during the peak period, four TPH between Norristown Transportation Center and 69th Street Transportation Center, three TPH between Norristown Transportation Center and King of Prussia and four TPH between Bryn Mawr and 69th Street Transportation Center. In total, the addition of the Project will require 17 TPH, which is 7 additional TPH as compared to the 10 TPH that operate today.

Table 2.3-8: Number of Project Trains per Hour by NHSL Segment

NHSL Segment	Peak TPH	Off-peak TPH
KOP to 69th Street Transportation Center	6	3
KOP to Norristown Transportation Center	3	3
69th Street to Norristown Transportation Center	4	3
69th Street to Bryn Mawr	4	0

Source: Gannett Fleming, August 25, 2020, *Draft Rail Operations Simulation Report – Norristown High Speed Line Extension*. Report available on www.kingofprussiarail.com

On the existing NHSL, service levels with the Project will increase from current operating plans, but express and limited stopping patterns are expected to remain the same. However, with the Project, trains will no longer turn back at Hughes Park Station, and trips to King of Prussia will follow the existing Hughes Park Limited and Express stopping patterns on the NHSL.

Rail simulations performed on the operating plans for the Preferred Alternative identified that a high-capacity signal system along the NHSL and extension is needed. In the operating plan,

trains from 69th Street Transportation Center to King of Prussia must follow trains from Norristown Transportation Center to King of Prussia on two minute headways. Reliable operation of the plan requires a high capacity signal system on the extension tracks for the Preferred Alternative. The simulations also identified that six additional N5 rail vehicles will be required.

Station-to-station travel time for the Preferred Alternative will be slightly more than 15 minutes between the Norristown Transportation Center and the First & Moore Station, and about 34 minutes (Express) or about 36 minutes (Local) between the 69th Street Transportation Center and the First & Moore Station. Average train travel speed on the Preferred Alternative in the transportation study area will be approximately 35 miles per hour, though actual operating speed will be dependent upon track segment.

During subsequent design, SEPTA will refine the operating plan for the new rail service and determine fares.

2.3.2.7 Bus and Shuttle Service Modifications

As indicated in Chapters 1 and 3, SEPTA currently provides bus service in the transportation study area. SEPTA will modify or adjust some bus routes to serve proposed Project stations or to respond to service redundancy. These adjustments will include modifications to headways, routes or hours of service.

In addition to SEPTA bus service, the GVFTMA and the KOP-BID provide connecting shuttle services as a complement to SEPTA bus and rail services. Shuttle buses serve a different function than SEPTA buses. While buses provide a connection between King of Prussia and other areas in the Philadelphia region, shuttle buses primarily provide “last mile” connections between nearby transit stations and employment areas or residential areas. SEPTA anticipates changes to the current shuttle bus system as well as changes to the SEPTA bus network operating in the transportation study area as a result of the Project. GVFTMA and the KOP-BID are committed to modifying existing shuttle services to provide last mile service from some Project stations to other transportation study area destinations. During subsequent design, SEPTA, in partnership with GVFTMA and the KOP-BID, will develop a bus and shuttle service plan that examines existing and desired services, improves bus services in the context of the Project, and determines warranted and complementary connecting shuttle services.

2.3.2.8 Relocation of Existing Facilities

As part of the Project, SEPTA will relocate the existing King of Prussia Volunteer Fire Company and 9/11 Memorial as well as approximately four utility towers within the PECO right-of-way. This section describes SEPTA’s proposed actions regarding these Project elements.

Relocate King of Prussia Volunteer Fire Company and 9/11 Memorial

The existing King of Prussia Fire Company property will be crossed by the guideway (Section 2.3.2.1) and the Allendale Road Station will be partly located on the property (Section 2.3.2.2). SEPTA’s use of the property for the Project will require SEPTA to relocate the Fire Company and the Memorial to a new location. As described in Section 5.1.3.7, SEPTA

initiated discussions with the King of Prussia Fire Company and the Upper Merion Township Board of Supervisors during the DEIS in 2017 and continuing discussions into 2018. At that time, the impact of the recommended LPA on the fire company property was discussed, the concept of relocating the facility and memorial was introduced, and the idea of developing the PA Turnpike North/South Option and the 9/11 Memorial Avoidance Options was identified and presented. With SEPTA's adoption of the recommended LPA and the PA Turnpike North/South Option in January 2018, SEPTA commits to relocating the King of Prussia Fire Company and the 9/11 Memorial.

During subsequent design, SEPTA will work with the Upper Merion Township's Unified Safety Department's Public Safety Director and the Fire & Emergency Service Department as they identify a suitable location for the fire company and 9/11 Memorial and undertake the relocation process. SEPTA will provide the funds for relocation of the King of Prussia Fire Company and 9/11 Memorial.

Relocate and Replace Approximately Four Existing PECO Utility Towers

As described in Section 2.3.2.1, portions of the guideway in the Junction and PECO Segments will be within the PECO utility corridor. Existing elements in the PECO utility corridor include an overhead electric power transmission system consisting primarily of steel, lattice towers that carry power cables. Each existing tower is approximately 68 to 83 feet tall. Two sets of towers carry the existing cable system along the length of the corridor. One set of towers is aligned in the northern portion of the PECO corridor (known herein as the Northside set) and the second set of towers is aligned in the southern portion of the PECO corridor (known herein as the Southside set). The cable system on each set of towers carries 230 kV of electric power.

Junction Segment (Replace Approximately Two Towers). In the Junction segment, the elevated guideway that will turn off the NHSL from the south will cross under the both sets of PECO's overhead electric power transmission system (maps, Appendix A). SEPTA applied the National Electric Safety Code (NESC) Standards, which are the United States' standard for safe installation, operation, and maintenance of electric power systems. The NESC Standards require a minimum vertical distance between the cable system and any development, facilities, or actions that occur under the cable system. SEPTA determined that at the guideway crossing point in the Junction segment, the distance between the elevated guideway and the cables on the Northside and Southside sets will be approximately 22 feet, which is not enough vertical separation between the track and the cables. An approximately 13-foot tall rail car will have approximately nine feet of vertical clearance, which is not enough distance to achieve power industry standards. The amount of vertical clearance required for the Project will be determined by PECO during subsequent Project design.

To increase vertical clearance between the Project and the cables, SEPTA considered whether the guideway elevation could be lowered to increase the distance to the cables and achieve the minimum vertical clearance requirement. However, the guideway elevation is at the height required to meet SEPTA design requirements to provide a minimum vertical clearance at Henderson Road of 14' 9." The guideway elevation cannot be lowered to achieve the required minimum vertical clearance to the cables and also achieve the minimum vertical clearance at Henderson Road. Thus, to increase vertical clearance to the cables, the cable system will have

to be raised in the guideway crossing area. Because the existing cables are attached to the highest points on the Northside towers, raising cable height will require replacing approximately two existing towers and cable systems on either side of the guideway crossing, on the west side of the existing NHSL.

SEPTA's conceptual study identified the need to replace approximately two existing PECO towers in the Junction Segment with approximately four monopole structures. A monopole is a vertical structure with a single foundation to which power cables are attached (**Figure 2.3-17**); monopoles are typically used for utility tower replacement. The NESC Standards prescribe monopole spacing that is different from lattice tower spacing to provide appropriate support for the wires the poles will carry; as a result, the monopoles will be in different locations along the corridor compared to the lattice tower locations. The location of new poles will be determined by PECO in coordination with SEPTA during subsequent design.

In considering the height of the monopoles, SEPTA consulted with PECO as well as with the NESC Standards. In applying the NESC Standards, SEPTA considered potential configurations of future PECO expansion to provide additional power service in its corridor.

To meet the requirements and provide PECO with the most flexibility for future expansion, SEPTA conceptually identified that the monopoles will be approximately 125 to 160 feet tall from the ground surface in the Junction Segment depending on the horizontal distance between the monopoles.

Figure 2.3-17: Typical Monopole



Source: HNTB 2020

PECO Segment (Replace Approximately Two Towers). In the PECO segment of the Project that is west of the Junction segment, the guideway will be along the northern edge of the PECO utility corridor. This area is between the planned Chester Valley Trail Extension and the point where the guideway turns off the corridor near the 251 DeKalb apartment buildings. Although PECO has no definitive plans for expansion of their overhead electric power transmission system in this location, they indicated concern that the Project should not preclude the ability for them to undertake future expansion. SEPTA assessed that potential future expansion of the system could involve increasing the amount of power that is carried in the system by installing more tower and cable sets and/or by increasing voltage of power in the existing sets. In either case, PECO will need additional space within its existing corridor for such an expansion.

In regard to the Project and considering the proximity of the Project guideway to PECO's Northside set, SEPTA determined that the Project poses a potential risk to the integrity of the

closest towers because of the ground disturbing activities to be undertaken by SEPTA to build the Project in a cut. To address this potential risk, SEPTA will replace approximately two towers and the associated cable systems in the Northside set that are along the guideway in the PECO Segment (maps, Appendix A). The existing tower locations are along the west side of the planned Chester Valley Trail Extension and along the west side of Henderson Road.

SEPTA's conceptual study of replacing the approximately two existing PECO towers in the PECO Segment applied the NECS Standards. Subject to further design and coordination with PECO, SEPTA proposes to replace the two lattice towers with approximately three monopoles. The guidelines prescribe monopole spacing that is different from lattice tower spacing to provide appropriate support for the wires the poles will carry; as a result, the monopoles will be in different locations along the corridor compared to the lattice tower locations. The location of new poles will be determined by PECO in coordination with SEPTA during subsequent design.

In considering the height of the monopoles, SEPTA consulted the NESC Standards and considered potential configurations of future PECO expansion to provide additional power service in its corridor. To meet the NESC Standards and provide PECO with the most flexibility for potential future expansion, SEPTA conceptually identified that the monopoles will be approximately 125 to 160 feet tall from the ground surface in the PECO Segment.

Junction and PECO Segments (Replace Existing Right-of-Way): In the Junction and PECO segments of the Project, the guideway will be along the northern edge of the PECO utility corridor. PECO has requested that the Project not preclude potential future utility expansion within its existing right-of-way. To address this issue, SEPTA will acquire and provide PECO with a strip of land along the south side of the PECO corridor between the existing NHSL and the PA Turnpike (see maps in Appendix A). The strip of land will restore the width of the PECO right-of-way to the existing dimension.

Next Steps: During subsequent design, SEPTA will continue to coordinate with PECO regarding use of a portion of their corridor for the Project and replacement of approximately four existing utility towers and cable systems in the Junction and PECO Segments. Design and construction of the proposed monopoles and cable systems will be undertaken by PECO and subject to approval by PJM, which is the regional transmission organization that coordinates the movement of electricity including PECO services. SEPTA will fund the design and relocation of the towers as part of the Project.

2.3.2.9 Overview of Construction Plan

This section provides an overview of how construction of the Project could be undertaken. This overview is based on the design refinements as reported in the *King of Prussia Rail Extension Project, Basis of Design Report, Volumes I and II* and the *NHSL – King of Prussia Rail Extension 15% Design Submission*, which is available on the Project website (www.kingofprussiarail.com). Section 11.02.04 of that report provides more details on Project constructability considerations. Prior to the commencement of construction, SEPTA and its construction contractor(s) will develop specific construction sequencing plans. These plans will describe where construction will occur and the duration of those activities.

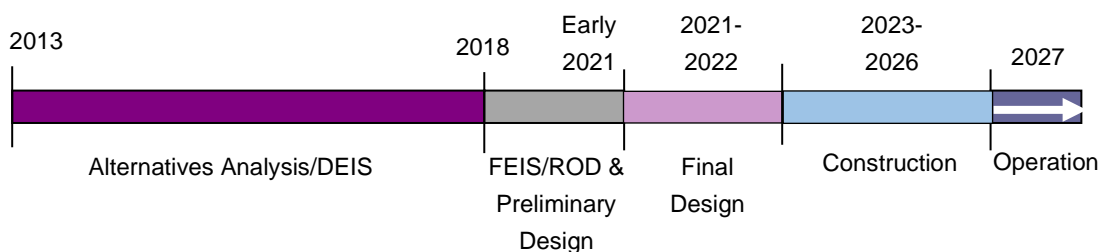
SEPTA is considering multiple methods for constructing the Project including traditional design bid build, design build, and other hybrid methods. Each method affects how much influence SEPTA directly has over construction sequencing, means, methods, and schedule. It is also possible for SEPTA to use multiple prime contractors on the Project simultaneously, and SEPTA workers may also be on-site performing work at various times. SEPTA will determine the method for constructing the Project during subsequent design. SEPTA will remain responsible for the Project and will be responsible for honoring all commitments made as part of the NEPA process.

SEPTA and its contractor(s) will be guided during construction by federal, state and local laws and standards for construction activities related to the Project. In addition, SEPTA will apply its own standards and requirements that govern construction activities, including, but not limited to SEPTA's *City and Suburban Transit Divisions Manual for the Inspection, Maintenance and Construction of Track*.

Construction Schedule

SEPTA anticipates construction of the Project from 2023 to 2026, with revenue service beginning in 2027 (**Figure 2.3-18**). The time to construct each Project section will differ based on the types of Project elements in each section, site characteristics, weather, structural design and other factors, such as the relationship among the construction sections.

Figure 2.3-18: Project Schedule



Source: SEPTA 2020

Typical Construction Activities

Table 2.3-9 identifies typical construction activity tasks; actual construction activities and durations will be determined by SEPTA in coordination with its contractors during development of the Project construction plan during subsequent design. Construction activity is likely to begin simultaneously in several sections of the Project to accommodate activities such as the elevated guideway.

Table 2-3.9: Typical Construction Activities

Activity	Tasks
Pre-construction survey	Locate utilities, establish right-of-way and Project control points and centerlines, and relocate survey monuments
Site preparation	Relocate utilities and clear and grub right-of-way (demolition), establish detours and haul routes, erect safety devices and mobilize special construction equipment, prepare construction equipment staging areas and stockpile materials, and establish maintenance of traffic
Heavy construction	Construct the elevated guideway, including foundation elements, construct at-grade trackway, reconstruct adjacent roadways and sidewalks
Medium construction	Lay track work, construct stations and park-and-ride facilities, install drainage, minor earthwork and roadway paving
Light construction	Finish work, install system elements (electrical, signal, and communications), lighting, landscaping, signage and striping, close detours, clean up and test system
Pre-revenue service	Test communications, signaling systems, train operators and maintenance personnel

Source: AECOM 2020

Figure 2.3-19 illustrate the typical construction activity for an elevated guideway over an existing roadway. **Figure 2.3-20** illustrate the typical construction activity for an elevated guideway on supporting piers alongside an existing roadway. SEPTA will determine actual construction activities and equipment needs during development of the Project construction plan during Project design.

Figure 2.3-19: Elevated Guideway Construction

Source: HNTB 2020

Figure 2.3-20: Elevated Guideway Construction

Source: HNTB 2020

Relationship to Other Planned Development

This FEIS as well as the King of Prussia District's 2020 *Annual Report to the Community* describe a number of planned projects by others in the transportation study area, such as the Township's First Avenue Linear Park, the County's planned Chester Valley Trail Extension, ongoing redevelopment of Moore Park KOP, redevelopment plans at the King of Prussia Mall and vicinity by various property owners, and redevelopment in the Henderson Road area. SEPTA will add these projects to the master construction schedule for the Project to ensure that Project construction does not interfere with the other projects.

Construction Plan

SEPTA will develop and implement a construction plan prior to the start of Project construction. The plan will identify procedures and protocols for avoiding impacts to the transportation, natural and human environments during Project construction. The activities described in this section are preliminary and subject to change as the Project design advances. The potential impacts of construction result from several activities:

- **Haul routes and access points** - Construction of the Project will require designated routes and access points for workers, construction materials and equipment to, from and within Project construction sites as well as for removing unwanted materials from the sites. SEPTA

will coordinate with PennDOT, the County and the Township to identify haul routes and site access points. Construction site access points will be established where the workers, materials and equipment enter the staging areas or the site and where equipment and unwanted materials leave the site. Where reasonably feasible, access points will be located at staging areas to reduce the need for additional movements of material and equipment. By limiting access points to specific locations, SEPTA will minimize potential impacts to surrounding properties and resources and limit potential impacts on the transportation network. Potential haul routes will be identified on public roads to move equipment and materials to construction site access points, as well as to remove unwanted materials.

- **Staging Areas** - The permanent and temporary limits of disturbance (LOD) described in the FEIS delineate the Project work areas within which construction activities will occur to the extent they can reasonably and feasibly be defined at the current level of design (maps, Appendix A). The LODs accommodate likely areas where construction equipment will operate, and construction materials will be stored and moved from the ground to the guideway and other elevated work areas. The Project contractor(s) will be responsible for identifying actual locations for equipment and materials during construction activities, as well as for obtaining approvals for such locations if those locations differ from those defined in the contract documents. Reasons for SEPTA and its contractor(s) choosing other staging areas include site constraints, such as existing terrain, existing development, and the roadway network. Depending on construction sequencing needs, where feasible, land area needs and impacts may be minimized by locating some staging areas on sites designated for permanent non-guideway elements of the Project, such as park-and-ride sites.
- **Activities and Sequencing** - The construction work to be performed on the site will range from excavation, to installing the at-grade portions of the guideway, to the construction of the elevated guideway, stations, park-and-ride facilities, parking structure, and related infrastructure. Construction sequencing will be determined when detailed construction activities are more fully developed, but SEPTA anticipates that multiple parts of the Project will be under construction simultaneously and the elevated guideway likely will be built in sections. Because some construction activities will take longer than others, such as constructing the elevated structure, some areas along the alignment potentially will be affected for longer periods of time than others.
- **Transportation Management** - Project construction activities have the potential to impact roadways where temporary lane closures or complete street closures are required during construction. For example, SEPTA anticipates nighttime lane closures and possibly traffic detours during guideway construction along First Avenue; and weekend and/or weeknight lane shutdowns on the PA Turnpike will be required during construction of the guideway over the highway. To the extent reasonably feasible, street and lane closures will occur at off-peak hours. SEPTA will apply PennDOT's and Upper Merion Township's criteria for maintenance and protection of traffic during construction.

Temporary lane closures or complete roadway closures could impact the bus and shuttle travel times and routes. Prior to construction, SEPTA will identify these impacts and work with service providers to adjust service schedules during the construction period. Additionally, construction activities could necessitate temporary adjustments to service schedules for portions of the

NHSL, including temporary suspension of service on portions of the NHSL. For temporary suspension of NHSL service, SEPTA will provide substitute bus service, where needed.

SEPTA and its contractor(s) will maintain private driveway access, private parking and pedestrian access to businesses during construction through coordination with affected businesses during construction planning.

As discussed below, SEPTA will prepare a Transportation Management Plan, including a public outreach and information component, to minimize the potential impacts of construction on the transportation system and to inform the public of changes in the system before they occur.

- **Environmental Compliance** - SEPTA will prepare an Environmental Compliance Plan as discussed below to ensure compliance of the construction activities with federal, state and local requirements and the commitments and mitigation measures that will be identified in the Record of Decision (ROD) for the Project.

Transportation Management Plan

Prior to construction, SEPTA will prepare and implement a Transportation Management Plan (TMP) for the Project in coordination with other providers of roadway, transit and emergency services to minimize adverse impacts to transportation. The TMP will include, but may not be limited to, schedule and timeline, public information and outreach program, monitoring plan and a maintenance of traffic plan that includes traffic control, detours, temporary lane closures, transit and roadway operations management, including transit service adjustments and substitute services, bicycle and pedestrian accommodation and parking accommodation for affected non-residential property owners.

SEPTA will be responsible for implementing the TMP's public information and outreach program, which is intended to inform motorists, transit riders, residents, businesses, schools, emergency service and delivery providers and the public regarding temporary changes to traffic patterns, detours and transit services. Appropriate lines of communication will be maintained with emergency service providers throughout construction regarding current and upcoming construction activities, potential issues and planned route changes.

Environmental Compliance Plan

SEPTA will develop and implement an Environmental Compliance Plan (ECP) as design advances and prior to the initiation of construction activities; the ECP will be in effect until Project construction is completed. The ECP will identify and describe the management of environmental commitments and mitigation measures as the Project design advances. The objectives of the plan are to:

- Identify environmental compliance requirements of the Project that pertain to applicable federal, state and local regulatory permit conditions and the procedures defined to meet them
- Incorporate environmental commitments and mitigation measures stipulated with the FEIS and ROD to ensure that these requirements are identified in construction contract documents

- Define responsibilities and actions required to maintain compliance with environmental requirements during design and construction, and to effectively respond to problem situations or agency/public concerns
- Establish necessary procedures for communication, documentation and review of environmental compliance for each construction contract
- Describe protected resources within the study area and types of mitigation measures needed to protect them
- Ensure that contractor(s) employ means and methods to avoid or minimize impacts to the environment and public in compliance with the construction contract documents

The ECP will identify commitments and mitigation measures related to the proposed construction methods and activities. Additional commitments and mitigation measures for long-term operation and short-term construction-related impacts to transportation and environmental resources are identified in Chapters 3 and 4 of the FEIS.

Because SEPTA is considering a variety of construction and project delivery methods, the ECP will be tailored to the selected type of construction contract. The ECP will be updated as design and construction progresses. Periodic reviews of the ECP and procedures will be performed by SEPTA and its contractor(s) to ensure continual improvement of the plan's adequacy.

2.4 Evaluation of the FEIS Alternatives

The FEIS evaluated the No Action Alternative and the Preferred Alternative to assess the effectiveness of each in achieving the Project's purpose and need as well as benefits and impacts of each on the natural and human environment. Section 2.4.1 compares the effectiveness of the No Action Alternative and the Preferred Alternative in achieving the Project purpose and need. Section 2.4.2 compares the benefits and impacts of the No Action Alternative and the Preferred Alternative on the natural and human environment.

SEPTA used study areas that are appropriate for each type of environmental resource that is evaluated in the FEIS. In addition to the transportation study area described in Section 1.2.1, a Project study area is used. Unless noted otherwise in the FEIS, the Project study area consists of two parts. In the King of Prussia/Valley Forge area, the Project study area is the geographic area within 500 feet on either side of the centerline of each Action Alternative, as well as ½-mile from the center point of each proposed station area. In Upper Darby, the Project study area is the Project limits of disturbance at SEPTA's 69th Street Transportation Center. The two parts of the Project study area are shown on the maps in Appendix A.

2.4.1 Effectiveness in Achieving the Purpose and Need

This section compares the effectiveness of the No Action Alternative and the Preferred Alternative in achieving the Project purpose and need.

2.4.1.1 The Need for Faster, More Reliable Public Transit Service to the Area

No Action Alternative

The No Action Alternative will not provide faster, more reliable public transit service to, from or within the transportation study area. As described in FEIS Sections 1.2.2 and 3.1.2.2, existing roadway-based transit service problems related to on-time performance, reliability and travel times will be worse by 2040 as traffic congestion and delays increase as a consequence of foreseeable growth and development.

Preferred Alternative

The Preferred Alternative will provide faster, more reliable public transit service. The Preferred Alternative will reduce travel time on transit to the King of Prussia Mall by 26 minutes from Center City Philadelphia, 23 minutes from Norristown Transportation Center, and 9 minutes from 69th Street Transportation Center. The Preferred Alternative will reduce travel time on transit to Moore Park KOP by 38 minutes from Center City, 23 minutes from Norristown Transportation Center, and 12 minutes from 69th Street Transportation Center. The Preferred Alternative will provide transit travel time savings for existing bus riders (217,000 travel hours annually) and travel time savings for existing automobile travelers who shift to using the Project (2.0 million hours annually). The Preferred Alternative will eliminate the extra time experienced by existing bus service operating on congested roadways, such as on the Schuylkill Expressway (I-76), as well as the unpredictability of travel time because of variable travel conditions on roadways.

2.4.1.2 The Need for Improved Transit Connections To, From and Within the King of Prussia/Valley Forge Area

No Action Alternative

The No Action Alternative will not improve transit connections to and within the transportation study area. Depending on the bus route, riders will continue to transfer among two or more bus routes to get to their destinations. The No Action Alternative will not change existing connections between transit, bicycle and pedestrian networks in the transportation study area.

Preferred Alternative

The Preferred Alternative (**Figure 2.4-1**) will improve transit connections to and within the transportation study area by:

- Providing direct, rail transit service between the 69th Street Transportation Center and King of Prussia as well as between Norristown Transportation Center and King of Prussia while continuing to provide service between 69th Street Transportation Center and Norristown Transportation Center; and

- Serving three defined key destinations: King of Prussia Mall (by the Allendale Road and Mall Blvd Stations), Moore Park KOP (known in the DEIS as the King of Prussia Business Park) and Valley Forge National Historical Park (by the First & Moore and First & American Stations), and destinations in the Henderson Road portion of the transportation study area (Henderson Road Station).

Figure 2.4-1: Preferred Alternative Conceptual Rendering



Conceptual rendering of what the Allendale Road Station pedestrian bridge to the King of Prussia Mall could look like.
Source: HNTB 2020.

2.4.1.3 The Need to Better Serve Existing Transit Patrons and Accommodate New Patrons

No Action Alternative

The No Action Alternative will not better serve existing transit patrons and accommodate new patrons. Forecasted growth and foreseeable development in the transportation study area through 2040 will place more demands on the transportation system than it can accommodate. Adding buses to the transit system serving the transportation study area to meet future demand is not a viable solution as it is not possible to overcome the roadway congestion problem.

Preferred Alternative

Compared to the No Action Alternative, the Preferred Alternative will better serve existing transit patrons and accommodate new patrons by providing direct rail transit service to transportation study area destinations, and providing additional transit service capacity beyond what SEPTA can accommodate today by increasing its bus services to the maximum extent practicable.

2.4.2 Environmental Benefits and Impacts

As described in FEIS Chapters 3 and 4, the Preferred Alternative will have benefits and impacts to the natural and human environment. This section summarizes the environmental effects of the Preferred Alternative. **Table 4.18-1** provides more detail regarding the environmental effects of the Preferred Alternative, as reported in the FEIS. **Table 4.18-2** provides more detail regarding SEPTA's commitments as part of the Project to minimize or mitigate Project impacts.

The Preferred Alternative will have the following benefits:

- Increase access to transit with proposed stations in the King of Prussia/Valley Forge area
- Create 6,755 average weekday “Trips on the Project” and reduce average weekday vehicle miles traveled in 2040 by 61,303 miles
- Connect to bus and shuttle services; and connect to the existing bicycle and pedestrian network;
- Maintain or improve affected roadway intersection levels of service in 2040;
- Be consistent with Township and County land use plans;
- Provide rail stations within ½ mile of 15 million non-residential square feet; and provide two stations within Upper Merion Township’s Mixed Use (KPMU) zoning district;
- Provide rail stations within ½ mile of seven community facilities and five parks; not impacting existing parks;
- Maintain access to businesses during Project construction;
- Potentially support economic development by extending rail transit service to King of Prussia in terms of employment and earnings;
- Preserve access across transportation and utility rights-of-way during operations;
- Reduce growth in average weekday miles traveled, reduce greenhouse gas emissions from motor vehicle use; and
- Reduce energy consumption, annual automobile and bus miles traveled, and motor vehicle fuel costs.

In addition, the Preferred Alternative is favored by key stakeholders and political leaders because it will not be aligned along US Route 202, it will be behind the King of Prussia Mall, it will use First Avenue and will serve Moore Park KOP, and it will have fewer visual and traffic impacts than the other action alternatives.

The Preferred Alternative will have no impact in the following resource areas:

- Avoid splitting or fragmenting residential or business communities;
- Not cause an air quality impact during Project operations;
- Not cause operational noise impacts with mitigation;
- Not cause operational vibration impacts;
- Not impact threatened or endangered species;
- Not impact existing wellhead protection areas; and
- Not have disproportionately high and adverse effects on environmental justice populations.

In consideration of SEPTA’s minimization and mitigation commitments as part of the Project, the Preferred Alternative will have impacts in the following resource areas:

- Three community facility properties: will involve acquiring a portion of land from the Philadelphia Suburban Water (Aqua America) reservoir; full property acquisition and relocation of King of Prussia Volunteer Fire Company and the 9/11 Memorial (on the Fire Company property);
- Property acquisitions and displacements;
- Four Section 4(f) property impacts: Chester Valley Trail Extension; Philadelphia and Western Railway (NHSL); PA Turnpike: Delaware River Extension; and PNJ Interconnection;
- Visual impacts;
- Geological conditions: Risk of sinkholes;
- Four elevated crossings over waterways;
- Floodplains: Impact to 1,580 linear feet of floodplains;
- Wetlands: Potential impact to 0.08 acres of wetlands;
- Groundwater: Reduce area for groundwater replenishment by 6.0 acres of new impervious surfaces;
- Wooded areas and fields: Impact to 20.3 acres of wooded area and 11.1 acres of fields;
- Potential for contaminated materials impacts: Potential for oils and lubricants to drip from operating Project rail vehicles;
- Potential to impact or be impacted by existing areas of contamination concern;
- Historic property and utility impact: Removal of four PECO transmission towers; and
- Potential for an indirect and cumulative effects of enhancing and encouraging development and redevelopment near Project stations; potential change in property values; and potential for a moderate, cumulative noise impact along the existing NHSL.

During Project construction, the Preferred Alternative will require building an elevated guideway over the existing transportation system; will require temporary easements for construction work areas that will temporarily affect land use, access, and private parking on affected properties; potentially will temporarily change access to communities and community facilities because of construction work areas; and potentially will impact air quality, noise, vibration, and utilities.

Chapter 3 Transportation Effects

This chapter describes year 2019 as base year and 2040 as horizon year transportation conditions in the transportation study area and the potential benefits and impacts of the No Action Alternative and the Preferred Alternative on the transportation network. The 2019 data serves as a baseline for assessing the existing condition on the transportation network. For comparison, potential King of Prussia Rail Extension Project (Project) benefits and impacts related to the transportation network are evaluated in the 2040 horizon year. Use of a horizon year to evaluate transportation network benefits and impacts is typical for transportation projects.

In this assessment, the transportation study area, defined in Section 1.2.1, was used. Additionally, public transportation benefits and impacts are assessed for public transportation services in the Norristown High Speed Line (NHSL) service area (the service area is depicted on **Figure 3.1-1**), which includes the Market-Frankford Line, the SEPTA 101 and 102 Trolleys, the Norristown/Manayunk Regional Rail Line, and the Paoli-Thorndale Regional Rail Line, as well as SEPTA's Victory and Frontier bus services.

The assessment considers benefits and impacts on the transit and roadway networks, bicycle and pedestrian facilities, public parking, freight railroads and operations, and safety and security. This assessment builds upon several analytical studies including ridership forecasting as provided in the 2020 *KOP Rail FEIS STOPS Ridership Forecasting Technical Memorandum* (AECOM), roadway intersection capacity analysis provided in the 2019 *KOP Rail Basis of Design Report Appendix 6b* (HNTB/TPD), and bus and shuttle service planning provided in the 2020 *KOP Rail Bus and Shuttle Service Plan Technical Memorandum* (AECOM). These reports can be found on the website (www.kingofprussiarail.com).

Based on the current impacts of the recent social response to the COVID-19 virus and the resulting decline in travel demand, it is impossible to predict any future changes to the Determination and Findings of the project that may result from a COVID-19 response of an unpredictable nature and length. Should significant changes in the planning assumptions, project schedule, project scope, or surrounding project environment result because of a prolonged COVID-19 response, SEPTA will consider additional project evaluation and public input consistent with NEPA. As noted above, the traffic impact and ridership forecasting work described herein have a base year or existing condition representing 2019, which is the pre-pandemic condition.

3.1 Public Transportation

3.1.1 Methodology

Operational benefits and impacts of the Preferred Alternative on public transportation use and services were considered by examining forecasted ridership demand and potential changes to existing facilities once the Project becomes operational. This evaluation applied ridership forecasts developed using FTA's ridership forecasting software known as the Simplified

Trips-on-Project Software (STOPS) model. The forecasts were developed for the future horizon year of 2040. These forecasts are used to estimate the No Action Alternative conditions and the subsequent changes in travel that will result from the introduction of the Preferred Alternative into the local and regional transportation system.

3.1.2 Affected Environment

3.1.2.1 Existing Transit Services

SEPTA operates six bus routes (92, 99, 123, 124, 125, and 139) to, from, and within the transportation study area. Each route serves the King of Prussia Transit Center, a transit center located near the former JC Penney store at the King of Prussia Mall. Most bus routes serve other stops in the area, while three connect to Center City Philadelphia via the Schuylkill Expressway (I-76). Section 1.2.5 further describes existing bus transit services. Table 1.2-2 provides data for each route, including the number of daily trips, number of trips on I-76, total mileage traveled on I-76, average speed on I-76, average weekday ridership, cumulative on-time performance and annual ridership.

SEPTA's NHSL operates along 13.5 miles of dedicated rail guideway between the 69th Street Transportation Center in Upper Darby and the Norristown Transportation Center in Norristown, serving the Main Line area in Delaware and Montgomery Counties. The NHSL skirts the eastern edge of the transportation study area and does not directly serve the identified key destinations within it. Currently, NHSL riders destined to or from the transportation study area must transfer to or from SEPTA bus service at the Gulph Mills, DeKalb Street, or Norristown Transportation Center Stations.

The NHSL line is on exclusive right-of-way (ROW), collects power from a third rail and has high-level station platforms. There are 22 stations on the NHSL. SEPTA operates local (all stops), express, and limited service on the NHSL on a frequent schedule with a service span from approximately 4:30 AM to 2:30 AM Mondays through Fridays. There is less frequent service on Saturdays and Sundays. As of September 17, 2020, the number of weekday scheduled trains is 157, while the number of Saturday scheduled trains is 110; the number of Sunday scheduled trains is 84. The September 2020 scheduled train information provided here represents normal levels of service on the NHSL and is not a reduced schedule due to the pandemic. Average weekday ridership on the NHSL was 11,135 in 2019, which serves as the base year. The NHSL was ranked highest in terms of average daily ridership of all SEPTA's Suburban Transit Routes in 2019.

Express and limited services stop only at select stations, thereby decreasing the travel time between the 69th Street and Norristown Transportation Centers. Norristown express service travels between 69th Street Transportation Center and the Norristown Transportation Center in approximately 28 minutes and stops at selected stations between the 69th Street Transportation Center and the Bryn Mawr Station and then is local service to the Norristown Transportation Center. Norristown limited service travels between 69th Street Transportation Center and the Norristown Transportation Center in approximately 30 minutes and stops at selected stations between 69th Street Transportation Center and Gulph Mills and then is local service to the Norristown Transportation Center.

As of September 17, 2020, on weekdays between 6 AM and 9 AM, 18 trains depart from 69th Street Transportation Center with the following breakdown of service:

- Limited: 1 train, 30 minutes scheduled travel time to Norristown Transportation Center
- Express: 8 trains, 28 minutes scheduled travel time to Norristown Transportation Center
- Bryn Mawr Local: 1 train, 12 minutes scheduled travel time to Bryn Mawr Station
- Local to Hughes Park: 8 trains, 25 minutes scheduled travel time to Hughes Park Station

On Saturdays, NHSL service operates at a 20-minute frequency through much of the day; on Sundays, NHSL service operates at a 30-minute frequency through much of the day.

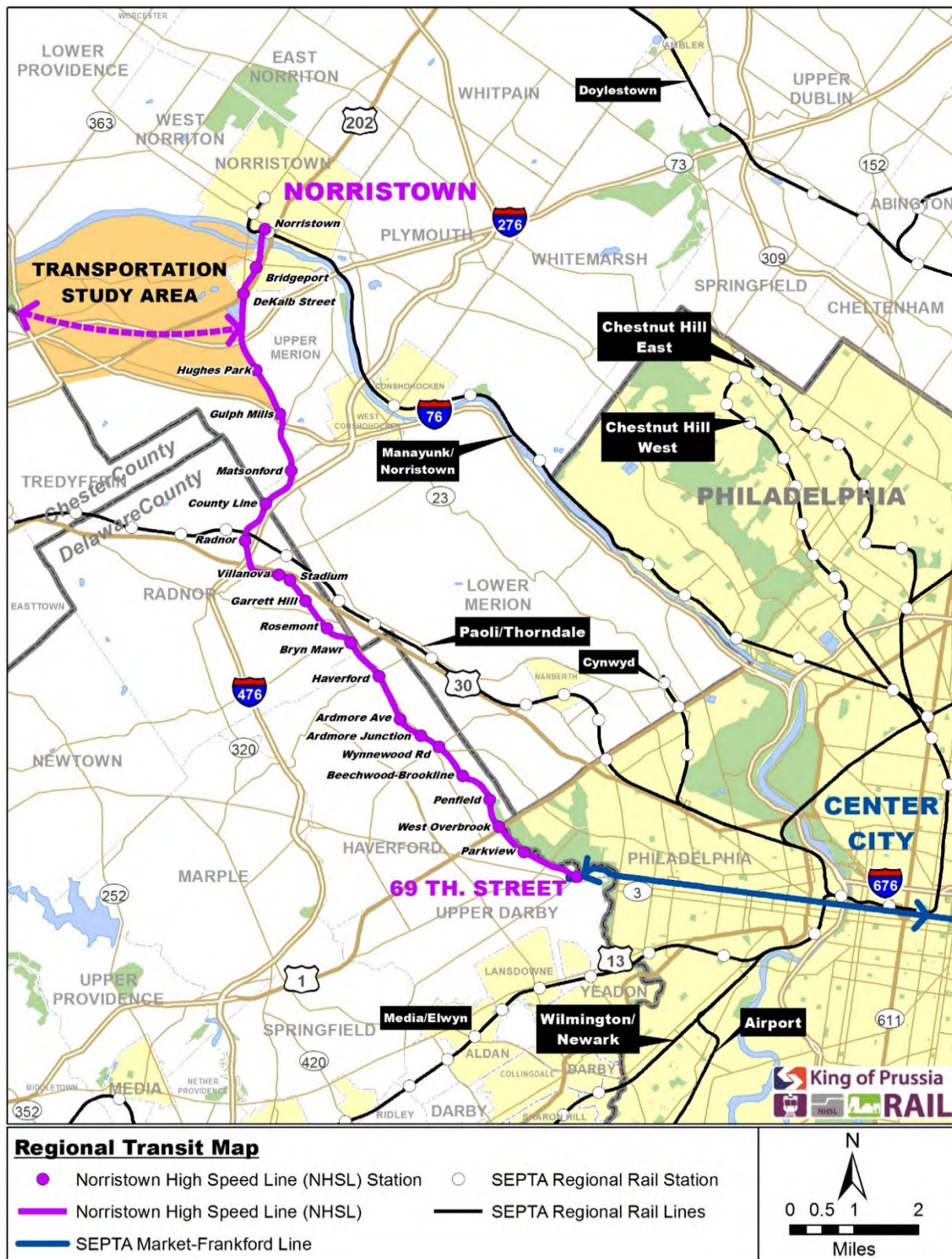
As described in Section 1.2.4, connections to SEPTA's Regional Rail system from the NHSL are available at the Norristown Transportation Center via transfer to the Manayunk/Norristown Line, a regional rail line providing service between Norristown and Center City Philadelphia, and to the Paoli-Thorndale Line from the NHSL Radnor Station that is a short walk to the Paoli-Thorndale Line's Radnor Station and to eight SEPTA bus routes. Additionally, connections to Center City Philadelphia from the NHSL are made at the 69th Street Transportation Center, where transfers can be made to SEPTA's Market-Frankford Line (rail rapid transit) as well as to SEPTA's 101 and 102 Trolley Lines and to 18 SEPTA bus routes. **Figure 3.1-1** is a graphic showing the existing NHSL service area, the transportation study area described in Section 1.2.4, SEPTA's Manayunk/Norristown regional rail line, SEPTA's Market-Frankford Line and the proposed Project to extend NHSL service to the transportation study area. **Table 3.1-1** provides a brief description of the transit services in the NHSL service area.

Table 3.1-1: Public Transit Services in the NHSL Service Area

Provider	Service	Description
SEPTA	Victory Bus	20 suburban bus routes; 18 routes serve the 69th Street Transportation Center
SEPTA	Frontier Bus	26 suburban bus routes; 8 routes serve the Norristown Transportation Center
SEPTA	Regional Rail	13 rail lines with over 150 stations; 9 rail lines are shown on the NHSL Service Area map in Figure 3.1-1
SEPTA	101, 102 Trolleys	Located in Delaware County, trolleys run mostly on exclusive rights-of-way; although not shown on Figure 3.1-1 , each serves the 69th Street Transportation Center
SEPTA	Market-Frankford Line	Subway and elevated rail service between 69th Street Transportation Center and Frankford Transportation Center
SEPTA	NHSL	Rail service between 69th Street Transportation Center and Norristown Transportation Center

Sources: SEPTA, FY 2020 Operating Budget (August 9, 2019).

Figure 3.1-1: NHSL Service Area



Source: AECOM 2016.

Ridership data for SEPTA's NHSL shows a general upward trend over the past ten years with 2010 average weekday ridership of 8,395 and average weekday ridership of 11,135 in 2019 (see **Table 3.1-2**).

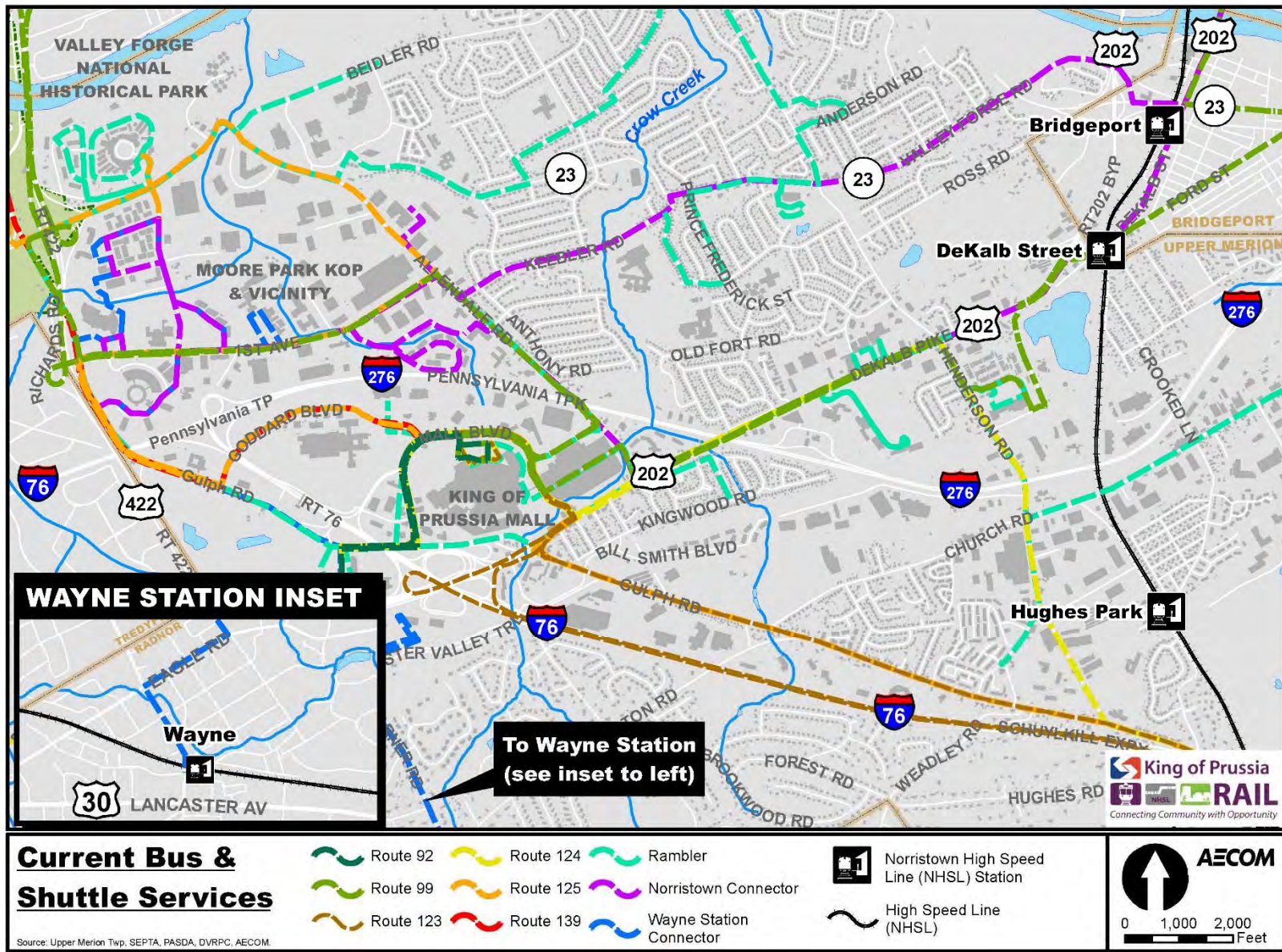
Three shuttle services, not operated by SEPTA, provide service in the transportation study area, providing connections between some study area destinations and SEPTA's NHSL and Regional Rail services, or offering circulation around Upper Merion Township. **Figure 3.1-2** shows the current bus and shuttle services. Two routes focus on providing "last mile" connections between nearby SEPTA Regional Rail stations and employment areas. These routes, which together are named "theconnector," are administered by the King of Prussia District. One of these routes provides weekday peak period service between Moore Park KOP and SEPTA's Regional Rail system at the Norristown Transportation Center on the Manayunk/Norristown line, and the second shuttle runs between the business park and the Wayne Station on the Paoli/Thorndale line. These two shuttles help to fill the "last mile" gap between regional rail service and Moore Park KOP, a key destination in the transportation study area. The other route, the Upper Merion Rambler, managed by the Greater Valley Forge Transportation Management Association (GVFTMA), provides local circulation during midday weekdays among residential neighborhoods and key destinations within Upper Merion Township.

Table 3.1-2: NHSL Average Weekday Ridership, 2010-2019

Year	Average Weekday Ridership
2010	8,395
2011	9,275
2012	9,465
2013	10,050
2014	10,669
2015	11,620
2016	11,080
2017	10,525
2018	10,893
2019	11,135

Source: SEPTA, data from SEPTA's Route Operating Ratio Passenger Report & file RT_NHSL_Stop_Summary_All_Day_Weekday_Fall_2019 from SEPTA Automatic Passenger Counters (APCs)

Figure 3.1-2: Current Bus and Shuttle Services



3.1.2.2 Existing Transit Travel Conditions

Bus riders are subject to the same roadway congestion delays as motorists because buses share roadway travel lanes with general traffic. As Table 1.2-2 indicates, travel speed survey data show low average vehicular speeds of 20 miles per hour along I-76 eastbound during the morning peak period and 17 miles per hour westbound during the evening peak period. Slow travel speeds result in five of the six bus routes having average on-time performance rates ranging from 60 to 78 percent, which are below SEPTA's standard of 80 percent.

Other roadway congestion delays in the transportation study area also affect bus service on-time performance. As described in Section 3.2.3 and shown in **Table 3.2-2**, delays occur in the existing condition at key roadway intersections that buses travel through, such as First Avenue and Moore Road.

Travel times on existing bus routes vary from ride to ride depending on roadway traffic conditions, time of day, weather, and other factors. The inability of many SEPTA bus routes serving the transportation study area to achieve SEPTA's on-time performance standard and the occurrence of slow average peak period travel speeds, particularly along I-76, causes travel time by bus to be lengthy and unreliable. Shuttle services are also subject to variable travel times due to roadway congestion.

The NHSL has an on-time performance rate of 93.9 percent (FY2020), compared to that of the six SEPTA bus routes (ranging from 60 to 80 percent on-time) as a result of operating on its own dedicated ROW.

3.1.2.3 Transit Service Markets

Section 1.2.7 describes the transit service markets that are relevant to this Project. The ridership data for the six existing SEPTA bus routes (shown in Table 1.2-2) in the transportation study area and the current NHSL passenger loads (shown in **Table 3.1-2**) indicate that a transit service market already exists for trips destined to the transportation study area, to and from Philadelphia, Upper Darby and Norristown, and from other points along the NHSL. With 57,038 jobs, the transportation study area is the largest suburban employment center in the DVRPC region. The diversity of land uses in the transportation study area means that both origins and destinations for transit patrons are present.

Among the six existing bus routes, three serve each of the three key destinations in the transportation study area. However, the other three bus routes only serve the King of Prussia Mall. As described in Section 1.4.2, regarding service to other transportation study area destinations, two of the six routes serve the US Route 202 area and one route out of the six serves the Henderson Road area. As a result, riders traveling to Moore Park KOP, Valley Forge National Historical Park and other destinations in the transportation study area on some bus routes must transfer to another bus route to complete a trip. If these bus riders use the NHSL or Regional Rail for part of their trip, this is their second transfer among transit services.

The U.S. Census reported in the 2011-2015 American Community Survey (5-year) that 81 percent of Upper Merion Township's resident workers drive alone, while only 4 percent use public transportation. In 2015, the Pennsylvania Turnpike Commission reported a 65,192

average annual daily traffic volume at the Valley Forge/King of Prussia PA Turnpike Interchange, the second highest volume of any interchange on the PA Turnpike corridor and only a portion of the total transportation study area traffic volume in a single day. By comparison, weekday ridership on all six bus routes combined was 6,718 in 2019 (Table 1.2-2). These data indicate that the market share captured by the six bus routes is currently small compared with the amount captured by motor vehicle travel. Reasons for traveling by motor vehicle as opposed to transit are typically rooted in convenience as borne out by public comment from existing transit users who noted that using transit can take longer, sometimes much longer, to reach destinations than travel by personal vehicle.

3.1.3 Environmental Consequences

3.1.3.1 No Action Alternative

In the No Action Alternative, SEPTA will continue to operate the NHSL and the six bus routes that serve the transportation study area. The No Action Alternative includes no projects to improve the transit system in the transportation study area beyond system preservation projects. No improvements in transit travel conditions are contained within the No Action Alternative. Despite the transit demand evidenced by SEPTA's ridership data reported in Tables 1.2-1 and 1.2-2, destinations in the transportation study area that are not currently well-served by transit will continue being not well-served.

Despite forecasted growth in the transportation study area, which is described in Section 1.2.3, no change in the frequency of transit service to the area will occur in the No Action Alternative. Expected future growth in roadway volumes, described in Section 3.2.3, will increase roadway congestion, causing longer and more unreliable bus travel times. Existing bus on-time performance problems and slow average bus travel speeds and unreliability attributable to roadway congestion, described in Section 1.2.5, will persist and worsen as traffic congestion and delays increase over time (Sections 1.2.8 and 3.2.3). These forecasted roadway network conditions are described in Section 3.2 below.

3.1.3.2 Preferred Alternative

The following discussion of the Preferred Alternative is organized by long-term operational effects and short-term construction effects.

Long-Term Operational Effects

The assessment of long-term operational benefits and impacts of the Preferred Alternative on public transportation considers two primary factors from the ridership forecasting work effort: Trips on the Project and Project Station Boardings by Access Mode. These are the direct effects of the Project on public transportation and are a direct result of the Project. In addition, information is provided on transit travel time savings anticipated as a direct effect of the Project. Additional information on the secondary effects of the Project discussed below are in terms of forecasted change in transit ridership on the NHSL and other transit services in the NHSL service area and forecasted change in mode choice. These secondary effects are based on outputs from the ridership forecasting and are provided for background purposes.

Trips on the Project and Project Station Boardings by Access Mode

Using the STOPS model, the Project-specific measure for the horizon year 2040 generated from the forecasting process is the “Trips on the Project” measure, which is the total number of forecasted average weekday passenger trips in 2040 that will use any of the five new Project stations.

Table 3.1-3 shows the 2040 forecasted “Trips on the Project” listed by type of trip (Work and Non-Work). The STOPS forecasts indicate over 6,700 “Trips on the Project” in 2040. No forecast is provided for the No Action Alternative because it does not include the Project and Project stations.

Table 3.1-3: 2040 Trips on the Project (Average Weekday Passenger Trips)

Trips on the Project Measure	2040 Preferred Alternative
Work Trips - Total	4,508
Non-Work Trips - Total	2,247
Total Trips on the Project	6,755

Source: KOP Rail FEIS STOPS Ridership Forecasting Technical Memorandum, AECOM 2020, Incremental Forecast

The STOPS model also provided forecasts for Project station boardings. **Table 3.1-4** shows the 2040 average daily boardings at Project stations and the number of forecasted transfers (to/from bus or shuttle). As previously described in Chapter 2, the Henderson Road and First & Moore stations include park-and-ride facilities. All Project stations have transfer opportunities to/from other transit modes and have walk access and kiss-and-ride access. No forecast is provided for the No Action Alternative because it does not include the Project and Project stations. The maps in Appendix A show the Project station areas and park-and-ride facilities for the Preferred Alternative. Project stations in Moore Park KOP, including the First & Moore Station with a park-and-ride facility and First & American Station, and Mall Blvd Station directly serving the King of Prussia Mall, are forecasted to generate more boardings than the other two stations.

Table 3.1-4: 2040 Project Station Boardings

Project Station	Transfer	Total
Henderson Road	114	273
Allendale Road	10	260
Mall Blvd	47	1,337
First & American	47	651
First & Moore	676	967
Total Project Stations	894	3,488

Source: KOP Rail FEIS STOPS Ridership Forecasting Technical Memorandum, AECOM 2020, Incremental Forecast

Transit Travel Time Savings

The Preferred Alternative will reduce transit travel times between the transportation study area and the Norristown Transportation Center, 69th Street Transportation Center (in Upper Darby Township), and Center City Philadelphia. **Table 3.1-5** presents existing travel times using bus, the NHSL, and the Market-Frankford Line as derived from SEPTA schedules, transit operating records, and calculations developed and presented by the Economy League of Greater Philadelphia in their 2015 report, *Understanding the Economic Impacts of SEPTA's Proposed King of Prussia Rail Project*. Also shown are future one-way travel time estimates for transit riders using the Project.

As shown in **Table 3.1-5**, the Preferred Alternative will reduce future transit travel times. The transit travel time savings will be 26, 23, and 9 minutes, respectively for trips to the King of Prussia Mall from Center City, the Norristown Transportation Center, and the 69th Street Transportation Center in Upper Darby.

For trips to Moore Park KOP from Center City, the Norristown Transportation Center, and the 69th Street Transportation Center in Upper Darby, the Preferred Alternative travel time savings will be 38, 23, and 12 minutes, respectively.

These travel times contrast with existing bus service on SEPTA bus routes 124 and 125, which can range from their scheduled run time of 97 minutes up to 1 hour and 45 minutes, resulting primarily from traffic congestion on I-76. Comparison of bus service travel times with Preferred Alternative travel times demonstrates that the Preferred Alternative will provide faster public transit service compared to existing bus service.

A comparison of how transit travel time is spent in existing and future conditions is shown in **Table 3.1-5**. These data indicate that the Preferred Alternative will reduce transit riding and wait times:

- Reduced transit riding time: The difference in time traveling by bus in the existing condition compared with travel by rail with the Preferred Alternative is due in part to the rail service being on dedicated guideway (on its own rail corridor) and not in mixed traffic on roadways. The Preferred Alternative's dedicated guideway will eliminate the extra travel time experienced by existing bus service operating on congested roadways, such as on I-76, as well as the unpredictability of travel time because of variable travel conditions on roadways. Whether traveling from Center City, the Norristown Transportation Center or the 69th Street Transportation Center, travel time to the transportation study area will not only be shorter in duration with the Preferred Alternative than the existing condition, but also more reliable.

Table 3.1-5: Existing and Future (with Preferred Alternative) Peak Period Transit Travel Times

	Minutes to King of Prussia Mall						Minutes to Moore Park KOP						Minutes to Center City from King of Prussia	
	From Center City		From Norristown		From Upper Darby		From Center City		From Norristown		From Upper Darby			
	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future	Existing	Future
	6	2	15	5	8	5	15	2	15	5	87	5	15	5
	63	16	23	10	14	30	72	16	29	16	14	36	60	25
	10	5			10		10	5			10			2
		30			12			36			21			16
Trip Time	79	53	38	15	44	35	97	59	44	21	53	41	75	48
Time Savings	0	-26	0	-23	0	-9	0	-38	0	-23	0	-12	0	-27

Key: Wait Time/Delay, Bus, NHSL, Project/NHSL, Market-Frankford Line

Source: Economy League of Greater Philadelphia. *Understanding the Economic Impacts of SEPTA's Proposed King of Prussia Rail Project*, December 2015.

- **Reduced wait time:** Two factors in 2040 will reduce the time transit users currently spend waiting for service before or between rides. First, with the Preferred Alternative, wait time for transfers between NHSL and bus will be eliminated. For example, a future traveler from the 69th Street Transportation Center to the King of Prussia Mall will not have the existing average 10-minute wait time for the transfer to bus from the NHSL. Second, the Preferred Alternative will provide more frequent transit service to key transportation study area destinations. As described in Section 2.3.2.6, for example, the Project's service to King of Prussia from the 69th Street Transportation Center will be every 10 minutes during peak periods and every 20 minutes at all other operating times. This planned service level contrasts with existing bus service that has peak period frequencies of 25-30 minutes (routes 99, 123, 124 and 125) and 60 minutes (routes 92 and 139). More frequent transit service means that travelers will have reduced waiting times for the next train with the Preferred Alternative as opposed to the next bus in the existing condition.

Forecasted Transit Ridership on the NHSL and on Other Transit Services

Table 3.1-6 presents the forecasted increase in average weekday ridership on the NHSL with the Preferred Alternative in operation as compared to the NHSL ridership forecasted to occur under the No Action Alternative in the 2040 horizon year. The 2040 forecasts are the average weekday ridership on the NHSL that is forecasted to be generated based on future land use, demographics, the No Action Alternative projects, and transportation network characteristics with the Preferred Alternative in operation, and without the Preferred Alternative (No Action Alternative) for comparison. The ridership forecasting results also indicate the secondary effects on average weekday ridership on other transit services in the NHSL service area, including connecting transit services in 2040 as shown in **Table 3.1-7**.

Table 3.1-6: 2040 Forecasted NHSL Average Weekday Ridership with the Preferred Alternative and No Action Alternative

NHSL Average Weekday Ridership (2040) for the No Action Alternative	NHSL Average Weekday Ridership (2040) with the Preferred Alternative	Increase in Average Weekday NHSL Ridership Over No Action Alternative (2040)
11,982	21,750	+9,768

Source: KOP Rail FEIS STOPS Ridership Forecasting Technical Memorandum, AECOM 2020, Incremental Forecast

Table 3.1-7: 2040 Average Weekday Ridership by Transit Service in the NHSL Service Area

Transit Service	Average Weekday Transit Ridership for the No Action Alternative	Average Weekday Transit Ridership with the Preferred Alternative
SEPTA Victory Bus	42,136	42,632
SEPTA Frontier Bus	18,550	19,254
Regional Rail	132,813	132,307

Transit Service	Average Weekday Transit Ridership for the No Action Alternative	Average Weekday Transit Ridership with the Preferred Alternative
SEPTA Route 101, 102 Trolleys	9,426	9,747
SEPTA Market-Frankford Line	209,405	213,689
SEPTA NHSL	11,982	21,750

Source: KOP Rail FEIS STOPS Ridership Forecasting Technical Memorandum, AECOM 2020, Incremental Forecast

The ridership forecasting also provided forecasts of average weekday boardings at the route level for specific transit services in **Table 3.1-8**. Decreases in average weekday boardings are forecasted to occur on some SEPTA bus routes particularly the route 123, which is the only SEPTA bus route in the transportation study area that is not expected to continue to operate under the Preferred Alternative, and the route 125. However, some SEPTA bus routes, such as route 92 and route 139, are forecasted to gain boardings under the Preferred Alternative.

Some shifts in boardings to the NHSL from SEPTA regional rail services (the Paoli-Thorndale Regional Line and the Manayunk/Norristown Regional Rail Line) are forecasted to occur under the Preferred Alternative. The Preferred Alternative is forecasted to attract some transit riders from these two rail services because of the Preferred Alternative's park-and-ride facilities as well as the Preferred Alternative's more frequent service levels as compared to regional rail.

Table 3.1-8: 2040 Average Weekday Boardings, Route Level

Transit Service	Average Weekday Boardings under the No Action Alternative	Average Weekday Boardings under the Preferred Alternative
SEPTA Bus Route 92	1,057	2,098
SEPTA Bus Route 99	846	828
SEPTA Bus Route 123	834	-
SEPTA Bus Route 124	2,121	1,688
SEPTA Bus Route 125	2,367	1,011
SEPTA Bus Route 139	318	496
Total Above Bus	7,543	6,121
SEPTA NHSL	11,982	21,750
SEPTA Paoli-Thorndale Regional Rail Line	20,012	20,018
SEPTA Manayunk/Norristown Regional Rail Line	10,991	10,264
Total Above Rail	42,985	52,032

Note: - denotes no forecasted 2040 average weekday boardings as the route 123 bus service is not anticipated to be operated under the Preferred Alternative.

Source: KOP Rail FEIS STOPS Ridership Forecasting Technical Memorandum, AECOM 2020, Incremental Forecast

SEPTA anticipates several changes to its bus routes that serve the transportation study area in order to eliminate service redundancies created by the Preferred Alternative, adjust routes to serve proposed stations and park-and-ride facilities, and optimize operating efficiency in light of these changes. Of the six bus routes serving the transportation study area, SEPTA anticipates that service will no longer be offered on the route 123 since this route will be redundant to the service that the Preferred Alternative will provide; the other five bus routes will continue to be operated but with some modifications. SEPTA anticipates that most SEPTA bus routes will continue to serve the King of Prussia Mall; however, end-of-route layovers will be at the proposed First & Moore Station. Buses to the King of Prussia Mall will serve a single mall bus stop and transfers between bus and rail will occur at Preferred Alternative stations. These anticipated changes to SEPTA bus routes were incorporated into the ridership forecasting process for the Preferred Alternative. The actual plan for future bus services will be developed during subsequent Project design.

Mode Choice

Using the STOPS model, measures were forecasted that relate to mode choice. The measure “New Transit Riders” are new riders to transit that did not take transit under the No Action Alternative, but are forecasted to use a transit mode when the Preferred Alternative is in operation (mode shift). Another measure reported is change in forecasted Vehicle Miles Traveled (VMT) as it is forecasted to occur under the No Action Alternative compared to that under the Preferred Alternative.

Table 3.1-9 summarizes the 2040 regional linked transit trips forecasted to occur on transit services under the No Action Alternative and under the Preferred Alternative with “New Transit Riders” being the change in linked transit trips between the two. The forecasted results show “New Transit Riders” at nearly 4,600 in 2040.

Table 3.1-9: 2040 New Transit Riders

Measure	2040	
	No Action Alternative	Preferred Alternative
Regional Linked Transit Trips	712,954	717,509
New Transit Riders	-	4,556

Source: KOP Rail FEIS STOPS Ridership Forecasting Technical Memorandum, AECOM 2020, Incremental Forecast

Table 3.1-10 summarizes the forecasted 2040 VMT change under the No Action Alternative compared to what is forecasted to occur under the Preferred Alternative. The STOPS model forecasts the change in Personal Miles Traveled (PMT) with an average vehicle occupancy factor of 1.21 applied to estimate the change in VMT. The average vehicle occupancy factor used was from the DVRPC report *Vehicle Occupancy for the Delaware Valley Region* for average auto occupancy in Pennsylvania counties in the region.

Table 3.1-10: 2040 Change in PMT and VMT

Measure	2040 Preferred Alternative
Change in PMT	-74,177
Average Vehicle Occupancy	1.21
Change in VMT (average weekday)	-61,303

Source: KOP Rail FEIS STOPS Ridership Forecasting Technical Memorandum, AECOM 2020, Incremental Forecast

Transit Travel Markets

As described in Section 1.2.7, many destinations within the transportation study area are either underserved or not served by transit today. The ridership forecasting results described in this section indicate a market demand to serve the transportation study area (the largest suburban employment center in the Greater Philadelphia region), as well as destinations along the NHSL and the City of Philadelphia. The Preferred Alternative will provide transit stations within ½ mile of the three key transportation study area destinations: King of Prussia Mall, Moore Park KOP and Valley Forge National Historical Park (VFNHP). Potential shuttle services or multi-use paths could provide connections from proposed stations to the VFNHP and other destinations, such as Children’s Hospital of Philadelphia. The maps in Appendix A show the locations of proposed stations and park-and-ride facilities for the Preferred Alternative.

SEPTA anticipates that the Preferred Alternative will be supported with modified shuttle bus services that will connect Preferred Alternative stations with destinations in the transportation study area that are not within a convenient walk of a Preferred Alternative station. Such a destination for the Preferred Alternative could be the Children’s Hospital of Philadelphia, for example. SEPTA will coordinate with GVFTMA and KOP-BID to plan appropriate shuttle bus service modifications to serve Project stations.

Short-Term Construction Effects

Project construction activities have the potential to temporarily impact bus transit and shuttle bus services where temporary roadway closures require bus and shuttle transit service detours and relocated stops. The specific bus and shuttle routes that could be affected are listed in **Table 3.1-11** and **Table 3.1.12**. Temporary lane closures could impact the travel times for transit and shuttle bus services and could require temporary schedule adjustments. As described in Section 2.3.2.9, lane or roadway closures could occur, requiring alternate routing of existing bus and shuttle bus services or schedule adjustments. To the extent reasonably feasible, roadway and lane closures will occur at off-peak hours to minimize impacts to transit riders.

Preferred Alternative construction activities have the potential to impact NHSL service if temporary adjustments to the NHSL operating schedule and/or suspension of service are required by SEPTA to construct the wye connection to the existing NHSL. The connection will be made between the NHSL DeKalb Street and Hughes Park Stations.

Table 3.1-11: Locations of Potential Short-Term Construction Effects to Bus Service, Preferred Alternative

Bus Route 92	Bus Route 99	Bus Route 123	Bus Route 124	Bus Route 125	Bus Route 139
Mall Boulevard	PA Turnpike crossing of US 202, Allendale Road crossing, Wills Boulevard, First Avenue	Mall Boulevard	Henderson Road crossing, PA Turnpike crossing of US 202, Mall Boulevard	Mall Boulevard, First Avenue	Mall Boulevard

Source: AECOM 2020

Table 3.1-12: Potential Short-Term Construction Effects to Shuttle Service, Preferred Alternative

Rambler	Norristown Connector	Wayne Station Connector
PA Turnpike crossing of US 202, Allendale Road crossing, Mall Boulevard, Wills Boulevard	First Avenue, Allendale Road crossing	First Avenue

Source: AECOM 2020

Minimization, Mitigation and Commitments

Long-Term Operational – During subsequent design, SEPTA will develop a program of bus service changes to eliminate service redundancies created by Project operations, adjust routes to serve proposed stations and park-and-ride facilities, and optimize operating efficiency. SEPTA will coordinate with GVFTMA and KOP-BID to plan appropriate shuttle bus service modifications to serve Project stations. During operations, SEPTA will implement its program of bus service changes, and will coordinate with the GVFTMA and KOP-BID to implement appropriate shuttle service modifications to serve Project stations.

Short-Term Construction – As described in Section 2.3.2.9 and during subsequent design, SEPTA will prepare a Transportation Management Plan to minimize the potential impacts of construction on the transportation system. The plan will include a temporary transit service plan developed by SEPTA in coordination with shuttle operators. This plan will identify potential service changes, and include actions to minimize or mitigate temporary impacts such as bus re-routing and adjusted service schedules. During subsequent design, SEPTA will update the NHSL operating plan to accommodate Project service. If NHSL schedule adjustments are required, SEPTA will issue service advisories in advance of the temporary schedule impact occurring and implement substitute bus service, where necessary. To the extent reasonably feasible, temporary suspension of rail service will occur during off-peak hours to minimize impacts to transit riders. In all cases, the plan will include a public outreach and information component to inform the public of unavoidable short-term changes in transit (bus and NHSL) and shuttle bus systems before they occur. During construction, SEPTA will implement the Transportation Management Plan.

3.2 Roadways

3.2.1 Methodology

The assessment of the potential benefits and impacts of the No Action Alternative and the Preferred Alternative on roadways relies on the results of the traffic analyses contained in the 2019 *KOP Rail Basis of Design Report, Appendix 6b* prepared by Traffic Planning and Design, Inc., for HNTB and SEPTA, which can be found on the website (www.kingofprussiarail.com).

Data used to assess the potential benefits and impacts on roadways included roadway system characteristics, forecasted access to Project stations by mode, trip generation estimates, intersection turning movement volumes, and peak period traffic volumes for existing 2019 and horizon year 2040. Traffic congestion was quantified using the methodologies of the Transportation Research Board's *Highway Capacity Manual, 6th Edition* (HCM), the national standard for evaluating traffic operations, and Synchro 10 software, a Trafficware product. The station traffic assessment was prepared in accordance with PennDOT's Policies and Procedures for Transportation Impact Studies (TIS), found in PennDOT's Publication 282, Appendix A, dated July 2017. Traffic assessments were completed at all five Project stations in accordance with transportation impact study policies and procedures and reflect scoping meetings held with PennDOT. SEPTA's conceptual plans for the station areas include roadway and intersection improvements at Project stations. This section evaluates the impacts of the Project on those intersections and the benefits of the proposed roadway improvements to intersection performance.

The peak hour trip generation for the traffic assessment at stations was established by two methods. For the Project stations that include park-and-ride facilities, the proposed Henderson Road and First & Moore stations, peak hour trips for a 500-space parking facility were estimated using industry standard techniques from the manual *Trip Generation, Tenth Edition*, 2017, an Institute of Transportation Engineers (ITE) Informational Report. At the other Project stations (Allendale Road, Mall Blvd and First & American), the traffic assessment used the peak hour trip generation based on patronage forecasts from the ridership forecasting process as developed for the DEIS. In relation to the STOPS ridership forecasts developed for this FEIS, both methods that were employed in the traffic assessment overestimate forecasted vehicular traffic at the key intersections, thus providing a conservative evaluation of potential impacts from station area traffic. More detail on methodology can be found in the 2019 *KOP Rail Basis of Design Report, Appendix 6b* prepared by Traffic Planning and Design, Inc., for HNTB and SEPTA (www.kingofprussiarail.com).

Of note, there are no potential at-grade rail crossings of streets, roads or highways for the Preferred Alternative. Even though the entire length of the Preferred Alternative is not on an aerial structure, the limited portions of the alignments that are on retained fill or in a cut do not have potential roadway crossings. As a result, intersection capacity analysis for roadway crossing locations was not warranted or performed.

As traffic assessments were completed at all five Project stations, the following sections of this chapter are organized by proposed station.

3.2.2 Affected Environment

Intersection capacity analysis was performed at intersection locations at or near each of the five Project stations. Capacity analyses were conducted for the weekday AM and PM peak hours at roadway intersections unless otherwise described.

The following conditions were analyzed, as applicable:

- 2019 Existing year conditions as described in this section, 3.2.2 Affected Environment
- 2040 No Action Alternative as described in Section 3.2.3 Environmental Consequences and Section 3.2.3.1 No Action Alternative
- 2040 Preferred Alternative as described in Section 3.2.3 Environmental Consequences and Section 3.2.3.2 Preferred Alternative

To assess intersection function, two measures were used: delay and level of service (LOS). Delay is the additional travel time due to the presence of a traffic control device and conflicting traffic. LOS is a conversion of delay in seconds to a qualitative letter grade system measuring operational performance. Six LOS levels are used ranging from A to F, with A being the best, B through D being generally acceptable, and E to F being poor.

Henderson Road Station

The intersections studied in the Henderson Road Station traffic assessment are listed in **Table 3.2-1** and existing LOS at the intersections is reported in the table.

Table 3.2-1: Henderson Road Station Overall Intersection LOS (Delay) Summary - Existing Condition

Intersection	Existing Condition LOS (Delay)	
	AM Peak Hour	PM Peak Hour
Henderson Road & Saulin Boulevard	C (23.1)	B (10.1)
Saulin Boulevard & Self-Storage/Shopping Center Driveway	A (0.5)	A (0.8)
Saulin Boulevard & Monroe Boulevard/Proposed Site Driveway	A (1.7)	A (3.7)
Henderson Road & Parking Driveway	-	-
Saulin Boulevard & Parking Driveway	-	-

Source: 2019 *KOP Rail Basis of Design Report, Appendix 6b*, TPD/HNTB; - denotes no LOS (delay) as intersection does not exist in Existing Condition

Allendale Road Station

The studied intersection in the Allendale Road Station traffic assessment is listed in **Table 3.2-2** and existing LOS at the intersection is reported in the table.

The traffic assessment for the Allendale Road Station focused on the Allendale Road/Wills Boulevard intersection only because station vehicular access to Wills Boulevard will be a

right-in/right-out driveway. The Allendale Road/Wills Boulevard intersection is currently signalized, and the proposed station access will be the fourth leg to the existing signalized intersection. In addition to weekday morning and afternoon peak hours, per the scoping meetings with PennDOT, a Saturday midday peak hour capacity analysis was also conducted due to the proximity of retail land uses.

Table 3.2-2: Allendale Road Station Overall Intersection LOS (Delay) Summary - Existing Condition

Intersection	Existing Condition LOS (Delay)		
	AM Peak Hour	PM Peak Hour	Saturday Midday Peak Hour
Allendale Road & Willis Boulevard	A (7.8)	B (17.9)	C (20.6)

Source: 2019 KOP Rail Basis of Design Report, Appendix 6b, TPD/HNTB

Mall Blvd Station

The studied intersections in the Mall Blvd Station traffic assessment are listed in **Table 3.2-3** and existing LOS at the intersections is reported in the table.

Because to the commercial nature of the land uses in proximity of the proposed Mall Blvd Station and per the scoping meetings with PennDOT, capacity analyses were performed for the afternoon peak hour and a Saturday midday peak hour.

Table 3.2-3: Mall Blvd Station Overall Intersection LOS (Delay) Summary - Existing Condition

Intersection	Existing Condition LOS (Delay)	
	PM Peak Hour	Saturday Midday Peak Hour
Mall Boulevard and Hyatt House/Proposed Driveway	A (0.7)	A (5.0)
Mall Boulevard and Atrium Drive	B (14.6)	C (30.5)

Source: 2019 KOP Rail Basis of Design Report, Appendix 6b, TPD/HNTB

First & American Station

The studied intersections in the First & American Station traffic assessment are listed in **Table 3.2-4** and existing LOS at the intersections is reported in the table.

Table 3.2-4: First & American Station Overall Intersection LOS (Delay) Summary - Existing Condition

Intersection	Existing Condition LOS (Delay)	
	AM Peak Hour	PM Peak Hour
First Avenue & Clark Avenue	A (1.6)	A (3.5)
First Avenue & American Avenue/Proposed Driveway	B (10.5)	B (15.2)

Source: 2019 KOP Rail Basis of Design Report, Appendix 6b, TPD/HNTB

First & Moore Station

The studied intersections in the First & Moore Station traffic assessment are listed in **Table 3.2-5** and existing LOS at the intersections is reported in the table.

Table 3.2-5: First & Moore Station Overall Intersection LOS (Delay) Summary - Existing Condition

Intersection	Existing Condition LOS (Delay)	
	AM Peak Hour	PM Peak Hour
First Avenue & North Gulph Road	C (31.4)	E (55.3)
First Avenue & Valley Forge Casino Main Access/Freedom Business Center Driveway	A (1.4)	A (1.3)
First Avenue & Valley Forge Casino Middle Access/Parkview Towers West Entrance	A (0.4)	A (0.4)
First Avenue & Valley Forge Casino East Access/Parkview Towers East Entrance	A (0.0)	A (0.3)
First Avenue & Devon International Group/Proposed Driveway	A (0.5)	A (0.2)
First Avenue & Moore Road	B (16.2)	C (20.1)

Source: 2019 KOP Rail Basis of Design Report, Appendix 6b, TPD/HNTB

The First & Moore station will be on the north side of First Avenue, on the existing Devon International Group property, adjacent to the Valley Forge Casino Resort property. In conjunction with the station, a 500-space parking garage will be provided. Vehicular access to the station and parking garage will be provided by one (1) full-access driveway to First Avenue in the area of the existing Devon International Group driveway; the new First & Moore Station driveway intersection will be signalized.

3.2.3 Environmental Consequences

Long-Term Operational Effects

Similar to the existing conditions analysis, intersection function in 2040 for the No Action Alternative and the Preferred Alternative was measured using delay and LOS. As noted previously, delay is the additional travel time due to the presence of a traffic control device and conflicting traffic. LOS is a conversion of delay in seconds to a qualitative letter grade system measuring operational performance. Six LOS levels are used ranging from A to F, with A being the best, B through D being generally acceptable, and E to F being poor.

3.2.3.2 No Action Alternative

In the No Action Alternative, SEPTA will continue to operate the NHSL and the six bus routes that serve the transportation study area but the Project will not be implemented and, thus, no Project stations will be built. For horizon year 2040, projects to improve the transportation system in the transportation study area that are included in the financially constrained element of *Connections 2045 Plan for Greater Philadelphia*, the long-range transportation plan of the DVRPC, the MPO for the Philadelphia metropolitan area, are assumed to be built and in service by 2040 and are included in the analyses of the No Action Alternative as well as the Preferred Alternative. Table 2.3-1 lists the major committed transportation projects within the transportation study area, which are presumed to be implemented by 2040.

In addition to the long-range transportation plan projects, programmed intersection improvements in the DVRPC Transportation Improvement Program (TIP) and proposed development-related intersection improvements, as identified in traffic impact scoping meetings with PennDOT, were included in the No Action Alternative and Preferred Alternative traffic impact analyses.

While these projects will help address some transportation study area roadway deficiencies, congestion and travel delays will remain. As shown in the tables to follow, the capacity analysis of key transportation study area intersections indicates that LOS at some of these intersections will worsen by 2040 in the No Action Alternative as compared to the existing condition. Increased traffic volumes will cause intersection performance to worsen. This condition will be the result of the expected increase in traffic volumes.

The 2040 LOS/delay forecasts in the tables to follow indicate that road-based traffic, including SEPTA bus routes 99, 124 and 125, will be adversely impacted in the No Action Alternative, especially in the PM peak hour, where additional running time may be required in the transportation study area. Additional running time potentially will impact SEPTA's peak vehicle requirements for these routes and increase operating costs.

To develop No Action Alternative traffic volumes, a background growth factor for the roadways in the Project station areas was developed based on growth factors obtained from the PennDOT Bureau of Planning and Research (BPR). The background growth factor was applied annually to yield an overall growth rate for the 2040 horizon year. No Action Alternative traffic conditions were calculated to also include traffic volumes from nearby planned developments, which though not present under existing conditions, are assumed to be operating by the horizon year 2040. The additional traffic volumes due to background growth and background development were added to the existing traffic data to produce 2040 No Action Alternative traffic volumes. Intersection capacity analyses were then conducted for the 2040 No Action Alternative condition at the roadway intersections studied for the five Project stations.

Henderson Road Station

As noted for existing conditions, the intersections included in the Henderson Road Station area 2040 No Action Alternative traffic assessment are listed in **Table 3.2-6** and delay and LOS for the studied intersections in the No Action Alternative is reported in the table.

Table 3.2-6: Henderson Road Station Overall Intersection LOS (Delay) Summary – 2040, No Action Alternative

Intersection	2040 No Action Alternative LOS (Delay)	
	AM Peak Hour	PM Peak Hour
Henderson Road & Saulin Boulevard	C (22.2)	B (13.0)
Saulin Boulevard & Self-Storage/Shopping Center Driveway	A (0.5)	A (0.8)
Saulin Boulevard & Monroe Boulevard/Proposed Site Driveway	A (1.7)	A (4.0)
Henderson Road & Parking Driveway	-	-
Saulin Boulevard & Parking Driveway	-	-

Note: - denotes no LOS (delay) as intersection does not exist in the No Action Alternative

Source: 2019 KOP Rail Basis of Design Report, Appendix 6b, TPD/HNTB

As noted for existing conditions, the intersection included in the Allendale Road Station area 2040 No Action Alternative traffic assessment is listed below in **Table 3.2-7** and delay and LOS for the studied intersection in the No Action Alternative is reported in the table.

The traffic assessment for the Allendale Road Station focused on the Allendale Road/Wills Boulevard intersection because vehicular access to the station will be a right-in/right-out driveway. The Allendale Road/Wills Boulevard intersection is currently signalized, and the proposed station access will be the fourth leg to the signalized intersection. In addition to weekday morning and afternoon peak hours, per the scoping meetings with PennDOT, a Saturday midday peak hour capacity analysis was also conducted due to the proximity of retail land uses.

Table 3.2-7: Allendale Road Station Overall Intersection LOS (Delay) Summary – 2040, No Action Alternative

Intersection	2040 No Action Alternative LOS (Delay)		
	AM Peak Hour	PM Peak Hour	Saturday Midday Peak Hour
Allendale Road & Willis Boulevard	A (8.1)	B (18.3)	C (21.0)

Source: 2019 KOP Rail Basis of Design Report, Appendix 6b, TPD/HNTB

Mall Blvd Station

As noted for existing conditions, the intersections included in the Mall Blvd Station area 2040 No Action Alternative traffic assessment are listed in **Table 3.2-8** and delay and LOS for the studied intersections in the No Action Alternative is reported in the table.

Due to the nature of the commercial land uses in proximity of the proposed Mall Blvd Station and per the scoping meetings with PennDOT, capacity analyses were performed for the afternoon peak hour and a Saturday midday peak hour.

Table 3.2-8: Mall Blvd Station Overall Intersection LOS (Delay) Summary – 2040, No Action Alternative

Intersection	2040 No Action Alternative LOS (Delay)	
	PM Peak Hour	Saturday Midday Peak Hour
Mall Boulevard and Hyatt House/Proposed Driveway	A (2.5)	A (3.5)
Mall Boulevard and Atrium Drive	B (15.0)	D (35.3)

Source: 2019 KOP Rail Basis of Design Report, Appendix 6b, TPD/HNTB

First & American Station

As noted for existing conditions, the intersections included in the First & American Station area 2040 No Action Alternative traffic assessment are listed below in **Table 3.2-9** and delay and LOS for the studied intersections in the No Action Alternative is reported in the table.

Table 3.2-9: First & American Station Overall Intersection LOS (Delay) Summary – 2040, No Action Alternative

Intersection	2040 No Action Alternative LOS (Delay)	
	AM Peak Hour	PM Peak Hour
First Avenue & Clark Avenue	A (1.7)	A (4.5)
First Avenue & American Avenue/Proposed Driveway	B (10.9)	B (16.1)

Source: 2019 KOP Rail Basis of Design Report, Appendix 6b, TPD/HNTB

First & Moore Station

As noted under existing conditions, the intersections included in the First & Moore Station area 2040 No Action Alternative traffic assessment are listed below in **Table 3.2-10** and delay and LOS for the studied intersections in the No Action Alternative is reported in the table.

The First & Moore Station will be on the north side of First Avenue on the existing Devon International Group property, adjacent to the Valley Forge Casino Resort property. In conjunction with the station, a 500-space parking garage will be provided. Vehicular access for the First & Moore Station and related parking garage will be served by one (1) full-access driveway to First Avenue in the area of the existing Devon International Group driveway, which will be signalized.

Table 3.2-10: First & Moore Station Overall Intersection LOS (Delay) Summary – 2040, No Action Alternative

Intersection	2040 No Action Alternative LOS (Delay)	
	AM Peak Hour	PM Peak Hour
First Avenue & North Gulph Road	D (40.0)	F (80.0)

Intersection	2040 No Action Alternative LOS (Delay)	
	AM Peak Hour	PM Peak Hour
First Avenue & Valley Forge Casino Main Access/Freedom Business Center Driveway	A (1.5)	A (1.4)
First Avenue & Valley Forge Casino Middle Access/Parkview Towers West Entrance	A (0.4)	A (0.4)
First Avenue & Valley Forge Casino East Access/Parkview Towers East Entrance	A (0.0)	A (0.4)
First Avenue & Devon International Group/Proposed Driveway	A (0.5)	A (0.2)
First Avenue & Moore Road	B (11.7)	C (22.1)

Source: 2019 KOP Rail Basis of Design Report, Appendix 6b, TPD/HNTB

3.2.3.3 Preferred Alternative

Roadway intersection conditions with the Preferred Alternative assume that the No Action Alternative projects listed in Table 2.3-1 will be implemented as well as the Project, along with TIP intersection improvements and planned development-related intersection improvements. The “Trips on the Project” analysis results from the STOPS forecasting process (Section 3.1.3) indicate that while the Project will attract trips to the Project, the actual number is small in the context of the entire transportation study area where the majority of trips will still be by motor vehicle. The ridership that is anticipated to occur in the forecast for the Preferred Alternative will not change forecasted 2040 congestion conditions on most portions of transportation study area roadways.

The Preferred Alternative will provide several benefits regarding roadway operations. First, the Preferred Alternative will be on elevated guideway over the roadway network, which will help to avoid some roadway and traffic impacts. Second, forecasts for the Preferred Alternative indicate a reduction in VMT and new riders to transit. Despite these benefits, an assessment of Project-related traffic in the vicinity of stations identified recommended improvements to affected intersections to address Project impacts from traffic accessing the stations.

As described in the following subsections, the traffic assessment results demonstrate that the mitigation recommended by SEPTA will address the traffic impacts resulting from the Project at affected intersections. The results indicate that intersection performance will be at the same or improved LOS and delay at most station area intersections with the intersection mitigation recommended by SEPTA. Where poor intersection LOS remains, congestion and travel delays will be experienced. SEPTA’s commitment in this FEIS is to mitigate the traffic impacts anticipated to occur at station area intersections from the Project. The recommended improvements identified below for each station area represent the types of mitigation that may be needed. The identification of specific roadway and intersection improvements necessary for traffic impact mitigation at station areas will be determined when SEPTA applies for Highway Occupancy Permits (HOP) in later phases of design of the Project.

The analysis assumes that in the Preferred Alternative, SEPTA will continue to operate the NHSL and modified bus routes in the transportation study area. In addition, the Project will be

built and operated, and Project stations will be built and in operation. For horizon year 2040, other projects to improve the transportation system in the transportation study area that are included in the financially constrained element of *Connections 2045 Plan for Greater Philadelphia*, the long-range transportation plan of the DVRPC, the MPO for the Philadelphia metropolitan area, are assumed to be built and in service by 2040 and are included in the analyses the Preferred Alternative. Table 2.3-1 lists the major committed transportation projects within the transportation study area, which are presumed to be implemented by 2040. In addition to the long-range transportation plan projects, programmed intersection improvements in the DVRPC TIP and proposed development-related intersection improvements, as identified in traffic impact scoping meetings with PennDOT, were included in the Preferred Alternative traffic impact analyses.

Henderson Road Station

The intersections included in the Henderson Road Station's Preferred Alternative traffic assessment are the same as analyzed for the No Action Alternative and are shown in **Table 3.2-11** below. The delay and LOS for each intersection under the Preferred Alternative are reported in the table.

Table 3.2-11: Henderson Road Station Overall Intersection LOS (Delay) Summary – 2040, Preferred Alternative

Intersection	2040 Preferred Alternative LOS (Delay) ¹		Meets LOS Requirements?
	AM Peak Hour	PM Peak Hour	
Henderson Road & Saulin Boulevard	C (21.8)	B (14.9)	YES
Saulin Boulevard & Self-Storage/Shopping Center Driveway	A (1.0)	A (2.6)	YES
Saulin Boulevard & Monroe Boulevard/Proposed Site Driveway	A (1.9)	A (5.5)	YES
Henderson Road & Parking Driveway	A (0.0)	A (0.1)	YES
Saulin Boulevard & Parking Driveway	A (0.1)	A (0.0)	YES

¹With recommended improvements.

Source: 2019 *KOP Rail Basis of Design Report, Appendix 6b*, TPD/HNTB

Under 2040 Preferred Alternative conditions with improvements, all levels of service at the studied intersections will comply with the requirements outlined in PennDOT's TIS Guidelines. The following roadway improvements are recommended and were included in the analysis:

- Henderson Road and Saulin Boulevard:** The Henderson Road/Saulin Boulevard future condition intersection analysis in this study includes recommended roadway improvements along Henderson Road including left turn lanes) that would be constructed by the planned commercial development (Taco Bell and Auto Parts store) and optimizing traffic signals in the vicinity of the proposed station. The turn lanes would be incorporated the time the parcel on the west side of the Henderson Road is developed as commercial space or a parking lot

- **Henderson Road:** Provide a sidewalk along the Henderson Road site frontages and provide pedestrian connectivity between parking areas and proposed bus pull-offs.
- **Saulin Boulevard:** Restripe Saulin Boulevard between Henderson Road and the Saulin Boulevard “bend” to provide a two-way center left-turn lane to facilitate left turns at the existing driveways/roadways and proposed station driveways.

Allendale Road Station

The intersection included in the Allendale Road Station’s Preferred Alternative traffic assessment is the same as analyzed for the No Action Alternative and are shown in **Table 3.2-12** below. The delay and LOS for the intersection under the Preferred Alternative is reported in the table.

The traffic assessment for the Allendale Road Station focused on the Allendale Road/Wills Boulevard intersection only because the station vehicular access to Wills Boulevard will be a right-in/right-out driveway. The Allendale Road/Wills Boulevard intersection is currently signalized, and the proposed station access will be the fourth leg to the signalized intersection. In addition to weekday morning and afternoon peak hours, per the scoping meetings with PennDOT, a Saturday midday peak hour capacity analysis was also conducted due to the proximity of retail land uses.

Table 3.2-12: Allendale Road Station Overall Intersection LOS (Delay) Summary – 2040, Preferred Alternative

Intersection	2040 Preferred Alternative LOS (Delay) ¹			Meets LOS Requirements?
	AM Peak Hour	PM Peak Hour	Saturday Midday Peak Hour	
Allendale Road & Wills Boulevard	B (14.8)	C (23.2)	C (24.0)	YES

¹With recommended improvements.

Source: 2019 KOP Rail Basis of Design Report, Appendix 6b, TPD/HNTB

Under 2040 Preferred Alternative conditions with recommended improvements, all levels of service at the studied intersection comply with the requirement outlined in PennDOT’s TIS Guidelines. The following roadway improvements are recommended and were included in the analysis:

- Provide pedestrian connectivity between the proposed station and existing pedestrian facilities at the Allendale Road/Wills Boulevard intersection.
- Optimize the coordinated traffic signal timings along Allendale Road and Wills Boulevard to account for the new traffic patterns.
- With the addition of the proposed station driveway, upgrade the traffic signal timings and equipment as needed at the Allendale Road/Wills Boulevard intersection.

Mall Blvd Station

The studied intersections included in the Mall Blvd Station's Preferred Alternative traffic assessment are the same as analyzed for the No Action Alternative and are shown in **Table 3.2-13**. The delay and LOS for each intersection under the Preferred Alternative are reported in the table below.

Table 3-2.13: Mall Blvd Station Overall Intersection LOS (Delay) Summary – 2040, Preferred Alternative

Intersection	2040 Preferred Alternative LOS (Delay) ¹		Meet LOS Requirements?
	PM Peak Hour	Saturday Midday Peak Hour	
Mall Boulevard and Hyatt House/Proposed Driveway	B (14.3)	A (5.0)	YES
Mall Boulevard and Atrium Drive	B (11.8)	C (30.5)	YES

¹With recommended improvements.

Source: 2019 KOP Rail Basis of Design Report, Appendix 6b, TPD/HNTB

Because of the commercial nature of the land uses in proximity of the proposed Mall Blvd Station and per the scoping meetings with PennDOT, capacity analyses were performed for the afternoon peak hour and a Saturday midday peak hour.

Under 2040 Preferred Alternative conditions with recommended improvements, all levels of service at the studied intersections will comply with the requirement outlined in PennDOT's TIS Guidelines. The following roadway improvements are recommended and were included in the analysis:

- The existing right-in/right-out only driveway adjacent to the Capital Grill restaurant is proposed to be closed as part of the Project.
- Because vehicular access for the proposed Mall Blvd Station will be provided via the existing connection of Mall Boulevard to the driveway that serves the former Toys R Us store, the Mall Boulevard/former Toys R Us driveway is proposed to be signalized as part of the Project. The proposed traffic signal does not preclude a possible future driveway for the King of Prussia Mall opposite the former Toys R Us driveway; and the Mall Boulevard median allows for a westbound left turn lane should the fourth leg be provided.

First & American Station

The studied intersections included in the First & American Station's Preferred Alternative traffic assessment are the same as analyzed for the No Action Alternative and are listed in **Table 3.2-14** below. The delay and LOS for each intersection under the Preferred Alternative are reported in the table.

Table 3.2-14: First & American Station Overall Intersection LOS (Delay) Summary – 2040, Preferred Alternative

Intersection	2040 Preferred Alternative LOS (Delay) ¹		Meet LOS Requirements?
	AM Peak Hour	PM Peak Hour	
First Avenue & Clark Avenue	A (1.9)	A (4.8)	YES
First Avenue & American Avenue/Proposed Driveway	B (13.7)	B (15.0)	YES

¹With recommended improvements.

Source: 2019 KOP Rail Basis of Design Report, Appendix 6b, TPD/HNTB

Under 2040 Preferred Alternative conditions with recommended improvements, all levels of service at the studied intersections comply with the requirement outlined in PennDOT's TIS Guidelines. The following roadway improvements are recommended and were included in the analysis:

- Optimize the signal timings at the First Avenue/American Avenue intersection and coordinate the signal timings along the First Avenue corridor.
- Provide pedestrian connectivity between the First & American Station and the existing pedestrian facilities along First Avenue.

First & Moore Station

The studied intersections included in the First & Moore station's Preferred Alternative traffic assessment are the same as analyzed for the No Action Alternative and are listed below in **Table 3.2-15**. The delay and LOS for each intersection under the Preferred Alternative are reported in the table.

The First & Moore Station will be on the north side of First Avenue on the existing Devon International Group property, adjacent to the Valley Forge Casino Resort property. In conjunction with the station, a 500-space parking garage will be provided. Vehicular access to First & Moore Station and the related parking garage will be served by one (1) full-access driveway to First Avenue in the area of the existing Devon International Group driveway, which will be signalized.

Table 3.2-15: First & Moore Station Overall Intersection LOS (Delay) Summary – 2040, Preferred Alternative

Intersection	2040 Preferred Alternative LOS (Delay) ¹		Meet LOS Requirements?
	AM Peak Hour	PM Peak Hour	
First Avenue & North Gulph Road	D (42.0)	F (85.2)	YES
First Avenue & Valley Forge Casino Main Access/Freedom Business Center Driveway	A (1.4)	A (1.3)	YES
First Avenue & Valley Forge Casino Middle Access/Parkview Towers West Entrance	A (0.3)	A (0.4)	YES
First Avenue & Valley Forge Casino East Access/Parkview Towers East Entrance	A (0.0)	A (0.3)	YES
First Avenue & Devon International Group/Proposed Driveway	A (3.8)	B (19.3)	YES
First Avenue & Moore Road	B (11.7)	C (22.6)	YES

¹With recommended improvements.

Source: 2019 KOP Rail Basis of Design Report, Appendix 6b, TPD/HNTB

Under the 2040 Preferred Alternative conditions with the First & Moore Station and related parking garage, the studied intersections with recommended improvements will comply with the requirements outlined in PennDOT's TIS Guidelines during the weekday A.M. and P.M. peak hours. The following roadway improvements are recommended and were included in the analysis: signalize the intersection of the First & Moore Station driveway with First Avenue and optimize/coordinate the signal timings along First Avenue.

Short-Term Construction Effects

Construction activities potentially will result in temporary interruptions or changes to vehicular and pedestrian traffic patterns in the vicinity of Project work areas. Temporary travel lane and/or roadway closures may be required for certain construction activities to enable construction access and provide for public and worker safety, such as installing support columns for the guideway structure in a roadway median. Lifting the overhead guideway sections into place at locations where the Preferred Alternative crosses roadways will also require roadway closure for limited periods of time to protect construction worker and public safety.

As part of the Project construction plan, and in order to minimize potential impacts in the transportation study area, SEPTA will identify specific routes (known as haul routes) on the existing street network for movement of trucks and other construction vehicles. During various stages of construction, additional traffic will be generated along these routes by hauling of construction debris, excavation spoils, building materials, and equipment movement.

Minimization, Mitigation and Commitments

Long-Term Operational – During subsequent design, SEPTA will coordinate with state and local officials to determine improvements needed to mitigate traffic impacts on roadways and

intersections affected by Project stations, and design the specific improvements to the roadways and intersections affected as part of the Highway Occupancy Permit process.

Short-Term Construction – During subsequent design, SEPTA will coordinate with PennDOT, Montgomery County, Upper Merion Township, and the PA Turnpike Commission as it develops and implements a Transportation Management Plan for affected roadways during construction with the goals of maintaining traffic operations and minimizing additional congestion to the extent reasonably feasible. The plan will identify specific impacts to roadways (such as lane or street closures) and specific actions SEPTA will implement to minimize and mitigate temporary construction impacts on roadways. Such actions would include, but may not be limited to:

- Ensuring access to residences and businesses is maintained during Project construction;
- Ensuring emergency access for fire-fighting equipment and evacuations is maintained during construction;
- Implementing temporary routing and circulation, as needed, with directional signing;
- Installing temporary traffic control devices to improve construction-related congestion impacts or other temporary traffic flow problems;
- Providing a public outreach and information component to inform the public of changes in the roadway system before they occur; and
- Restoring affected roadways upon completion of construction.

As part of the plan, SEPTA will identify and implement temporary traffic re-routing or roadway closures, signing, and public outreach as needed to inform the public of temporary roadway changes before they occur. Roadway closure times and durations will be determined in coordination with the public agency with jurisdiction over the particular roadway and will occur during late night hours to minimize disruption of travel operations.

During construction, SEPTA will construct the specific improvements to roadways and intersections affected by the Project per the requirements of the Highway Occupancy Permit. In addition, SEPTA will coordinate with PennDOT, Montgomery County, Upper Merion Township, and the PA Turnpike Commission as it implements the Transportation Management Plan for affected roadways during construction.

3.3 Pedestrian and Bicycle Facilities

3.3.1 Methodology

This section documents existing and planned pedestrian and bicycle facilities located within the transportation study area using available information from Upper Merion Township, Montgomery County and PennDOT, as well as field observation of existing transportation study area facilities. Potential benefits and impacts associated with the Preferred Alternative (compared with the No Action Alternative) were qualitatively assessed based on the conceptual design of the Project including the proposed stations.

3.3.2 Affected Environment

Pedestrian and bicycle facilities in the transportation study area include sidewalks and multi-use trails such as Montgomery County's Chester Valley Trail. Sidewalks are present in some areas and absent in others, resulting in a discontinuous pedestrian network. For example, much of the residential area north of US Route 202, as well as older neighborhoods including Swedesburg, Swedeland and Hughes Park, have sidewalks, although some gaps exist in the network. However, the rest of Upper Merion Township has scattered sidewalks. Portions of existing bus routes have stops that lack Americans with Disabilities Act (ADA) accessibility and proper sidewalk and crosswalk connections. Local roadway intersections in the vicinity of proposed stations and park-and-ride facilities generally have pedestrian accommodations, including sidewalks, curb ramps, crosswalks, pedestrian push buttons and pedestrian traffic signals.

A segment of the Chester Valley Trail runs between South Warner Road to the PennDOT park-and-ride area at South Gulph Road via a bridge over I-76. The transportation study area also has a few additional short, paved trail segments. In 2009, a short trail opened between Heuser Park and Bob Case Park in the northern portion of the township; and in 2015, another segment opened between Heuser Park and US Route 422. These trail segments are part of a planned regional trail along the west bank of the Schuylkill River. Additionally, the completed First Avenue Road Diet project involved various elements that improve conditions for multimodal travel along First Avenue in Moore Park KOP. Further, the First Avenue Linear Park, generally consists of a 10- to 12-foot multi-use path with streetscape amenities throughout. The project limits for the First Avenue Linear Park are generally west of Moore Road to west of Clark Avenue. The project was constructed in Summer 2020.

3.3.3 Environmental Consequences

3.3.3.1 No Action Alternative

The planned Chester Valley Trail Extension, a committed project, will run 3.8 miles from the current terminus at South Gulph Road to Norristown. The extension will include pedestrian bridges at South Gulph Road, Henderson Road, and Boro Line Road. This planned improvement will increase pedestrian and bicycle access and connections to destinations that are localized to the areas where the facilities are provided. However, existing pedestrian and bicycle facility deficiencies, such as discontinuities in the network within the transportation study area, that are not specifically addressed by the committed projects in the No Action Alternative will remain.

3.3.3.2 Preferred Alternative

Long-Term Operational Effects

The Preferred Alternative will be on an elevated guideway over pedestrian and bicycle facilities, which will avoid potential adverse impacts on pedestrian and bicycle facilities. The Project stations and park-and-ride facilities are being planned for multimodal access. The stations and park-and-ride facilities will have appropriate pedestrian and bicycle facilities including sidewalks, crosswalks, stairs and elevators, elevated boarding platforms at stations providing access to both sides of roadways, and bicycle racks. These facilities will be connected to the existing, adjacent sidewalk network. The proposed Allendale Road Station will have a pedestrian bridge

to provide connection from the station to the second floor of the mall. Similarly, the proposed Mall Blvd Station will have a pedestrian bridge to provide connection over Mall Boulevard from the station to the mall property.

The Chester Valley Trail's planned extension (which will be accessible to the proposed Henderson Road Station), and other paved trail segments, like the First Avenue Linear Park with its multi-use trail (which will be accessible to the proposed First & Moore Station and the proposed First & American Station), are within one-half mile of Project stations. All proposed, publicly accessible Project station facilities will meet the provisions for ADA-compliant access. Improvements at intersections the Project affects will include coordinated signal timing and phasing adjustments and crosswalks, as needed, to facilitate safe pedestrian and bicycle crossings.

Short-Term Construction Effects

Construction of the Preferred Alternative could temporarily close or re-route existing sidewalks, roadway crosswalks and road-based bicycle facilities within the Project Limits of disturbance (LOD). SEPTA anticipates that such impacts will occur during construction activities where such activities are at or near bicycle and pedestrian facilities. Temporary closures will be required for construction access as well as public and worker safety. Temporary closures at any particular location will be shorter in duration than the construction duration for the entire Project.

Minimization, Mitigation and Commitments

Long-Term Operational - During subsequent design, SEPTA will work with PennDOT, the Montgomery County, and Upper Merion Township to accommodate pedestrian and bicycle movements at intersections the Project will affect, design pedestrian and bicycle routing along and across roadways at appropriate locations near Project station facilities, and make connections to sidewalks adjacent to Project station facilities and to the elevated boarding platforms at stations.

Short-Term Construction - During subsequent design, SEPTA will develop a Transportation Management Plan, described in Section 2.8, which will include temporary bicycle and pedestrian accommodation in areas affected by construction. SEPTA will work with Upper Merion Township, Montgomery County, and PennDOT to identify and implement temporary routing, signing, and public outreach as needed to inform the public of temporary changes before they occur. During construction, SEPTA will implement the Transportation Management Plan.

3.4 Public Parking Facilities

3.4.1 Methodology

SEPTA inventoried on-street and off-street public parking in the LOD of the Preferred Alternative. Data sources included field reconnaissance and available mapping. The methodology for assessing potential impacts on public parking facilities involved quantifying the number of parking spaces within the LOD for the Preferred Alternative.

3.4.2 Affected Environment

The inventory of public parking determined that none are present in the LODs of the Preferred Alternative. Parking areas within the LODs are private and associated with existing commercial and office land uses.

3.4.3 Environmental Consequences

3.4.3.1 No Action Alternative

Public parking is not present. The No Action Alternative will have no impacts to public on-street or off-street parking.

3.4.3.2 Preferred Alternative

Long-Term Operational Effects

Public parking, either in the form of public on-street or off-street parking, is not present in the LOD for the Preferred Alternative. Thus, no long-term operational impacts to public on-street or off-street parking will occur from the Preferred Alternative.

Project impacts to privately held parking are addressed as part of SEPTA's property acquisitions and displacement processes outlined in Section 4.5.

Short-Term Construction Effects

Public parking, either in the form of public on-street or off-street parking, is not present in the LOD for the Preferred Alternative. No short-term construction impacts to public on-street or off-street parking will occur from the Preferred Alternative.

Minimization, Mitigation and Commitments

Long-Term Operational - No long-term operational impacts to public on-street or off-street parking will occur; minimization and mitigation strategies are not warranted.

Short-Term Construction - No short-term construction impacts on public on-street or off-street parking are anticipated to occur. Minimization and mitigation strategies are not warranted.

3.5 Railroad Facilities and Operations

3.5.1 Methodology

The sections below describe existing rail services and operations in the transportation study area based on available mapping of such facilities, field observation and communication with operators. The assessment of potential Project impacts on such facilities examined whether and where the LOD of the Preferred Alternative will cross or use active ROW of such corridors.

3.5.2 Affected Environment

No passenger or commuter railroad services are present in the transportation study area. Two active Norfolk Southern (NS) rail freight corridors traverse the transportation study area. The

Harrisburg Line runs along the east and north sides of the transportation study area, and in the northern portion of the transportation study area it serves Abrams Yard, a key freight activity center. About 18 trains per day pass through Abrams Yard. The Dale Secondary runs through the southern portion of the transportation study area. Traffic to and from the Dale Secondary is currently limited to one train daily that travels between a steel slab plant in Coatesville and a steel plate rolling mill in Conshohocken. In addition, the transportation study area includes two former rail freight corridors, the former Chester Valley Branch and the former North Abrams Industrial Track.

3.5.3 Environmental Consequences

3.5.3.1 No Action Alternative

Existing railroad operations in the transportation study area are expected to continue into the foreseeable future. No planned freight, passenger or commuter railroad projects are included in the No Action Alternative. A portion of the former Chester Valley Branch ROW is owned by Montgomery County, which is planning an extension of the Chester Valley Trail using the former railroad corridor (Section 3.3.2).

3.5.3.2 Preferred Alternative

Long-Term Operational Effects

The Preferred Alternative will not directly impact active freight rail operations. The Preferred Alternative will incorporate a small portion of the former North Abrams Industrial Track corridor north of the PA Turnpike. SEPTA is coordinating with NS regarding the use of that portion of their unused corridor.

Short-Term Construction Effects

Construction of the Preferred Alternative is not anticipated to impact active freight facilities or operations within the Project LOD. Minimization and mitigation is not warranted.

Minimization, Mitigation and Commitments

Long-Term Operational - During subsequent design, SEPTA will continue to coordinate with NS regarding proposed use of a portion of their former North Abrams Industrial Track corridor.

3.6 Safety, Security and Emergency Services

3.6.1 Methodology

This section qualitatively examines potential impacts of the Preferred Alternative and the No Action Alternative on transportation system safety and security and local emergency services. It identifies general safety and security considerations related to the Project.

3.6.2 Affected Environment

The existing transportation system in the transportation study area includes design and operational elements that promote safe operation and interaction among the multiple modes

that are present. Examples of such elements include roadway intersection signalization, pedestrian walk signals and striped crosswalks. Existing fire, rescue and police services rely on the existing transportation network to provide their services to the transportation study area, such as responding to incidents.

3.6.3 Environmental Consequences

3.6.3.1 No Action Alternative

Safety and security for the No Action Alternative will include the existing policies and operational elements that are present in the transportation study area. As No Action Alternative projects are designed and implemented, the sponsors of each project are expected to apply elements that promote safe operations of the new facilities in the context of the transportation study area environment. Existing fire, rescue and police services will continue to operate within the existing roadway network. Growth in transportation study area roadway congestion has the potential to increase response times.

3.6.3.2 Preferred Alternative

Long-Term Operational Effects

The elevated guideway of the Preferred Alternative will separate Project operations from other modes, thereby avoiding potential for at-grade crossing conflicts. By separating operations, there is no potential for at-grade crossing conflicts between rail and other modes. Grade-separation also allows SEPTA to use third-rail traction power for the Project as is used on the existing NHSL and separate the vehicle power source from places where people are. At-grade rail operations would require that the rail guideway is fenced to separate people and animals from rail operations.

As described in Section 2.3.2.4, TPSS will be placed within the Project LOD and will be at grade (see maps in Appendix A). SEPTA selected TPSS sites based on the results of a combination of assessments including traction power simulations (based on peak headways, rolling stock, vertical grades, speeds and other operational factors), available real estate, available power sources, suitability for substation structures and natural and human environmental impacts. TPSS facilities will be fenced and screened from view with trees and shrubs. Vehicular access to TPSS facilities will be provided for maintenance during rail operations.

The Preferred Alternative will feature safety and security systems and procedures that meet safety requirements that are in effect at the time of Project construction and operation to protect passengers, workers and adjacent communities. The Preferred Alternative will be designed and operated in accordance with SEPTA's rail operations safety and security protocols and procedures for the NHSL, which will be updated to include specific requirements for the Project prior to revenue service. The Project will be designed in accordance with SEPTA's amended Design Criteria Manual for NHSL.

Short-Term Construction Effects

The Preferred Alternative will be constructed in accordance with SEPTA's existing rail operations safety and security protocols and procedures, which will be updated to include specific requirements for the Project prior to construction.

Minimization, Mitigation and Commitments

Long-Term Operational - During subsequent design, SEPTA will evaluate and design appropriate operational safety elements, modify existing incident management plans, coordinate with emergency response personnel, and develop operational protocols and procedures to be followed. During operations, SEPTA will implement its operational safety elements, plans, protocols, and procedures.

Short-Term Construction – During subsequent design, SEPTA will develop and implement construction protocols and procedures prior to the start of construction with the goal of providing a safe and secure environment in and near the Project construction site. The protocols and procedures will be Project-specific and will focus on worker and public safety, securing work and staging areas including equipment, materials, and permanent elements of the Project. Temporary fencing with locking gates around construction staging areas is an example of a typical technique to secure a work area. SEPTA will incorporate its standard worksite safety procedures into the Project-specific plan. SEPTA will also work with Upper Merion Township law enforcement personnel and emergency service providers in developing and implementing its Project safety plan to ensure it is consistent and coordinated with local safety and emergency response procedures, including monitoring and reporting. During construction, SEPTA will implement the project-specific safety plan. SEPTA's contractor(s) will be required to adopt SEPTA's procedures and protocols, including monitoring and reporting.

Chapter 4 Affected Environment and Potential Consequences

Chapter 4 assesses the potential impacts of the Preferred Alternative and the No Action Alternative upon the built and natural environment. As described in Chapter 2, Southeastern Pennsylvania Transportation Authority's (SEPTA) Preferred Alternative is the recommended Locally Preferred Alternative (LPA) that SEPTA developed to a 15 percent level of design refinement. The No Action Alternative is the future condition of transportation facilities and services in 2040 within the transportation study area if the King of Prussia Rail Extension Project (Project) is not implemented. As described in Section 2.3.1, the No Action Alternative projects are listed in the financially constrained element of *Connections 2045 Plan for Greater Philadelphia* (2017 and as amended), the long-range transportation plan of the Delaware Valley Regional Planning Commission (DVRPC). The No Action Alternative provides the basis against which the Preferred Alternative is compared.

Based on the current impacts of the recent social response to the COVID-19 virus and the resulting decline in travel demand, it is impossible to predict any future changes to the Determination and Findings of the project that may result from a COVID-19 response of an unpredictable nature and length. Should significant changes in the planning assumptions, project schedule, project scope, or surrounding project environment result because of a prolonged COVID-19 response, SEPTA will consider additional project evaluation and public input consistent with NEPA.

The following terms are used frequently in this FEIS:

Adverse or negative: An unfavorable condition.

Avoidance: The act of avoiding impacts to, or keeping away from, something or someone.

Minimization: Measures taken to reduce the severity of adverse impacts.

Mitigation: Measures taken to alleviate adverse impacts that remain after minimization.

Section 4.1 describes the study areas used in this FEIS. Sections 4.2 through 4.17 are each organized as follows:

- Regulatory Context and Methodology - describes the regulatory context and methodologies used to assess the potential benefits and impacts of the Preferred Alternative and the No Action Alternative to each resource.
- Affected Environment - describes the existing conditions in the defined study area for the resource.
- Environmental Consequences - describes the potential long-term and short-term benefits and impacts of the Preferred Alternative and the No Action Alternative on the resource.

- **Minimization, Mitigation, and Commitments** - describes the work done to avoid or minimize impacts, and potential strategies to minimize further or to mitigate Preferred Alternative impacts during subsequent Project design, construction, and operation.

Sections 4.2 through 4.17 refer to Appendix A, which contains a set of maps showing many of the resources described in this chapter. These sections also refer to technical memoranda that support this FEIS. Memoranda prepared during the DEIS focus on the Action and No Action Alternatives. Memoranda prepared during the FEIS focus on the Preferred Alternative and the No Action Alternative.

Section 4.18 presents a table that summarizes the findings of the FEIS as well as a table with SEPTA's commitments during subsequent design, Project construction, and Project operation.

4.1 Study Areas

In each assessment in this chapter, SEPTA applied a study area that is appropriate for the type of environmental resource being evaluated. The following study areas are most commonly used:

- **Transportation study area** – In addition to being used to assess transportation issues in Chapter 3, the transportation study area is used to assess a number of resources such as land use patterns and economic development. It is the geographic area encompassing the King of Prussia/Valley Forge area defined by the NHSL to the east, the Schuylkill River to the north, US Route 422 to the west, and the Schuylkill Expressway (I-76) to the south (**Figure 4.2-1**).
- **Project study area** - The Project study area consists of two parts. In the King of Prussia/Valley Forge area, the Project study area is the geographic area within 500 feet on either side of the centerline of each Action Alternative, as well as ½-mile from the center point of all proposed station areas. At the 69th Street Transportation Center, the Project study area is the Project limits of disturbance. The Project study area in both locations is shown on the maps in Appendix A. The Project study area is useful for examining potential impacts on properties that are in close proximity to the Preferred Alternative.
- **Limit of disturbance area (LOD)** - For the assessment of potential direct, physical impacts of the Preferred Alternative, either during construction or over the long-term, the LOD was used. The LOD describes the outside edge of the temporary or permanent disturbance areas of the Preferred Alternative based on the level of engineering completed to date (maps, Appendix A). The LOD is the boundary within which proposed structures and construction activities will occur.

4.2 Land Use Patterns and Consistency with Plans

This section assesses the benefits and impacts of the No Action Alternative and the Preferred Alternative regarding land use, and the consistency of these alternatives with existing regional and local plans. The 2017 *King of Prussia Rail Land Use and Economic Development Technical Memorandum* provides more detail on these topics and compares the impacts of the various action alternatives assessed in the DEIS, which aided in selection of the Preferred Alternative. After preparation of the 2017 Technical Memorandum and publication of the DEIS, the DVRPC

adopted its *Connections 2045 Plan for Greater Philadelphia*, Upper Merion Township developed a *Draft 2040 Comprehensive Plan*, and Upper Darby Township adopted their 2018 *Comprehensive Plan*. Each document is consistent with the previously reviewed plans discussed in the 2017 Technical Memorandum and DEIS.

4.2.1 Regulatory Context and Methodology

NEPA forms the general legal framework for the consideration of impacts to land use issues (40 CFR §§ 1502.15 and 1502.16). In general, land use is regulated by the local county or municipal government. Counties and municipalities regulate land use and development using tools such as comprehensive plans and municipal development codes/ordinances.

Relevant regional and local plans considered in this assessment include:

- DVRPC's long-range, nine-county regional plan entitled *Connections 2045 Plan for Greater Philadelphia* (2017 and as amended)
- Montgomery County's 2015 plan, *Montco 2040: A Shared Vision*
- Upper Merion Township's *2020 Vision Plan*
- Upper Merion Township's 2014 document, *Upper Merion Township Act 209 Land Use Assumption Report*
- Upper Merion Township's *Draft 2040 Comprehensive Plan*
- Upper Darby Township's 2018 *Comprehensive Plan*
- Delaware County's *Downtown Upper Darby Vision Plan*

The year of analysis for the FEIS is 2040. A qualitative assessment of potential benefits and impacts of the No Action Alternative and Preferred Alternative on existing land use patterns as well as an assessment of the consistency of the alternatives with land use plans was performed using the following methodology:

- Examined the foregoing regional and local plans and qualitatively compared how well the Preferred Alternative and the No Action Alternative supports each plan.
- Applied the Tier 2 screening estimate of the amount of existing non-residential and office floor space within ½ mile to proposed station areas of the Preferred Alternative in Upper Merion Township along with the projections of ridership increase and travel time savings presented in Chapter 3 to assess how the Preferred Alternative would support existing land use patterns and the previously referenced regional and local plans.
- The following geographic areas were considered in this assessment:
 - King of Prussia: SEPTA examined the potential effects of the proposed Project on both the broader transportation study area and the Project study area.
 - 69th Street Transportation Center: SEPTA examined potential benefits and impacts of the proposed Project in the Project study area and in the vicinity of the 69th Street Transportation Center in Upper Darby.

4.2.2 Affected Environment

4.2.2.1 Existing Condition

Existing land use patterns in the King of Prussia/Valley Forge area are largely the result of three key historical events: the post-World War II suburban housing boom that led to significant outmigration from Philadelphia beginning in the 1950's, the opening of the King of Prussia Mall, and the development of the Interstate and expressway highway network that converged at the transportation study area. Concentrations of primarily non-residential uses are located along the major highways and near highway interchanges: the King of Prussia Mall and surrounding retail and hospitality uses, Moore Park KOP (known in the DEIS as the King of Prussia Business Park), the DeKalb Pike (US Route 202) corridor, and the Henderson Road corridor.

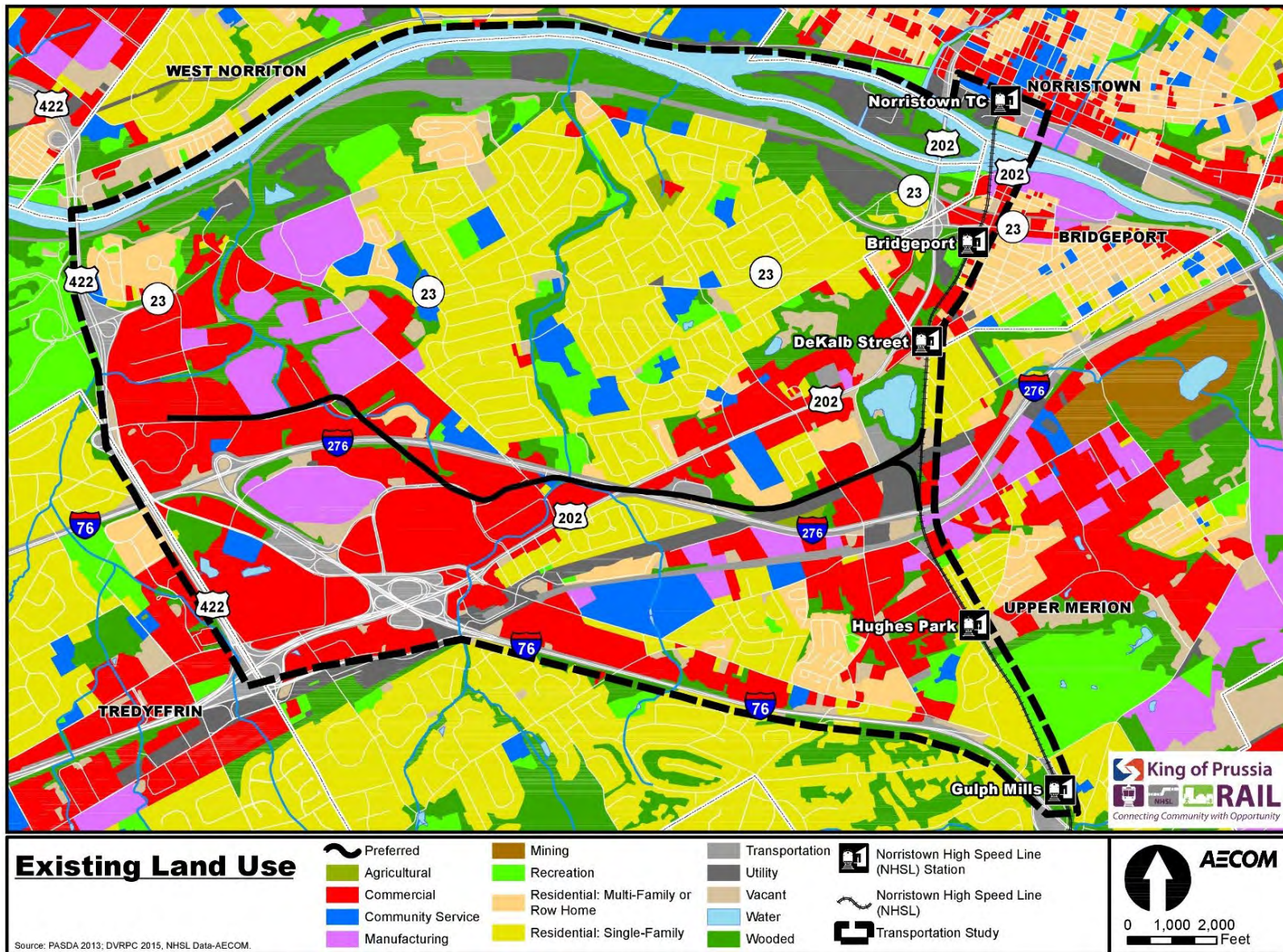
Non-residential uses include retail, office, industrial, and service businesses (see **Figure 4.2-1**).

Moore Park KOP and the King of Prussia Mall form the largest area of primarily commercial use in the Township. Moore Park KOP contains a mix of large sites occupied by individual businesses (such as Valley Forge Casino Resort (VFCR) and Arkema), mid-rise office buildings and business developments (such as Freedom Business Center and Maschellmac Office Complex), and low-rise business parks (such as King of Prussia Business Center and Continental Plaza). There are also light industrial uses in Moore Park KOP. VFCR consists of an 850-slot machine casino, 445-room hotel, and a convention center complex with 100,000 square feet of meeting/exhibit space. VFCR has approximately 1.1 million visitors each year (KOP-BID, 2020 *Report to the Community*). Other major employers in the transportation study area include Lockheed Martin, UGI, and Universal Health Service.

Large areas of existing single-family residential development are located on either side of US Route 202, extending north toward the Schuylkill River and south toward I-76. Several large apartment and condominium complexes are located within this large residential area.

Along the existing NHSL are established communities with land use patterns that are urban or suburban in character depending on location. Residential, business, and institutional uses are found adjacent to the NHSL corridor. Existing NHSL stations, in some cases, are supported by nearby surface or structured parking. In Upper Darby Township, the Project study area falls within the boundaries of the 69th Street Transportation Center; existing land uses and patterns within the Project study area are transportation-related. Beyond the boundaries of the 69th Street Transportation Center, the existing development pattern is an urbanized community with a mix of commercial and residential uses.

Figure 4.2-1: Land Uses in the Transportation Study Area



4.2.2.2 Foreseeable Future Condition

The King of Prussia/Valley Forge area is expected to experience continued growth in population and employment through the year 2040. In 2016, DVRPC prepared projections for future employment and population in the region at the county and municipal levels. The municipal-level employment forecasts show that Upper Merion Township's employment will rise from 57,038 (estimated in 2015) to 65,430 in 2040, a 14.7 percent increase. The absolute increase of 8,292 represents the highest absolute employment growth in that period forecasted for municipalities in Montgomery County. In terms of future population growth, the DVRPC's adopted forecasts project that Upper Merion Township's population will increase from 28,620 from the 2015 Census estimate to 34,003 in 2040, which is an increase of 18.8 percent, or 0.76 percent annually.

Most of the projected increase in employment and population in Upper Merion Township will occur in the transportation study area, and the bulk of the projected growth and change in land use pattern will be the result of development at the Village at Valley Forge. The Village at Valley Forge is a mixed-use community that is being developed on the 122-acre site of the former Valley Forge Golf Club. To date, the Village at Valley Forge features 2,450 residential units, the 135,000 square foot Children's Hospital of Philadelphia (CHOP), retailers including Wegmans, and restaurants (KOP-BID 2020 *Report to the Community*). CHOP is currently building a 250,000-square foot inpatient hospital next to the current facility. When the mixed-use community is fully built, it will include up to 1.5 million square feet of office/commercial space, 500 hotel rooms and 3,000 residential units.

Adopted regional and local plans guide current and future development activities and land use patterns in the transportation study area. Given its desire for economic growth and stability into the future, Upper Merion Township is focusing its attention on opportunities for land use and zoning to optimize the economic benefits of the King of Prussia/Valley Forge area. For example, the Township's designation of a portion of Moore Park KOP as the King of Prussia Mixed-Use (KPMU) zoning district, shown on the Township's Draft Zoning Map on **Figure 4.2-2**, allows for a redevelopment pattern in Moore Park KOP that encourages a variety of residential and non-residential uses. The new zoning classification allows multi-family and service retail, permits more compact development, reduces parking requirements, and encourages assembling large parcels for redevelopment. These characteristics encourage development intensity that can support the use of non-highway modes such as public transportation, thereby being consistent with Upper Merion Township's *Draft 2040 Comprehensive Plan, 2020 Vision Plan* and 2005 *Land Use Plan*.

Upper Merion Township also amended its subdivision and land development ordinance so that it promotes pedestrian-friendly design, supports alternative transportation modes, and establishes new sustainable design standards. Upper Merion is already seeing interest in residential development/redevelopment inside as well as outside the KPMU zoning district. The recently completed Skye 750 is a 248-unit residential complex in Moore Park KOP. In addition, recent investment in the 251 West DeKalb property has updated this 650-unit residential property.

In the approval phase is a 208-unit townhome and 65-unit single family residential development near the intersection of Saulin Boulevard and DeKalb Pike.

Current Zoning 2018

Source: PASDA 2013; Upper Merion 2018.

Legend:

- A-R (Blue)
- AG (Green)
- C-O (Pink)
- CG (Red)
- HI (Purple)
- HR (Orange)
- KPMU (Light Blue)
- LI (Hatched)
- NMU (Yellow)
- R-1 (Light Yellow)
- R-2 (Yellow)
- R-2A (Light Green)
- R-3 (Yellow-Green)
- R-3A (Light Yellow-Green)
- RA (Green)
- SC (Brown)
- SM-1 (Pink)
- U-R (Brown)
- Court Approved (Hatched)
- CL (Hatched)
- CN (Pink)
- G (Yellow)
- LI (Hatched)
- R-1A (Light Yellow)
- R-2A (Light Green)
- R-3A (Light Yellow-Green)
- R-3B (Yellow-Green)
- SM-1 (Pink)

Transportation Study Area (Dashed Line)

Scale: 0, 1,000, 2,000 Feet

King of Prussia RAIL Connecting Community with Opportunity

AECOM

The *Upper Darby Comprehensive Plan* (2018) identifies many goals for the township. One of these includes reconnecting the neighborhoods to vibrant commercial districts, which includes creating transit-oriented redevelopment areas and reviewing the zoning ordinance to ensure land within a 10-minute walk of major transit hubs is zoned for a compact mixture of pedestrian-scaled residential and commercial land uses.

4.2.3 Environmental Consequences

4.2.3.1 No Action Alternative

Each of the projects in the No Action Alternative will be completed by 2040 with or without the Project. No change in the No Action Alternative projects will occur if the Project is not built. The No Action Alternative is inconsistent with Upper Merion Township's 2005 *Land Use Plan*, 2020 *Vision Plan*, and *Draft 2040 Comprehensive Plan* because it does not encourage the use of rail public transit and does not support SEPTA in its efforts to expand public transportation in the Township. In the latter regard, the 2005 *Land Use Plan* cites the Route 100 extension, which was the name of the Project prior to the NEPA process.

Short-term land use changes could occur during construction of the No Action Alternative projects, resulting from easements needed for temporary staging areas and construction access. Project sponsors will be responsible for identifying and addressing temporary property needs and impacts on land use and access during design and construction planning.

4.2.3.2 Preferred Alternative

Long-term Operational Effects

King of Prussia

Each of the projects in the No Action Alternative will be completed by 2040 with the Project. No change in the No Action Alternative projects will occur if the Project is built. The Preferred Alternative will support existing and foreseeable future land use patterns and is consistent with the DVRPC, Montgomery County, and Upper Merion Township plans because it will provide an additional public transit option in the transportation study area. Looking first at the transportation planning aspects of the plans, DVRPC designates the King of Prussia/Valley Forge area as a Metropolitan Subcenter, which is defined in their long-range, nine-county regional plan entitled *Connections 2045 Plan for Greater Philadelphia*. The Preferred Alternative will support the regional plan because proposed station areas, which serve as focal points for organizing and planning development as well as infrastructure, such as transportation, are in a Metropolitan Subcenter in recognition of its significant number of jobs and commercial activity. The Preferred Alternative will also support Montgomery County's *Montco 2040* goal of extending NHSL to King of Prussia as a priority for

Metropolitan Subcenter

A place recognized in DVRPC's *Connections 2045* plan as a focal point for organizing and planning development as well as infrastructure, such as transportation. Typically, a Metropolitan Subcenter provides many amenities that people want, such as walkability, unique architectural character, access to transit, social connections, and a mix of housing stock, including affordable housing that is well connected to employment opportunities (DVRPC, *Connections 2045*).

improving transportation quality and access in the King of Prussia/Valley Forge area. The Preferred Alternative will encourage the use of public transportation, a key goal of Upper Merion Township's 2005 *Land Use Plan*, by providing a new rail transit service that is more frequent and reliable than existing bus service, reduces travel time and provides direct rail access to the King of Prussia/Valley Forge area (Section 3.1.3.2). For this reason, Upper Merion Township has shown its support for the Project in its Resolution 2011-03 (Appendix C).

On the land use planning side, the Preferred Alternative will help Upper Merion Township encourage land use patterns that are consistent with their 2005 *Land Use Plan*, 2020 *Vision Plan*, and *Draft 2040 Comprehensive Plan*. For example, the Preferred Alternative will provide two proposed stations in Upper Merion's KPMU zoning district (First & Moore and First & American Stations), potentially encouraging development that provides ridership to support non-highway transportation modes (public transit, and bicycle and pedestrian modes). These stations will support the goal of encouraging transit-oriented developments and mixed-use developments within the KPMU zoning district.

Table 4.2-1 summarizes existing zoning and land uses in Project station areas, and identifies whether existing zoning permits public transportation facilities. With the exception of the KPMU designation, none of these zoning designations specifically permits or does not permit rail transit facilities. The KPMU designation permits public transportation stations and structured parking.

Table 4.2-1: Summary of Zoning and Land Use at Project Stations

Project Station	Existing Land Uses	Existing Zoning	Permitted Uses
Henderson Road	PECO electric utility corridor	Heavy Industrial (HI)	Public Transportation Facilities are neither permitted nor not permitted
Allendale Road	King of Prussia Volunteer Fire Company, retail commercial, and office	Commercial General (CG)	Public Transportation Facilities are neither permitted nor not permitted
Mall Blvd	Retail commercial, and office	Commercial General (CG)	Public Transportation Facilities are neither permitted nor not permitted
First & American	Retail commercial, and office	King of Prussia Mixed-Use (KPMU)	Public Transportation Facilities and structured parking are permitted
First & Moore	Commercial and office	King of Prussia Mixed-Use (KPMU)	Public Transportation Facilities and structured parking are permitted

Source: Upper Merion Township Zoning Ordinance, accessed 2020.

SEPTA coordinated with Upper Merion Township and Montgomery County during the EIS process to identify local land use planning policies and goals, as well as to develop and assess the benefits and impacts of the Preferred Alternative in the FEIS in relation to those policies and

goals. This coordination effort was achieved through meetings with local officials, various Project committees, and by the participation of these entities in various public outreach activities, also described in Section 5.1.3 and 5.2.2.

SEPTA will require additional right-of-way (ROW) for the Preferred Alternative in King of Prussia; Section 4.5.3 describes the permanent property acquisitions that will be required for the Preferred Alternative. Property acquisition maps are provided in Appendix A.

69th Street Transportation Center

Proposed improvements at SEPTA's 69th Street Transportation Center as part of the Preferred Alternative will occur within SEPTA property. The Preferred Alternative will support existing land use patterns in Upper Darby Township and will be consistent with Upper Darby's 2018 *Comprehensive Plan* designation of the 69th Street Transportation Center as a transit hub because the Center will continue to serve as a transit hub in the township. As such, the Preferred Alternative will provide for improved transit access to residents and businesses in Upper Darby to/from King of Prussia. Therefore, the Preferred Alternative supports the goal of reconnecting neighborhoods to vibrant commercial districts and to the region through multi-modal transportation connections stated in the *Comprehensive Plan*. It will also help to forge Upper Darby as an even stronger Regional Hub as outlined in the Delaware County's *Downtown Upper Darby Vision Plan*.

All activities related to the Preferred Alternative will occur within the boundaries of SEPTA's property; no additional, permanent property acquisition will be required in Upper Darby for the Preferred Alternative.

Short-term Construction Effects

Short-term land use changes are anticipated during the construction of the Preferred Alternative, resulting from temporary disturbance within the LOD adjacent to the Project, both within the limits of the properties to be permanently acquired for ROW, and also within temporary easements for construction work areas, access, and construction materials and equipment storage. A temporary easement will be a legal agreement with a property owner that allows SEPTA and its contractors to use the land within the temporary easement during Project construction activity. Because the Preferred Alternative guideway will be elevated, large equipment will be needed to lift construction materials and guideway elements into place, requiring temporary easements along the length of the guideway.

Construction work in temporary easements will cause short-term land use changes in the easement areas, and will prohibit owner access and use of temporary easement areas for the duration of Project construction activity. An assessment of the proposed temporary easement areas identified that access to approximately 25 properties may be impacted during Project construction activities. **Table 4.2-2** identifies and describes property and access impacts during Project construction. The table also identifies the parcels that will have temporary impacts to the existing accessways and whether or not full access will be restricted.

Table 4.2-2: Summary of Property and Access Impacts During Project Construction

Parcel Number	Property Owner	Portion of Parcel Affected	Reason for Impacting Parcel	1 or More Accesses Impacted?	Is Full Access Blocked?
580000358007	M Q 2 Properties LLC	Backyard of Parcel	Detention Basin	N	N
580000370004	601 Allendale Road LLC	Southwest corner of property	Alignment location and construction	N	N
580000388004	Executive Suites & Offices LP	Along Southwest property line following existing access roadway	Alignment location and construction	Y	N
580000400001	King Star Enterprises LP	Southern portion of property within existing parking lot	Alignment location and construction	Y	N
580000407003	Kop Hospitality LLC	Along Northeastern property line within existing parking lot	Alignment location and construction	N	N
580003343001	Pennsylvania Railroad	Area along the existing NHSL and PA Railroad tracking	Access road for track work along NHSL	N	N
580004789004	PECO	Area encompassing PECO towers	PECO Tower work	N	N
580004801001	Land Enterprises Inc	Area along the existing NHSL	Access road for track work along NHSL	N	N
580006169001	Regent Development Company	Area along the Northern property line bordering the PATPK	Alignment location and construction	N	N
580006172007	Nilkanth Hospitality LLC	Area along the Northern property line bordering the PATPK	Alignment location and construction	N	N
580006175004	Ascent Hospitality LLC	Area along the Northern property line bordering the PATPK	Alignment location and construction	N	N
580006202004	King of Prussia Associates	Mall parking lot along Mall Boulevard	Alignment location and construction	Y	N
580006208007	King of Prussia Associates	Mall parking lot along Wills Boulevard	Alignment location and construction, includes pedestrian walkway to station	Y	N
580006208106	P S Court Associates LP	Mall parking lot	Alignment location and construction	Y	N
580006262007	Glasgow Quarry Inc	Along southern portion of property	Alignment location and construction, track interconnection with NHSL	N	N
580006265004	Philadelphia Suburban Water Company	Along southern portion of property	Alignment location and construction, track interconnection with NHSL	N	N
580006321002	Candlebrook Marquis Property Owner LLC	Southwest corner of property	Alignment location and construction	N	N
580006325007	Pennsylvania Turnpike Commission	Turnpike rest area and along northern side of the roadway, includes median area near DeKalb Pike	Alignment location and construction, existing basin rework	Y	Y
580006337004	Radnor Real Estate Ventures LLC	Southern portion of property within existing parking lot	Alignment location and construction	N	N
580006824003	Metropolitan Business Park LP	Southern portion of property within existing parking lot	Alignment location and construction	N	N
580006826001	Atofina Chemicals Inc	Southern portion of property within grassy area	Basin and alignment, including drainage easement	Y	Y
580006832004	Alisue LLC & Aneff LLC	Southern portion of property along First Avenue within existing parking lot	Alignment location and construction	Y	N
580006832103	Alisue LLC & Aneff LLC	Southern portion of property along First Avenue within existing parking lot	Alignment location and construction	Y	N
580006835001	PECO	Northeast side of property and substation	Alignment location and construction	Y	Y
580006838007	American Baptist Home Mission Society	Northern portion of property along First Avenue	Alignment location and construction	N	N
580006847007	Valley Forge Colonial LP	Far eastern portion of property within existing parking lot	Construction access	N	N
580006847052	Parkview Tower Associates LP	Far eastern portion of property within existing parking lot	Construction access	N	N
580006856502	Bre/Hv Properties LLC	Small corner of property in Northeast quadrant	Construction access	N	N
580006859004	Gmb Realty LP	Western property line within existing parking area	Alignment location and construction	Y	Y
580008467016	Agree Limited Partnership	Front edge of property along Mall Boulevard	Alignment location and construction	Y	N

Parcel Number	Property Owner	Portion of Parcel Affected	Reason for Impacting Parcel	1 or More Accesses Impacted?	Is Full Access Blocked?
580008467025	KOP Hotel XXXI Owner LP	Front edge of property along Mall Boulevard within parking areas	Alignment location and construction	Y	N
580008472056	Ddrtc Overlook at King Of Prussia LLC	Northeastern portion of property in open area	Alignment location and construction	N	N
580008472101	Offmak Associates	Northeast side of property and through the parking lot between structures	Alignment location and construction	Y	N
580009225158	Maggitti LLC	Piece of the northwestern corner	Acquired for PECO	N	N
580009225302	Anson Logistics Assets LLC	Piece of the northern corner	Acquired for PECO	N	N
580009979079	Ki Henderson Square Associates LP	Small piece along the Henderson Rd. & Saulin Boulevard intersection	Henderson Rd reconstruction	N	N
580009982004	PECO	Within ROW	PECO Tower work	N	N
580009982004	PECO	Within ROW	PECO Tower work	N	N
580009982004	PECO	Within ROW	PECO Tower work	N	N
580010114007	PECO	Tower locations	PECO Tower work	N	N
580010117004	Telford Ida	Northern property line and along Henderson Rd.	Henderson Rd reconstruction & acquired land for PECO	N	N
580010123007	Kunda Walter E & Kevin T & Timothy W	Northern boundary along PECO ROW	Acquired for PECO	N	N
580011899004	Lehman Suzanne H & Robert D Jr	Northern boundary along PECO ROW	Acquired for PECO	N	N
580020146001	Powers Robert J & Cathie Jean	Backyard of Parcel along PATPK	Construction access	N	N
58010E063	Candlebrook Marquis Property Owner LLC	Back of property in existing parking area along the PATPK ROW	Alignment location and construction including a driveway easement	N	N
58010E064	Candlebrook Marquis Property Owner LLC	Back of property in vacant area	Construction access	N	N
58026 056	Pennsylvania Turnpike Commission	Along southern portion of property and in median by DeKalb Pike	Alignment location and construction	N	N
58075055	Pennsylvania Turnpike Commission	Under Turnpike structure along the rail line	Access road for track work along NHSL	N/A	N/A
580000340007	206 Allendale LP	Close to existing structure	Detention Basin	N/A	N/A
580000343004	Pennsylvania Turnpike Commission	Corner lot parcel along Turnpike ROW	Access for construction of basin	N/A	N/A
580000346001	Allendale Corp	Structure and Parking	Detention Basin	N/A	N/A
580000346009	Allendale Corp	Parking lot	Basin and alignment, including station	N/A	N/A
580000352004	King of Prussia Volunteer Fire Co	Structure and Parking	Basin and alignment	N/A	N/A
580000355001	Weinstein Mark & Shirley	Entire parcel	Basin and alignment	N/A	N/A
580006268109	Montgomery County	Crosses over the proposed trail ROW near Saulin Boulevard	Alignment location and construction	N/A	N/A
580006268118	Henderson Road Rr LLC	Crosses over property near Saulin Boulevard	Alignment location and construction	N/A	N/A
580006343007	Sr & Zr Estate LLC	Entire parcel	Basin and alignment	N/A	N/A
580006820007	840 First Avenue Partners LP	Alignment crosses over structure	Alignment location and construction, including station	N/A	N/A
580006844001	Royale Garden LP	Majority of parcel affected	Alignment location, underground basin, parking structure and station	N/A	N/A
580008467007	KOP Hotel XXXI Owner LP	Small grassy area	Construction access	N/A	N/A
580008473127	King of Prussia Hotel Associates LP	Vacant Structure	Underground basin and alignment, including station	N/A	N/A
580009985001	Browning-Ferris Industries Of	Entire parcel	Basin, basin access, alignment & acquired land for PECO	N/A	N/A
580010102001	Sciarra Pasquale & Lidia	Entire parcel	Parking structure	N/A	N/A

Parcel Number	Property Owner	Portion of Parcel Affected	Reason for Impacting Parcel	1 or More Accesses Impacted?	Is Full Access Blocked?
580010105007	Henderson Road Associates LLC	Entire parcel	Parking structure	N/A	N/A
580010108004	Henderson Road Investors LLC	Entire parcel	Parking structure	N/A	N/A
580010111001	Upper Merion Township	Eastern portion of property	Parking structure	N/A	N/A
580010126004	Pennsylvania Turnpike Commission	Most of vacant parcel	Acquired for PECO	N/A	N/A
58026B027	Unknown	Small parcel along PATPK ROW	Construction access	N/A	N/A
580008473001	250 Mb LLC	Along entrance to property	Alignment location and construction	Y	N
580008473109	King of Prussia Hotel Associates LP	Far northwestern area and along the western & southeastern boundaries of the property	Basin and alignment	Y	Y
580009982004	PECO	Within ROW	PECO Tower work, alignment location and drainage easement	Y	Y
580009982004	PECP	Within ROW	PECO Tower work & alignment location	Y	Y
580009982013	PECP Energy Co	North and eastern property lines beside the existing storage buildings	PECO Tower work & alignment location	Y	Y
580009986504	Philadelphia Suburban Water Company	Eastern portion of property along existing NHSL	Alignment & drainage easement	Y	Y
580009988007	Provco Henderson LLC	Northern portion of property & along Henderson Rd.	Henderson Rd reconstruction & acquired land for PECO	Y	Y
580010114007	PECO	Along northern and eastern portions as well as at tower locations	PECO Tower work, alignment location, Henderson Rd. Reconstruction and station	Y	N
580010129001	Estock Joseph J & Theresa M	Sliver along roadway & small piece in the western portion of the property	Acquired for PECO	Y	Y
580011902019	Bci Iv King Of Prussia	Entrance of property	Access road for track work along NHSL	Y	N
580011908004	Bci Iv King Of Prussia Industrial Center	Entrance of property & along western and northern edges	Access road for track work along NHSL	Y	N
580000358007	M Q 2 Properties LLC	Backyard of Parcel	Detention Basin	N	N
580000370004	601 Allendale Road LLC	Southwest corner of property	Alignment location and construction	N	N
580000388004	Executive Suites & Offices LP	Along Southwest property line following existing access roadway	Alignment location and construction	Y	N

Source: Montgomery County Parcel Data, HNTB, and AECOM, 2020

Minimization, Mitigation, and Commitments

Long-Term Operation - During subsequent design, SEPTA will coordinate with the Township and County to align final design with future land use planning, such as the Township's land use planning for Moore Park KOP. At public outreach events during subsequent design, SEPTA will provide a real estate representative to explain SEPTA's construction easement acquisition process.

Short-Term Construction – During subsequent design, SEPTA will develop a construction plan and right-of-way plans that refine temporary construction ROW needs, including specific locations of temporary staging areas and construction access points. SEPTA will coordinate with Upper Merion Township, PennDOT, the PA Turnpike Commission, and other potentially affected property owners in this activity. To the extent reasonably feasible, SEPTA will identify such areas within the Project ROW or on vacant or publicly-owned property.

During subsequent design, SEPTA will initiate the real estate acquisition process, during which time SEPTA will work with each affected property owner to achieve construction easement acquisition agreements.

During construction, SEPTA will implement construction activities in accordance with all real estate agreements.

During subsequent design, SEPTA will develop a plan to restore properties affected by temporary construction easements to an acceptable pre-construction condition at the end of construction activities, in accordance with individual easement agreements. Prior to the end of Project construction, SEPTA will implement the plan to restore properties affected by temporary easements to an acceptable pre-construction condition, in accordance with individual easement agreements.

During subsequent design, SEPTA will develop a business mitigation plan in coordination with the KOP-BID to address temporary construction impacts related to access to businesses. SEPTA will implement the plan during Project construction.

4.3 Economic Development

This section assesses the benefits and impacts of the Preferred Alternative and the No Action Alternative regarding economic development activity.

4.3.1 Regulatory Setting and Methodology

NEPA regulations require consideration of the direct effects of a proposed action, as well as the significance of those effects. The term "effects" includes the economic impacts of an action (40 CFR §§ 1502.16 and 1508.8).

To assess the economic effects of the Project, SEPTA used qualitative and quantitative data from several source documents including *Connecting KOP*, the Economy League of Greater Philadelphia's (ELGP) 2015 report on the benefits of the Project and the 2017 *KOP Rail Land Use and Economic Development Technical Memorandum*. This assessment considers the

economic effects of the Project on the transportation study area as well as the Greater Philadelphia region in terms of transit connectivity, capital expenditures, travel time and cost savings (public and personal), and safety and environmental impacts. This assessment also qualitatively considers the economic benefits of the Project to residents in Upper Merion Township and the region, in general, including effects on property values, which is a key concern of residents.

4.3.2 Affected Environment

As described in Section 1.2.1, the King of Prussia/Valley Forge area is Montgomery County's economic hub and the largest employment center, outside of Center City Philadelphia, in the greater Philadelphia region. In contrast to its residential base of 28,620 people, Upper Merion Township has over 57,000 jobs across skill and income levels based on 2015 estimates (DVRPC *Analytical Data Report 023*, 2016). King of Prussia is also a major shopping and tourist destination with 20 million visits to the King of Prussia Mall, 2.12 million visits to Valley Forge National Historical Park and 1.1 million visits to the Valley Forge Casino Resort each year.

Development is continuing in King of Prussia with the Village at Valley Forge and the recent King of Prussia Mall expansion and planned redevelopment. To date, the Village at Valley Forge features 2,450 residential units, the 135,000 square foot Children's Hospital of Philadelphia (CHOP), retailers including Wegmans, and restaurants (KOP BID 2020 Report to the Community), and CHOP is currently building a 250,000-square foot inpatient hospital next to the current facility. In 2016, the King of Prussia Mall invested in a \$150 million expansion by adding 155,000 square feet of retail space, and then in 2019 they invested \$25 million to redevelop the section of the mall formerly known as the "Plaza." It is expected that the owners of the mall will announce a mixed-use redevelopment project focused on the former JCPenney site. In addition, the Township continues to receive development proposals and inquiries. Upper Merion Township's KPMU zoning district designation for the Moore Park KOP business park sets the stage for future redevelopment in that location.

Traffic congestion and limited transportation choices in the transportation study area are concerns of the Township as well as businesses and residents as indicated in comments received during public and agency outreach (FEIS Section 5.4.2.5). Transportation problems extend beyond matters of access and convenience as they are forecast by the ELGP to limit the ability of the King of Prussia/Valley Forge area to grow and achieve its economic potential (ELGP, 2015).

Transportation constraints will increase the time people spend driving or riding a bus, the number of miles traveled, and vehicle maintenance costs (ELGP, 2015). Greater time spent driving or riding a bus means less personal time available for other activities and fewer job options within a reasonable commuting distance. This condition narrows opportunities for economic advancement and would be felt acutely by people with limited means.

4.3.3 Environmental Consequences

4.3.3.1 No Action Alternative

The projects in the No Action Alternative, listed in Table 2.2-2, will generate short-term construction-related economic activity in the transportation study area as well as long-term benefits. In terms of regional economic benefits, some of the No Action Alternative transportation projects could contribute to future economic development. For example, the Lafayette Street extension project will increase access to Norristown, thereby bolstering economic development opportunities in Norristown. Likewise, the expanded US 422 Bridge and PA 23 Interchange will improve access to and help Upper Merion Township in its economic development goals for Moore Park KOP.

In the long-term, the No Action Alternative transportation projects will improve capacity and operations of some regional and local roadways, thereby providing some support to economic development activities. However, reliance on increasingly congested roadways will constrain Upper Merion from fully capitalizing upon the transportation-land use interrelationships built into regional and local plans. Over time, roadway congestion and lengthening travel times are likely to become severe enough to be a disincentive for travel to and within the transportation study area. As this occurs and as described in Section 4.3.3 above, the ability of the King of Prussia/Valley Forge area, its businesses, and its residents to realize additional economic benefits will be increasingly constrained.

Changes in access to some properties near any of the committed No Action Alternative projects could occur during construction due to temporary roadway and parking area closures and construction work areas. Changes in access to business properties could potentially adversely impact businesses by deterring customers and disrupting deliveries. Project sponsors will be responsible for identifying and addressing temporary changes in access effects on land uses during design and construction planning.

4.3.3.2 Preferred Alternative

Long-term Operational Effects

King of Prussia

Because of Upper Merion Township's focus on Moore Park KOP and the area west and north of King of Prussia Mall in general as a target for future development, SEPTA assessed the economic growth potential around the Project stations along First Avenue. Economic growth potential was assessed in two ways: 1) by quantifying the redevelopment potential of the area and 2) by considering the relative ease of implementing new zoning that not only permits transit facilities, but also encourages redevelopment that allows mixed uses within walking distance of public transit stations. To quantify redevelopment potential, SEPTA calculated the amounts of non-residential land area within ½ mile of the pair of proposed stations: First & Moore and First & American Stations (along First Avenue).¹ The results of this assessment are that the First & Moore and First & American Stations in the core of Moore Park KOP have approximately 494

¹ The ½-mile radius was used to represent a typical maximum potential walking distance to a transit station. This calculation excluded land area on the opposite side of the following major highways (US Route 422, I-276, and I-76) as it would be unlikely that a person would have walking access across these highways.

acres of developed land within walking distance of the stations that the Township has identified by its KPMU zoning for potential redevelopment.

In terms of long-term regional economic benefits, the Preferred Alternative will contribute to future economic development by increasing transit access and transportation options to and within King of Prussia. Thus, the Preferred Alternative will bolster economic development opportunities as described below and support Upper Merion Township development goals. The Preferred Alternative could reduce reliance on increasingly congested roadways and would be consistent with County and Township plans.

The Preferred Alternative could generate some benefits for residents and businesses, as well as the region as a whole, as described below. The ELGP analyses determined that the Project would generate local and regional economic benefits of different types, summarized in **Table 4.3-1**.

Table 4.3-1: Local and Regional Economic Benefits of the Project

New Capital Expenditures for Construction
\$1 to \$1.2 billion in Project cost is expected to generate \$1.1 to \$1.3 billion in total construction spending in the region
Additional Tax Revenue from Construction Spending
\$19.7 to \$22.1 million in additional tax revenues
Less Roadway Congestion
Regional reduction in automobile use by 17.5 million miles per year
Better Access and Connectivity
<ul style="list-style-type: none"> Regional reduction in travel time for drivers: 1.7 to 2.1 million hours per year, valued at \$36.4 to \$44.5 million Regional reduction in travel time for transit riders: 104,000 to 217,000 hours per year, valued at \$2.6 to \$4.7 million Connectivity: fewer number of transfers between transit services (a) Reliability: separation from roadway traffic would eliminate travel delays caused by congestion
Less Motor Vehicle Air Pollution
Regional reduction in automobile emissions by 5,200 to 5,800 tons of carbon dioxide emissions; overall reduction in annual cost to mitigate for damage caused by vehicular emissions is valued at approximately \$1.5 to \$1.9 million
Growth in Business and Commercial Real Estate
Approximately 310,000 square feet of new non-residential development in King of Prussia could be stimulated by the Project (b)
Job Growth Across Skill Levels
1,200 new employees per year

Notes: Data in this table apply to the Preferred Alternative . (a) Source: AECOM, 2016; (b) ELGP's assessment includes development potential that induces ridership beyond DVRPC's model and demographic forecasts.

Sources: Economy League of Greater Philadelphia. 2015. *Connecting KOP*. Monetary values are in 2015 dollars; other estimates are for the coming 20 years.

Upper Merion residents, in general, could benefit economically by having access to more job opportunities and potentially higher salaries (ELGP, 2015; values in 2015 dollars):

- Increased travel options, reduced reliance on autos, travel time savings, and reduced transportation costs
- Improved access to employment opportunities and consumer goods and services

- Stable or potentially increased property values

While the foregoing economic benefits are projected for the Upper Merion Township residential population in general, residents adjacent to or near the alignment in the transportation study area have expressed concern about how the proximity of the rail line could adversely affect their property values. Potential proximity effects such as changes in visual context, privacy, noise, vibration, and safety were also identified by nearby residents (Tables 5.1-1 and 5.1-2). These issues are assessed in Sections 4.8, 4.10, and 3.6, respectively. As described in those Sections, SEPTA refined the design of the Preferred Alternative to reduce potential impacts on residential properties and made commitments as part of the Project to mitigate impacts. By incorporating these refinements and commitments into the Project, the proximity effects of the Project are reduced and unlikely to impact residential property values. Section 4.16.5.1 for discussion of the potential for indirect effects on property values.

69th Street Transportation Center

In addition to local economic benefits, the ELGP found that the Project would generate economic growth and related benefits to the broader Philadelphia region. For example, by providing a new rail transit connection to King of Prussia, the Preferred Alternative will improve job access and increase markets for residents and businesses in Norristown, Upper Darby, and other locations along the existing NHSL.

Short-term Construction Effects

Changes in access to some properties near any of the Preferred Alternative could occur during construction due to temporary roadway and parking area closures and construction work areas; see Section 4.2.3.2 for additional discussion on temporary access impacts. Changes in access to business properties could potentially adversely impact businesses by deterring customers and disrupting deliveries.

Minimization, Mitigation, and Commitments

Long-Term Operation - Please see SEPTA's commitments regarding Project operations in Sections 3.6.3, 4.5.3.2, 4.8.3.2, and 4.10.3.2.

Short-Term Construction - During subsequent design, SEPTA will develop a business mitigation plan in coordination with the KOP-BID to address temporary construction impacts related to access to businesses. During construction, SEPTA will implement its business mitigation plan for the Project.

4.4 Community Cohesion and Facilities

This section assesses the benefits and impacts of the Preferred Alternative and the No Action Alternative regarding community cohesion and community facilities.

4.4.1 Regulatory Context and Methodology

NEPA forms the general legal framework for the consideration of potential social benefits and impacts, such as effects on community character, cohesion, community facilities, and energy

use resulting from transit projects (40 CFR §§ 1502.15 and 1502.16). Energy use is discussed in Section 4.13. Local ordinances regulate parking, noise, building codes, litter, public safety, traffic, zoning, and general welfare.

As referenced by FTA, SEPTA used the Federal Highway Administration's (FHWA) 1996 publication, *Community Impact Assessment: A Quick Reference for Transportation*, as a guide to considering potential effects of the proposed Project on community cohesion and facilities.

Cohesion relates to the sense of community within an area and is formed by social interaction and physical connection among people and groups. To comparatively assess the potential benefits and impacts of the Preferred Alternative and the No Action Alternative in these topic areas, the following qualitative measures were evaluated:

- Physical barriers: whether and where the alternatives have the potential to create, change, or eliminate barriers within a community that physically isolate populations.
- Access: whether and where the alternatives have the potential to create, increase, reduce, or eliminate access to communities and community facilities.

Community facilities are the locations that provide services for public benefit, including schools, health care facilities, religious institutions, emergency services facilities, municipal services and buildings, and museums. Community facilities were identified by reviewing data from local agencies and verified by field observation. Effects to community facilities were determined by qualitatively assessing whether and where the Preferred Alternative will have the potential to impact community facilities. Section 4.4.2 includes a brief demographic profile of the transportation study area.

A preliminary assessment of potential impacts on community facilities was undertaken by overlaying the conceptual LOD of the Preferred Alternative on GIS-based parcel mapping provided by Upper Merion Township. The parcel mapping is used for planning purposes only; it is an approximation of property boundaries. During subsequent design, SEPTA will develop survey-based parcel mapping to refine the Project design and to avoid or minimize and mitigate community facility impacts.

4.4.2 Affected Environment

The transportation study area is made up of a mix of residents and businesses that collectively identify themselves as the King of Prussia community. At a smaller scale are individual residential and business neighborhoods that give additional identity and sense of community for the people who live and work in King of Prussia. **Table 4.4-1** lists residential neighborhoods in the transportation study area where the Preferred Alternative is proposed. These neighborhoods afford identity by their name, configuration, common development history, and/or social fabric. Other areas serve as business community identifiers, such as Moore Park KOP, King of Prussia Mall, the Village at Valley Forge, and the Henderson Road area. Identity for businesses in these areas is afforded by location, marketing, and shared, broad economic interests.

Table 4.4-1: Residential Neighborhoods in the Transportation Study Area

Municipality	Name	Type	Dwelling Units (est.)
Existing Neighborhoods			
Upper Merion/ Bridgeport	King Manor	Single family	unknown
Upper Merion	Merion Station ^(a)	Multi family	22
Upper Merion	Ivy Lane	Single family	9
Upper Merion	Henderson Square	Multi family	159
Upper Merion	Henderson Park	Single family	60
Upper Merion	Prussian Woods	Multi family	119
Upper Merion	251 DeKalb Pike	Multi family	650
Upper Merion	Merion	Single family	unknown
Upper Merion	Brandywine Village	Single family	181
Upper Merion	Valley Forge Homes	Single family	320
Upper Merion	Abrams Run	Multi family	192
Upper Merion	Valley Forge Suites	Multi family	356
Upper Merion	Park Square	Multi family	313
Upper Merion	Skye 750	Multi family	248
Upper Merion	Village at Valley Forge	Residential units	2,450
Tredyffrin	Glenhardie Condos	Single family	449
Tredyffrin	Glenhardie	Single family	unknown
Planned Neighborhoods			
Upper Merion	Village at Valley Forge	Residential units	260
Upper Merion	Glasgow Tract	Multi-family	271
Upper Merion	Saulin Boulevard/DeKalb Pike	Single family	65

Notes: This table does not include additional scattered individual residences.

Source: AECOM, 2020.

The existing roadway network, particularly major corridors such as the PA Turnpike, I-76, and US Route 202, provide access to King of Prussia in general, but where no designated crossings exist, roadways in the network can form un-crossable barriers between residential and business neighborhoods. Landform variation in the forms of hills, valleys, and waterway corridors also forms barriers in some locations. These physical conditions tend to limit direct connections between and among neighborhoods, and necessitate the use of a personal vehicle or bus to afford access and connections.

Table 4.4-2 lists the community facilities within ½ miles of proposed stations of the Preferred Alternative. These facilities serve various purposes including education, religion, government, utilities, emergency services and medical care.

Table 4.4-2: Community Facilities in Proposed Station Areas

Name	Type
Aqua Pennsylvania - reservoir	Institutional
Lafayette Ambulance	Emergency Services
Rothman Institute	Medical
St. Augustine's Cemetery	Cemetery
Upper Merion High School	Educational
Mother of Divine Providence Church	Religious
Mother Teresa Regional Catholic School	Educational
King of Prussia Volunteer Fire Company	Emergency Services
King of Prussia Medical Center	Medical
9/11 Memorial	Monument
King of Prussia Park and Ride	Institutional
King of Prussia Post Office	Institutional
CHOP Specialty Care & Surgery Center	Medical
First Avenue Linear Park	Multi-use Roadside Pathway

Source: AECOM, 2016

The demographic profile of the King of Prussia/Valley Forge area is summarized in **Table 4.4-3**.

Table 4.4-3: Brief Demographic Profile of King of Prussia

Residential Profile – Upper Merion Township			
Population and Households (a)	Labor Force (a)	Income (a)	Commute to Work Pattern (c)
<ul style="list-style-type: none"> • 33,027 (2019) people (a) • 12,357 households • 71.9% White • 18.5% Asian • 5.8% Black • 4.2% Hispanic or Latino (b) • 3.8% Other 	<ul style="list-style-type: none"> • 67.0% Employed, 30.4% Not in labor force • 55.6% Management, Business Science • 23.3% Sales • 10.0% Service • 7.1% Production • 4.0% Natural Resources, Construction, Maintenance • 2.7% Unemployed 	<ul style="list-style-type: none"> • \$94,081 median household income • \$110,561 median family income • 46.7% households earning +100K 	<ul style="list-style-type: none"> • 2,888 work in King of Prussia • 12,823 work outside King of Prussia
Employee and Visitor Profiles – King of Prussia/Valley Forge Area			
Employees (c)		Visitors	
<ul style="list-style-type: none"> • 61,890 employees • 59,002 live outside King of Prussia 		<ul style="list-style-type: none"> • 1.9 million to Valley Forge National Historical Park (2018) (d) • 1.1 million to VFCR • 20 million to King of Prussia Mall (e) 	

Notes: (a) U.S. Census Bureau, Census 2010 and American Community Survey, 5-year average 2009-2013; numbers are rounded and may not total 100 percent. In the U.S. Census, Hispanic is a separate ethnic category from race (in this area including White, Asian, Black, and Other). Numbers may not add up to 100 percent due to rounding.

Sources: (b) U.S. Bureau of Labor Statistics, 2015; (c) KOP-BID, 2020 Report to the Community; (d) National Park Service (<https://www.nps.gov/vafo/learn/news/presskit.htm>); (e) Visit Philadelphia (<https://www.visitphilly.com/things-to-do/attractions/king-of-prussia-mall/>)

4.4.3 Environmental Consequences

4.4.3.1 No Action Alternative

The No Action Alternative transportation projects that will widen existing roadways within existing ROW are not anticipated to change the sense of community, impact community facilities, or change the demographic profile in the transportation study area. The several interchange projects are expected to improve access to the transportation study area in general, but could have impacts on the local community fabric if land acquisition is required. The Chester Valley Trail Extension project is expected to locally improve pedestrian access to and among adjacent neighborhoods and community facilities. Aside from the primarily localized benefits and impacts of these projects, the No Action Alternative will not change the factors that define the sense of community and community cohesion in the transportation study area; the No Action Alternative will not create new or reduce existing physical barriers except as may occur locally by the planned projects. The No Action Alternative is not expected to impact community facilities or access to them.

4.4.3.2 Preferred Alternative

Long-term Operational Effects

King of Prussia

In the Preferred Alternative, the elevated guideway would preserve physical access across existing transportation ROW to the extent that it is possible. By primarily using existing transportation and utility corridors, the Preferred Alternative will not physically split or fragment residential or business communities. As a result, factors will be preserved that are important to community identity, such as name, history and social aspects for residential communities, and location, marketing, and shared economic interest for business communities.

The Preferred Alternative has the potential to impact community character in terms of property acquisitions and displacements, visual change, and noise (discussed in Sections 4.5, 4.8 and 4.10, respectively). These potential impacts would occur where the guideway would be adjacent to the following existing residential neighborhoods:

- Valley Forge Homes – The Project will be visible to the north of the neighborhood, over the existing noise barrier. The Project will cause operational noise impacts to 37 residences.
- Brandywine Village – The Project will require partial property acquisition from two residential properties. The Project will be visible to the south of the neighborhood, over the existing noise barrier. The Project will cause operational noise impacts to 11 residences.

In general, the Preferred Alternative will benefit the public by providing new rail transit service as a travel option to access community facilities. This benefit would accrue primarily to travelers destined for community facilities within ½-mile of each proposed station area. Regarding benefits and impacts on community facilities, the Preferred Alternative will preserve access to community facilities in the Project study area. However, a preliminary assessment of ROW needs indicates potential acquisition of land from three community facilities: Philadelphia Suburban Water (Aqua America) reservoir, King of Prussia Volunteer Fire Company, and the 9/11 Memorial (on the Fire Company property). The Preferred Alternative will require a portion

of the Aqua America property along the PECO utility corridor to accommodate track curves and connection of the Project track to the existing NHSL. In addition, the Preferred Alternative will cross the Volunteer Fire Company property, requiring acquisition of the property and relocation of the Fire Company and the 9/11 Memorial.

Examination of the potential benefits and impacts of the Preferred Alternative on community facility access and circulation routes determined that, because the Preferred Alternative will be elevated, access and roadway routes to community facilities will not be obstructed.

69th Street Transportation Center

Project-related action at SEPTA's 69th Street Transportation Center will occur internally to the existing facility and will have no impact on community cohesion or facilities.

Short-term Construction Effects

Construction of the Preferred Alternative has the potential to cause temporary changes in access to communities and community facilities near the Project alignment. During construction, access across or along the guideway alignment work area may be detoured. Roadway circulation around proposed station and park-and-ride areas including nearby roadway intersections may change as a result of temporary travel lane reconfigurations, directional re-routing, and detours. Such changes could inconvenience personal travel and require temporary re-routing of school bus routes and stops as well as emergency services travel routes.

Minimization, Mitigation, and Commitments

Long-Term Operation - During subsequent design, SEPTA will examine opportunities to further minimize and mitigate for community impacts and incorporate feasible and reasonable measures into the operations plans for the Project. In addition, SEPTA will work with the Upper Merion Township's Unified Safety Department's Public Safety Director and the Fire & Emergency Service Department as they identify a suitable location for the fire company and 9/11 Memorial and undertake the relocation process. SEPTA will provide the funds for relocation of the King of Prussia Fire Company and 9/11 Memorial. Also, during subsequent design, SEPTA will coordinate with emergency service providers in the Township to identify and develop their emergency response plans regarding provider access and circulation in the Project operational plans. During Project operations, SEPTA will continue coordinating with Township emergency service providers as it implements the Project operations plan.

Short-Term Construction – During subsequent design, SEPTA will examine opportunities to further minimize and mitigate for community impacts and incorporate feasible and reasonable measures into the construction plans for the Project. Also, during subsequent design, SEPTA will coordinate with emergency service providers in the Township to identify and develop their emergency response plans regarding provider access and circulation in the Project construction plans.

During Project construction, SEPTA will implement minimization and mitigation measures for community impacts related to construction. In addition, during Project construction, SEPTA will continue coordination with the Township and the King of Prussia Volunteer Fire Company as SEPTA implements relocation of the existing functions of the King of Prussia Fire Company and

9/11 Memorial. Also, during Project construction, SEPTA will continue coordinating with Township emergency service providers as it implements the Project construction plan.

4.5 Property Acquisitions and Displacements

This section describes the potential property acquisitions that could result from the No Action Alternative and the Preferred Alternative. It also describes minimization strategies that SEPTA has taken to eliminate or reduce the need for acquisition, as well as potential mitigation strategies that SEPTA will undertake as the Project advances to offset impacts.

4.5.1 Regulatory Context and Methodology

Relocation assistance for the Project will follow the relevant procedures set forth in FTA Circular 5010.1E, *Award Management Requirements* (Rev. 2, 2018), and the process outlined in 49 CFR Part 24, which is the basic regulation governing acquisition and relocation activities on all federal and federally-assisted programs and projects.

Properties to be fully or partially acquired, or which will be subject to an easement, were identified based on the LOD of the Preferred Alternative, defined in Section 4.2.3. The estimates of property impacts and displacements were determined by overlaying the LOD of the Preferred Alternative on aerial-based GIS parcel mapping provided by Upper Merion Township, and reviewing Montgomery County property records to determine the residential, commercial and other properties intersected by the LOD. The property acquisition maps are provided in Appendix A. A partial acquisition was determined if primary buildings, the majority of the property, and access to the property will be preserved. A full acquisition and displacement was determined if one or more of these elements will be intersected. The following types of real estate transactions and impacts are discussed in this section:

Partial Acquisition – purchase of a portion of a property. A partial acquisition could include fee simple (permanent transfer of ownership) or easement acquisitions (see easement definition below).

Full Acquisition – purchase of all land ownership rights of a property. This is also known as a “fee simple” acquisition.

Displacement – Displacement results from converting current residential, commercial, or other occupied uses to transportation use. Displacements are measured by tax parcel; where multiple businesses or residences occur on a parcel, the numbers of each were counted.

Easement – A permanent easement may be used to locate infrastructure without completely diminishing property owner use of the land. Examples of permanent easements include stormwater management, drainage channels or storm drains, utilities, and grading. A temporary easement may be used to provide for the storage of materials and equipment, access to construction areas, site grading, or other construction-related activities.

All activities related to acquisitions and displacements for the Project will be conducted in conformance with the Uniform Relocation and Real Property Acquisitions Policies Act of 1970

(codified in Chapter 61 of Title 42 of the United States Code), as amended (the Uniform Act), and Public Law 105-117. These statutes require that certain relocation services and payments be made available to eligible residents, businesses, and nonprofit organizations displaced as a direct result of projects undertaken by a federal agency or with federal financial assistance. The Uniform Act provides for uniform and equitable treatment for persons displaced from their homes and businesses, and it establishes uniform and equitable land acquisition policies.

Property acquisitions and displacements will also be conducted in conformance with all relevant Pennsylvania statutes, regulations, and executive orders.

4.5.2 Affected Environment

Land uses in the transportation study area are a mix of residential and non-residential uses, along with community facilities and parks and open space uses, as described in Section 4.2.2.

4.5.3 Environmental Consequences

4.5.3.1 No Action Alternative

The sponsors of the transportation improvement projects in the No Action Alternative will seek to use or acquire portions of land along existing roadway facilities as needed to implement each planned project; the larger projects may require relocating existing users of the affected properties. Where reasonably feasible, project sponsors would design planned facilities to avoid or minimize property acquisition and displacements by using existing public rights-of-way.

4.5.3.2 Preferred Alternative

Long-term Operational Effects

King of Prussia

SEPTA used existing linear transportation and utility rights-of-way to minimize the need to acquire private property, to the maximum extent practicable. However, a number of potential partial and full property acquisitions will be required to provide adequate permanent ROW for the Project. In addition, SEPTA identified potential ROW needs for temporary access and work activities during Project construction. The permanent and temporary LOD areas were overlaid onto available Montgomery County GIS parcel data to identify the properties where potential property acquisitions are needed for the Project and the acreages of potential impact. The percentage of each parcel needed for the Project was calculated by dividing the potential acquisition area into the total size of the parcel; the total parcel size is the total deed area per the Montgomery County GIS parcel data. SEPTA identified property acquisition needs in terms of transfer of ownership or easement, with each type of acquisition organized according to whether it is within the permanent LOD or the temporary construction LOD. Potential displacement of existing occupants was identified if the entire parcel will be acquired by SEPTA for the Project.

Table 4.5-1 lists SEPTA's preliminary determination of the potential partial and full property acquisition needs for the Preferred Alternative based on the current level of planning and engineering. The data in the table indicates the following property acquisitions will be required:

- Permanent full property acquisitions
 - Residential: 1
 - Commercial: 11
 - Other: 1
- Permanent partial property acquisitions
 - Residential: 8
 - Commercial: 33
 - Other: 13
- Temporary construction Impacts:
 - Residential: 6
 - Commercial: 30
 - Other: 8

In this assessment, a full property acquisition is assumed to also be a displacement of the occupant(s). The data in the table indicates the following numbers of displacements that will occur because of full property acquisitions:

- Potential displacements (numbers differ from full property acquisitions where more than one unit occurs on a property)
 - Residential: 8
 - Commercial: 22
 - Other: 1

Final determinations regarding property needs and acquisitions will be made by SEPTA during subsequent design of the Project.

The Preferred Alternative will permanently impact a number of existing private parking and driveway accessways to commercial and industrial properties where the Preferred Alternative alignment crosses parking areas and driveways. In addition, a number of private parking and driveway accessways from commercial and industrial properties will be temporarily impacted by Project construction. An example of each of these situations is the guideway alignment along Wills and Mall Boulevards where the permanent and temporary LODs cross the existing parking and driveway areas of Costco and Crowne Plaza Hotel. To address permanent impacts to private parking and driveway accessways, SEPTA adjusted the locations of driveways and identified replacement parking areas as part of the design refinement of the Project. See Section 4.2.3.2 for discussion of temporary impacts to properties and access to properties during Project construction. **Table 4.5-1** identifies the parcels that will be impacted during Project construction and whether changes to property access could occur.

The Preferred Alternative will cross the ROW of the planned Chester Valley Trail Extension; however, no partial property acquisition of trail property will occur because the guideway will be

elevated over the trail. The Preferred Alternative will permanently use a portion of the PECO property, potentially causing a displacement of approximately four existing utility towers.

SEPTA is coordinating with the PA Turnpike Commission, PECO, PennDOT, Upper Merion Township, VFCR, Norfolk Southern, Simon Property Group, and others regarding the potential to place portions of the Preferred Alternative within their properties. Each entity has provided input to SEPTA in locating the proposed Project elements within their jurisdiction. The PA Turnpike Commission, PennDOT, and Upper Merion Township desire that the existing travel lane configurations on their roadways be maintained over the long-term. For this reason, SEPTA proposes no change in the number of travel lanes on the PA Turnpike, DeKalb Pike (US Route 202), N. Gulph Road, First Avenue, and Mall Boulevard.

SEPTA is coordinating with affected residential communities through neighborhood meetings, backyard visits, and a Community Working Group. In spring 2016, SEPTA began hosting neighborhood meetings and backyard visits with Valley Forge Homes and Brandywine Village residents to understand local concerns with regard to the Project. Table 5.1-2 lists these meetings and SEPTA's actions in response to specific concerns. Residents raised a number of concerns regarding the impacts of the Project, including property acquisitions and displacements, noise, visual, and other impacts. In response, SEPTA took a number of actions, including:

- Addressed concerns in the DEIS and FEIS
- Considered a lower elevation guideway along the south side of the PA Turnpike
- Developed the PA Turnpike North/South Option, which was assessed in the DEIS, and adopted the Preferred Alternative that includes the PA Turnpike North/South Option
- Developed a Community Working Group to focus on local concerns
- Committed to examining ways to avoid or minimize and mitigate residents' concerns to the extent reasonably feasible as the Project advances

As described in Section 5.1.4.7, the purpose of the Community Working Group is to enable an on-going dialogue with the residents of King of Prussia as the Project develops. This forum enables SEPTA to better understand residents' concerns and collaborate with them toward a resolution of concerns as the Project advances.

Table 4.5-1: Summary of Property Acquisitions and Displacements

Parcel Number	Property Owner	Total Parcel Acres	Current Use	Partial Acquisition (acres)	Partial Acquisition (% of property)	Full Acquisition (acres)	Full Acquisition (100% of property)	Temporary Construction Easement (acres)	Temporary Construction Easement (% of property)	Potential Displacements (number and use type)
580000340007	206 Allendale LP	0.27	Commercial	-	-	0.27	100%	-	-	1 – Commercial
580000343004	Pennsylvania Turnpike Commission	0.23	Institutional	0.01	2.51%	-	-	-	-	-
580000346001	Allendale Corp	0.45	Commercial	-	-	0.45	100%	-	-	1 – Commercial
580000346009	Allendale Corp	0.61	Commercial	-	-	0.49	100%	-	-	1 - Commercial
580000352004	King of Prussia Volunteer Fire Co.	1.84	Institutional	-	-	1.84	100%	-	-	1 – Exempt
580000355001	Weinstein Mark & Shirley	0.43	Commercial	-	-	0.43	100%	-	-	2 – Commercial
580000358007	M Q 2 Properties LLC	0.54	Residential	0.25	46.68%	-	-	-	-	-
580000370004	601 Allendale Road LLC	45.00	Industrial	0.23	0.52%	-	-	0.11	0.25%	-
580000388004	Executive Suites & Offices LP	21.94	Apartments	0.49	2.24%	-	-	0.43	1.98%	-
580000400001	King Star Enterprises LP	12.91	Commercial	0.91	7.07%	-	-	0.71	5.48%	-
580000407003	KOP Hospitality LLC	4.71	Commercial	0.45	9.47%	-	-	0.08	1.79%	-
580003343001	Pennsylvania Railroad	2.40	Utility	0.50	22.63%	-	-	0.04	1.86%	-
580004789004	PECO	5.60	Utility	-	-	-	-	0.99	17.61%	-
580004801001	Land Enterprises LNC	6.47	Industrial	-	-	-	-	0.21	3.24%	-
580006169001	Regent Development Company	0.38	Commercial	0.02	4.08%	-	-	0.03	8.69%	-
580006172007	Nilkanth Hospitality LLC	1.36	Commercial	0.02	1.58%	-	-	0.35	26.01%	-
580006175004	Ascent Hospitality LLC	2.76	Commercial	0.34	1.25%	-	-	0.34	12.37%	-
580006202004	King of Prussia Associates	96.77	Commercial	0.33	0.34%	-	-	0.63	0.65%	-
580006208007	King of Prussia Associates	24.00	Commercial	1.05	4.60%	-	-	0.72	2.98%	-
580006208106	P S Court Associates LP	2.08	Commercial	-	-	-	-	0.12	5.94%	-
580006262007	Glasgow Quarry LNC	10.86	Industrial	1.70	15.68%	-	-	-	-	-
580006265004	Philadelphia Suburban Water Company	47.73	Utility	2.05	4.30%	-	-	0.09	0.19%	-
580006268109	Montgomery County	2.00	Institutional	0.28	13.95%	-	-	-	-	-
580006268118	Henderson Road Rr LLC	1.97	Industrial	0.46	23.37%	-	-	-	-	-
580006321002	Candlebrook Marquis Property Owner LLC	26.72	Apartments	0.02	0.09%	-	-	0.08	0.31%	-
580006325007	Pennsylvania Turnpike Commission	41.27	Institutional	5.73	13.88%	-	-	4.72	11.44%	-
580006337004	Randor Real Estate Ventures LLC	1.03	Commercial	-	-	-	-	0.01	0.73%	-
580006343007	Sr & Zr Estate LLC	0.51	Commercial	-	-	0.51	100%	-	-	1 - Commercial
580006820007	840 First Avenue Partners LP	3.00	Commercial	-	-	3.00	100%	-	-	5 - Commercial
580006824003	Metropolitan Business Park LP	5.53	Commercial	0.94	15.25%	-	-	0.46	8.31%	-
580006826001	Atofina Chemicals LNC	41.35	Commercial	3.74	9.04%	-	-	0.59	1.42%	-

Parcel Number	Property Owner	Total Parcel Acres	Current Use	Partial Acquisition (acres)	Partial Acquisition (% of property)	Full Acquisition (acres)	Full Acquisition (100% of property)	Temporary Construction Easement (acres)	Temporary Construction Easement (% of property)	Potential Displacements (number and use type)
580006832004	Alisue LLC & Aneff LLC	7.46	Commercial	1.14	15.23%	-	-	0.45	5.99%	-
580006832103	Alisue LLC & Aneff LLC	5.70	Commercial	0.79	13.79%	-	-	0.27	4.71%	-
580006835001	PECO	1.80	Utility	0.15	8.38%	-	-	0.04	1.96%	-
580006838007	American Baptist Home Mission Society	4.19	Institutional	-	-	-	-	0.02	0.52%	-
580006844001	Royale Garden LP	18.14	Commercial	-	-	18.14	100%	-	-	5 – Commercial
580006847007	Valley Forge Colonia LP	13.63	Commercial	-	-	-	-	0.01	0.09%	-
580006847052	Parkview Tower Associates LP	5.08	Commercial	-	-	-	-	0.33	6.51%	-
580006856502	Bre/Hv Properties LLC	5.12	Commercial	-	-	-	-	0.003	0.07%	-
580006859004	GMB Realty LP	5.00	Industrial	0.78	15.70%	-	-	0.28	5.65%	-
580008467007	KOP Hotel XXXI Owner LP	0.02	Commercial	-		-	-	0.02	100%	-
580008467016	Agree Limited Partnership	2.19	Commercial	0.02	0.90%	-	-	0.30	13.53%	-
580008467025	KOP Hotel XXXI Owner LP	7.33	Commercial	0.55	7.47%	-	-	1.09	14.85%	-
580008472056	Ddrtc Overlook at King of Prussia LLC	9.03	Commercial	0.37	4.07%	-	-	0.36	3.96%	-
580008472101	Offmak Associates	6.54	Commercial	2.71	41.52%	-	-	0.45	6.83%	-
580008473001	250 MB LLC	8.56	Commercial	0.06	0.75%	-	-	0.74	8.70%	-
580008473109	King of Prussia Hotel Associates LP	4.38	Commercial	1.39	31.54%	-	-	0.31	7.12%	-
580008473127	King of Prussia Hotel Associates LP	2.14	Commercial	-	-	2.14	100%	-	-	1 - Commercial
580009225158	Maggitti LLC	12.05	Industrial	0.12	0.96%	-	-	-	-	-
580009225302	Anson Logistics Assets LLC	15.24	Industrial	0.18	1.15%	-	-	-	-	-
580009979079	Ki Henderson Square Associates LP	12.40	Commercial	0.01	0.09%	-	-	0.05	0.41%	-
580009982004	Peco	13.00	Utility	5.51	42.40%	-	-	-	-	-
580009982013	Peco Energy Co	6.93	Commercial	2.99	43.19%	-	-	-	-	-
580009985001	Browning-Ferris Industries Of	9.20	Commercial	-	-	9.20	100%	-	-	1 - Commercial
580009986504	Philadelphia Suburban Water Company	4.89	Utility	1.64	33.42%	-	-	-	-	-
580009988007	Provco Henderson LLC	5.37	Industrial	0.66	12.24%	-	-	-	-	-
580010003001	Pennsylvania Turnpike Commission	0.37	Institutional	0.02	4.86%	-	-	-	-	-
580010006007	Chara Betty Trustee	6.27	Industrial	0.01	0.11%	-	-	-	-	-
580010008104	Upper Merion Transportation Authority	4.05	Institutional	0.08	2.07%	-	-	-	-	-
580010102001	Sciarra Pasquale & Lidia	3.26	Residential	-	-	3.11	95.26%	-	-	8 - Residential
580010105007	Henderson Road Associates LLC	0.61	Commercial	-	-	0.41	67.18%	-	-	2 – Commercial
580010108004	Henderson Road Investors LLC	1.96	Commercial	-	-	1.96	100%	-	-	3 – Commercial

Parcel Number	Property Owner	Total Parcel Acres	Current Use	Partial Acquisition (acres)	Partial Acquisition (% of property)	Full Acquisition (acres)	Full Acquisition (100% of property)	Temporary Construction Easement (acres)	Temporary Construction Easement (% of property)	Potential Displacements (number and use type)
580010111001	Upper Merion Township	3.07	Institutional	1.06	34.52%	-	-	0.01	0.09%	-
580010114007	PECO	27.83	Utility	2.67	9.59%	-	-	2.63	9.45%	-
580010117004	Telford Ida	4.20	Commercial	0.23	5.52%	-	-	-	-	-
580010123007	Kunda Walter E & Kevin T & Timothy W	4.59	Commercial	0.04	0.92%	-	-	-	-	-
580010126004	Pennsylvania Turnpike Commission	0.58	Institutional	0.45	76.95%	-	-	-	-	-
580010129001	Estock Joseph J & Theresa M	3.95	Residential	0.39	9.98%	-	-	-	-	-
580011896007	Ingerman-Ginsburg Partnership LP	7.35	Industrial	0.15	2.04%	-	-	-	-	-
580011899004	Lehman Suzanne H & Robert D Jr	3.00	Industrial	0.11	3.74%	-	-	0.01	0.07%	-
580011902019	Bci Lv King of Prussia	4.27	Industrial	-	-	-	-	0.02	0.36%	-
580011908004	Bci Lv King of Prussia Industrial Center	4.35	Industrial	0.09	2.03%	-	-	0.52	11.91%	-
580018937004	Martin Cynthia L	3.07	Industrial	0.06	1.94%	-	-	0.02	0.61%	-
580020146001	Powers Robert J & Cathie Jean	0.22	Residential	-	-	-	-	0.02	8.53%	-
58010E063*	un	8.29	Residential	2.17	26.13%	-	-	0.44	5.26%	-
58026B027*	un	0.13	Residential	-	-	-	-	0.01	6.25%	-
58010E064*	un	4.28	Residential	-	-	-	-	0.02	0.42%	-
Total affected properties and types:					33 Commercial/ Industrial 8 Residential 13 Other		11 Commercial/ Industrial 1 Residential 1 Other		30 Commercial /Industrial 6 Residential 8 Other	
Total Number of Units Displaced:										22 Commercial /Industrial 8 Residential 1 Other

Source: Montgomery County Parcel Data and HNTB, 2020
Notes:
Un = Properties that do not have a parcel number Listed. The alternate Tax Map ID number from the Montgomery County GIS Parcel Data is shown.
- = No property acquisition.

Related to property impacts, public and stakeholder comments identified concerns regarding the potential for Project riders to use existing private parking areas around stations that will not have a park-and-ride facility (Allendale Road, Mall Blvd, and First & American). The private parking areas near these stations are on commercial properties around the King of Prussia Mall and in Moore Park KOP. To address the potential for this occurrence, SEPTA made a commitment as part of the Project to coordinate with potentially impacted property owners during subsequent design and Project construction and develop an operational parking management plan prior to Project operations to discourage transit rider use of private parking areas.

69th Street Transportation Center

No property acquisitions or displacements would occur in the vicinity of the 69th Street Transportation Center as a result of the Preferred Alternative.

Short-term Construction Effects

As described in Section 4.2.3.2, SEPTA will require temporary construction areas for materials and equipment storage, parking, access, and construction activities. The temporary LOD describes Project construction areas. SEPTA anticipates that multiple staging areas will be used; some such areas may only be used for part of the construction period. Temporary construction activity in staging areas and construction easements will convert the existing land on which they occur to a temporary construction use; the owner of such lands will temporarily lose the use of that land until construction activity ends. Features on that land, such as buildings and trees, may be removed if their presence conflicts with temporary Project construction needs (Table 4.2-2).

Minimization, Mitigation, and Commitments

Long-Term Operation - During subsequent design, SEPTA will undertake the following activities:

- SEPTA will refine permanent ROW needs and develop ROW plans, and prepare a real estate acquisition management plan.
- During subsequent design, SEPTA will refine the area of permanent land acquisition to be provided to PECO to offset permanent ROW needs for the Project on the PECO property.
- SEPTA will initiate the real estate acquisition and relocation process, during which time SEPTA will work with each affected property owner to achieve permanent real estate acquisition agreements. SEPTA's property acquisition activities will occur in accordance with the Uniform Act as amended and FTA Circular 5010.1E, Awards Management Requirements and State laws that establish the process through which SEPTA may acquire real property through a negotiated purchase or through condemnation.
- Regarding the potential for Project riders to use private parking areas near stations, SEPTA will coordinate with potentially impacted property owners during subsequent design and Project construction to develop an operational parking management plan prior to Project operations to discourage transit rider use of private parking areas.

Short-Term Construction – Please see SEPTA’s commitments regarding short-term construction in Section 4.2.3.2.

4.6 Parks, Recreational Land, and Open Space

This section assesses the benefits and impacts of the Preferred Alternative and the No Action Alternative regarding parks, recreational land, and open space.

4.6.1 Regulatory Context and Methodology

Parks, recreation areas, and open space in the Project study area are administered by the National Park Service (NPS), Montgomery County, or Upper Merion Township.

With respect to projects that receive funding from or require approval by an agency of the U.S. Department of Transportation (USDOT), acquisition of lands from certain parks, recreational lands, wildlife and waterfowl refuges, and significant historic sites are given consideration under Section 4(f) of the USDOT Transportation Act. FTA implements these requirements by its regulations set forth in 23 CFR Part 774. A Section 4(f) evaluation is provided in Chapter 5 of the DEIS.

Section 6(f) of the U.S. Land and Water Conservation Fund (LWCF) Act of 1965 (codified in Chapter 2003 of Title 54 of the United States Code) regulates the use of parklands that were purchased or developed with LWCF funds.

The assessment of parks, recreational land, and open space used Upper Merion Township’s Open Space and Environmental Resource Protection Plan, which describes the needs and priorities for such properties for the foreseeable future. The study area for assessing Project impacts on parks, recreational land, and open space is the Project study area defined in Section 4.1. This assessment qualitatively considered the potential for direct benefits and impacts of the Project on current and possible future parks, recreational land, and open space. Service to parks, recreational land, and open space was determined by counting the number of such properties located within ½-mile of proposed stations.

4.6.2 Affected Environment

Seven parks, recreational areas, open spaces and trails are within or adjacent to the Project study area. Each is described below and shown in the maps in Appendix A. No properties within the Project study area are encumbered by monies under the LWCF Act; thus, Section 6(f) of the LWCF Act does not apply.

- **Walker Field** – This Township-owned park on the north side of the PA Turnpike near Allendale Road covers 25 acres and includes sports fields, play apparatus, a maintenance building, a stream, and open space.
- **Kingwood Road Park** – The Township administers this neighborhood park along Kingwood Road. The facility contains a softball field, basketball courts, shelter, picnic area, and play apparatus. The Township leases the park’s 2.5 acres from PECO.

- **PECO Easement** – The Township, in partnership with Montgomery County, entered into an easement agreement with PECO for approximately 14.3 acres of land within the PECO ROW west of the PA Turnpike crossing. The easement includes land for Kingwood Road Park (described above). The remainder of the easement is designated by the Township as a view corridor and recreation area.
- **Chester Valley Trail Extension** – This county-administered regional trail currently runs for 13.5 miles in Chester County into the 1.2 miles of the trail in Montgomery County and Upper Merion Township to its current terminus on the west side of South Gulph Road. Montgomery County is implementing a 3.5-mile extension of the trail. The trail will extend east from its current terminus at the existing South Gulph Road park-and-ride facility within a County easement along the south side of the PECO utility corridor. At the PA Turnpike, the trail extension would follow Hansen Access Road and then turn north along the former East Penn Railroad ROW (now owned by the County), following along the north-south leg of Saulin Boulevard, and crossing US Route 202 on its way to Bridgeport.
- **Former Burgess Arboretum property** – This Township-owned tract is a 4.8-acre parcel on the east side of Moore Road at Trout Creek. It features the Moore-Irwin House (formerly known as the Muhlenberg House). This building has had various uses, including as a township cultural center. At one time, this property also was the location of the Burgess Arboretum.
- **Betzwood Park** is a 1-acre mini-park/natural area at the interchange of Route 23 (West Valley Forge Road) and US Route 422.
- **Valley Forge National Historical Park** – Also located in the township in the northwest corner of the transportation study area, Valley Forge National Historical Park is administered by the NPS. The park covers over 3,400 acres, about 1,300 of which are in Upper Merion Township. The park includes historical buildings, recreated encampment structures, memorials, museums, and recreation facilities.

4.6.3 Environmental Consequences

4.6.3.1 No Action Alternative

The No Action Alternative transportation projects include one project that will improve park and related resources: the Chester Valley Trail Extension. The sponsors of the other transportation projects in the No Action Alternative will be responsible for assessing the potential impacts of their projects on parks, recreational land, open space, and trails and for coordinating with the owners and administrators of those facilities during development of their projects. Given the nature of the No Action Alternative transportation projects, displacement of parks, recreational land, open space, and trails is unlikely.

4.6.3.2 Preferred Alternative

Long-term Operational Effects

King of Prussia

The Preferred Alternative will provide transit access to parks, recreational land, and open space in and near the Project study area. The Preferred Alternative will provide new transit access to

five parks: Walker Field, the Chester Valley Trail Extension, the former Burgess Arboretum property, Betzwood Park, and Valley Forge National Historical Park. The Preferred Alternative will cross over the planned Chester Valley Trail Extension, avoiding a direct impact. The Preferred Alternative will not directly impact other parks.

The potential for the Preferred Alternative to have proximity effects on Project study area parks was considered in terms of changes in visual context and noise. (See also Sections 4.8.3.2 and 4.10.3.2).

- **Visual** - The proposed elevated guideway would be a new visual element. Where the Preferred Alternative is aligned in existing transportation ROW, the visual sensitivity is low to moderate because of the pre-existing transportation use of the ROW (see Section 4.8.3.2). As a result, the potential visual change at the crossing of the Chester Valley Trail Extension at Saulin Boulevard is moderate. The Preferred Alternative will be sufficiently distant from Valley Forge National Historical Park and separated from the park by US Route 422 and N. Gulph Road that no visual impact will occur. The National Park Service agreed to this finding for Valley Forge National Historical Park during an Agency Coordinating Committee meeting on April 3, 2019. The Preferred Alternative will be physically separated from Walker Field by the PA Turnpike; for this reason, the visual effect of the Project on Walker Field will be low. The Preferred Alternative is visually blocked from the former Burgess Arboretum property and Betzwood Park by terrain and development; the Project will have no visual impact on these properties.
- **Noise** - The Chester Valley Trail Extension is the only park or trail that would be crossed by or near enough to the Preferred Alternative for a potential noise impact. The noise analysis determined that the Project will have no noise impact on the Chester Valley Trail Extension because Project train noise will be less than existing noise levels, and the combination of background and Project noise levels will not create a noise level that exceeds FTA's noise impact thresholds (Section 4.10.3.2).

69th Street Transportation Center

No parks, recreational areas, or open space would be impacted by the Preferred Alternative in the vicinity of the 69th Street Transportation Center.

Short-term Construction Effects

Project construction activity has the potential for short-term impacts to the Chester Valley Trail Extension if the trail has to be temporarily closed or re-routed at the point where the Preferred Alternative crosses the trail near Saulin Boulevard.

Minimization, Mitigation, and Commitments

Long-Term Operation – During subsequent design, SEPTA will develop the Project design at the crossing of the planned Chester Valley Trail Extension in coordination with Montgomery County at major milestones (30 percent, 60 percent, 90 percent and final plan, specifications, and estimates). During subsequent design, SEPTA will develop the Project construction plan for the crossing of the planned Chester Valley Trail Extension in timely coordination with Montgomery County.

During subsequent design, SEPTA will develop a cost reimbursement agreement with Montgomery County to reimburse the County for expenses incurred by the County's engineering consultant or other County consultants deemed necessary by Montgomery County and SEPTA for coordination and services related to: reviewing Project construction plans and specifications, coordinating with SEPTA during Project design and construction phases, and implementing temporary modifications (such as but not limited to: signage, re-routing, restoration, striping) to the planned Chester Valley Trail Extension to accommodate Project construction. All planning and design costs for the Project related to its impact upon the planned Chester Valley Trail Extension, including consultant fees as described above, shall be borne by SEPTA.

Short-Term Construction – During construction, SEPTA will implement its construction plan in the area of the Chester Valley Trail Extension. SEPTA will coordinate with Montgomery County during Project construction. All costs to construct the Project at the planned Chester Valley Trail Extension crossing will be the responsibility of SEPTA.

4.7 Historic and Archaeological Resources

This section assesses the potential Project impacts of the Preferred Alternative and the No Action Alternative on historic and archaeological resources. As described below, the focus of Section 106 consultation was on the Preferred Alternative.

4.7.1 Regulatory Context and Methodology

Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, (54 U.S.C. § 300101, et seq.), and its implementing regulations (36 CFR Part 800), require Federal agencies to take into account the effects of their undertakings on historic properties that are either listed in or eligible for listing in the National Register of Historic Places (NRHP). Historic properties are defined as “any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register of Historic Places.”

In accordance with 36 CFR Part 800, Section 106 consultation was initiated with the Pennsylvania Historical and Museum Commission (PHMC), and the State Historic Preservation Officer (SHPO), in March 2013. Architectural historians and archaeologists made an initial assessment of historical and architectural resources in the form of a *Cultural Resources Technical Memorandum*, completed in June 2015. Subsequently, a recommended LPA was identified based on the Tier 3 studies. Focusing on the recommended LPA, architectural historians and archaeologists identified areas of potential effects (APEs) for historic architecture and archaeology, and prepared an *Area of Potential Effect Report*, completed in January 2016. The SHPO concurred with the proposed APEs on March 7, 2016 (Appendix C).

During the 2016 Section 106 consultation, the APE for historic architecture was delineated to include 500 feet on either side of the centerline of the recommended LPA between the existing NHSL and the western terminus on First Avenue in Upper Merion Township. At the 69th Street Transportation Center in Upper Darby Township, the APE was drawn to extend 100 feet on either side of the track centerline. This APE encompassed the area within which the Project may cause changes in the character or use of standing resources listed in or eligible for the National Register of Historic Places (NRHP). The APE also included resources from which the Project

may be visible and/or create a visual impact to the integrity of a listed or eligible resource. The 500-foot APE boundary encompassed Project elements in Upper Merion Township, including the guideway, stations, park-and-ride facilities, stormwater management facilities, power substations, and signal huts. At the 69th Street Transportation Center in Upper Darby Township, the Project will consist of extending an existing track to the station building, widening an existing platform, and other related improvements. Due to the size of SEPTA's property at the 69th Street Transportation Center, the terrain, and the height/density of existing buildings in proximity to the Project area, the proposed improvements have limited or no visibility from the surrounding area. Thus, an APE of 100 feet was deemed appropriate in that area.

The APE for archaeology in the 2016 consultation included all locations where ground disturbance activities were proposed for the Preferred Alternative in Upper Merion Township and at the 69th Street Transportation Center in Upper Darby Township. The APE for archaeology includes proposed workspaces, the proposed park-and-ride facilities, elevated guideway structure, tracks, stations, permanent ROW, and other associated infrastructure.

The APEs were utilized for the 2016 *Intensive-Level Survey and Determination of Eligibility Report* for historic architectural properties and the 2016 *Phase 1A Archaeological Survey Report* for the Project and are shown on the maps in Appendix A. SEPTA's Board adopted the recommended LPA in January 2018 and undertook additional engineering study, prompting FTA to reinitiate Section 106 consultation in September 2020 with a modified APE in response to design refinements for the Preferred Alternative. Modified APEs were developed for both historic architecture and for archaeology.

The modified APE for architecture was determined based on the refined design alternatives, desktop analysis, and field survey, which included assessments of visual impacts. It overlaps the initial APE determined in 2016, but includes additional areas where the Preferred Alternative extends outside the original APE. In these areas, the modified APE is the outside edge of the refined LOD. These additional areas include land acquisitions for construction, stormwater drainage, and other easements immediately west of the NHSL and south of the proposed rail extension, and for parking structures at the Henderson Road Station and First & Moore Station, including parcels or portions of land parcels that extend beyond the original APE.

The modified APE for archaeology was also determined based on the design refinements to encompass any additional limits of disturbance projecting beyond the original APE. The design refinements are generally within the previously studied APE for archaeology, but because of design shifts, portions of the design refinements are not within the previously studied APE. The original APE for archaeology was modified in the areas of the design refinements to encompass permanent and temporary limits of disturbance.

These modified APEs are documented in the October 19, 2020 FTA letter to the SHPO (Appendix C) and are shown on the maps in Appendix A. Project reports can be obtained from the Project website (www.kingofprussiarail.com). Consultation with PA SHPO can be found in Appendix C.

Identification of historic properties in accordance with 36 CFR § 800.4 was conducted in accordance with PA SHPO guidelines for historic architecture and archaeological surveys,

including *Guidelines for Architectural Investigations in Pennsylvania* (2014) and *Guidelines for Archaeological Investigations in Pennsylvania* (2008). Historic property evaluations performed as part of the survey followed the requirements of 36 CFR § 800.5, the Secretary of the Interior's *Standards and Guidelines for Evaluation*, and guidance outlined in *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation*. All personnel who performed the various tasks associated with this project meet the Secretary of Interior's Professional Qualifications Standards (36 CFR Part 61) within their respective disciplines. The methodology included the following:

- Searches of the PA SHPO Cultural Resources Geographic Information System (CRGIS) database, PA SHPO resource files, data and reports from prior historic architectural surveys, and archaeological investigations, and a review of pertinent primary and secondary source materials at local repositories and online;
- Reconnaissance-level field surveys to assess the presence of potential historic architectural resources in the APE;
- Intensive-level survey and documentation of potentially historic properties using Pennsylvania Historic Resource Survey Forms;
- Assessment of the prehistoric and historic archaeological potential of the archaeological APE (Phase 1A survey);
- Assessment of the effects of the proposed project on historic properties within the APE; and
- Invitation of consulting parties and Indian tribes to consult on the project's identification of historic resources and potential effects.

Additional information regarding the historic architecture assessment and archaeological survey methodology may be found in the 2016 *Intensive-Level Survey and Determination of Eligibility Report*, the 2016 *Phase 1A Archaeological Survey Report*, and the October 19, 2020 FTA letter to the SHPO (Appendix C).

Under the provisions of 36 CFR Part 800.2, consulting parties are invited to participate in Section 106 consultation and invited to comment on identification of historic properties as well as the effects of the undertaking on historic properties. The agency must take public and consulting party comments into consideration. FTA and SEPTA invited and engaged Section 106 consulting parties, providing the 2016 *Intensive-Level Survey and Determination of Eligibility Report* and the 2016 *Phase 1A Archaeological Survey Report* to each party and requesting their participation as well as review and comment on these technical reports. The invited consulting parties include the following entities:

- Pennsylvania Historical and Museum Commission (m)²
- National Park Service, Northeast Region
- Valley Forge National Historical Park

² Consulting parties who attended the September 8, 2016 consulting parties meeting are denoted with (m).

- Montgomery County Planning Commission (m, l)³Montgomery County Division of Parks, Trails and Historic Sites
- Historical Society of Montgomery County
- The Heritage Conservancy
- Upper Merion Township Planning Commission (m)
- King of Prussia Historical Society
- Chester County Historic Preservation Network
- Chester County Historical Society
- Chester County Planning Commission
- Tredyffrin Historic Preservation Trust
- Tredyffrin Township Historical Commission (m)
- Upper Darby Township
- Upper Darby Historical Society
- Delaware County Planning Department (m)
- Delaware County Historical Society
- Preservation Alliance for Greater Philadelphia
- The Delaware Tribe
- The Delaware Nation (l)
- The Oneida Indian Nation
- The Eastern Shawnee Tribe of Oklahoma
- Stockbridge Munsee Community Band of Mohican Indians (l)
- PECO Energy Corporation

As part of reviewing the technical reports, all consulting parties were invited by FTA and SEPTA to attend a meeting for the purpose of providing a Project overview and presenting the findings of the reports. The meeting, held on September 8, 2016 at the Upper Merion Township Building, was attended by the parties noted by “(m)” in the list above. Subsequently, several parties including a tribe that did not attend the meeting, denoted by “(l),” provided written comment. The remaining parties listed did not participate in consultation. Key themes from the consulting parties’ review of the technical reports regarding historic and archaeological resources are listed below with references to FEIS sections for further information as appropriate:

- SHPO’s statewide historic preservation plan is in the process of being updated;

³ Consulting parties who submitted written comments are denoted with (l).

- Need to assess potential for impacts of Project elements on archaeological sites, including stormwater management facilities, power substations, and other Project facilities (Section 4.7.2.2);
- Consult the Delaware County Archaeological Resource Inventory and Management Plan, Volume I, for information on resources in the County;
- Valley Forge National Historical Park should be a consulting party (Section 4.7.1);
- Project would not endanger sites of interest to the Delaware Nation (Appendix C);
- No significant cultural resources concerns from the Stockbridge Munsee Community Band of Mohican Indians (Appendix C);
- No additional comments regarding cultural resources from Montgomery County (Appendix C).

During consultation for the Preferred Alternative following design refinements and development of the modified APE, participating consulting parties were copied on FTA's October 19, 2020 letter to the SHPO (Appendix C). The consulting parties were also invited to provide suggestions for the mitigation of adverse effects to the PNJ Interconnection, and PECO Energy Corporation was invited to concur with the Memorandum of Agreement (MOA) (November 25, 2020 - Appendix C). No consulting party comments were received as a result of the 2020 consultation. FTA and SEPTA considered the consulting parties' comments in the FEIS and as part of the Section 106 consultation process. A summary of the consulting party meeting and copies of the comment letters are provided in Appendix C.

4.7.2 Affected Environment

4.7.2.1 Historic Architecture

Background research using the SHPO's CRGIS database revealed four architectural resources within the APE that were previously determined eligible for listing in the NRHP. **Table 4.7-1** lists the previously identified resources (the Philadelphia and Western Railway); these resources are also shown on the maps in Appendix A. Two resources (the Pennsylvania Turnpike: Delaware River Extension and the Philadelphia and Western Railway: Norristown High Speed Line) are eligible linear transportation-related properties, and the other two resources (the Market Street Elevated Railway Historic District and 69th Street Terminal Square Shopping District) are eligible historic districts.

Table 4.7-1: Historic Architectural Resources in the Modified APE

BHP KEY#	RESOURCE NAME	NRHP STATUS	NRHP STATUS DATE
Upper Merion Township, Montgomery County			
155879	Pennsylvania Turnpike: Delaware River Extension	Eligible	4/7/2005
203535	American Baptist Churches USA Mission Center	Eligible	9/26/2016

BHP KEY#	RESOURCE NAME	NRHP STATUS	NRHP STATUS DATE
156601	PNJ Interconnection; Conowingo to Plymouth Meeting Transmission Line	Eligible	10/30/2020
Upper Darby Township, Delaware County			
105499	Market Street Elevated Railway Historic District	Eligible; Philadelphia Transit Co. Building contributes to Market Street Elevated Railway Historic District	8/1/1996
156448	69 th Street Terminal Square Shopping District	Eligible; Philadelphia Transit Co. Building contributes to Market Street Elevated Railway Historic District and 69th Street Terminal Square Shopping District	1/11/2013
Upper Merion Township, Montgomery County/Upper Darby Township, Delaware County			
128825	Philadelphia and Western Railway; Norristown High Speed Line	Eligible	6/21/2004

Source: AECOM, 2016. *KOP Rail Intensive-Level Survey and Determination of Eligibility Report*, and October 19, 2020 FTA letter to the SHPO

Note: BHP Key = A numeric coding system used by SHPO to identify historic properties

Field surveys in 2016 and 2020 identified two additional properties in the APE that are eligible for listing in the NRHP: the American Baptist Churches U.S.A. Mission Center and the PNJ Interconnection; Conowingo to Plymouth Meeting Transmission Line. **Table 4.7-2** lists each historic resource and the eligibility determinations. The maps in Appendix A show the location of all identified resources in the project APE and their NRHP eligibility status. On September 26, 2016, the SHPO concurred with the recommendations in the 2016 *KOP Rail Intensive-Level Survey and Determination of Eligibility Report* and determined that the American Baptist Churches USA Mission Center was eligible for the NRHP. On October 30, 2020, the SHPO concurred with FTA's determination of NRHP eligibility for the PNJ Interconnection; Conowingo to Plymouth Meeting Transmission Line (letters in Appendix C).

4.7.2.2 Archaeology

Archaeologists conducted background research and a visual inspection of the APE in March 2016, using the methodology and information resources identified in Section 4.7.1. The background research determined that no registered archaeological sites are located within the APE. The APE has been subjected to extensive twentieth-century development and generally has low sensitivity for intact prehistoric and historic-period archaeological resources. The archaeologists recommended no further investigation within the APE for archaeology. On December 15, 2016, the SHPO concurred with the determinations in the 2016 *KOP Rail Phase 1A Archaeological Survey Report* (Appendix C). In September 2020, archaeologists examined the modified APE to determine archaeological sensitivity and probability of encountering intact belowground resources. Based on the comprehensive nature of prior earthmoving activities, archaeologists concluded that the modified APE for archaeology has a low sensitivity for prehistoric and historic archaeological resources, and the findings of the Phase 1A Archaeological Survey apply to the modified APE for archaeology; additional evaluation of the

modified APE for archaeology is not recommended. The SHPO concurred with this finding on October 30, 2020 (Appendix C). There were no comments from consulting parties on the archaeological findings.

4.7.3 Environmental Consequences

4.7.3.1 No Action Alternative

Two historic properties, Valley Forge National Historical Park (assessed in the DEIS), and the Pennsylvania Turnpike: Philadelphia Extension (assessed in the FEIS) may be affected by one or more committed transportation projects to be implemented by 2040, listed in Table 2.2-2. Specifically, projects to replace the US Route 422 Bridge and widen the highway, as well as the project to relocate PA 23/Valley Forge Road and N. Gulph Road, are immediately adjacent to the park. Direct benefits and impacts on the park could occur during construction as well as operation of these projects. The plan to widen the PA Turnpike from Morgantown to Valley Forge would occur within an historic portion of the highway, causing changes to the historic resource. All projects in the No Action Alternative may affect other historic resources that are not within the APE of the Project.

Projects in the No Action Alternative are located in areas examined in this study with low potential for archaeological sites. The sponsors of these projects will be responsible for complying with local, state, and possibly Federal regulations regarding potential effects on historic and archaeological resources.

4.7.3.2 Preferred Alternative

Long-term Operational Effects

Architectural historians assessed the potential for the Preferred Alternative to impact historic resources using the methodology described in Section 4.7.1. **Table 4.7-2** lists each resource, describes the impact of the Preferred Alternative on the resource, and identifies the effect finding under Section 106. FTA determined that the Preferred Alternative may have an adverse effect on one property: the PNJ Interconnection; Conowingo to Plymouth Meeting Transmission Line. The adverse effect finding is because the Preferred Alternative will require replacement of approximately four existing steel lattice towers, which are contributing resources to the historic property, with monopole structures. This impact constitutes an adverse effect, as it removes original character-defining infrastructure from the resource and replaces the demolished towers with taller modern monopole structures.

Table 4.7-2: Historic Property Impacts and Section 106 Effect Findings

BHP Key#	Resource Name	Preferred Alternative Impacts	Finding of Effect Under Section 106
Upper Merion Township, Montgomery County			
155879	Pennsylvania Turnpike: Delaware River Extension	Elevated guideway along and two crossings over the resource; resource integrity not dependent on setting; no adverse impact to remaining character-defining features of the resource	No adverse effect

BHP Key#	Resource Name	Preferred Alternative Impacts	Finding of Effect Under Section 106
203535	American Baptist Churches USA Mission Center	Preferred Alternative on north side of First Avenue; no impact to the historic resource	No historic properties affected
156601	PNJ Interconnection; Conowingo to Plymouth Meeting Transmission Line	Replace approximately four steel lattice towers with monopole structures; adverse impact to the historic resource	Adverse effect
Upper Darby Township, Delaware County			
105499	Market Street Elevated Railway Historic District	Exterior and interior modifications to non-historic portion of station: platform widening, track extension, interior circulation; no impact to the historic district or its contributing resources, including the Philadelphia Transit Co. Building.	No historic properties affected
156448	69 th Street Terminal Square Shopping District	Exterior and interior modifications to non-historic portion of station, including platform widening, track extension, interior circulation; modifications not visible from or within historic portion of station; no impact to the Philadelphia Transit Co. Building or the districts to which it contributes.	No historic properties affected
Upper Merion Township, Montgomery County/Upper Darby Township, Delaware County			
128825	Philadelphia and Western Railway; Norristown High Speed Line	Extend existing track to platform; new remaining wall on north side of embankment at station; proposed modifications do not affect character-defining features of resource; no adverse impact to the historic resource.	No adverse effect

Source: AECOM, 2020.

For the remaining properties, FTA determined that the Preferred Alternative will have either no adverse effect on the resources, or no historic properties will be affected. The SHPO concurred with each of FTA's determinations on March 16, 2017 and October 30, 2020 (Appendix C). There were no comments from consulting parties pertaining to the assessment of effects in 2016 and 2020.

Short-term Construction Effects

Construction activities to implement the Preferred Alternative will occur within the temporary and permanent LODs identified on the maps in Appendix A and assessed in the long-term effects discussion above.

As described in Sections 4.8.3.2 and 4.10.3.2, Project construction activities have the potential to cause temporary changes in the visual, noise, and vibration environments due to the presence of construction materials, equipment operation and other activities required to build the Project. As described in Chapter 3, temporary lane and roadway closures could occur on the PA Turnpike: Delaware River Extension during construction to build the elevated guideway. In

addition, temporary service changes could occur on the Philadelphia and Western Railway: NHSL to build the track connection in the transportation study area and the new track and platform work at the 69th Street Transportation Center. The duration of these impacts will be limited to the time required to complete each Project element in a manner that protects worker and public safety.

Short-term impacts from construction were considered in the assessment of effects, but did not have impacts to the character-defining elements that contribute to the significance of the five historic resources within the APE, except for the PNJ Interconnection: Conowingo to Plymouth Meeting Transmission Line. As described under Long-Term Operational Effects, the resource will be adversely impacted by removal and replacement of approximately four contributing transmission towers during construction.

Minimization, Mitigation, and Commitments

Long-Term Operation – FTA, SEPTA, and the SHPO entered into a Section 106 MOA on November 25, 2020, provided in Appendix C, to resolve and mitigate the adverse effect of the project (due to transmission tower replacement) on the PNJ Interconnection; Conowingo to Plymouth Meeting Transmission Line. The MOA stipulates the mitigation measures and conditions regarding the resource that were agreed to among the parties during Section 106 consultation. During subsequent design and prior to demolition of any PECO transmission towers as part of the Project, SEPTA will implement the terms of the Section 106 MOA. Mitigation for other historical and archaeological resources during Project operations is not warranted because no resources will be impacted during long-term Project operations.

Short-Term Construction – Please see mitigation for temporary impacts to existing transit services in Section 3.1.3.2 and to roadway operations in Section 3.2.3.3.

4.8 Visual and Aesthetic Resources

This section describes the potential effects of the Preferred Alternative and the No Action Alternative on visual and aesthetic resources.

4.8.1 Regulatory Context and Methodology

NEPA regulations require consideration of the direct effects of a proposed action, as well as the significance of those effects. The term “effects” includes the aesthetic impacts of an action (40 CFR §§ 1502.16 and 1508.8).

Potential visual and aesthetic effects of the Project are a key public issue. As FTA does not have visual assessment guidelines, SEPTA used FHWA’s *Visual Impact Assessment for Highway Projects* (FHWA 1988) in this analysis. The visual assessment study area is 500 feet on either side of the Preferred Alternative. An inventory was completed to identify the visual environment, character, and quality; identify visually sensitive areas; and determine viewers.

The visual environment is the setting of an area, including the resources that affect an observer’s visual experience of an area. Visual character is a composite description of the visual resources, considering the form, scale, and diversity of man-made and natural landscape

components. Visual quality is the value placed on the visual environment according to viewer observation and preference.

A visually sensitive area is one upon which a human value has been placed for reasons of historic importance, natural beauty, or other reasons. Examples of visually sensitive areas in the Project study area are parks and recreational facilities such as Valley Forge National Historical Park and open space.

Viewers are the people who are likely to observe the visual environment. The major groups of viewers who would be affected by the new visual elements of the Preferred Alternative have been identified for each visual assessment unit (VAU), which are described below. Such groups might include residents, workers who are employed in the VAU, visitors who come to the area, and transit riders, pedestrians, cyclists, and other roadway users who travel in or through the VAU.

To analyze the potential visual effects of the Preferred Alternative on the visual environment, as experienced by viewers, seven Project study area VAUs were identified generally based on the cohesiveness of land use and development patterns. The VAUs are defined as follows:

- VAU 1 – PECO west of the PA Turnpike
- VAU 2 – King of Prussia Mall Area
- VAU 3 – First Avenue
- VAU 4 – PECO east of PA Turnpike
- VAU 5 – N. Gulph Road
- VAU 6 – US Route 202
- VAU 7 – PA Turnpike

4.8.2 Affected Environment

4.8.2.1 VAU 1 – PECO West of the PA Turnpike

The PECO ROW west of the PA Turnpike is an open, grassy corridor with pairs of steel latticework towers supporting overhead power wires (see **Figure 4.8-1**). The ROW is flanked by the rear yards of residences and some businesses. As one of the few open areas in the Project study area, the PECO ROW is locally valued for the relatively undeveloped views it provides. Viewers in VAU 1 include existing adjacent residents and business employees as well as Kingwood Road Park users. Future viewers will also include users of Upper Merion Township's PECO recreation easement and

Figure 4.8-1: VAU 1 - PECO ROW West of the PA Turnpike



Montgomery County's Chester Valley Trail extension in the PECO ROW. VAU 1 has a high degree of visual sensitivity because of its value as an open area.

4.8.2.2 VAU 2 – King of Prussia Mall Area

VAU 2 encompasses the Court, Plaza, and surrounding retail, service and parking facilities within and near King of Prussia Mall and Wills Boulevards and Conrad Drive (see **Figure 4.8-2**). The visual impression of this developed area is that of a large, concentrated shopping and entertainment destination and supporting roadway network with little green space. Viewers in VAU 2 include shoppers, employees, and roadway users traveling to, from, within, and near the King of Prussia Mall area. Given the developed character of this busy area, VAU 2 has a low degree of visual sensitivity.

Figure 4.8-2: VAU 2 – King of Prussia Mall Area



Figure 4.8-3: VAU 3 – First Avenue



4.8.2.3 VAU 3 – First Avenue

First Avenue is the heart of Moore Park KOP; it is a wide four-lane roadway, serving primarily office and light industrial uses (see **Figure 4.8-3**). Building architecture is varied but generally low-rise and flanked by lawns, landscaping, and off-street surface parking. Viewers in this VAU include employees, residents, and roadway users. VAU 3 has a low degree of visual sensitivity due to the developed, primarily business character of the corridor.

4.8.2.4 VAU 4 – PECO East of PA Turnpike

VAU 4 includes the portion of the PECO ROW east of the PA Turnpike to the NHSL (see **Figure 4.8-4**). The PECO ROW is an open, grassy area near the Turnpike and developed near Henderson Road. Adjacent uses include residences and businesses. Viewers in VAU 4 are primarily roadway travelers and business operators. VAU 4 has moderate visual sensitivity due to the open space afforded by the PECO ROW.

Figure 4.8-4: VAU 4 – PECO East of PA Turnpike



Figure 4.8-5: VAU 5 – N. Gulph Road



4.8.2.5 VAU 5 – N. Gulph Road

N. Gulph Road is a multi-lane roadway that is at or slightly below the surrounding terrain for most of its length between North Warner Road and First Avenue (see **Figure 4.8-5**). This section of N. Gulph Road is flanked primarily by office and hotel uses to the east, and US Route 422 and the Village at Valley Forge to the west. Viewers in VAU 5 include employees and roadway users; future viewers may include residents of the Village at Valley Forge. VAU 5 has low visual sensitivity due to the developed character of the roadway corridor.

4.8.2.6 VAU 6 – US Route 202

US Route 202 is a multi-lane highway flanked by businesses and residences. The highway is generally at or slightly below the surrounding terrain (see **Figure 4.8-6**). Adjacent non-residential properties provide off-street parking facilities and driveway access to the highway. Although a few residences have their access on the highway, most adjacent residences face away from the highway and are accessed by an internal street network. Street trees and landscaping on some adjacent properties provide green space. Viewers in VAU 6 include residents, business employees, and roadway users. VAU 6 has moderate visual sensitivity due to the residential character of portions of the corridor.

Figure 4.8-6: VAU 6 – US Route 202



Figure 4.8-7: VAU 7 – PA Turnpike



4.8.2.7 VAU 7 - PA Turnpike

VAU 7 is the portion of the PA Turnpike between Allendale Road and the PECO ROW (see **Figure 4.8-7**). The multi-lane PA Turnpike is abutted to the south by the Valley Forge Homes residential neighborhood and to the north by a portion of the Brandywine Village neighborhood, Walker Field, a number of businesses, and the Turnpike's Valley Forge service plaza. A continuous sound barrier visually buffers the Valley Forge Homes neighborhood. The

9/11 Memorial is adjacent to the south side of the PA Turnpike in VAU 7. Viewers in VAU 7 are PA Turnpike travelers, adjacent residents, and visitors to the 9/11 Memorial. VAU 7 has moderate visual sensitivity due to the adjacent residential uses, the 9/11 Memorial, and the highway context of the area.

4.8.3 Environmental Consequences

4.8.3.1 No Action Alternative

Although the No Action Alternative transportation projects are largely expansions of existing facilities, each has potential to alter the visual environment in which they are implemented. The larger projects, such as the US Route 422 and PA Turnpike interchanges, have the highest potential to change the localized visual environment by introducing new transportation-focused structures and infrastructure.

4.8.3.2 Preferred Alternative

Long-term Operational Effects

King of Prussia

During the alternatives development process described in Chapter 2, SEPTA worked to address business and resident concerns about the visual impact of the proposed Project. In the cases of residential and business concerns about potential visual impacts, SEPTA responded by refining the design of the Project. Unlike the large steel structures used to support elevated rail operations in the past, SEPTA is modeling the guideway design on current elevated structure principles that emphasize minimal profile, single central column supports, and concrete facing materials. These principles, in combination with a typical height of approximately 17 feet from ground level to the bottom of the guideway structure, will enable residents and motorists to see under and beyond the structure. In this way, changes to existing views are minimized and businesses and services remain visible.

During the FEIS and as part of the 2019 *King of Prussia Rail 15% Design Plans*, SEPTA developed a conceptual landscaping plan for the Project. The landscaping plan specifies the locations and types of permanent tree and shrub plantings for these areas. Locations of proposed landscaping include the Project stations and stormwater management facilities. Station renderings in Section 2.3.2.2 illustrate the conceptual landscaping in station areas. Trees and shrubs in these areas will provide visual interest and, as the trees mature, some visual screening of the Project elements. During subsequent design, SEPTA will refine the locations and types of planting materials to be used in a final landscaping plan.

Although SEPTA's minimization efforts will help to address business and resident concerns about the visual impact of the Project, the Preferred Alternative will cause changes to the visual environment by introducing new visual elements or removing or replacing existing elements. The potential effects within each VAU are described below and summarized in **Table 4.8-1**.

Table 4.8-1: Summary of Visual Assessment

VAU #	VAU Name	Visual Sensitivity	Visual Effect Description	Visual Effect Rating
1	PECO ROW West of PA Turnpike	High	Relatively undeveloped views	No effect
2	King of Prussia Mall	Low	Developed	Low
3	First Avenue	Low	Developed	Low
4	PECO East of PA Turnpike	Moderate	Open PECO ROW; other properties developed	Moderate
5	North Gulph Road	Low	Developed	No effect
6	US Route 202	Moderate	Developed with some residential	Moderate
7	PA Turnpike	Moderate	Residential along highway corridor	Moderate

Source: AECOM, 2020.

VAU 1 – PECO West of PA Turnpike

The Preferred Alternative will not change visual characteristics in VAU 1 because the elevated guideway will be aligned along the north side of the PA Turnpike, approximately 200 feet or more north of the PECO corridor. Views of the PECO ROW from adjacent homes to the north will be unchanged; no visual impact will occur (**Figure 4.8-8**).

Figure 4.8-8: View along PECO Corridor at Valley Forge Homes

**VAU 2 – King of Prussia Mall Area**

The Preferred Alternative will add visual elements in VAU 2. The Preferred Alternative will be aligned along Wills and Mall Boulevards behind the King of Prussia Mall buildings. The elevated guideway, Allendale Road Station, and Mall Blvd Station will be new visual elements in the commercial area. Because of the low visual sensitivity of VAU-2, the visual effect of the Preferred Alternative in VAU-2 is low.

VAU 3 – First Avenue

The Preferred Alternative will change visual characteristics in VAU 3 because the elevated guideway, First and American Station, First and Moore Station, and the park-and-ride facility at First and Moore Station will be aligned along the north side of First Avenue. During the DEIS, stakeholders indicated a preference for the Project being aligned along First Avenue to serve Moore Park KOP and to complement the Township's First Avenue Road Diet project. Given the low visual sensitivity of the First Avenue area, the potential visual effect of the Preferred Alternative using First Avenue will be low.

VAU 4 – PECO East of PA Turnpike

The Preferred Alternative will change visual characteristics in VAU 4 because the elevated guideway will be aligned in the PECO electric utility corridor east of the PA Turnpike. The Henderson Road station area and park-and-ride facility will also be new visual elements in VAU 4. Because of the moderate visual sensitivity of the open space character of VAU 4, the visual effect of the Preferred Alternative using the PECO electric utility corridor will be moderate.

VAU 5 – North Gulph Road

The Preferred Alternative will not cause visual changes in VAU 5 because the alignment is along First Avenue, not North Gulph Road.

VAU 6 – US Route 202

The Preferred Alternative will change visual characteristics in VAU 6 because the elevated guideway will cross over US Route 202 on a new elevated structure at the PA Turnpike. The new structure will cause a moderate visual change at the crossing location.

VAU 7 – PA Turnpike

The Preferred Alternative will change visual characteristics in VAU 7 at two locations: 1) where the elevated guideway will be aligned along the PA Turnpike, and 2) where the elevated guideway will cross the PA Turnpike to access Moore Park KOP. Viewers of the elevated guideway in the first location will include residents near the PA Turnpike and PA Turnpike travelers; viewers of the elevated guideway in the second location are residents and commercial properties north of Mall Boulevard and along American Avenue.

In the first location, the elevated guideway will be elevated on single-column supports along the north side of the PA Turnpike and east of DeKalb Pike (see maps, Appendix A). At the DeKalb Pike crossing, the elevated guideway crosses to the south side of the PA Turnpike. The alignment in this first location was developed as the PA Turnpike North/South Option during the DEIS in coordination with residents in the Valley Forge Homes community. Views from the back yards of residences on the north side of Powderhorn Drive toward the PA Turnpike are generally of the existing highway noise barrier (**Figure 4.8-9**). With the Preferred Alternative, the elevated guideway will be visible in the distance beyond and above the barrier and across the PA Turnpike

Figure 4.8-9: Existing Backyard View toward PA Turnpike at a Property on Powderhorn Drive



Figure 4.8-10: Rendering of Preferred Alternative at Valley Forge Homes



Conceptual rendering of what the Preferred Alternative could look like along the north side of the PA Turnpike behind residences on Powderhorn Drive in Valley Forge Homes.

Source: McCormick Taylor Inc., 2020

(**Figure 4.8-10**). Given the moderate visual sensitivity characterization of VAU 7, the visual effect of the Preferred Alternative will be moderate. The potential effect to PA Turnpike travelers will be moderate because the elevated guideway structure will be a new visual element adjacent to the travel lanes.

The second location where the Preferred Alternative will cross the PA Turnpike is west of the King of Prussia Mall. In this area, the Preferred Alternative will cross from the south side to the north side of the PA Turnpike on an elevated structure to access Moore Park KOP. The Preferred Alternative will cross the PA Turnpike in the vicinity of the Valley Forge Suites Apartments and the Hyatt Place hotel on American Avenue. Viewers in this portion of VAU 7 include residents in Valley Forge Suites as well as nearby businesses, and motorists on the PA Turnpike. The elevated guideway will be a new visual element in VAU 7, resulting in a moderate visual effect along American Avenue.

69th Street Transportation Center

Preferred Alternative elements and activities will occur internally to SEPTA's 69th Street Transportation Center and will not be visible to adjacent residents or businesses. No visual impact of the Preferred Alternative will occur at the 69th Street Transportation Center.

Short-term Construction Effects

Project construction activity has the potential to cause temporary changes in visual characteristics in the vicinity of work areas. Construction equipment, staging areas, and materials storage are typical new elements in the visual landscape of a transportation construction project.

Minimization, Mitigation, and Commitments

Long-Term Operation - During subsequent design, SEPTA will continue to examine the feasibility of providing a higher parapet wall/barrier on the elevated guideway to block rider views of residential neighborhoods.

Short-Term Construction – As described in Section 2.3.2.9, during subsequent design and prior to the start of Project construction, SEPTA will develop and implement a Project construction plan. The plan will identify procedures and protocols for avoiding impacts to the transportation, natural and human environments during Project construction, including visual impacts. As part of the plan, SEPTA will require the Project contractor(s) to assess the potential for visual impacts during construction and identify means to minimize or mitigate temporary visual impacts. Examples of potential mitigation strategies that SEPTA will require the Project contractor(s) to consider include storage of equipment and materials in designated staging areas only, use of opaque fencing to visually screen staging areas, soil containment to avoid migration of soils onto public roads as required by erosion control regulations, and permanent landscaping or seeding of disturbed areas as soon as construction work is completed. During construction, SEPTA will implement visual mitigation according to the design plans.

4.9 Air Quality and Greenhouse Gases

This section describes the current regulations pertaining to the control of air pollutants, the benefits and impact of the Preferred Alternative on air quality both within the Project study area and throughout the broader region, and commitments SEPTA has made to eliminate or reduce air quality impacts.

4.9.1 Regulatory Context and Methodology

4.9.1.1 Conformity

Section 176(c) of the Clean Air Act (CAA), as well as the transportation planning provisions of 23 U.S.C. § 135 and 49 U.S.C. § 5304, require transportation activities that receive federal funding or approval to be consistent with (“conform to”) the air quality goals established by a state air quality implementation plan (SIP). Conformity with the SIP means that transportation activities will not cause new air quality violations, worsen existing violations, or delay timely attainment of the National Ambient Air Quality Standards (NAAQS).⁴ The U.S. Environmental Protection Agency (EPA) adopted regulations at 40 CFR Part 51.390 and Part 93 (referred to as the Transportation Conformity Rule or TCR) to implement the requirements of Section 176(c) of the CAA. The TCR requirements apply to transportation plans, transportation improvement programs (TIPs), and transportation projects approved, funded, or implemented by the FTA. Additionally, the TCR requirements apply in nonattainment and maintenance areas for transportation-related criteria pollutants. Transportation conformity is not required in attainment areas. **Table 4.9-1** lists the applicable National and Pennsylvania Ambient Air Quality Standards.

Montgomery County is currently designated as:

- A *marginal* nonattainment area for O₃
- A maintenance area for PM_{2.5}
- An attainment area for all other criteria pollutants

Table 4.9-1: National and Pennsylvania Ambient Air Quality Standards

Pollutant	Standard Type	Averaging Period	Standard Value
Carbon Monoxide (CO)	Primary	8-Hour average	9 ppm (10 mg/m ³)
	Primary	1-Hour average	35 ppm (40 mg/m ³)
Nitrogen Dioxide (NO ₂)	Primary and Secondary	Annual arithmetic mean	53 ppb

⁴ The EPA develops and enforces the regulations related to air quality. In 1970, the federal Clean Air Act established the NAAQS to protect the public health. Six criteria air pollutants have been identified by the EPA as being of concern nationwide: carbon monoxide, sulfur oxides (sulfur dioxide), nitrogen oxides (nitrogen dioxide), ozone, particulate matter with a size of 10 micrometers or less, particulate matter with a size of 2.5 micrometers or less, and lead. In addition to these six criteria air pollutants, the EPA also regulates air toxics.

Pollutant	Standard Type	Averaging Period	Standard Value
	Primary	1-Hour average	100 ppb
Ozone (O ₃)	Primary and Secondary	8-Hour average	0.070 ppm
Sulfur Dioxide (SO ₂)	Secondary	3-Hour average	0.5 ppm (1300 µg/m ³)
	Primary	1-Hour Average	75 ppb (0.075 ppm)
Particulate Matter (PM ₁₀)	Primary and Secondary	24-Hour average	150 µg/m ³
Particulate Matter (PM _{2.5})	Primary	Annual arithmetic mean	12 µg/m ³
	Secondary	Annual arithmetic mean	15 µg/m ³
	Primary	24-Hour average	35 µg/m ³
Lead (Pb)	Primary and Secondary	3-month rolling average	0.15 µg/m ³

Source: 40 CFR Part 50, National Primary and Secondary Ambient Air Quality Standards.

The Project is listed as a major, regionally significant project in the conforming, constrained long range transportation plan for the region,⁵ and is listed in the adopted FY2021 Transportation Improvement Plan (TIP).⁶ For these reasons, the Project is not a project of air quality concern.

However, because the Project will have localized traffic impacts around proposed stations and park-and-ride facilities, and because the public had comments on the DEIS about the effect of the Project on air quality related to roadway congestion, this section includes a screening of localized effects on air quality. The localized air quality impact screening is based on available traffic forecasts at roadway intersections potentially affected by the Project and was conducted using Federal and State guidelines specifically adopted for CO and PM_{2.5} localized screening analyses.

To assess mesoscale impacts of the Project, the Project was evaluated by assessing the likely change in vehicle miles traveled (VMT). Specifically, the predicted weekday VMT was used as a measuring metric. Based on the predicted net change in VMT from the No Action Alternative to the Preferred Alternative, an estimate of the likely change in emissions could be determined.

Mobile Source Air Toxics

In addition to the criteria pollutants, the CAA also lists 187 air toxics, known as hazardous air pollutants (HAP). However, unlike the criteria pollutants, ambient air quality standards have not been established by the USEPA for the majority of the air toxics. Among the CAA-identified 187 HAP, 93 have been identified by the USEPA as mobile source air toxics (MSAT), emitted by cars and trucks. The following nine pollutants are priority MSAT:

⁵ DVRPC, July 2020. *Connections 2045 Plan for Greater Philadelphia, Amended*.

⁶ DVRPC, July 2020. *Transportation Improvement Program for Pennsylvania (FY21-FY24)*

- Acetaldehyde
- Acrolein
- Benzene
- 1,3-butadiene
- Diesel particulate matter plus diesel exhaust organic gases (diesel PM)
- Ethylbenzene
- Formaldehyde
- Naphthalene
- Polycyclic organic matter

On February 3, 2006, the FHWA and the USEPA issued joint guidance for the assessment of MSAT for highway projects. The FHWA subsequently released updated guidance on conducting air toxic analyses on September 30, 2009, December 6, 2012, and October 18, 2016. This guidance requires analysis of MSAT as part of the environmental analysis for a transportation project. This guidance was considered in connection with the Project.

FHWA's Interim Guidance (Guidance) establishes a three-tiered approach to determine the level of MSAT analysis required by a project-level study. According to the Guidance, the category of exempt projects or projects with no meaningful potential MSAT impacts includes:

- Projects qualifying as categorical exclusions;
- Projects exempt under 40 CFR § 93.126; or
- Other projects with no meaningful impacts on traffic volumes or vehicle mix.

Additionally, the Guidance indicates that for projects with negligible traffic impacts, no MSAT analysis is recommended. As described in Section 3.1.3.2, the Project will attract new trips to transit, resulting in additional vehicles on local roadways near proposed stations. However, the actual number of new trips is small in the context of the entire transportation study area where the majority of trips will still be by personal vehicle. In addition, the number of diesel vehicles traveling through the affected intersections will not change because of the Project. Moreover, the Project will not create any meaningful changes in vehicle mix. Because the Project falls into the category of resulting in no meaningful impacts on traffic volumes or vehicle mix, it is not a project of air quality concern. Therefore, further qualitative or a quantitative analysis for MSAT is not warranted.

Greenhouse Gases

Greenhouse gases such as carbon dioxide (CO₂) are emitted in motor vehicle exhaust and have contributed to climate change and global warming. The transportation sector is a substantial part of the climate change mitigation challenge, accounting for approximately 28 percent of all annual greenhouse gas emissions in the United States. The Council of Environmental Quality (CEQ) published the *Draft National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions* (June 26, 2019). This guidance provides assistance to Federal

agencies in their consideration of greenhouse gas emissions and facilitates compliance with NEPA by Federal agencies conducting reviews of proposed major Federal actions.

Short-term Construction Impacts

In contrast to operational activities, construction activities are relatively short-term conditions with the potential to produce temporary air quality effects. However, the impacts of construction emissions due to vehicles and equipment from large-scale construction activities occurring over many years (typically over five years) at a specific local site could cause adverse air quality effects and may need to be quantitatively addressed. According to EPA's *Procedures for determining localized CO, PM₁₀, and PM_{2.5} concentrations (hot-spot analysis)* (40 CFR § 93.123(c)(5)), "CO, PM₁₀, and PM_{2.5} hot-spot analyses are not required to consider construction-related activities, which cause temporary increases in emissions. Each site which is affected by construction-related activities shall be considered separately, using established 'Guideline' methods."

4.9.2 Affected Environment

As shown in **Table 4.9-2**, current air quality conditions with the transportation study area are based on recent ambient air monitoring data collected around the Norristown and Philadelphia areas. Montgomery County is currently designated as a *marginal* nonattainment area for O₃, a maintenance area for PM_{2.5}, and an attainment area for all other criteria pollutants.

Measured ambient concentrations of the criteria pollutants during the three most recent years show no exceedances of the NAAQS for any of the criteria pollutants, with the exception of ozone which is still a nonattainment pollutant.

Table 4.9-2: Representative Monitored Ambient Air Quality Data

Pollutant	Averaging Period	2017	2018	2019	NAAQS	Unit
CO	8-Hour	2.6	1.3	1.7	9	ppm
	1-Hour	4.1	1.7	2.2	35	ppm
NO ₂	Annual	12	11	13	53	ppb
	1-Hour	46	45	52	100	ppb
O ₃	8-Hour	0.079	0.084	0.072	0.070	ppm
SO ₂	1-Hour	10	14	17	75	ppb
PM ₁₀	24-Hour	46	-	49	150	µg/m ³
PM _{2.5}	Annual	11	10	10	12	µg/m ³
	24-Hour	24	23	30	35	µg/m ³

Source: <https://www.epa.gov/outdoor-air-quality-data>

4.9.3 Environmental Consequences

4.9.3.1 No Action Alternative

The No Action Alternative will not reduce regional production of greenhouse gases or their criteria pollutants as it will not provide a regional energy benefit: no reduction in motor vehicle use, vehicle miles traveled, or time spent in roadway congestion. Forecasts of future traffic indicate growth in congestion, likely causing emissions of greenhouse gases and their criteria pollutants to increase over time in the region.

4.9.3.2 Preferred Alternative

Long-term Operational Effects

Conformity Determination

Because the Project is in an ozone nonattainment area and PM_{2.5} maintenance area, transportation conformity rules require that the Project must originate from a conforming TIP and that the Project must demonstrate compliance with the NAAQS on a project level.

As stated in Section 4.9.1.1, on a regional level, the Project is included in the conforming, constrained long range transportation plan for the region,⁷ and is listed in the adopted FY 2021 Transportation Improvement Plan (TIP).⁸ Therefore, the Project conforms to the goals and objectives identified in the constrained long-range transportation plan on a regional level and is not a project of air quality concern.

Therefore, the Project will not cause air quality impacts.

MSAT Impacts

As discussed in Section 4.9.1, because the Project falls into the category of resulting in no meaningful impacts on traffic volumes or vehicle mix, it is not a project of air quality concern. Therefore, further qualitative or a quantitative analysis for MSAT is not warranted.

Mesoscale Impacts

For purposes of providing an alternative comparison of the potential for emissions to change as a result of the Project, regional VMT was selected as an indicator of potential change in mesoscale emissions of the criteria pollutants between the No Action and Preferred Alternatives. The VMT reduction in 2040 was calculated for the average weekday using DVRPC vehicle occupancy data. The Preferred Alternative will result in a net reduction in growth of daily VMT (61,303) and, thereby, automobile emissions, compared to the No Action Alternative. This reduction will be due to travelers changing mode from personal vehicles to using the Project's rail service. Due to the daily VMT reduction within the transportation study area, the Preferred Alternative will have a positive air quality benefit.

⁷ DVRPC, July 2020. *Connections 2045 Plan for Greater Philadelphia, Amended*.

⁸ DVRPC, July 2020. *Transportation Improvement Program for Pennsylvania (FY21-FY24)*

Greenhouse Gas Emissions

The Project will expand transit options with electrically powered rail service for travelers; and the Project will reduce greenhouse gas emissions through reduced growth in VMT (61,303) from motor vehicle use. Therefore, no quantitative greenhouse gas emissions analysis is warranted per the PennDOT *Project-Level Air Quality Handbook*.

Despite the potential for a temporary increase in localized greenhouse gas emissions during construction as described below, the reduction in operating emissions in the region due to the Project will result in a net benefit. Therefore, the Preferred Alternative will have an overall beneficial effect of reducing greenhouse gas emissions after considering the combined potential impacts of construction, operation, and maintenance phases of the Project, and will not result in adverse impacts to global climate change.

Short-term Construction Effects

Potential air quality impacts from construction of the Preferred Alternative will be temporary and could include the following impacts:

- localized increases in emissions from construction equipment, particularly diesel-powered equipment. Increased concentrations could occur in the areas of work activities, access points, and haul routes.
- increases in motor vehicle emissions associated with potential disruption of traffic operations during construction. Effects could occur if temporary lane closures and detours cause congestion and travel delays.
- localized dust and airborne particulate matter generated by temporarily exposed soils, earth-moving activities, and equipment operating in unpaved areas. Effects could occur in the area of work activities and access points.

In contrast to operational activities, construction activities are relatively short-term conditions with the potential to produce temporary air quality effects. However, the impacts of construction vehicle and equipment emissions from large-scale construction activities occurring over many years (typically over five years) at a specific local site could cause adverse air quality effects and may need to be quantitatively addressed.

According to EPA's *Procedures for determining localized CO, PM₁₀, and PM_{2.5} concentrations (hot-spot analysis)* (40 CFR § 93.123(c)(5)), "CO, PM₁₀, and PM_{2.5} hot-spot analyses are not required to consider construction-related activities which cause temporary increases in emissions. Each site which is affected by construction-related activities shall be considered separately, using established 'Guideline' methods. Temporary increases are defined as those which occur only during the construction phase and last five years or less at any individual site."

According to SEPTA's Project schedule (Section 2.3.2.9), Project construction activity will last less than four years and construction of each Project element in any one location (stations, guideway, and support facilities) will be less than four years. Therefore, construction activities are considered temporary and will not result in potential for significant air quality impacts. As a result, a quantitative hot-spot analysis is not required.

Minimization, Mitigation, and Commitments

Long-term Operations – No mitigation is warranted because no Project impact on air quality will occur.

Short-term Construction – During subsequent design, SEPTA will identify air quality control measures and best management practices for control of dust and vehicle emissions during Project construction. SEPTA will include these measures and practices in the Project construction plan. During Project construction, SEPTA will implement air quality control measures and best management practices according to the Project construction plan.

4.10 Noise and Vibration

This section describes the potential noise and vibration impacts from construction and operation of the Project. Further details of the noise and vibration assessment for Project are provided in the 2020 *King of Prussia Rail Noise and Vibration Technical Memorandum* (www.kingofprussiarail.com and Appendix B).

4.10.1 Regulatory Context and Methodology

A noise and vibration study was conducted in accordance with FTA's *Transit Noise and Vibration Impact Assessment Manual* (Manual)⁹ to assess the potential for impact from various sources of the Project. The analysis included a detailed assessment to predict future levels from long-term operations of the system, a general assessment to predict equipment levels from temporary construction activities, and commitments by SEPTA to minimization and mitigation measures for noise and vibration impacts.

The Project study area consists of two parts. In the King of Prussia/Valley Forge area, the Project study area is the geographic area within 500 feet on either side of the centerline of the Preferred Alternative. A detailed noise evaluation was conducted for the King of Prussia study area because noise-sensitive receptors are present within that portion of the Project study area. At 69th Street Transportation Center, the Project study area is the geographic area within 200 feet on either side of the centerline of the proposed new track at SEPTA's 69th Street Transportation Center. A noise evaluation was not conducted at the 69th Street Transportation Center because no noise-sensitive receptors are present within that portion of the Project study area.

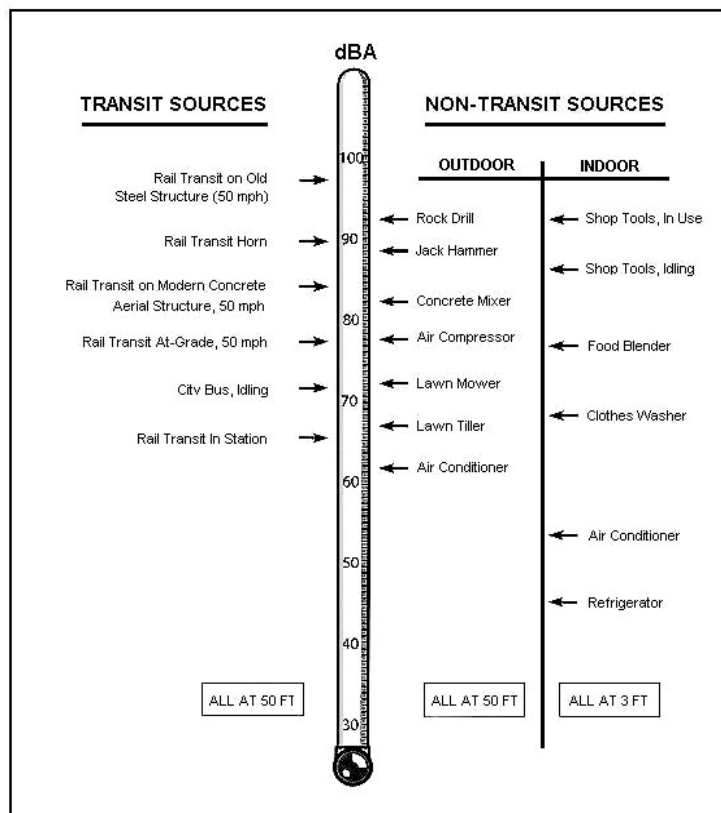
4.10.1.1 Noise Fundamentals and Impact Assessment Criteria

Noise is defined as unwanted or excessive sound, and it can interfere with sleep, work, relaxation, and/or recreation. The adverse effects of noise depend on the duration, loudness, frequency, time of day, and personal preferences. To establish a noise measurement that reflects the likelihood of community annoyance, the A-weighted decibel measurement was selected to account for those frequencies most audible to the human ear. The A-weighted sound level (dBA) is the descriptor of noise levels most often used for community noise

⁹ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, FTA Report No. 0123, Washington, DC, September 2018

assessment. It is important to note that the dBA scale is logarithmic, meaning that each increase of 10 dBA describes a doubling of perceived loudness. For example, we perceive the background noise in an office at 50 dBA as twice as loud as in a library at 40 dBA. For most people, a 3-dBA change is barely perceptible while a 5 dBA a change in noise level would be readily noticeable. All project noise levels in this analysis were evaluated using the 24-hour day-night noise level (or Ldn) for residential receptors and the average peak hourly noise level (or Leq) for institutional and other non-residential receptors. Typical noise levels are shown in **Figure 4.10-1**.

Figure 4.10-1: Typical A-Weighted Maximum Sound Levels



Source: FTA *Manual*.

In accordance with NEPA [42 U.S.C. § 4321 et seq.], the CEQ regulations [40 CFR Parts 1500 - 1508], and the FTA's *Transit Noise and Vibration Impact Assessment Manual* [FTA Report No. 0123, September 2018], noise and vibration impacts from the Project were assessed. The FTA's guidance *Manual*, particularly with respect to the assessment of impact and the annoyance criteria, is based the U.S. Environmental Protection Agency's (EPA) *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety* [Report No. 550/9-74-004, Washington DC, March 1974].

FTA's *Manual* Section 4.1 presents the basic concepts, methods, and procedures for evaluating the extent and severity of noise impacts from transit projects. Transit noise impacts are assessed based on land use categories and sensitivity to noise from transit sources under the

FTA *Manual*. The FTA land use categories and required noise metrics are described in **Table 4.10-1**.

Table 4.10-1: FTA Land Use Categories and Noise Metrics

Land Use Category	Noise Metric	Description
1	$L_{eq}(h)$	Tracts of land set aside for serenity and quiet, such as outdoor amphitheaters, concert pavilions, and historic landmarks.
2	L_{dn}	Buildings used for sleeping such as residences, hospitals, hotels, and other areas where nighttime sensitivity to noise is of utmost importance.
3	$L_{eq}(h)$	Institutional land uses with primarily daytime and evening uses including schools, libraries, churches, museums, cemeteries, historic sites, and parks, and certain recreational facilities used for study or meditation.

Notes: L_{dn} describes a receiver's cumulative noise exposure from all events over a full 24 hours, with events between 10:00 p.m. and 7:00 a.m. increased by 10 decibels to account for greater nighttime sensitivity to noise. For other noise sensitive land uses, such as schools and libraries (FTA Land Use Category 3) and outdoor amphitheaters (FTA Land Use Category 1), the average hourly equivalent noise level (or $L_{eq}(h)$) is used to represent the peak operating period.

Source: FTA *Manual*.

As shown in **Figure 4.10-2**, the FTA noise impact criteria are defined by two curves that allow increasing Project noise levels as existing noise increases up to a point, beyond which impact is determined based on Project noise alone. The FTA noise criteria are delineated into two categories: *moderate* and *severe* impact. The *moderate* impact threshold defines areas where the change in noise is noticeable but may not be sufficient to cause a strong, adverse community reaction. The *severe* impact threshold defines the noise limits above which a substantial percentage of the population would be highly annoyed by new noise. The level of impact at any specific site can be determined by comparing the predicted future Project noise level to the allowable noise exposure based on the existing noise level at the site.

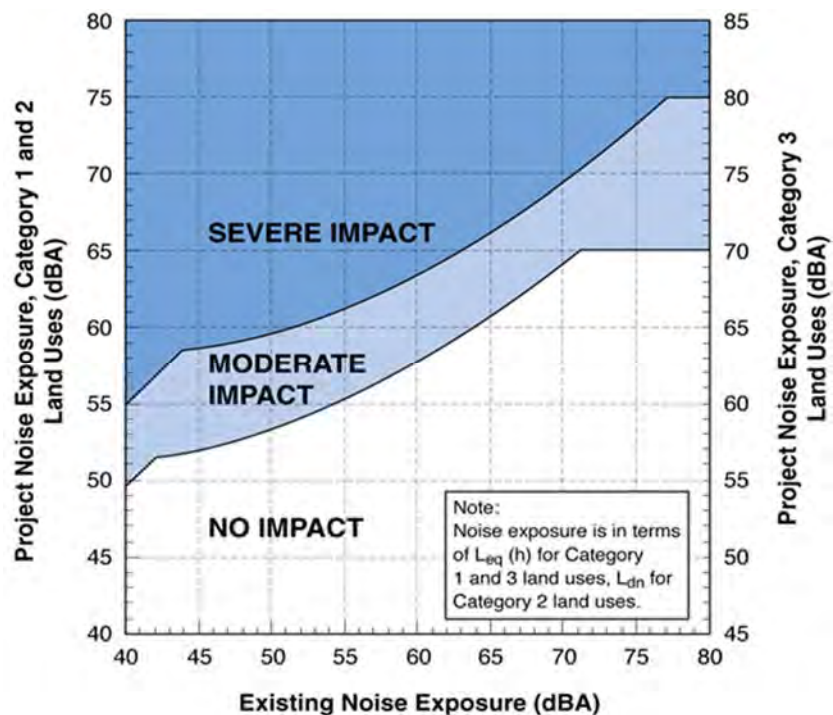
4.10.1.2 Vibration Fundamentals and Impact Assessment Criteria

Ground-borne vibration typically travels along the ground and through building structures. Depending on the geological properties of the surrounding terrain and the type of building structure, vibration propagation can be more or less efficient. Buildings with a solid foundation set in bedrock are “coupled” more efficiently to the surrounding ground and experience relatively higher vibration levels than buildings in sandier soil. Heavier buildings (such as masonry structures) are less susceptible to vibration than wood-frame buildings because they absorb more vibrational energy.

The vibration velocity level is used to assess vibration impacts from all transportation and construction projects. More specifically, the human response to vibration used to assess nuisance impacts is the root mean square amplitude, expressed in inches per second (in/sec) or vibration velocity levels in decibels (VdB). The peak particle velocity level (or PPV) is used to assess potential damage during construction and indicates the stresses experienced by buildings rather than human annoyance. Vibration that radiates inside a building when a train passes can cause a low-frequency sound or rumble. This interior rumble is referred to as

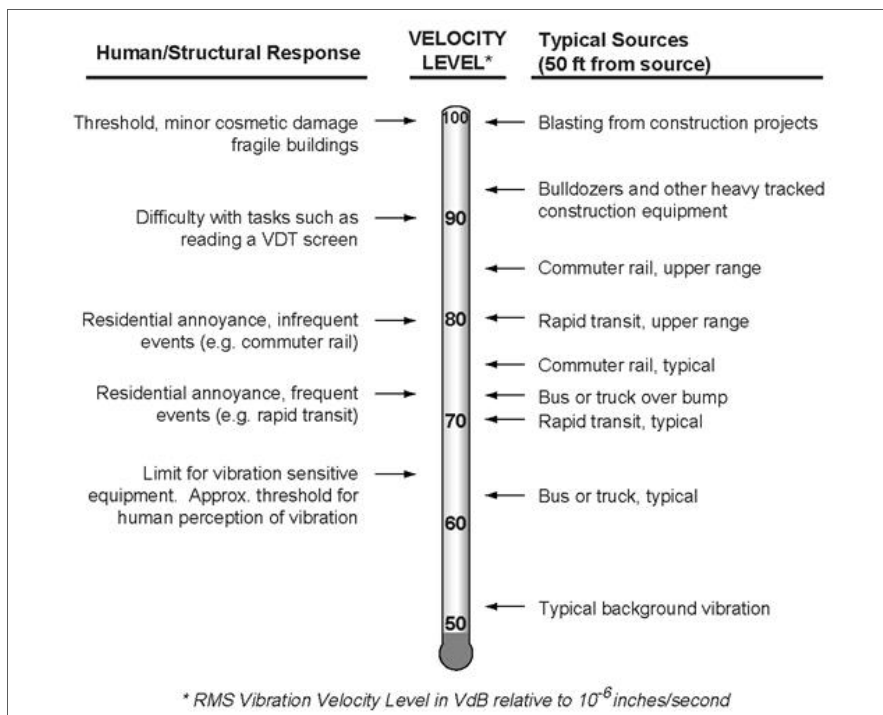
ground-borne noise and is described with the same measurement as airborne noise (dBA). Typical vibration levels are shown in **Figure 4.10-3**.

Figure 4.10-2: FTA Noise Impact Criteria Curve Graphic



Source: FTA Manual.

Figure 4.10-3: Typical A-Weighted Maximum Vibration Levels



Source: FTA Manual.

FTA's *Manual* Section 6.2 presents the basic concepts, methods, and procedures for evaluating the extent of vibration impacts from transit projects. The FTA vibration criteria for evaluating ground-borne vibration impacts from train operations at nearby sensitive receptors are shown in **Table 4.10-2**. These vibration criteria are related to ground-borne vibration levels that are expected to result in human annoyance and are based on root mean square (RMS) velocity levels expressed in VdB referenced to one micro inch per second. FTA's experience with community response to ground-borne vibration indicates that when there are only a few train events per day, higher vibration levels are necessary to evoke the same community response that would be expected from more frequent events.

This experience is taken into account in the FTA criteria by distinguishing between projects with *frequent*, *occasional*, or *infrequent* events. The *frequent* events category is defined as more than 70 events per day, the *occasional* events category is defined as between 30 and 70 events per day, and the *infrequent* events category is defined as less than 30 events per day. To be conservative, the FTA *frequent* criteria were used to assess ground-borne vibration impacts in the Project study area.

Table 4.10-2: Indoor Ground-Borne Vibration and Ground-Borne Noise Impact Criteria for General Vibration Assessment

Land Use Category	Vibration Criteria 'frequent' ¹	Noise Criteria 'frequent' ¹
Category 1: Buildings where vibration would interfere with interior operations.	65 VdB ²	N/A ³
Category 2: Residences and buildings where people normally sleep.	72 VdB	35 dBA
Category 3: Institutional land uses with primarily daytime use.	75 VdB	40 dBA

1. Frequent Events is defined as more than 70 vibration events of the same kind per day.

2. This criterion limit is based on levels that are acceptable for moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the HVAC systems and stiffened floors.

3. Vibration-sensitive equipment is not sensitive to ground-borne noise.

Source: FTA *Manual*.

The vibration criteria levels shown in **Table 4.10-2** are defined in terms of human annoyance for different land use categories such as high sensitivity (Category 1), residential (Category 2), and institutional (Category 3). In general, the vibration threshold of human perceptibility is approximately 65 VdB. No Category 1 receptors were identified in the Project study area.

Ground-borne noise is rarely a concern for above-grade or elevated rail systems because airborne noise typically dominates. Therefore, ground-borne noise (low-frequency rumble indoors) was not evaluated because no impacts are expected.

4.10.1.3 Receptor Screening

FTA screening procedures were utilized to broadly identify receptor sites within the Project study area with the potential for noise and vibration impacts. Using FTA Table 4-7 for noise and

Table 6-8 for vibration, the default screening distances were adjusted to reflect project-specific operating conditions.

4.10.2 Affected Environment

4.10.2.1 Noise

In accordance with the detailed assessment guidelines, the existing conditions in the Project study area were estimated using Table 4-17 (Estimating Existing Noise Exposure for General Noise Assessment) rather than measured. Due to the current COVID-19 pandemic and interstate travel restrictions, traffic conditions are far from normal in the Project study area that is generally dominated by retail shopping. Additionally, many local schools in the Upper Merion Area School District remain closed and classes are conducted via distance learning at home. With schools not in session and many businesses still closed, normal traffic patterns (even compared to typical summertime periods) are significantly disrupted. Therefore, existing conditions were estimated because measurements would not accurately reflect current conditions due to disrupted traffic patterns.

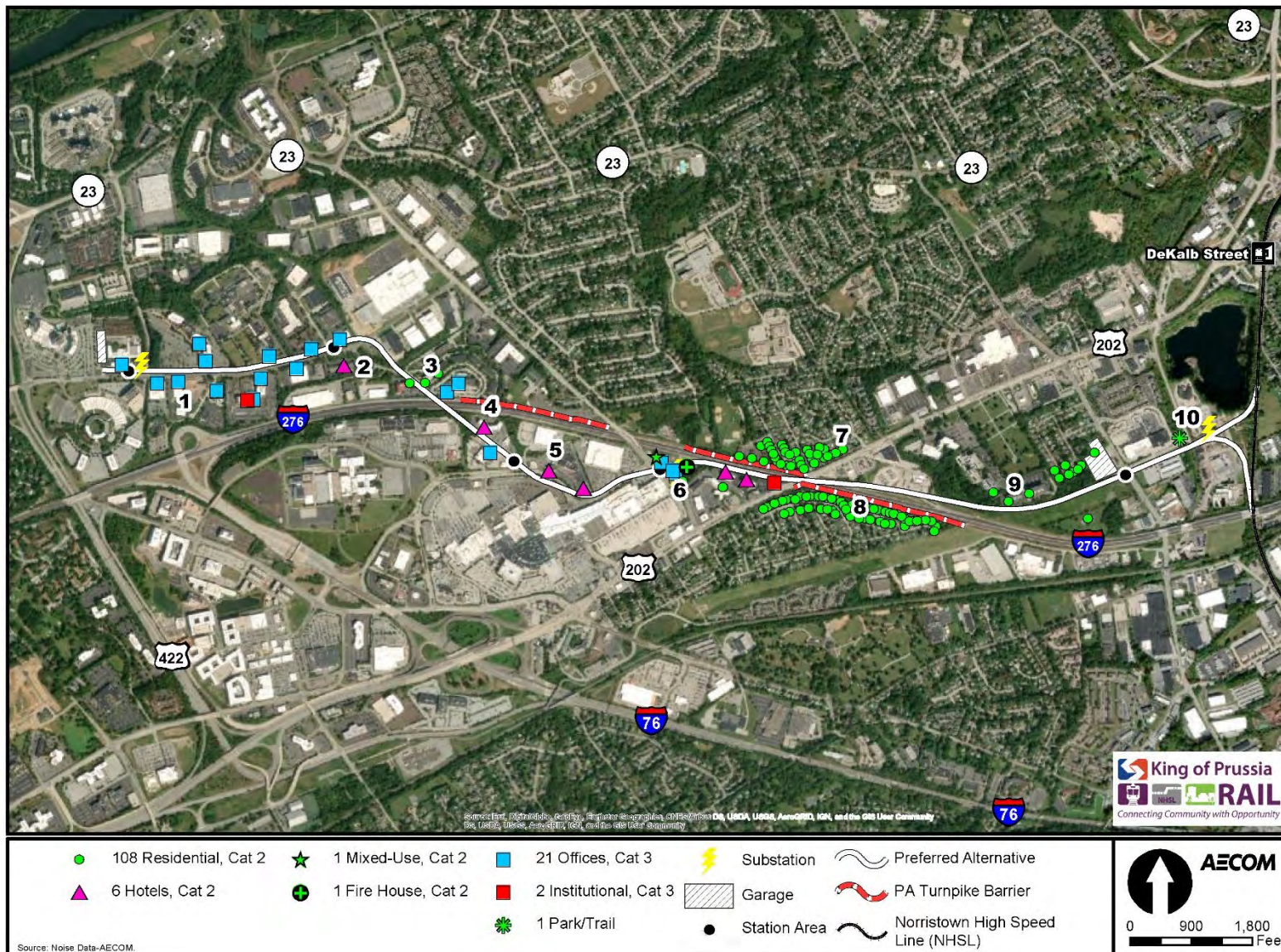
Using several factors from FTA Table 4-17 and GIS mapping, including population density and proximity to interstate highways (including I-76), regional roadways (such as Dekalb Pike) and the NHSL rail corridor, affected environment (baseline) noise levels were estimated for each of the 140 selected receptors. FTA's assessment procedure translates these factors to baseline noise levels that range from 55 to 65 dBA with the study area. According to FTA Table 4-17, the range of noise levels are applied equally to both institutional and residential receptors. An additional 5-decibel reduction was also applied to all residences located behind the existing highway noise barriers along the PA Turnpike to reflect the shielding benefits of the barrier. The noise levels estimated for the select representative receptors are shown in **Table 4.10-3** and **Figure 4.10-4**.

Table 4.10-3: Estimated Existing Noise Levels at Representative Receptor Sites

No	Receptor Description	Land-use Category	Existing Condition (dBA)
1	Offices, 1045 First Avenue	3	60
2	Extended Stay Hotel, 400 American Avenue	2	60
3	Valley Forge Suites, 550 American Avenue	2	60
4	Hyatt House Hotel, 240 Mall Boulevard	2	60
5	Fairfield Inn, 258 Mall Boulevard	2	60
6	Offices, 166 Allendale Road	3	60
7	Residence, 428 Old Dekalb Pike	2	55
8	Residence, 452 Powderhorn Road	2	55
9	Residence, 251 DeKalb Pike	2	55
10	Chester Valley Trail Extension, Saulin Boulevard	3	55

Source: AECOM, October 2020.

Figure 4.10-4: Receptor Screening Inventory for the Noise and Vibration Analysis



Source: AECOM, December 2020.

4.10.2.2 Vibration

Unlike noise, FTA does not require measurement of existing ambient vibration levels to assess vibration impact in most cases. In lieu of existing vibration measurements, existing background vibration is estimated to range from 50 VdB (vibration velocity) or lower away from major roadways to 60 VdB near roadways. The background vibration velocity level of 50 VdB is well below the threshold of perception for humans of around 65 VdB. Within buildings, operation of mechanical equipment, movement of people, or slamming of doors causes the most perceptible indoor vibration. Typical outdoor sources of perceptible vibration are construction equipment, steel-wheeled trains, and traffic on rough roads with potholes or expansion joints.

4.10.3 Environmental Consequences

4.10.3.1 No Action Alternative

In the No Action Alternative, projected noise and vibration levels, which are primarily influenced by traffic in the Project study area roadways, are anticipated to be essentially the same as in the existing condition before the current COVID-19 pandemic. It takes a doubling of traffic volumes and maintenance of existing operating speeds for the noise levels to increase by 3 dBA, the threshold where most listeners at noise-sensitive receptors detect a change. However, as reported in Chapter 3 of the FEIS, forecast increases in traffic volumes on Project study area roadways are predicted in 2040, resulting in higher congestion levels and lower average travel speeds. These conditions predict a noise level increase of less than 3 dBA.

Projected vibration levels in the No Action Alternative are expected to be similar to those currently experienced under existing conditions. As a result, there will be no new vibration impacts associated with the No Action Alternative.

4.10.3.2 Preferred Alternative

Long-term Operational Effects

Operational Noise Levels and Impact Assessment

Sources of noise from Project operations will include moving trains (such as steel wheels on steel rail, air turbulence and propulsion systems), stationary trains (such as rooftop air conditioning units), stationary facilities (such as passenger stations and electrical substations), and temporary construction activities.

Future noise levels from Project operations were predicted at 140 sensitive receptor sites using Project-specific data and operating characteristics for the Preferred Alternative in the design year 2040, and Section 4.5 of FTA's Manual. The predicted noise levels were then compared with the Project-specific evaluation criteria to determine the magnitude of impact. The following sections present these methodologies, results, and impacts predicted for the Preferred Alternative.

Average daily train operations for various periods of the day (ranging from 6:40-minute headways during the peak periods to 10-minute headways during the off-peak periods¹⁰) were used to

¹⁰ Gannett Fleming, *Draft Rail Operations Simulation Report – Norristown High Speed Line Extension*, August 25, 2020.

calculate total daily noise exposure over a 24-hour period at residences and hotels and over a one-hour period for institutional receptors and noise-sensitive offices. Noise levels were adjusted to reflect each receptor's distance from the Project noise sources, changes in train speeds, rail gaps at track switches, ground attenuation, and shielding effects due to the guideway structure and the existing highway noise barriers. Additionally, separate noise levels were also determined for stationary Project facilities including the passenger stations, electrical traction power substations and parking garages. The noise levels from all these noise sources were combined to determine the cumulative noise effects from Project operations at each of the selected receptors.

Table 4.10-4 identifies predicted future noise levels at the ten representative receptor sites (see discussion of vibration below). Future noise levels will range from 44 dBA Leq at Site 10 (Chester Valley Trail Extension) to 63 dBA Leq at Site 6 (offices along Allendale Road). Except for Sites 2 and 6, noise at all of the other sites in **Table 4.10-4** will be dominated by Project rail operations. Project operational noise at Sites 2 and 6 will be dominated by activities associated with the passenger stations including, for example, train auxiliary equipment, public address announcements, and train door chimes.

SEPTA may use train horns as governed by Federal regulations, which require train horns be used when work zones are present along a rail line, and in other situations requiring compliance with Federal regulations or railroad operating rules.

Table 4.10-4: Predicted Future Noise and Vibration Levels at Representative Receptor Sites under the Preferred Alternative

No	Receptor Description	Land-use Category	Noise (dBA)	Vibration (VdB)
1	Offices, 1045 First Avenue	3	48	55
2	Extended Stay Hotel, 400 American Avenue	2	47	31
3	Valley Forge Suites, 550 American Avenue	2	55	54
4	Hyatt House Hotel, 240 Mall Boulevard	2	57	56
5	Fairfield Inn, 258 Mall Boulevard	2	55	47
6	Offices, 166 Allendale Road	3	63	53
7	Residence, 428 Old Dekalb Pike	2	60	44
8	Residence, 452 Powderhorn Road	2	56	48
9	Residence, 251 DeKalb Pike	2	52	69
10	Chester Valley Trail Extension, Saulin Boulevard	3	44	49

Source: AECOM, October 2020.

As shown in **Table 4.10-4**, Project operational noise levels at the select representative receptors range from 44 dBA Ldn at residences to 63 dBA Leq at offices. This is also the range of noise levels corridor wide for all 140 receptors. As a result, noise impacts (defined as future Project operational noise levels that are equal to or greater than the FTA criteria) are predicted at several receptors. As summarized in **Table 4.10-5** and shown graphically in **Figure 4.10-5** and **Figure 4.10-6**, *moderate* noise impacts are predicted at 50 residences, 1 hotel (Home2 Suites by

Hilton) and 2 office buildings (adjacent to the First & Moore and Allendale Road Stations). No severe noise impacts are predicted anywhere.

Table 4.10-5: Future Operational Noise Impacts under the Preferred Alternative

Land-use	Land-use	FTA Impact Category		
Category	Type	<i>moderate</i>	<i>severe</i>	
1	High Sensitivity	-- ¹	--	
2	Residential	51	0	
3	Institutional	2	0	

1. No Category 1 land uses were identified in the Project study area.

Source: AECOM, October 2020.

Project operational noise levels will be minimized by the 2-foot raised edges of the guideway (the solid side walls of the guideway structure) that will shield the wheel-rail noise from receptors at lower elevations. Additionally, the existing highway noise barriers along the PA Turnpike will provide additional shielding from future train operations for residences in the Valley Forge Homes and Brandywine Village neighborhoods (i.e., residences along Powderhorn Road south of the PA Turnpike in Valley Forge Homes and residences along Nancy and Walker Lanes north of the PA Turnpike in Brandywine Village). The combined effects of the elevated guideway and the existing highway barriers result in a limited number of *moderate* noise impacts and no *severe* impacts under the Preferred Alternative.

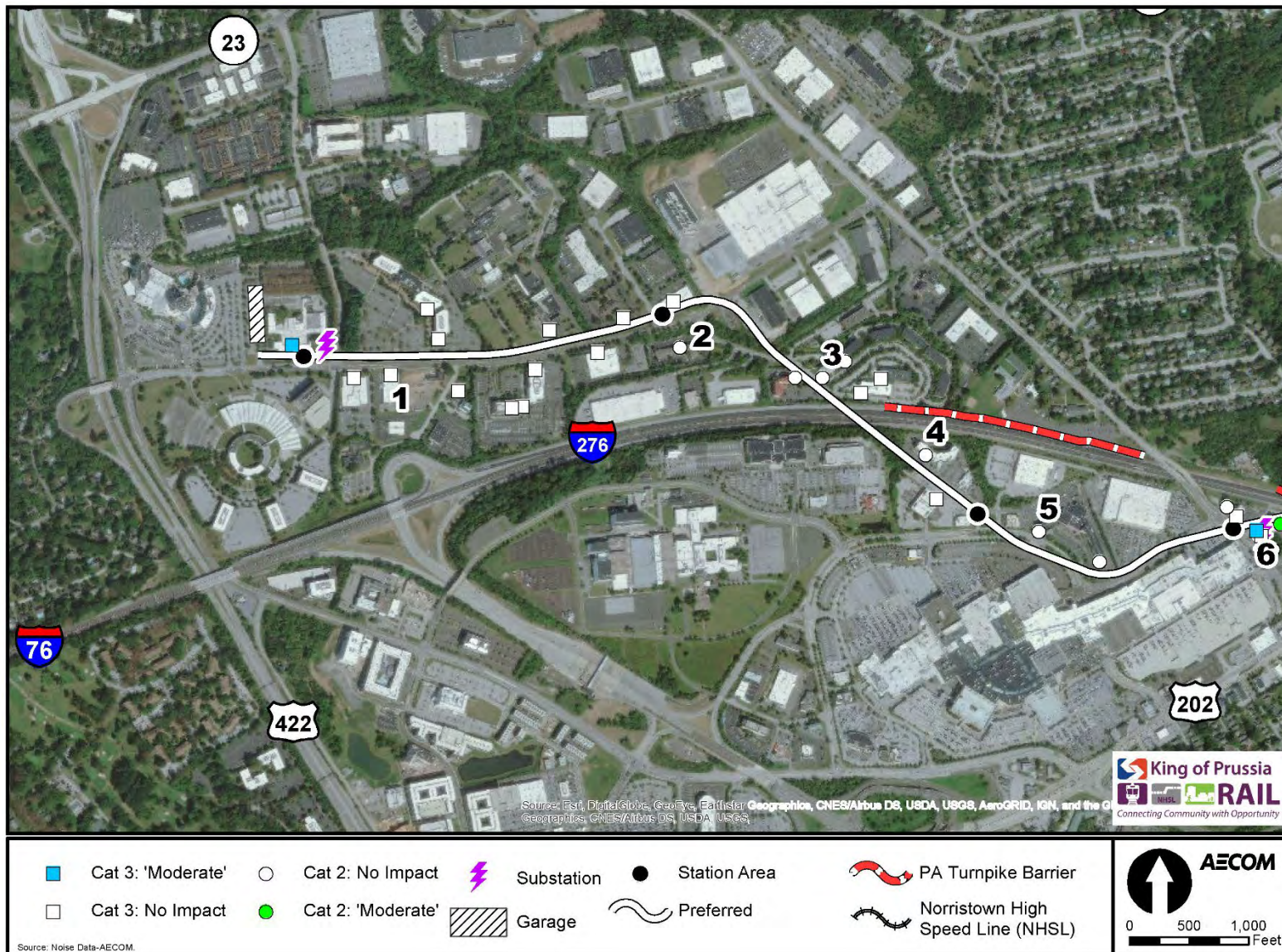
Operational Vibration Levels and Impact Assessment

Sources of transit vibration from the Project during operations will include steel-wheeled train operations only. No other sources within the proposed transit system produce any significant vibration from their operation. Future vibration levels from Project operations were predicted at 140 sensitive receptor sites using Project-specific data and operating characteristics proposed for the Preferred Alternative in the design year 2040. The predicted vibration levels were then compared with the Project-specific evaluation criteria to determine the onset and magnitude of impact.

Using Section 6.4 of FTA's *Manual*, Project operational vibration levels were determined for single events such as a train passby. Using the Ground-Surface Vibration Curves from Figure 6-4 in the FTA *Manual* for light rail vehicles, vibration levels were determined for train passbys at each receptor site. The vibration levels from FTA default data were adjusted to reflect each receptor's distance, changes in train speeds, rail gaps at switches, and type of track structure (i.e., elevated guideway vs. at-grade). Vibration from other stationary Project elements evaluated for noise (such as passenger stations, traction power substations, and parking garages) were not evaluated because they are not significant sources of vibration.

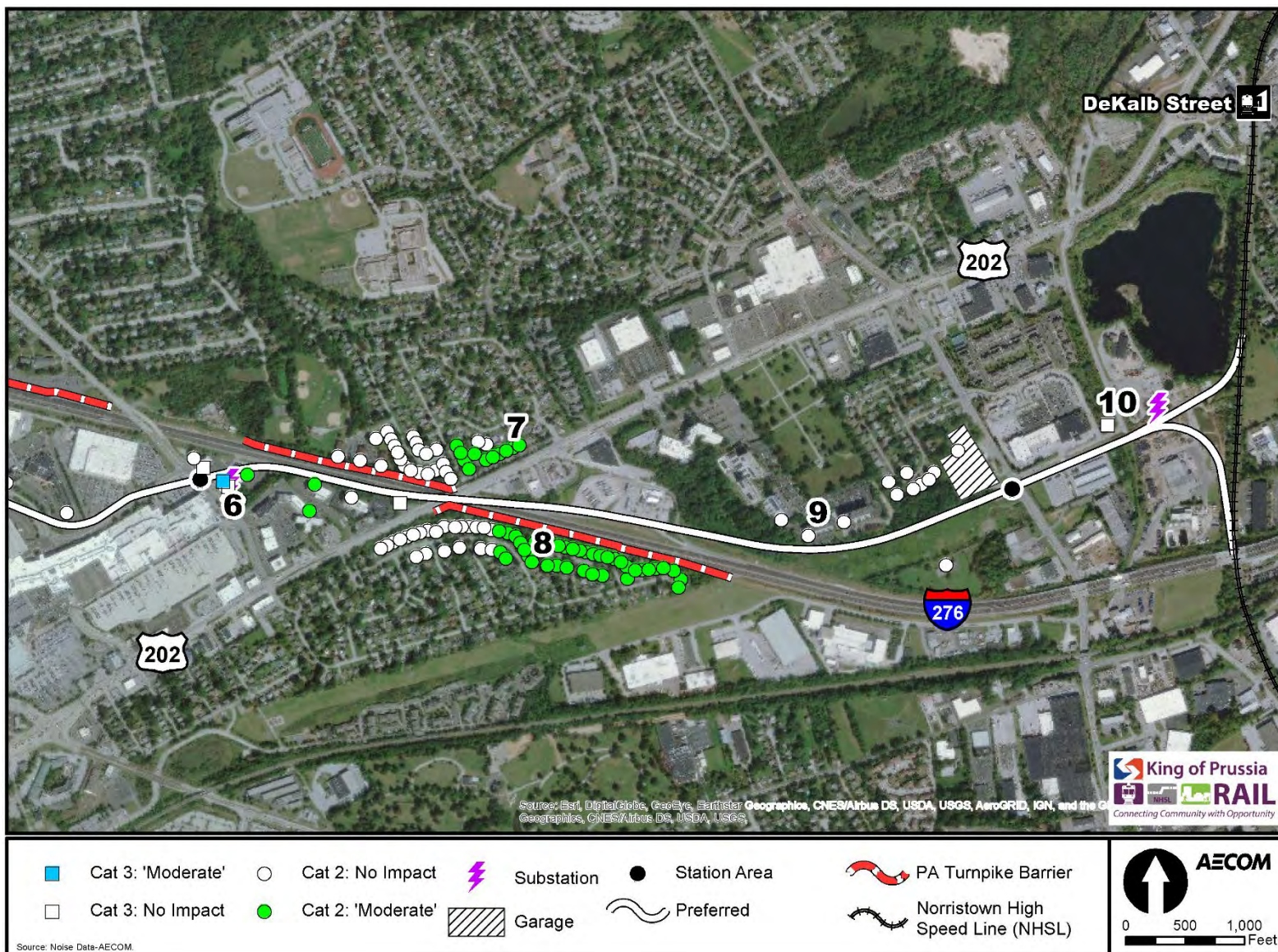
As shown in **Table 4.10-4**, Project operational vibration levels at the select representative receptors range from 31 VdB at Site 2 (Extended Stay Hotel along American Avenue) to 69 VdB at Site 9 (a residence along Dekalb Pike). To minimize potential impacts from gaps in the switch mechanism, track turnout switches are proposed away from residences.

Figure 4.10-5: Corridor-wide Noise Impacts under the Preferred Alternative (Western Section)



Source: AECOM, November 2020.

Figure 4.10-6: Corridor-wide Noise Impacts under the Preferred Alternative (Eastern Section)



Source: AECOM, November 2020.

As shown in **Table 4.10-4**, vibration levels at the selected representative receptors range from 31 VdB to 69 VdB. Corridor wide, including the other 130 receptors, vibration levels during Project operations will be essentially the same, ranging from 30 VdB to 69 VdB. None of the future vibration levels from the Project operations is predicted to exceed the FTA *frequent* impact criteria of 72 VdB at residential receptors or 75 VdB at non-residential receptors. The absence of vibration impacts is due to the use of an elevated guideway for 78 percent of the Project alignment. In general, the heavier the structure, the lower the vibration levels. Therefore, vibration along the Project guideway (which is significantly heavier than typical at-grade track) will result in vibration levels that are well below the FTA impact criteria. Additionally, track switches (which typically contribute to elevated vibration levels due to the gap in the rail) are proposed away from residences to avoid the potential for vibration impacts associated with such equipment.

Short-term Construction Effects

Construction Noise Levels and Impact Assessment

Temporary noise impacts during Project construction will occur. This section is a preliminary estimation of the types of noise effects that could be expected during the construction phase of the Project.

A Quantitative Construction Noise and Vibration Assessment was conducted because the Project construction is expected to last approximately four years. An FTA General Assessment of construction noise and vibration was conducted for the Project because the Project design is in an early stage (15 percent) when the construction equipment roster and schedule are undefined and only a rough estimate of construction noise levels is practical. The assessment of construction noise included the following construction activities: fabrication of the guideway, passenger stations, traction power substations, and the two parking garages.

Section 7.1 of the FTA's *Manual* presents the basic concepts, methods, criteria, and procedures for evaluating the extent and severity of temporary construction noise impacts from transit projects. As shown in **Table 4.10-6**, criteria based on the one-hour average noise level or Leq(h) were used to assess preliminary impacts at residences and commercial land uses at the same receptor site selected for the long-term operational analysis. These criteria are intended for a general noise assessment only when details of the construction activities are not yet known and will not be finalized until the subsequent design phase.

Table 4.10-6: FTA General Assessment Construction Noise Criteria

Land Use	1-Hour Leq (dBA)	
	Day	Night
Residential	90	80
Commercial	100	100
Industrial	100	100

Source: FTA *Manual*.

Community noise is also regulated by Upper Merion Township's noise ordinance, *Chapter 107, Nuisances*. However, these local ordinances generally restrict nuisance noise and set limits on when construction can occur (such as no nighttime construction). They do not set any limits on the long-term operation of transit rail systems.

As part of the General Assessment, the two noisiest pieces of equipment expected to be used in each phase of Project construction were selected and their cumulative noise levels added together. As a conservative assumption, each piece of equipment is assumed to operate continuously for one hour with no ground attenuation effects. The selected equipment types and reference noise levels are summarized in **Table 4.10-7**.

Table 4.10-7: FTA Construction Equipment Noise Emission Levels

	Reference	Estimated Equipment Selection			
Equipment	SPL	Guideway	Stations	Substation	Garage
Crane, Derrick	88	1	1	--	1
Generator	82	--	--	1	--
Pile Driver (Impact)	101	1	1	--	1
Truck	84	--	--	1	--

Source: FTA *Manual*.

The construction equipment noise levels were adjusted for each receptor's distance only. As shown in **Table 4.10-8**, maximum one-hour noise levels are predicted to range from 82 dBA at Site 7 (a residence along Dekalb Pike) from guideway construction to 102 dBA at Site 6 (offices along Allendale Road) from guideway construction. The loudest noise levels are due to the impact pile driver less than 50 feet from Site 6.

As shown in **Table 4.10-8**, construction noise levels are predicted to exceed the Project impact criteria at several receptors throughout the study area. As shown in **Table 4.10-9**, corridor wide construction activities are predicted to exceed the FTA 'daytime' noise impact criteria at 13 residences and 2 non-residential receptors. However, if nighttime construction activities are proposed, corridor wide construction activities are predicted to exceed the FTA 'nighttime' criteria at 119 residences and 2 non-residential receptors. Construction noise impacts are shown graphically in **Figure 4.10-7** and **Figure 4.10-8**.

Table 4.10-8: Predicted Construction Noise Levels at Representative Receptor Sites under the Preferred Alternative

		Land-use	Noise	Criteria	
No	Receptor Description	Category	(dBA)	Day	Night
1	Offices, 1045 First Avenue	commercial	92	100	100
2	Extended Stay Hotel, 400 American Avenue	residential	86	90	80
3	Valley Forge Suites, 550 American Avenue	residential	96	90	80
4	Hyatt House Hotel, 240 Mall Boulevard	residential	94	90	80

No	Receptor Description	Land-use	Noise	Criteria	
		Category	(dBA)	Day	Night
5	Fairfield Inn, 258 Mall Boulevard	residential	91	90	80
6	Offices, 166 Allendale Road	commercial	102	100	100
7	Residence, 428 Old Dekalb Pike	residential	82	90	80
8	Residence, 452 Powderhorn Road	residential	85	90	80
9	Residence, 251 DeKalb Pike	residential	94	90	80
10	Chester Valley Trail Extension, Saulin Boulevard	commercial	91	100	100

Note: Noise levels predicted to exceed the impact criteria are shown in **bold font**.

Source: AECOM, October 2020.

Table 4.10-9: Future Construction Noise Impacts under the Preferred Alternative

Land Use	Land Use	FTA Impact Category	
Category	Type	Daytime	Nighttime
1	High Sensitivity	-- ¹	--
2	Residential	13	119
3	Institutional	2	2

1. No Category 1 land-uses were identified in the study area.

Source: AECOM, October 2020.

Construction Equipment Vibration Levels and Impact Assessment

FTA's *Manual* Section 7.2 presents the basic concepts, methods, criteria, and procedures for evaluating the extent and severity of temporary construction vibration impacts from transit projects. The concern regarding vibration from construction activities (such as pile driving and other heavy impact equipment) is the potential for damage to nearby buildings. The PPV level, which is typically expressed in inches per second, was used to assess the potential for Project construction to cause damage at residences and other sensitive receptors using the criteria shown in **Table 4.10-10**. The PPV vibration level represents the maximum peak level and is, therefore, typically used to assess stresses on buildings that could cause damage. Additionally, the vibration criteria shown in **Table 4.10-2** were also used to assess the potential for annoyance and interference with vibration-sensitive activities because PPV is not a good indicator of human response.

Table 4.10-10: Construction Vibration Damage Criteria

Building Category	PPV (in/sec)
I. Reinforced-concrete, steel or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

Source: FTA *Manual*.

As part of the Quantitative Construction Noise and Vibration Assessment, the potential for vibration damage and annoyance from each individual piece of equipment was evaluated. In this General Assessment, two pieces of equipment were selected to represent the types of activity that could occur for each construction type. Ground vibration from construction equipment spreads through the ground and diminishes in strength with distance. The ground and distance attenuation factors for PPV and RMS vibration levels included in FTA's *Manual* were applied to each equipment type. No other adjustments were applied. The selected equipment types and reference noise levels are summarized in **Table 4.10-11**.

Table 4.10-11: FTA Vibration Source Levels for Construction Equipment

Equipment	Reference		Estimated Equipment Selection			
	PPV	RMS	Guideway	Stations	Substation	Garage
Pile driver (vibratory), Upper	0.734	105	1	1	--	1
Large bulldozer	0.089	87	--	--	1	--
Caisson drilling	0.089	87	1	1	1	1

Source: FTA *Manual*.

Using guidelines from the FTA *Manual*, the construction equipment vibration levels were adjusted for each receptor's distance only. As shown in **Table 4.10-12**, PPV vibration levels (to assess damage) are predicted to range from 0.01 in/sec at Site 7 (a residence along Dekalb Pike) from guideway construction to 0.305 in/sec at Site 6 (offices along Allendale Road) from guideway construction. Similarly, RMS vibration levels (to assess annoyance) are predicted to range from 68 VdB at Site 7 to 97 VdB at Site 6. The highest vibration levels are due to the impact pile driver less than 50 feet from Site 6.

Table 4.10-12: Predicted Construction Vibration Levels at Representative Receptor Sites under the Preferred Alternative

No	Receptor Description	Land-use	PPV ¹	RMS ¹	Criteria ²	
		Category	(in/s)	(VdB)	PPV	RMS
1	Offices, 1045 First Avenue	commercial	0.053	82	0.500	75
2	Extended Stay Hotel, 400 American Avenue	residential	0.018	73	0.500	72
3	Valley Forge Suites, 550 American Avenue	residential	0.108	88	0.500	72
4	Hyatt House Hotel, 240 Mall Boulevard	residential	0.073	85	0.500	72
5	Fairfield Inn, 258 Mall Boulevard	residential	0.046	81	0.500	72
6	Offices, 166 Allendale Road	commercial	0.305	97	0.500	75
7	Residence, 428 Old Dekalb Pike	residential	0.010	68	0.500	72
8	Residence, 452 Powderhorn Road	residential	0.017	72	0.500	72

No	Receptor Description	Land-use	PPV ¹	RMS ¹	Criteria ²	
		Category	(in/s)	(VdB)	PPV	RMS
9	Residence, 251 DeKalb Pike	residential	0.074	85	0.500	72
10	Chester Valley Trail Extension, Saulin Boulevard	commercial	0.045	81	0.500	75

1. Vibration levels predicted to exceed the impact criteria are shown in **bold font**.

2. The PPV vibration damage criterion reflects FTA Category I structures while the RMS vibration annoyance criteria reflect land-use categories.

Source: AECOM, October 2020.

As shown in **Table 4.10-12**, construction vibration levels are not predicted to exceed the Project damage criteria, but they are predicted to exceed the Project annoyance criteria at several receptors throughout the Project study area. As shown in **Table 4.10-13**, corridor wide construction activities are predicted to exceed the FTA vibration impact criteria at 57 residences and other Category 2 land-uses and 16 non-residential receptors (Category 3 land-uses). Construction vibration impacts are shown graphically in **Figure 4.10-9** and **Figure 4.10-10**.

Table 4.10-13: Construction Vibration Impacts under the Preferred Alternative

Category	Land Use Type	FTA Impact Category	
		PPV	RMS
1	High Sensitivity	-- ¹	--
2	Residential	0	57
3	Institutional	0	16

1. No Category 1 land-uses were identified in the study area.

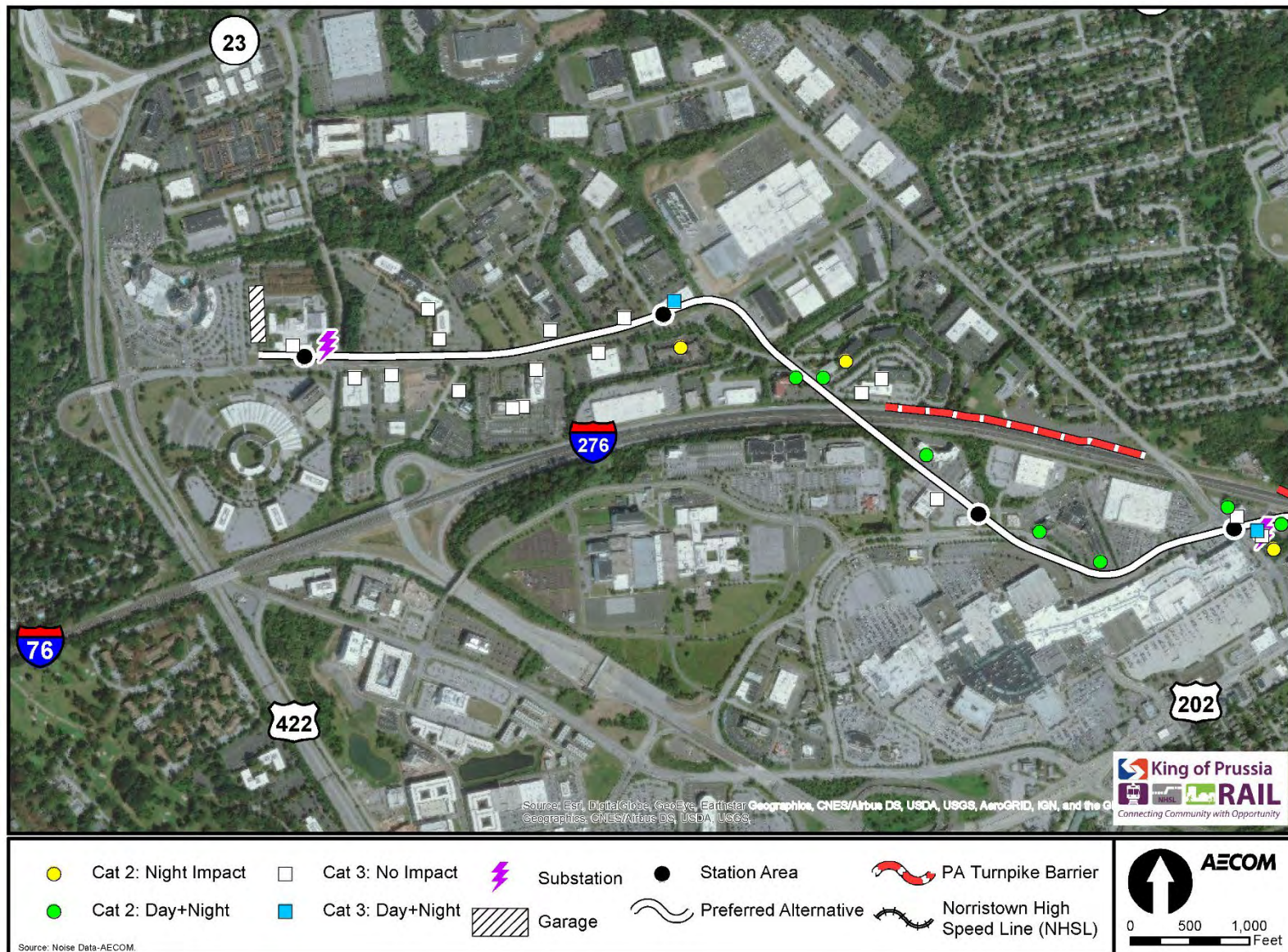
2. The PPV vibration damage criterion reflects FTA Category I structures while the RMS vibration annoyance criteria reflect land-use categories.

Source: AECOM, October 2020.

Minimization, Mitigation, and Commitments

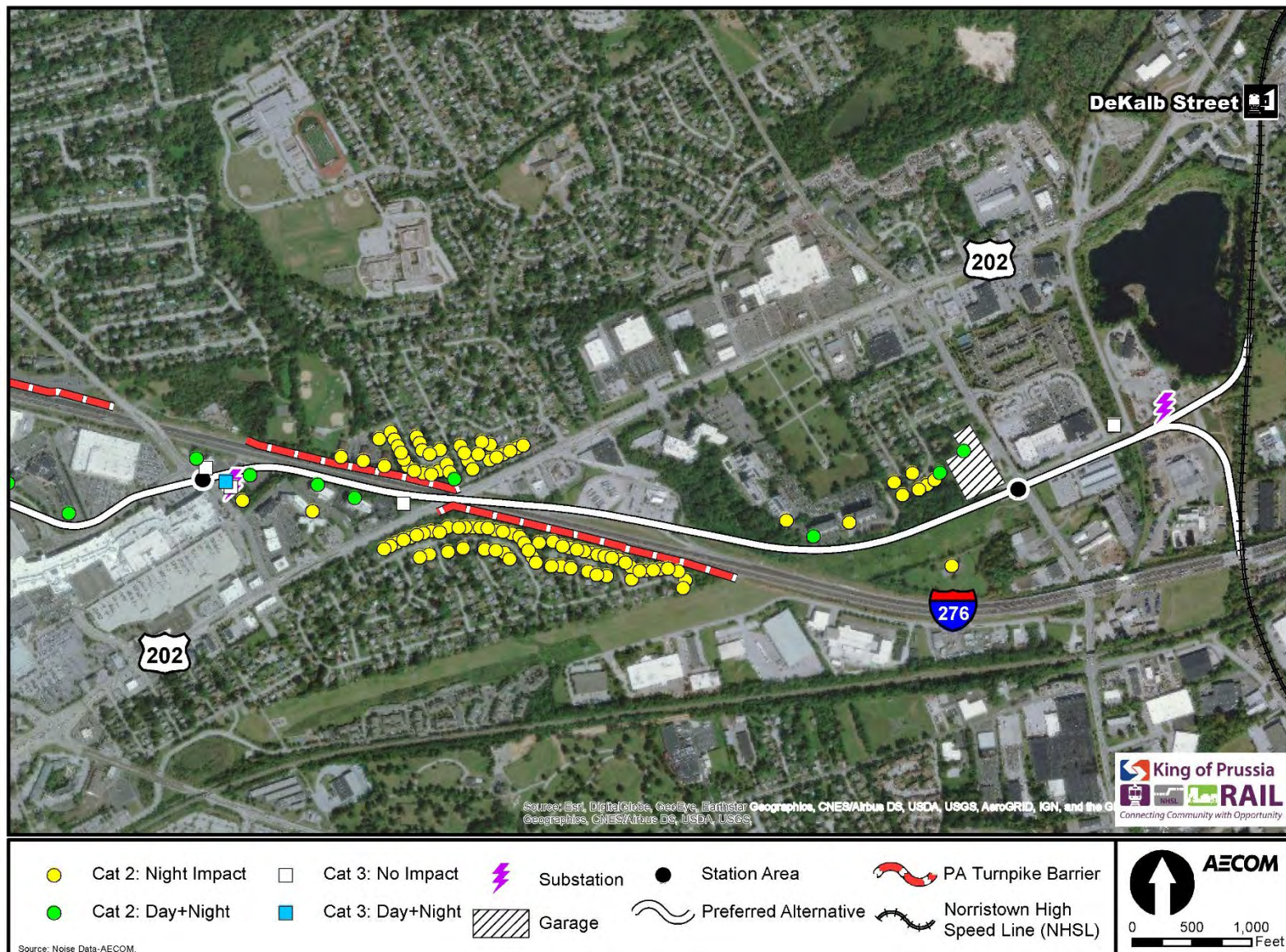
Long-term Operation – The FTA Manual specifies that ‘severe’ noise impacts require mitigation. Because no ‘severe’ impacts are predicted to occur as a result of the Project, mitigation measures have not been identified in this FEIS. However, as described in this section, SEPTA has made the following commitments as part of the Project regarding noise effects. During subsequent design, SEPTA will continue to assess the potential for noise impacts as a result of further design of the Project, and will evaluate the need for and design of mitigation for noise impacts. SEPTA will report the results of the evaluation on the Project website.

Figure 4.10-7: Preliminary Construction Noise Impacts under the Preferred Alternative (Western Section)



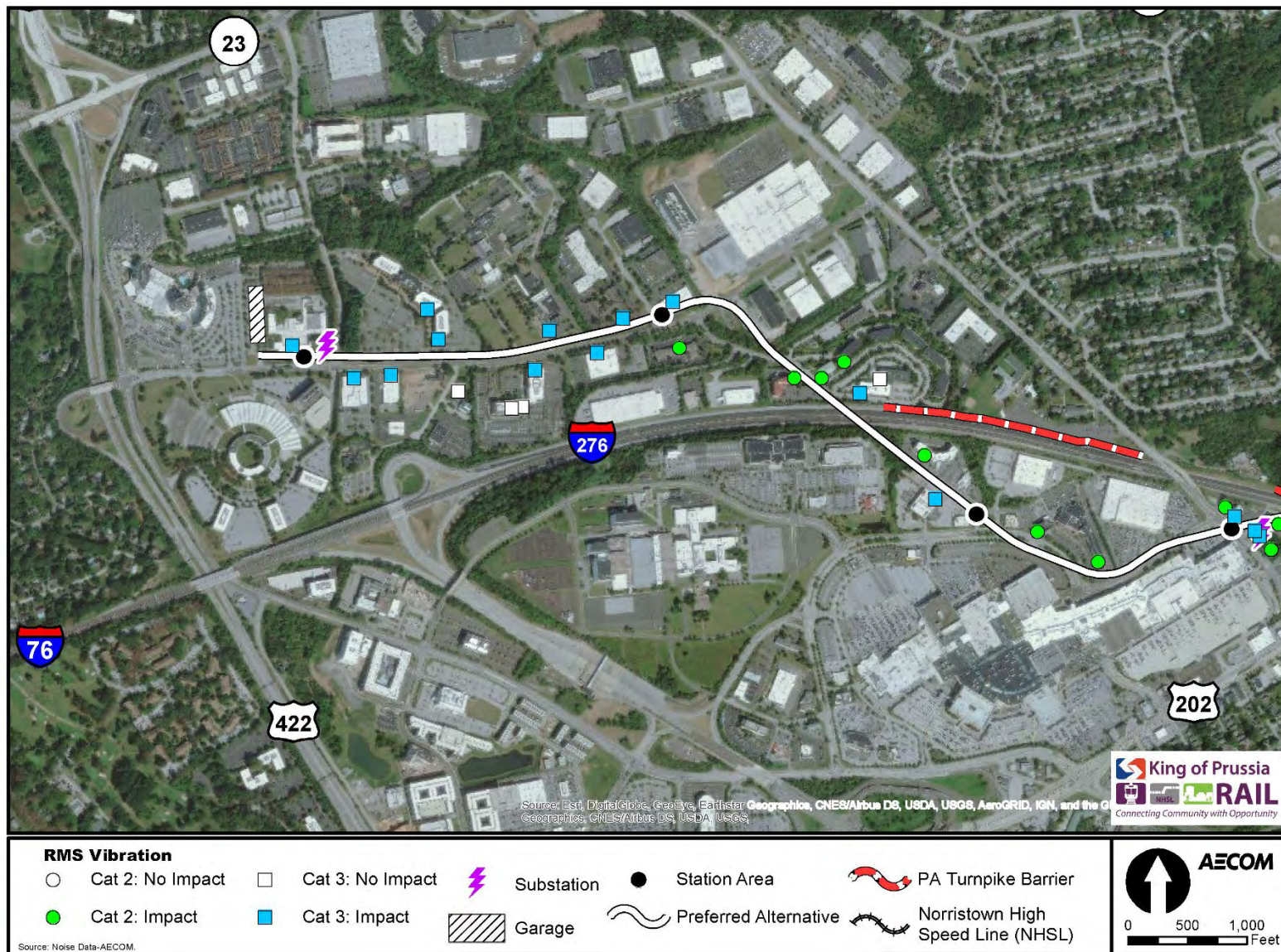
Source: AECOM, November 2020.

Figure 4.10-8: Preliminary Construction Noise Impacts under the Preferred Alternative (Eastern Section)



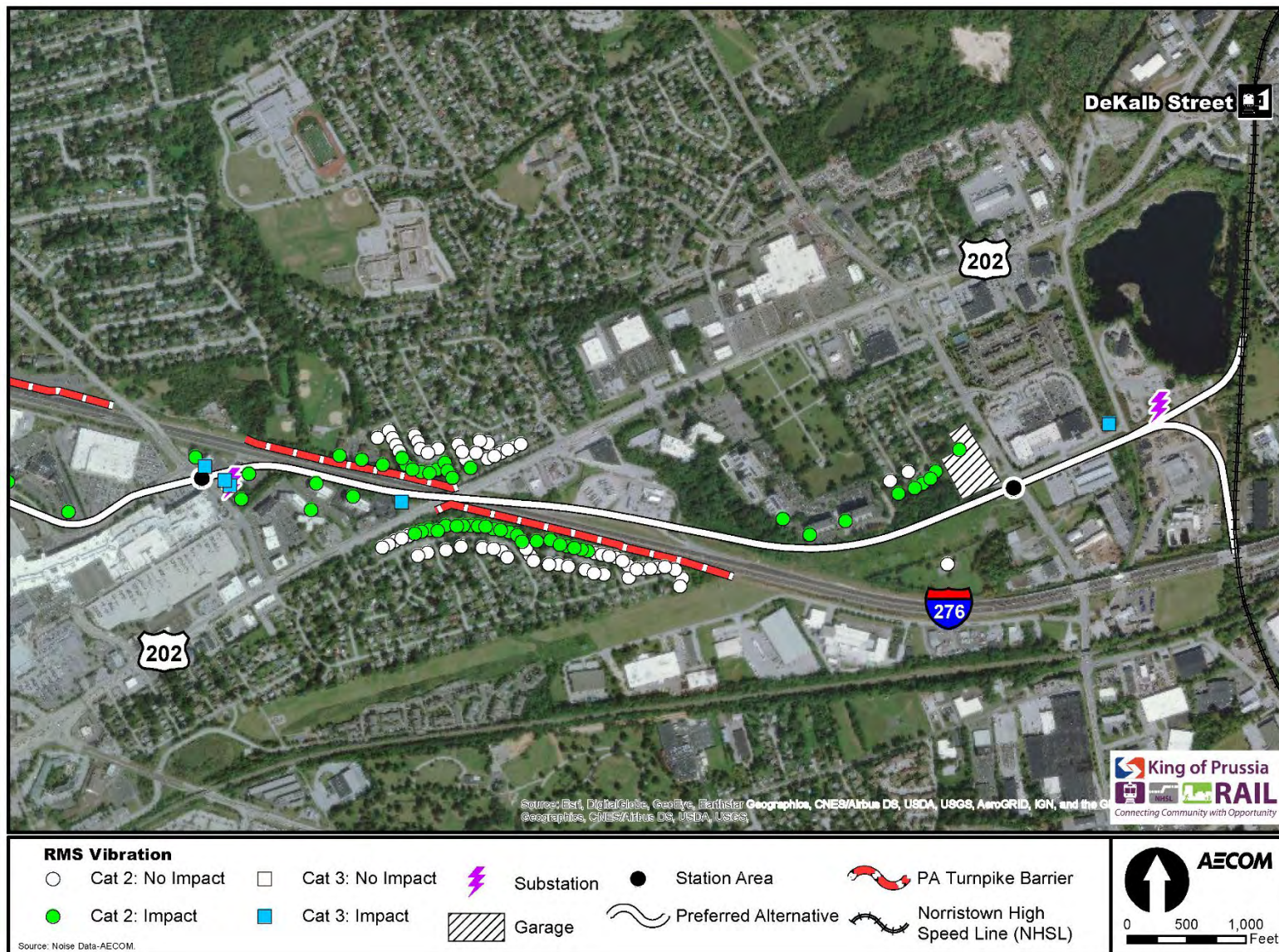
Source: AECOM, October 2020.

Figure 4.10-9: Preliminary Construction Vibration Impacts under the Preferred Alternative (Western Section)



Source: AECOM, November 2020.

Figure 4.10-10: Preliminary Construction Vibration Impacts under the Preferred Alternative (Eastern Section)



Source: AECOM, November 2020.

The following noise mitigation and minimization measures will be assessed by SEPTA during subsequent design to determine their feasibility and reasonableness:

- **Parapet Walls on Guideway** - Solid parapets in lieu of open safety railings would eliminate noise impacts from train operations along the guideway. Increasing the height of the proposed edge of the guideway from 2.2 feet above top of rail to 6 feet above top of rail at the following locations would eliminate all predicted *moderate* noise impacts:
 - Valley Forge Homes
 - Station No. 227+00 to 247+00 (south side)
 - 37 residential impacts
 - Brandywine Village
 - Station No. 243+00 to 250+00 (north side)
 - 11 residential impacts
 - Allendale Road Station
 - Station No. 259+00 to 269+00 (south side)
 - 3 residential impacts
 - 1 office impact

Because the Valley Forge Homes and Brandywine Village neighborhoods currently benefit from a highway noise barrier, the effectiveness of parapet walls on the guideway will need to be investigated in more detail by SEPTA during subsequent design.

- **Station-specific Noise Control** – SEPTA will investigate the feasibility and reasonableness of station-specific noise minimization and mitigation measures for Allendale Road Station during subsequent design.

Because no Project operational vibration impacts are predicted, no control measures are required regarding vibration.

Short-term Construction - During subsequent design, SEPTA will continue to evaluate the potential for temporary construction noise and vibration impacts, and identify measures to minimize or mitigate construction impacts as warranted. SEPTA will also continue the Project public outreach program during construction to inform the public about the schedule of activities and provide for public input. SEPTA will include control measures in their procurement specifications and construction plans, and report the results of the evaluation on the Project website. During Project construction, SEPTA will implement the control measures according to the Project construction plan.

The following noise and vibration mitigation and minimization measures will be assessed by SEPTA to determine their feasibility and reasonableness:

- At staging and laydown areas, consider installing acoustical curtains or other temporary noise shields installed along the perimeter fencing to act as a temporary noise barrier.

- Strategic placement of containers or other barriers along the perimeter of staging areas would shield nearby residences from construction activities within the laydown area.
- Substituting impulsive equipment such as pile drivers and hoe rams with augers and vibratory pile drivers whenever possible.
- In general, utilize equipment enclosures or shrouds for all exposed stationary equipment while other solutions (such as portable acoustical curtains hung from cranes) may be more practical for mobile sources.
- All equipment should include properly tuned exhaust mufflers or attenuators that comply with the local and municipal noise ordinances.
- Additionally, utilize regional roadways rather than local streets for excavation of spoils and new deliveries to further minimize the construction impacts (i.e., noise, vibration, air quality, visual, traffic, etc.) on the nearby community.

4.11 Natural Resources

This section describes the natural resources in the Project study area and discusses the potential impacts of the Preferred Alternative and the No Action Alternative on these resources. This section also describes the proposed measures to mitigate for potential impacts on natural resources. Natural resources include geology, soils, wildlife habitat, threatened and endangered species, waterways, wetlands, sole source aquifers and wellhead protection areas.

4.11.1 Regulatory Context and Methodology

The following statutes and regulations apply to natural resources:

- **Endangered Species Act of 1973** – a federal law regulated by the United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) to protect federally-listed rare, endangered, and threatened species.
- **Section 404/401 of the Clean Water Act** – a federal law administered by the U.S. Army Corps of Engineers (USACE), that regulates the discharge of dredged or fill material into waters of the United States, including streams and wetlands. No federal permit or license can be issued that may result in a discharge to waters of the United States unless the authorized tribe or state certifies that the discharge is consistent with its water quality requirements or waives certification.
- **Federal Executive Order 11988** – This federal order on floodplain management requires federal agencies to avoid, to the extent possible, the long and short-term adverse impacts on floodplains whenever there is a practicable alternative.
- **USDOT Order 5650.2, Floodplain Management and Protection** – a federal order that requires federal agencies to avoid, to the extent possible, impacts to floodplains, as well as to protect the function of floodplains.
- **The Safe Drinking Water Act** - a federal law that protects drinking water quality and authorizes the Sole Source Aquifer Program, which provides oversight of federally-funded projects in such areas. The relevant portion of this federal law applies to wellhead protection

areas and is implemented through state governments. Wellhead protection areas are zones around public water supply wells wherein the land area is regulated to prevent contamination of a public water system.

- **Wild Resource Conservation Act (32 Pennsylvania Statute 5301-5314)** – a state law that prohibits “take,” otherwise defined as the killing, harm, harassment, and other similar effects on threatened and endangered species. Chapter 21 pertains to threatened or endangered animal species, and Chapter 45 pertains to the conservation of native wild plants.
- **Dam Safety and Waterway Management Act** – Chapter 105 of the state law regulates activities in waterways and wetlands.
- **The Floodplain Management Act** – Chapter 106 of the state law regulates activities in floodplains.
- **Erosion and Sediment Control** - Chapter 102 is a state regulation requiring Best Management Practices (BMPs) to minimize the potential for erosion and sedimentation in order to protect water resources.

The Project study area in King of Prussia was assessed for potential impacts on natural resources. The Project study area at 69th Street Transportation Center was not considered in this assessment as it is a developed area with no natural resources.

The following data sources were used in this assessment:

- Federal sources:
 - The National Resources Conservation Service (NRCS) Web Soil Survey;
 - USFWS National Wetland Inventory (NWI) Map;
 - Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM);
 - Sole Source Aquifer Determination for the regional New Jersey Coastal Plain Aquifer System;
- Pennsylvania and other sources:
 - PA Department of Environmental Protection (PADEP) eMapPA database accessed through the PADEP website;
 - PA Geospatial Data Clearinghouse, Pennsylvania Spatial Data Access (PASDA) website;
 - PA Geological Survey (PaGEODE) Interactive Map;
 - PA Department of Conservation and Natural Resources (DCNR) Physiographic Provinces of Pennsylvania map;
 - Sinkholes and Karst-related Features of Montgomery County, Pennsylvania, Open-File Report 93-02, (Kochanov 1993);
 - Earthquake Epicenters in and Near Pennsylvania Map (Fail 2004);

- PA Natural Heritage Program (PNHP), Pennsylvania Natural Diversity Inventory (PNDI) receipts.
- Trees of Pennsylvania: a complete reference guide (Rhoads and Block, 2005)

Field reconnaissance of the Project study area was undertaken by SEPTA's consultant, Malick & Scherer, P.C., in 2015 and 2020 to verify and supplement desktop data sources. A field visit attended by SEPTA, the USACE, and Malick & Scherer, P.C. occurred on September 18, 2015 at which time locations of potential wetlands were investigated. Malick & Scherer, P.C. undertook a field visit on September 21, 2020 to investigate potential wetlands in the Project study area, specifically in the area of Frog Run. Additional information regarding the natural resources review and assessment may be found in the 2017 *Natural Resources Technical Memorandum* prepared for the Project, available on the Project website (www.kingofprussiarail.com). The Technical Memorandum also compares the impacts of the various action alternatives reviewed, which includes the Preferred Alternative. SEPTA reviewed historical data related to geology as well as test boring information developed by others in the Project area to characterize geologic conditions, including:

- AWK Consulting Engineers, Inc., 2015, for PennDOT's SR 422 Section SRB project;
- Site-Blauvelt Engineers, Inc., 2001 and 2003, for the PA Turnpike Commission's noise barrier project along the PA Turnpike;
- Kleinfelder, 2013, for the Connector project at the Plaza;
- Geosystems Consultants, Inc., 2006, for the King of Prussia Plaza Expansion;
- Geosystems Consultants, Inc., 1964-1993, for the King of Prussia Plaza Expansion;
- URS Consulting Engineers, 2001, for the replacement of Bridge No. DB-106 over the PA Turnpike, Milepost 328.10; and,
- Site-Blauvelt Engineers, Inc., 2001 and 2003, for the PA Turnpike Commission's Roadway and Bridge Reconstruction project from Milepost 326.01 to 331.33.

4.11.2 Affected Environment

Natural resources located within the transportation study area are identified below and mapped on the Environmental Maps located in Appendix A.

4.11.2.1 Geology

The Project study area is within portions of the Piedmont Lowland and the Gettysburg-Newark Lowland sections of the Piedmont Province of Pennsylvania, and it is characterized as scattered low hills and ridges. The underlying bedrock formations are composed of sedimentary limestone, dolomite, and sandstone rock. The limestone is marked by karst features that are found in groups primarily in the following general locations: PECO ROW, Valley Forge Homes area and adjacent PA Turnpike, King of Prussia Mall, and the VFCR. Karst formations are characterized by sinkholes, geologic surface depressions, caves, and subsurface drainage and are indicators of places where subsidence is considered to be more likely to occur. However, subsurface karst features can also occur where there is no discernible surface expression

indicating their location (Kochanov 1993). Sinkholes are a key public issue because they occur in the Project area and are considered by the public to be a hazard. Review of the historical data and boring information indicates that the depth to rock and quality of rock will vary considerably over short distances.

4.11.2.2 Soils

Soils in the Project study area are primarily categorized as deep or moderately deep, well-drained silt loams located on upland areas. Other less well-drained to poorly drained silty soils are found in low-lying areas along streams and wetlands. Soils designated as prime farmland or farmland of statewide importance are located within the Project study area; however, most of these soils have undergone residential or commercial development, or are restricted from use by being in the PECO utility ROW. Although portions of the PECO utility ROW contain undisturbed farmland soils, due to the ROW's dedicated use, agricultural activities do not exist in the project area. In the existing condition, no agricultural activities occur within the Project study area. Review of the historical data and boring information indicates that the composition and state of the overlying soils will vary considerably over short distances.

4.11.2.3 Waterways and Floodplains

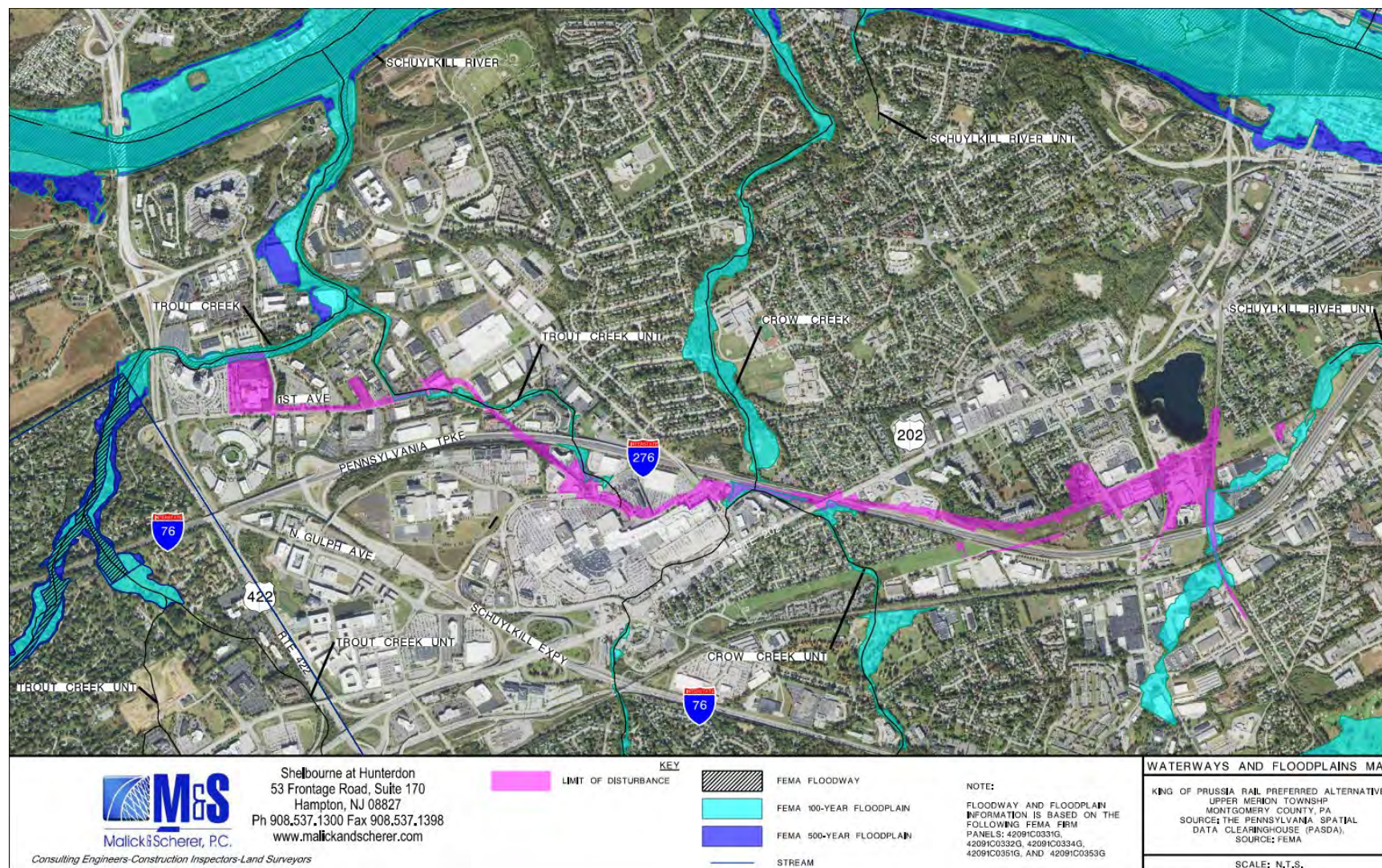
The Project study area is within the drainage area of the Schuylkill River to the north. The main stem of the Schuylkill River at the northern edge of the Project study area is a designated Pennsylvania Scenic River; no federally designated Wild and Scenic Rivers are within the transportation study area. A Pennsylvania Scenic River is a free-flowing water body that supports water-based recreation, fish, and aquatic life as defined by the PA DCNR.

Five waterways drain to the Schuylkill River, crossing the Project study area as each drains northward. From east to west the waterways are: Frog Run, Crow Creek unnamed tributary (UNT) (known also as Abrams Run), Crow Creek, Trout Creek UNT, and Trout Creek (see maps, Appendix A). Each waterway was either previously determined in consultation with USACE to be within their permitting jurisdiction, or is assumed to be within their permitting jurisdiction pursuant to Section 404 of the Clean Water Act.

In the Project study area, most natural stream channels have been modified to run in a manmade channel, closed pipe, constructed ditch, or other conveyance strategy. While each of these waterways is classified by PADEP as supporting migratory fish, water quality in each is impaired due to urban runoff/storm sewers, water/flow variability, habitat modification/channelization, and/or siltation. The 100-year flood hazard area of each waterway as mapped by FEMA¹¹ is in some cases contained within the channelized area; in other cases, the floodplain extends beyond the channel to neighboring areas (**Figure 4.11-1**).

¹¹ FIRM panels 42091C0331G, 42091C0332G, 42091C0334G, 42091C0351G, 42091C0353G.

Figure 4.11-1: Waterways and Floodplains Map



4.11.2.4 Wetlands

Based on the NWI maps, no mapped wetlands occur within the Project study area. Several unmapped freshwater wetlands and potential wetlands were preliminarily identified in the Project study area through field investigations in 2015 and field observation with the USACE in 2015.

Based on visual inspection using vegetation and hydrology, there are unmapped locations where wetlands may occur in the Project study area, including:

- Potential historic wetland near the bend in Saulin Boulevard – Has been modified to include a concrete drainage structure and serve a stormwater management function.
- Potential wetlands in the Crow Creek floodplain near the PA Turnpike Eastbound - Includes stormwater drainage ditches associated with the PA Turnpike.
- Potential wetlands in the Trout Creek floodplain near an access driveway serving the Hyatt House and former Toys-R-Us.
- Wetlands at North Gulph Road, northwest of Village Drive - Appears to receive stormwater runoff from the PA Turnpike Toll Plaza located directly adjacent.

4.11.2.5 Sole Source Aquifers

A sole source aquifer (SSA) is a water-bearing geologic formation that has been designated by the USEPA as the only or principal source of drinking water for an area. An SSA supplies at least 50 percent of the drinking water consumed in the overlying area. The Project study area overlies a portion of the New Jersey Coastal Plain Sole Source Aquifer according to the Designated Sole Source Aquifers in EPA Region III map and the *Sole Source Aquifer Determination for the New Jersey Coastal Plain Aquifer System*. This means that the King of Prussia/Valley Forge area is part of a large, multi-state geographic area in which stormwater soaks into the ground and supplies the underlying, water-bearing layers.

The ability of this recharge activity to occur depends in part on what is covering the ground surface and the characteristics of the soils through which the water must pass. As large parts of the Project study area are developed with pavement and buildings, generally considered impervious surfaces, little water is absorbed into the ground. Thus, the Project study area provides limited recharge to the underlying aquifer.

Public water supply in the Project study area is primarily by public water distribution infrastructure. Few, if any, properties have private wells.

4.11.2.6 Wellhead Protection Areas

A wellhead protection area is the land area surrounding a potable well or wells that is regulated to prevent contamination of a public, potable water supply. The transportation study area contains five wellhead protection areas associated with public, potable water wells.

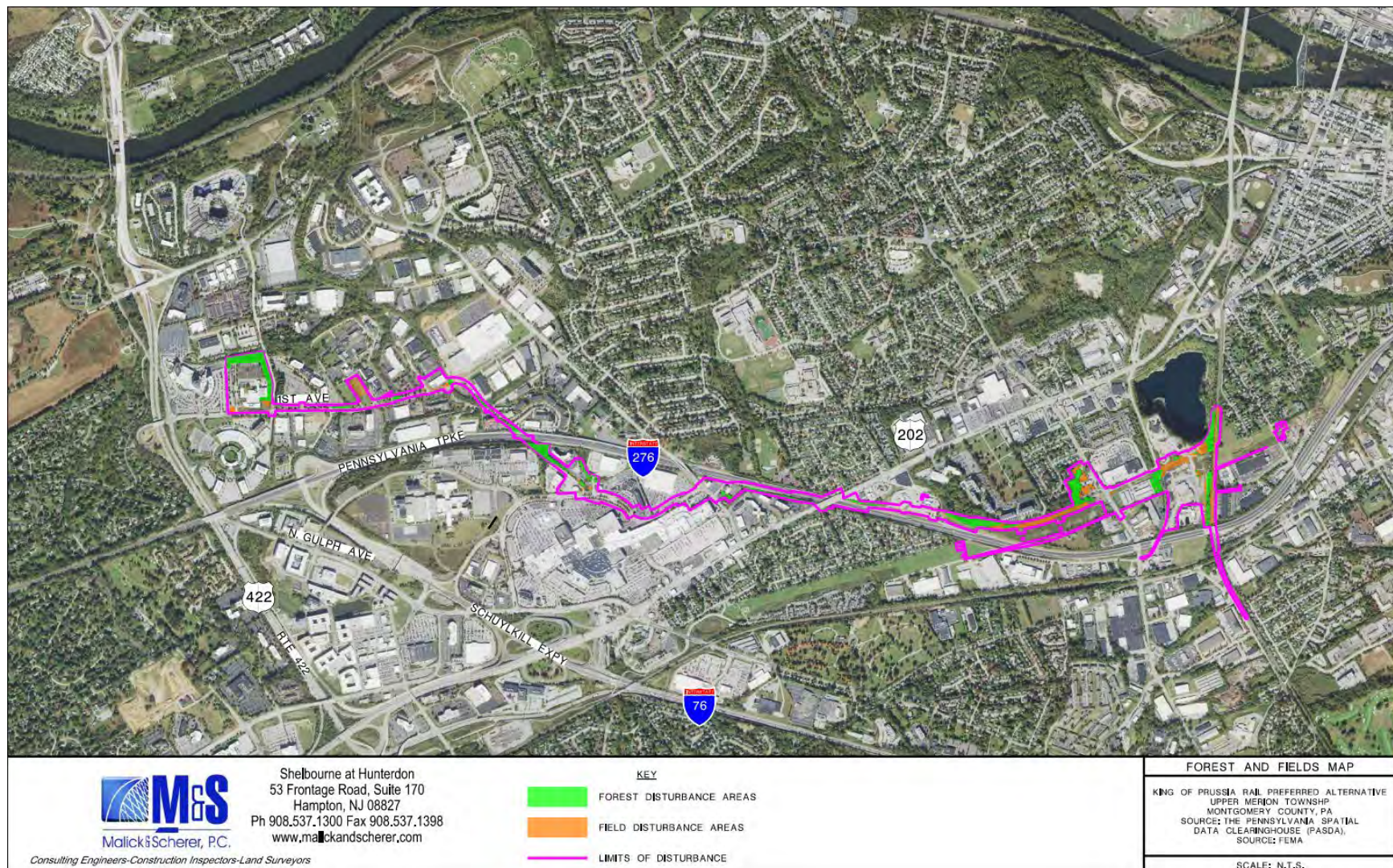
4.11.2.7 Wooded Areas and Fields

Montgomery County, Pennsylvania, lies within the Appalachian oak forest region of the Commonwealth (Rhoads and Block, 2005). Oak forests include red oak-mixed hardwood type on lower slopes where red and white oaks mixed with tulip tree, red maple, and hickories. Upper slopes are dominated by white, black, and chestnut oaks. Due to urban development, contiguous forest cover greater than 10 acres does not occur within the Project study area. Small patches of wooded areas, totaling 20.3 acres, remain and are generally along stream corridors, property boundaries, rail/roadway ROW, and areas of ornamental/landscaping (**Figure 4.11-2**). The PECO utility ROW provides successional-field areas. Wildlife in the Project study area typically includes commonly-occurring species that tolerate human proximity and can find food and shelter in fringe areas. During site visits, robins (*Turdus migratorius*), crows (*Corvus brachyrhynchos*), European starlings (*Sturnus vulgaris*), bobolink (*Dolichonyx oryzivorus*), deer (*Odocoileus virginianus*), and a mink (*Neovison vison*) were observed in or near the Project study area wooded areas and field habitats.

4.11.2.8 Threatened and Endangered Species

SEPTA submitted an online PNDI records request to identify known protected species within the Project study area (see Appendix C). The PNDI is an online screening tool, which identifies federally listed as well as state-listed species within a project area determined by the user. The results of the PNDI search for the Project indicate that no federally-listed threatened or endangered species are known to occur in the Project study area. Regarding state-protected species, the PNDI identified the need for SEPTA to coordinate with the PA Fish & Boat Commission regarding potential impacts on study area waterways. The PA Fish & Boat Commission identified the Project study area as being within the range of one State threatened animal species – the northern red-bellied cooter turtle (*Pseudemys rubriventris*). According to the PA Fish & Boat Commission, northern red-bellied cooters are one of Pennsylvania's largest aquatic turtles. Restricted to the southcentral and southeastern regions of the Commonwealth, northern red-bellied cooters inhabit relatively large deep streams, rivers, ponds, lakes and marshes with permanent water and ample basking sites.

Figure 4.11-2: Wooded Areas and Fields Map



According to the PA Fish & Boat Commission, the northern red-bellied cooter has some probability of occurring in the Project study area if open slack water areas of streams, lakes, or ponds are located within 300 feet of the Project limits of disturbance. During field investigations on May 14, 2015, September 18, 2015 and September 21, 2020, Project study area waterways were observed. Frog Run at the NHSL, Crow Creek tributary at Kingwood Road, Crow Creek at King of Prussia Mall near South Gulph Road, and Crow Creek at Allendale Road had stream flow. Trout Creek at Moore Road lacked stream flow. An isolated, shallow pool of water was present on the upstream side of the NHSL on Frog Run. Crow Creek is primarily piped under the King of Prussia Mall. The other waterways had exposed, dry banks indicating that water flow is variable and related to the amount of precipitation and stormwater runoff present.

Examination of drought information provided by the PADEP indicated that Montgomery County was not in a drought condition at the time of the September 21, 2020 field investigation.¹² One permanent lake (Aqua PA Reservoir) is located in the Project study area. Remaining waterways within the Project study area exhibit open slack water in isolated areas; however, the waterways are neither deep, nor permanent. Therefore, the northern red-bellied cooter and its suitable habitat is unlikely to be present within the Project study area.

4.11.3 Environmental Consequences

This section describes the potential impacts of the Preferred Alternative and the No Action Alternative to natural resources.

4.11.3.1 No Action Alternative

The projects in the No Action Alternative, listed in Section 2.3.1, have the potential to directly impact natural resources due to land clearing and grading as well as waterway, wetlands, and floodplain crossings or encroachments. The sponsors of these projects will be responsible for assessing the potential impacts of the projects on natural resources, and for coordinating with the Township and relevant regulatory agencies during the development of their projects. Each planned project is at some risk for ground subsidence due to the underlying karst geology. Project sponsors will be responsible for managing that risk in the design of each facility.

4.11.3.2 Preferred Alternative

Long-term Operational Effects

Geology

The 2019 *KOP Rail Basis of Design Report*, Volume I, provides an overview and summary of the geotechnical investigations that have taken place to date for the Project. The report and the findings of subsurface investigations conclude that much of the Project area is located within an area dominated by karst terrain. The Preferred Alternative has a risk regarding underlying geologic conditions as the alignment will cross known areas of karst formations; among these are PECO utility ROW, Valley Forge Homes area and adjacent PA Turnpike, King of Prussia Mall, and Valley Forge Casino Resort. The risk relates to the structural integrity of the underlying bedrock to support the Project infrastructure and the potential for sinkhole

¹² <https://www.dep.pa.gov/Business/Water/PlanningConservation/Drought/Pages/default.aspx>, accessed September 29, 2020.

development. A potential environmental impact from the Project would be sinkhole development from foundations and stormwater management structures, especially retention basins. Stormwater runoff can dissolve the rock under these structures, creating sinkholes and ground subsidence, which can undermine existing structures and become locations for contaminants to enter the groundwater.

Soils

Although the use of existing transportation corridors by the Preferred Alternative will reduce the potential for disturbing soils not presently covered by impervious pavement or buildings, construction will cause some soil excavation and movement. Typically, natural soils allow for water from precipitation to soak into the soil, potentially reaching and replenishing the underlying aquifer. Impervious surfaces, such as pavement or buildings, block stormwater from infiltrating the underlying soil. Soil disturbance can increase the potential for erosion of exposed soils. Covering soils with new impervious surfaces such as pavement reduces the area of land where water can soak into the soil, potentially reducing the amount of stormwater that can reach the underlying aquifer. SEPTA's construction activities for the Project will disturb approximately 28.3 acres of existing pervious surfaces.

Waterways and Floodplains

The Preferred Alternative will be elevated on proposed embankment or proposed elevated guideway. Proposed embankments will not be in existing floodplains. The elevated guideway will cross over existing waterways (Crow Creek UNT, Crow Creek, Trout Creek UNT, and Trout Creek) without physically impacting them. Supporting piers for the guideway will be located outside existing waterways. Wherever practicable, supporting piers for the guideway will also be located outside floodplains; however, to achieve the design criteria for the guideway, piers may be required in existing floodplains. During subsequent design, SEPTA will refine the design of the guideway and identify required supporting pier locations. SEPTA will undertake a detailed hydrologic and hydraulic analysis of the effect of piers that cannot be located outside floodplains to ensure that the Project design does not constrain water flow or floodplain capacity.

The Preferred Alternative will impact approximately 1,580 linear feet of floodplains in the following areas:

- Frog Run: SEPTA proposes to reconstruct the existing Frog Run culvert under the existing NHSL, located approximately 125 feet southwest of the western terminus of King Manor Drive, to address existing drainage concerns at that location and lengthen the culvert as part of widening the NHSL embankment to accommodate Project tracks. As part of the Project, SEPTA will construct a new 110-foot long culvert over Frog Run approximately 140 feet upstream of the existing culvert, and relocate approximately 430 feet of the waterway on the west side of the NHSL to accommodate the wider NHSL embankment. These activities will require a Pennsylvania Water Obstruction and Encroachment Permit and a USACE Permit.
- Trout Creek UNT and Crow Creek: To enable access and work area during construction, SEPTA anticipates that approximately 1,150 linear feet of trees and vegetation will be permanently removed within the footprint of the guideway at the crossings of Trout Creek UNT and Crow Creek. Within the guideway footprint, the vegetation will be removed

alongside the waterways and in the floodplains and will be replaced by the guideway. SEPTA will permanently stabilize the soil under the guideway to avoid erosion of the floodplain and the movement of soils into the waterways.

Wetlands

The Preferred Alternative will cross a potential wetland in the Crow Creek drainage area near the PA Turnpike Eastbound. At this location, the elevated guideway of the Preferred Alternative will span the creek and wetland, overlying approximately 0.08 acre of the potential wetlands. No direct impact or filling is proposed within the wetland area. Therefore, no permit is anticipated to be required from the USACE.

Sole Source Aquifers

The Preferred Alternative will create approximately 6.0 acres of impervious surfaces, resulting in a reduction in Project study area recharge capability to the sole source aquifer. The Project will incorporate stormwater management best management practices such as stormwater management basins that will provide treatment for water quality, quantity, and recharge,

Wellhead Protection Areas.

The Preferred Alternative will not impact existing wellhead protection areas.

Wooded Areas and Fields

The Preferred Alternative has the potential to impact wooded areas and fields where the alignment is not in previously developed areas. As indicated in **Table 4.11-1**, the Preferred Alternative will impact approximately 20.3 acres of wooded area, and the Preferred Alternative has the potential to impact 11.1 acres of field area. Permanent impact to wooded areas and fields means the vegetated areas that the Preferred Alternative will directly impact will be removed and replaced with Project elements. Commonly occurring wildlife using the impacted areas will be displaced and will have to find food and shelter in other adjacent wooded and field areas.

Table 4.11-1: Potential Wooded Areas and Field Impacts

Alternative	Wooded Areas (Acres)	Fields (Acres)
Preferred Alternative	20.3	11.1
No Action Alternative	0.0	0.0

Source: Malick & Scherer, 2020.

Threatened and Endangered Species

As described in the Waterways section above, the Preferred Alternative alignment will be elevated on embankment or on structure. Supporting piers for the structure will be placed to enable the alignment to cross over existing waterways without physically impacting Crow Creek UNT, Crow Creek, Trout Creek UNT, and Trout Creek. SEPTA proposes to reconstruct the existing Frog Run culvert, construct a new Frog Run Culvert, and realign a portion of Frog Run

west of the NHSL as part of the Project. Because suitable habitat for State-listed, northern red-bellied cooter is not present within the Project study area, the Project is unlikely to impact the red-bellied cooter.

Short-term Construction Effects

Excavating, grading, embankment construction, and soil stockpiling will be required during the construction of the Preferred Alternative. Section 4.2.3.2 describes the locations and types of temporary construction impacts, including locations of temporary construction access.

Stockpiling of excavated soils will occur within the proposed temporary construction areas located throughout the Project limits and outside waterways, floodplains, and wetlands.

Temporarily exposed soils could result in increased site erosion and sedimentation impacts to nearby water resources. The construction of pier footings and foundations, and possibly other system elements, could encounter the groundwater, and require removal of groundwater (known as dewatering) of excavation sites. The dewatering water could contain suspended sediments and contaminants that could affect receiving waters. Karst formations are located in the vicinity of the PECO utility ROW, Valley Forge Homes area and adjacent PA Turnpike, King of Prussia Mall, and the Valley Forge Casino Resort; therefore, excavation for footings and foundations could encounter potentially problematic subsurface conditions, requiring specific construction practices. Construction activities also have the potential to cause soil and water contamination from leaks or spills (Section 4.12.3.2).

Minimization, Mitigation, and Commitments

Long-Term Operation - The following list describes commitments SEPTA has made to avoid or minimize and mitigate potential impacts on natural resources:

- Geology
 - During subsequent design, SEPTA will complete a geotechnical investigation to identify soils and geological conditions within the Project LOD. The investigation will use subsurface testing and laboratory analysis to determine soil and rock properties (such as water, chemical and mineral contents, soil and rock strength, depth of rock, and delineation of karst features). This information will assist SEPTA in designing the Project to location-specific soil and geological conditions.
 - During subsequent design, SEPTA will develop an operations plan in the event of a geological event, such as a sinkhole. The program of actions will include the following elements: communication protocol, securing the site of the sinkhole, implementing an action plan to resolve the issue, and restoring normal activities.
 - During operations, SEPTA will implement the operations plan related to geological conditions.
- Soils and Sole Source Aquifers
 - During subsequent design, SEPTA will consider means to further reduce the amount of new impervious surfaces.
 - During subsequent design, SEPTA will design stormwater best management practices to reduce Project runoff impacts.

- During operations, SEPTA will implement the Project stormwater management plan.
- Waterways and Floodplains
 - During subsequent design, SEPTA will obtain and comply with Pennsylvania Water Obstruction and Encroachment Permit and a USACE Section 404 Nationwide Permit as required by the USACE and PADEP for activities in waterways and wetlands.
 - During subsequent design, SEPTA will comply with Executive Order 11988 and applicable state laws and implementing regulations regarding Project activities in existing FEMA-mapped floodplains.
 - During operations, SEPTA will implement the Project in accordance with the provisions and conditions of all permits and approvals related to waterways and floodplains.
- Wetlands
 - Where applicable during subsequent design, SEPTA will obtain and comply with Pennsylvania Water Obstruction and Encroachment Permit and a USACE Section 404 Nationwide Permit for activities in waterways and wetlands.
 - During operations, SEPTA will implement the Project in accordance with the provisions and conditions of all permits and approvals related to waterways and wetlands.
- Wooded Areas and Fields
 - During subsequent design and to the extent reasonably feasible, SEPTA will identify means to avoid or minimize impacts to existing wooded areas through design refinements.
- Threatened and Endangered Species
 - During subsequent design, SEPTA will coordinate with the PA Fish & Boat Commission to verify the presence/absence of State threatened northern red-bellied cooter. If present, SEPTA will assess the potential for adverse impacts to the species, and identify appropriate minimization and mitigation measures.

Short-Term Construction - The following list describes commitments SEPTA has made to avoid or minimize and mitigate potential impacts on natural resources:

- Geology
 - During subsequent design, SEPTA will develop a plan of action in the event of a geological event, such as a sinkhole, during Project construction. The program of actions will include the following elements: communication protocol, securing the site of the sinkhole, implementing an action plan to resolve the issue, and restoring construction activities.
 - During construction, SEPTA will implement the construction plan related to geological conditions.
- Soils and Sole Source Aquifers

- During subsequent design, SEPTA will prepare PA-approved erosion and sediment control plans and applicable stormwater management plans during Project construction. These plans will identify appropriate best management practices to reduce erosion, control sedimentation, and maintain water quality.
 - During construction, SEPTA will implement the approved erosion and sediment control plan.
- Waterways and Floodplains
 - During construction, SEPTA will implement the Project in accordance with the provisions and conditions of all permits and approvals related to waterways and floodplains.
- Wetlands
 - During construction, SEPTA will implement the Project in accordance with the provisions and conditions of all permits and approvals related to wetlands.
- Wooded Areas and Fields
 - During subsequent design, SEPTA will develop a construction plan that limits disturbance of 20.3 acres of wooded areas within the proposed construction area and provides for protection of such areas that are adjacent to and outside the construction area.
 - During construction, SEPTA will implement the construction plan elements that protect wooded areas from Project impacts.
 - During construction, SEPTA will implement the Project in accordance with the provisions and conditions of all permits and approvals related to wooded areas.
- Threatened and Endangered Species
 - If warranted as a result of further coordination with the PA Fish & Boat Commission in regard to the State threatened northern red-bellied cooter, SEPTA will implement appropriate minimization and mitigation measures during Project construction.

4.12 Contaminated Materials and Hazardous Waste

This section describes the procedures used to search for contaminated materials and hazardous waste within the Project study area. In addition, this section presents the results of a search of local, state, and Federal databases of known hazardous waste, as well as contaminated or regulated materials sites that may be impacted by the Project. Mitigation measures to minimize impacts are also described.

4.12.1 Regulatory Context and Methodology

Contaminated materials and hazardous waste are substances that, because of their chemical or physical characteristics, are hazardous to humans and living organisms, property, and the environment, and are regulated by the USEPA at 40 CFR Part 261. The primary Federal laws are the Resource Conservation and Recovery Act of 1976 (42 U.S.C 6901 et seq.) and the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) (42 U.S.C. § 9601 et seq.).

An assessment consistent with the American Society for Testing and Materials guideline (ASTM E 1527-13), *Standard Practice for Environmental Site Assessment: Phase I Environmental Site Assessment* (ESA), was conducted in February 2017 to identify known hazardous waste and contaminated sites within the study area of the Action Alternatives assessed in the DEIS. The methodology for this assessment used available land use data as well as a review of historical records, including historic topographic maps and aerial photographs, Federal and state records for properties with known environmental contamination, and Federal and state well records. The assessment included a field reconnaissance on May 14, 2015 and December 4, 2015 to verify local land use patterns and identify potential contaminated materials and hazardous waste issues not identified in the review of reports. The presence of contaminated materials and hazardous waste in the affected environment was identified for the Project study area defined in Section 4.1. Information regarding that September 2017 assessment may be found in the 2017 *KOP Rail Tier 3 - Contaminated Materials and Hazardous Waste Technical Memorandum*, available on the Project website (www.kingofprussiarail.com).

In September 2020, an additional Phase I environmental site assessment (ESA) was conducted, focusing on the Preferred Alternative. The investigation included a review of current Federal and state contaminated sites databases and a field reconnaissance on September 23, 2020 to identify areas of concern (AOCs) within the limits of the Preferred Alternative. Information on this investigation is provided in the following sections. A copy of the database search reports is contained in Appendix B.

4.12.2 Affected Environment

The commercial and industrial history of King of Prussia contributes to the presence of known contaminated site AOCs within the Project study area. The September 2020 Phase 1 ESA identified 42 sites with AOC's in the study area of the Preferred Alternative where regulated hazardous waste and substance activities occur or where incidents have been reported regarding contaminated or hazardous materials: storage tank sites, PADEP-identified Activity and Use Limitations (AUL) sites, Toxic Release Inventory (TRI) sites, environmental complaints and incident sites, wells, and National Priorities List (NPL) sites. The Project study area was defined as an area within 500 feet of the Preferred Alternative ROW and the station areas.

Of the 42 sites with AOCs identified within the Project study area, seventeen (17) sites are located within the LOD of the Preferred Alternative and one (1) NPL site is located within 100 feet of the Preferred Alternative ROW. The NPL site is the Henderson Road Superfund Site, a former landfill along South Henderson Road, south of the PA Turnpike. The Henderson Road Superfund Site is outside and south of the Preferred Alternative LOD; the Preferred Alternative will have no direct, physical impact on this property. Remedial measures have been conducted at the Henderson Road Superfund Site under EPA oversight since 1984. Groundwater investigations at the site by EPA indicate that groundwater flows in a northerly direction from south of the Project study area toward the Aqua Pennsylvania property. In its most recent 5-year review (2018 Five-Year Review), EPA indicated that no exceedances of groundwater cleanup levels are present beyond the Henderson Road Superfund Site's northern boundary. Therefore, groundwater contamination from the Henderson Road Superfund Site was not present in groundwater under the Project study area and did not extend to the Aqua PA

property. To minimize the potential for the Preferred Alternative to adversely affect the hydrological conditions controlling the contaminant plume at the Henderson Road Superfund Site, SEPTA will seek input from EPA during subsequent design.

The seventeen (17) sites with AOCs located within the LOD of the Preferred Alternative are listed in **Table 4.12-1** and shown on the maps in Appendix A. Some of these sites contain multiple occupants and AOCs.

Table 4.12-1: AOCs within LOD of Preferred Alternative

Address	Site Name	
840-842 First Avenue	Ducon Fluid Transport, Egglands Best	Hazardous Waste Small Quantity Generator
900 First Avenue	Elf Atochem North America, Arkema, Cerexagri, Inc., Pennwalt, plus others	Landfill, Underground Storage Tank
1000 First Avenue	Maschellmac Office Complex	Underground Storage Tank
1100 First Avenue	SKF Industries, Devon International, Devon Motorcycles, Inc., plus others	Underground Storage Tank
381 Dekalb Pike	Sunoco 0374 6401, 7 Eleven 40279	Gasoline Station
455 W Dekalb Pike	US Petroleum & Diesel, SR & ZR Estate, LLC, US Petro Gas	Gasoline Station
170 Allendale Road	King of Prussia Volunteer Fire Co. 1	Underground Storage Tank
243 S. Henderson Road	Ken's Collision Center	Hazardous Waste Small Quantity Generator
240 Mall Boulevard	David Penske Chevrolet	Underground Storage Tank
202 Allendale Road	Eberhardt, Inc.	Gasoline Station
801 First Avenue	Gatti Morrison Construction, Georgia Pacific Corp	Underground Storage Tank
260 Mall Boulevard	Holiday Inn	Underground Storage Tank
223 S. Henderson Road	Delcollo Tire Center, Inc.	Hazardous Waste Small Quantity Generator
201 Allendale Road	Costco Wholesale 245	Hazardous Waste Small Quantity Generator
660-700 American Avenue	Chevron Stations, Inc, Martin Marietta, FDX Vehicle Maintenance	Gasoline Station
260 Hansen Access Road	Rolling Frito Lay Sales Valley Forge	Underground Storage Tank
500 American Avenue	Amazon Com Services, Inc.	Hazardous Waste Small Quantity Generator

Source: Malick & Scherer, 2020.

4.12.3 Environmental Consequences

4.12.3.1 No Action Alternative

Projects in the No Action Alternative have the potential to impact or be impacted by known or previously unidentified contaminated materials and hazardous waste sites where ground disturbance will occur. The sponsors of these projects will be responsible for identifying such

sites, evaluating the potential impacts of the sites on the projects, and addressing impacts through remediation or other methods as warranted.

4.12.3.2 Preferred Alternative

Long-term Operational Effects

King of Prussia

The Project has the potential to introduce contaminants to the Project study area in the form of oils and lubricants that could drip from operating rail vehicles. The storage, use, and handling of such materials will occur at the existing maintenance facility on SEPTA's property near the 69th Street Transportation Center. The existing risks of fuel, oil, and lubricant leaks from motor vehicles, as well as accidental fuel spills, on roadways in the Project study area will be unchanged by the Project. Operation of Project vehicles will not be a source for accidental fuel spills because the power source will be electricity.

69th Street Transportation Center

The Project has the potential to introduce contaminants to the Project study area in the form of oils and lubricants that could drip from operating rail vehicles. The storage, use, and handling of such materials will occur at the existing maintenance facility on SEPTA's property near the 69th Street Transportation Center. Operation of Project vehicles will not be a source for accidental fuel spills because the power source will be electricity.

Short-term Construction Effects

Construction activities to build the Preferred Alternative have the potential to impact or be impacted by the 17 sites with AOCs in the LOD because building the Project will require activities that disturb existing developed properties and soils, such as demolition and removal of existing structures, and excavation of soils to build footings and foundations for the guideway, utilities, stormwater management, and other Project structures. The types of contaminants that could be present are those typically associated with developed areas, roadways, and railroad operations, such as herbicides, petroleum products, metals, creosote, and PCBs. These contaminants could be in the soil and possibly in the groundwater, depending on the source and depth to the water table. Based on the age and commercial use of some structures, asbestos and lead-based paint may be present in existing structures to be demolished for the Project, requiring appropriate measures for worker safety and waste management.

The Project study area at the 69th Street Transportation Center contains six (6) AOCs within 500 feet of the proposed station improvements; however, none are within the LOD of the Project. As a result, the potential for encountering contaminated or hazardous materials related to these sites is low.

Minimization, Mitigation, and Commitments

Long-Term Operation - The management of potential contaminated materials and hazardous waste issues is a matter of identifying the presence or absence of an issue through a Phase II ESA for properties that will be acquired by SEPTA, which SEPTA will complete during subsequent design and prior to acquiring land for ROW. The Phase II ESA will include field sampling and laboratory testing to evaluate the extent and severity of contamination. Where the

Project could impact a site with potential contaminated materials and hazardous waste issues, SEPTA will examine means to avoid or minimize and mitigate impacts. Such means can include the following strategies: design refinement, containment of contaminated or hazardous materials, or removal and disposal of such materials. The selection of appropriate strategies will be made in coordination with Federal and state regulators to meet applicable laws. SEPTA will incorporate appropriate strategies as minimization and mitigation measures into the Project design and construction plans.

Short-Term Construction – During subsequent design, SEPTA will develop and implement Health and Safety Plans and Materials Management Plans for use during construction and operation phases. These plans will establish protocols for working in areas where potential or known contaminated materials, hazardous waste, and asbestos and lead-based paint exist. Prior to demolition of existing structures, SEPTA will develop an Asbestos Abatement Plan and a Lead-Based Paint Assessment Plan to document methodologies for surveying, containing, and remediating such materials as warranted.

4.13 Utilities and Energy Use

This section describes the existing utilities located within the Project study area, identifies the utility owners, and identifies potential impacts to utilities that would result from the Preferred Alternative and the measures to avoid, minimize, or mitigate these impacts. It also discusses the potential energy impact of the Project.

4.13.1 Regulatory Context and Methodology

Advancing the Preferred Alternative will require integration with existing utility infrastructure subject to FTA's *Project and Construction Management Guidelines—Appendix C: Utility Agreements* (2003). Policies and procedures addressing utility adjustment or relocation are based on 23 CFR Part 645, Subparts A and B. As defined in 23 CFR § 645.207, utilities are considered to furnish essential public and private services, such as electricity, gas, water, and steam.

Utility services may be distributed overhead or underground, through electrical transmission lines, high pressure gas lines, treated water and sanitary sewer mains, steam tunnels, buried fiber optic cables, underground and overhead telephone lines, and communication systems.

The study area for utilities is the LOD for the Preferred Alternative, as described in Section 4.1. SEPTA preliminarily identified existing utilities through a review of utility record drawings, base maps obtained from utility service providers, and field surveys and verification. A qualitative assessment of potential impacts on utilities was performed by examining where utilities occur in relation to each alternative and identifying where potential conflicts with utilities could occur.

The energy impact from the Project was assessed by comparing the net increase from the trains with the net decrease in VMT growth from new ridership. This comparison is based on rates for energy usage by each mode of travel using data from SEPTA as well as Project-specific reductions in VMT growth by 2040. Additionally, in the document *Connecting KOP* (2015), ELGP calculated cost savings for fuel using DVRPC-generated VMT estimates.

4.13.2 Affected Environment

The Project study area in King of Prussia contains a complex utility infrastructure that connects residences and businesses to essential services. The main types of utility facilities include electric transmission lines, gas mains, telecommunications lines/cables, water mains and sanitary sewer lines. Many utilities are aligned in or along existing transportation and utility corridors including, but not limited to, the PECO ROW, the PA Turnpike, US Route 202, Mall Boulevard, and First Avenue. **Table 4.13-1** lists the primary utility service providers in the study area. Existing NHSL rail service uses electrically powered vehicles, with electricity sourced from PECO Energy Corporation.

The Project study area at 69th Street Transportation Center contains above and below ground utility infrastructure that provides power and communications between the existing station building, other buildings on SEPTA property around the station, and along the NHSL corridor. Key utility providers include PECO, AT&T, Comcast, Verizon, and other communications companies, as well as SEPTA's communications for the NHSL and its other transit service operations, such as buses, trolleys, and the Market-Frankford Line.

Table 4.13-1: Utility Providers in the Project Study Area

Service Type	Providers
Cable	Comcast Cable Communications Inc.
Electric	PECO
Fiberoptic	AT&T Atlanta, CenturyLink, Fibertech Networks LLC, Frontier Communications LLC, Level 3 Communications, PennDOT, Verizon Business, Sunesys LLC, Terradex Inc., Windstream and Zayo Bandwidth
Gas	PECO, Sunoco Pipeline LP and Transcontinental Gas Pipeline
Sewer	Upper Merion Township Sewer
Telephone	AT&T Local Services, Verizon Pennsylvania and RCN Telecom Services of Pennsylvania
Water	Aqua Pennsylvania, Pennsylvania American Water and Tredyffrin Township Water
Wireless	AT&T Wireless, T-Mobile West Corporation and Verizon Wireless

Source: AECOM, 2016.

4.13.3 Environmental Consequences

4.13.3.1 No Action Alternative

The sponsors of each project in the No Action Alternative have the potential to encounter utilities as they implement the projects. It is the responsibility of each project sponsor to identify potentially affected utilities, determine project impacts, and coordinate with utility owners to determine ways to avoid or minimize and mitigate impacts to the extent reasonably feasible.

The projects in the No Action Alternative are transportation infrastructure improvements that will improve capacity and operations on some regional and local roadways. The No Action Alternatives that add roadway capacity will be a source for additional energy use by accommodating future traffic. As roadway traffic volumes increase over time, fuel usage will increase as congestion increases in duration and drivers seek alternative routes that add to

VTM. Other No Action Alternative projects that address infrastructure replacement and integrated corridor management will not be sources of new energy use.

4.13.3.2 Preferred Alternative

Long-term Operational Effects

King of Prussia

As the Preferred Alternative will be aligned along one or more existing utility and transportation corridors, potential conflicts with utilities are likely and have been preliminarily identified. In some areas, such as along US Route 202 and First Avenue, existing overhead wires and roadside pole supports may be in the way of the proposed guideway. In other areas where utilities occur underground in those same corridors, utilities may be in the way of proposed guideway pier foundations or station infrastructure. In these cases, SEPTA will resolve utility conflicts by relocating utilities in coordination with the utility owner. As described in Section 2.3.2.8, the Preferred Alternative will conflict with some of PECO's transmission towers. SEPTA will coordinate with PECO to replace approximately four existing steel lattice towers in the PECO corridor between the NHSL and the PA Turnpike.

The Preferred Alternative will be electrically powered as is the case with the existing NHSL. An increase in the number of vehicles and increase in the miles of the service as a result of the Preferred Alternative will increase the electrical demand compared to the existing NHSL demand. However, the energy saved by reducing VMT growth (see **Table 4.9-1** in Section 4.9) will be much greater on a per rider basis than the increased electrical use. As a result, the Preferred Alternative will have a net benefit by reducing energy use in the region.

As reported by the ELGP in the 2015 report *Connecting KOP*, the Project is expected to reduce automobile use in the region by 17.5 million miles traveled annually; and the Project will reduce bus VMT by 86,000 miles per year. These benefits apply to the Preferred Alternative. Fewer miles traveled and less time spent in congestion will result in an annual cost savings for fuel of \$3 million regionally.

Under the Preferred Alternative, all trains will continue to be electrically powered as they are along the existing NHSL corridor. An increase in the number of vehicles and an increase in the total miles of service as a result of the Preferred Alternative will increase the electrical demand compared to the existing NHSL demand. As shown in **Table 4.13-2**, total energy use under the Preferred Alternative is predicted to decrease by over 165,000 megawatt hours per year (MWh/yr) compared to the existing condition. The reduction in energy usage is partly due to the mode shift under the Preferred Alternative as drivers switch to rail transit. Additionally, the energy usage factor for passenger vehicles is higher than for rail transit based on passenger miles.

Table 4.13-2: Estimated Change in Energy Usage

Metric	Corridor	Existing	Build	Change
Rail Vehicle trips/day	King of Prussia	0	152	--
	NHSL	77	152	--
	Totals	77	152	--
MWh/yr	King of Prussia	0	5,733	5,733
	NHSL	8,713	17,199	8,486
	Totals	8,713	22,932	14,219
VMt/day	King of Prussia	(a)	(a)	-61,303
MWh/yr	King of Prussia	(a)	(a)	-179,419
MWh/yr	Net change	(a)	(a)	-165,200

Note: (a) Data not available; STOPS Model only reports change (reduction).

Source: 2020 KOP Rail FEIS STOPS Ridership Forecasting Technical Memorandum; and AECOM, December 2020.

The energy usage for the NHSL and Project trains was determined by assuming maximum use for the two 155 kilowatt (kW) electric motors on each rail vehicle. Total energy usage along the 13-mile NHSL corridor as well as the 3.5-mile Project is based on trip durations that range from 30 to 10 minutes, respectively. For example, given the stop and go nature of rail vehicle operations, SEPTA assumed that each rail vehicle motor will run at full power during the duration of the trip cycle, resulting in worst-case energy use (e.g., no credits taken for regenerative braking).

By comparison, SEPTA used the USEPA *MOVES2014b* prediction model to estimate passenger vehicle energy consumption based on the national default model input parameters for applicable road types and speeds for Montgomery County. It was assumed that an average passenger vehicle would travel on a typical urban arterial roadway in the Project study area at an average speed of 35 miles per hour. Energy consumption rates (in millions of British Thermal Unit or mmBtu) for passenger vehicles during both winter and summer time periods were predicted using *MOVES2014b*. These energy rates were averaged and then multiplied by the estimated daily reduction in VMT growth (or -61,303) under the Preferred Alternative. After applying a conversion factor from mmBtu to MWh, SEPTA estimated a total of 179,419 MW hours per year of passenger vehicle energy consumption would be replaced by the Project rail vehicle operations in the Project study area. This change means that the Preferred Alternative will use approximately 14 MW hours per year; however, the Preferred Alternative will reduce energy use by an estimated 165,200 MW hours per year.

69th Street Transportation Center

Due to the developed condition of the Project study area at 69th Street Transportation Center, the potential exists for utilities associated with the Center to be encountered during Project construction activities involving ground disturbance to extend the track and widen the existing platform. In these cases, SEPTA will resolve utility conflicts by relocating utilities in coordination with the utility owner.

Short-term Construction Effects

Project construction activities have the potential to cause temporary utility disruptions when utilities are encountered, such as during utility relocation.

Minimization, Mitigation, and Commitments

Long-Term Operation - During subsequent design, SEPTA will continue coordinating with utility service providers to verify the locations of existing utilities, and develop an operations plan related to utilities.

Short-Term Construction – During subsequent design, SEPTA will continue coordinating with utility service providers to verify the locations of existing utilities, and develop a construction plan related to utilities. SEPTA will plan and schedule Project construction activities to avoid or minimize utility service disruptions. SEPTA will coordinate with and obtain approvals from each affected utility owner regarding Project activity related to utilities. During construction, SEPTA will implement the construction phase utility plan and the conditions of each utility approval. SEPTA also will comply with utility owner notification requirements and the PJM Interconnection outage planning process regarding potential utility outages required by the Project.

4.14 Environmental Justice

This section identifies minority populations and/or low-income populations (collectively environmental justice (“EJ”) populations) in the Project study area, describes the potential effects of the Preferred Alternative and the No Action Alternative on EJ populations, and determines the potential for a disproportionately high and adverse effect of these alternatives on EJ populations.

4.14.1 Regulatory Context

Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs Federal agencies to take appropriate and necessary steps to identify and address disproportionately high and adverse environmental effects of Federal agency actions on minority and low-income populations. Following is a list of other guidance and procedures that are used in the environmental justice analysis:

- *Environmental Justice Guidance under the National Environmental Policy Act* (CEQ 1997);
- USDOT, 2012 Updated Final Order on Environmental Justice, 5610.2(a); and
- FTA Circular 4703.1, *Environmental Justice Policy Guidance for Federal Transit Administration Recipients* (FTA 2012).

4.14.2 Identifying Potential EJ Populations

The USDOT Order on Environmental Justice (5610.2a) and FTA Circular 4703.1 define minority and low-income populations as follows:

- **Minority Population:** A minority population includes persons who are American Indian or Alaskan Native, Asian American, Native Hawaiian or Other Pacific Islander, Black, or Hispanic or Latino.
- **Low-Income Population:** Any readily identifiable group of low-income persons whose household income is at or below the U.S. Department of Health and Human Services (DHHS) poverty guidelines. For low-income populations, FTA encourages the use of a locally developed threshold, such as that used for FTA's grant program (Public Law 112-141)."

The FTA Circular encourages the use of regional definitions of environmental justice populations and the locally developed threshold for low-income populations to help identify potential EJ populations. For this Project, the low-income indicator was developed by the DVRPC, which serves the Greater Philadelphia region.¹³ The low-income indicator uses income data from the US Census American Community Survey (2014-2018) and includes all persons who have household income below 200 percent of the national poverty level. DVRPC's low-income indicator for the region is 27.5 percent, meaning that low-income persons have a household income that is lower than the 27.5 percent regional indicator.

The study area for the EJ assessment is the Project study area in King of Prussia that is defined in Section 4.1; it includes the census tracts and block groups that fall within 500 feet of the Preferred Alternative and within ½-mile of the proposed station areas. The Project at 69th Street Transportation Center includes only minor improvements that do not have the potential for adverse impacts on EJ and non-EJ populations. Additionally, the limited improvements at 69th Street Transportation Center are far enough removed (approximately 333 feet) from identified EJ populations, and the Project study area is separated from EJ populations by the existing station building, and trolley and bus facilities on the SEPTA property, that no disproportionately high and adverse effect could occur.

Statistical data sources for minority and low-income populations are the US Census Bureau 2014-2018 American Community Survey (ACS) 5-Year Estimates, B03002 – Hispanic or Latino Origin by Race (Block Group) and C17002 – Ratio of Income to Poverty Level in the Past 12 Months (Block Group). The ACS conducted by the US Census is the premier source for detailed population and housing information. In addition to the statistical data reported by the US Census, this assessment uses information about Project study area neighborhoods that SEPTA learned during public outreach activities. Project public outreach activities helped to inform SEPTA about who lives in each neighborhood and the distribution of EJ and non-EJ populations in each neighborhood. More detail about public outreach activities related to understanding population characteristics in the Project study area is presented in Section 4.14.5.

¹³ Delaware Valley Regional Planning Commission. *Equity Analysis for the Greater Philadelphia Region*. (<https://www.dvrpc.org/webmaps/IPD/>), accessed 2020.

4.14.3 Standards for Evaluating Effects

Potential effects were determined through review and analysis of the potential impacts of the Preferred Alternative and the No Action Alternative on other resources in the FEIS during Project operations, including transportation, economic development, property values, potential for redevelopment around proposed stations, property acquisitions and displacements, visual change, and air quality, noise, vibration, and wooded area impacts. In addition, potential impacts of Project construction activities were determined by considering temporary property acquisitions, changes in access, visual change, and air quality, noise, and vibration impacts. Potential impacts are summarized here and described in more detail in the respective sections of the FEIS.

4.14.4 Affected Environment

Table 4.14-1 presents the results of the demographic analysis for each residential neighborhood in the Project study area. The ACS US Census 2014-2018 Census Block group percentages were assigned to each neighborhood; if a neighborhood is in more than one Block Group, the highest percentages are shown. For each neighborhood, the table indicates the percentages of minority population, Hispanic population, and low-income population, with the Whites Only percentage included for comparison.

Table 4.14-1: EJ Populations in Project Study Area Neighborhoods (2014-2018)

Neighborhood Name (Type of Homes) (a)	Distance to Project (feet)	US Census Data (b)				Project Outreach to Neighborhood (Yes/No)	Distribution of EJ Populations in Neighborhood
		Non-Hispanic Minority (%)	Hispanic Minority (%)	White Only (%)	Low-income (%)		
251 Dekalb (Attached)	Adjacent	45	2	54	18	Yes	Not clustered, not predominant (d)
Abrams Run (Attached)	1,300	45	2	54	18	Yes	Not clustered, not predominant (d)
Abrams (Detached)	1,040	14	1	86	14	Yes	Not clustered, not predominant (d)
Brandywine Village (Detached & Attached)	Adjacent	36	5	71	9	Yes	Not clustered, not predominant (d)
Glenhardie (Detached)	1,725	19	3	95	11	Yes	Not clustered, not predominant (d)
Glenhardie Condos (Attached)	2,087	19	3	79	5	Yes	Not clustered, not predominant (d)

Neighborhood Name (Type of Homes) (a)	Distance to Project (feet)	US Census Data (b)				Project Outreach to Neighborhood (Yes/No)	Distribution of EJ Populations in Neighborhood
		Non-Hispanic Minority (%)	Hispanic Minority (%)	White Only (%)	Low-income (%)		
Henderson Park and Nearby Homes (Detached & Attached)	290	45	2	54	18	Yes	Not clustered, not predominant (d)
Henderson Square Apartments (Attached)	760	33	7	62	16	Yes	Not clustered, not predominant (d)
Ivy Lane (Detached)	1,960	25	5	71	9	Yes	Not clustered, not predominant (d)
King Manor (Detached)	240	33	7	62	16	Yes	Not clustered, not predominant (d)
Prussian Woods (Detached & Attached)	1,700	51	2	48	16	Yes	Not clustered, predominant (e)
Valley Forge Homes (Detached)	Adjacent	45	2	54	18	Yes	Not clustered, not predominant (d)
Valley Forge Suites (Attached)	Adjacent	64	4	35	5	Yes	Not clustered, predominant (e)
Village at Valley Forge (Attached) (c)	2,385	64	4	35	5	Yes	Not clustered, predominant (e)

Notes:

(a) Detached = single-family detached housing; Attached = multi-family housing (apartments, townhomes, condos, or single-family homes converted to apartments).

(b) Neighborhood percentages = the Block Group percentages; when a neighborhood is in more than one Block Group, the highest percentage is used. Because of this approach and rounding, total percentages may not equal 100%.

(c) The Village at Valley Forge is new construction and may not be reflected in the US Census data.

(d) Not clustered, not predominant = EJ and non-EJ populations are found throughout the neighborhood, and are not clustered or predominant in any one part of the neighborhood.

(e) Not clustered, predominant = EJ and non-EJ populations are found throughout the neighborhood, are not clustered in any one area, but are predominant in the neighborhood.

Sources: US Census Bureau, ACS Five-year data 2014-2018; AECOM 2020.

In addition to the statistical data reported by the US Census, the table identifies that SEPTA's outreach activities included each Project study area neighborhood. As a result of public outreach activities, SEPTA learned that each neighborhood in the Project study area has minority, low-income, and non-minority residents. EJ populations are not clustered within a neighborhood or any part of a neighborhood, but are dispersed through each neighborhood. SEPTA's understanding of Project study area neighborhood residents is supported by the statistical data. EJ populations predominate three neighborhoods (Prussian Woods, Valley Forge Suites, and Village at Valley Forge), with the highest percentages of EJ populations in any one neighborhood being 64 percent in Valley Forge Suites and the Village at Valley Forge.

In other Project study area neighborhoods, EJ populations are represented at percentages that do not predominate the overall neighborhood population. **Figures 4.14-1, 4.14-2, and 4.14-3** show the neighborhoods in the Project study area and the Project. Each neighborhood is color-coded to indicate percentage of minority and low-income populations in each neighborhood according to the ACS US Census 2014-2018. The KOP-BID reports in their 2020 *Report to the Community*, that King of Prussia is the headquarters location of 17 companies, and hosts 4,021 companies overall, many of which are in the technology, research and development, medical, and hospitality fields. In this context, King of Prussia attracts a diverse resident population. These data also support SEPTA's understanding and the statistical data about the people who live in the Project study area neighborhoods.

4.14.5 Public Involvement

SEPTA implemented a Project public outreach program that emphasizes meaningful exchange with all members of the community including minority and low-income populations. The engagement of the community began with scoping in 2013. Chapter 5 of the FEIS summarizes the range of public, agency and stakeholder outreach activities that has occurred. SEPTA also monitors its public outreach effectiveness and makes changes in its approach as warranted to better achieve its engagement goals. SEPTA advanced participation of low-income and minority populations in the Project decision-making process through:

- Expanded outreach to all populations to encourage attendance at, and participation in, Project meetings and workshops.
- Varied public meeting times and locations to accommodate working and retiree schedules
- Translation of outreach materials into Spanish
- Flyers hand-delivered to Project study area homes to encourage attendance at community meetings with low attendance.
- Signs posted in neighborhoods announcing public meetings
- Direct mailings inviting residents in EJ neighborhoods to public meetings
- Meetings with city and county agency staff, local elected officials, and community leaders early in the Project to identify leaders of local communities, particularly those traditionally under-represented in the civic process. This activity enabled SEPTA to communicate with existing neighborhood associations or, where no associations exist, communicate with designated neighborhood representatives (see Community Working Group and backyard meetings below).
- Community Working Group established to continue engaging the community as the Project advances (the group is composed of representatives of neighborhoods, community associations, and other interested parties including existing transit users and potential transit users).
- Backyard meetings with property owners and neighbors to hear comments and concerns

Figure 4.14-1: Minority, Non-Hispanic Populations - Project Study Area

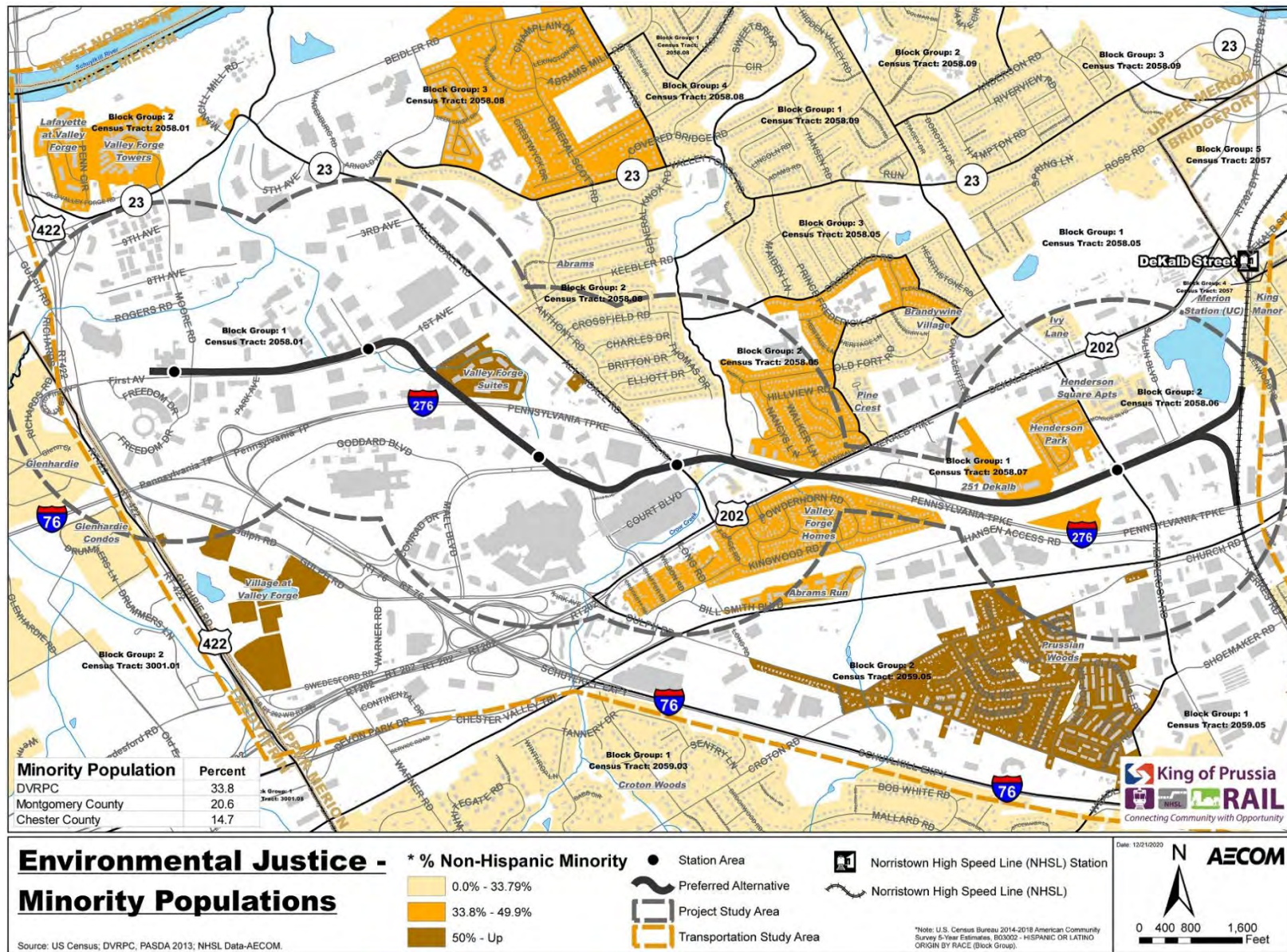


Figure 4.14-2: Minority, Hispanic Populations – Project Study Area

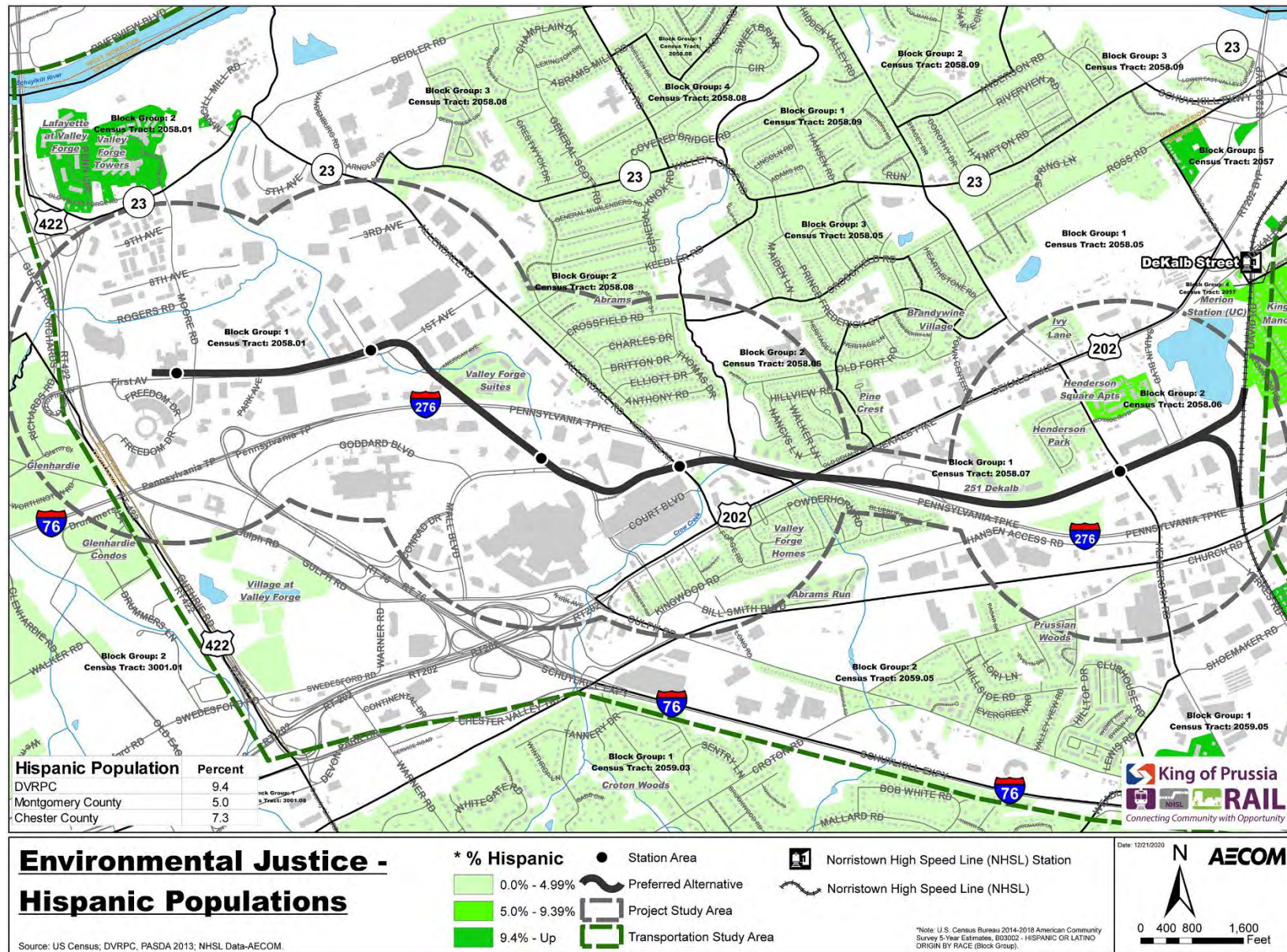
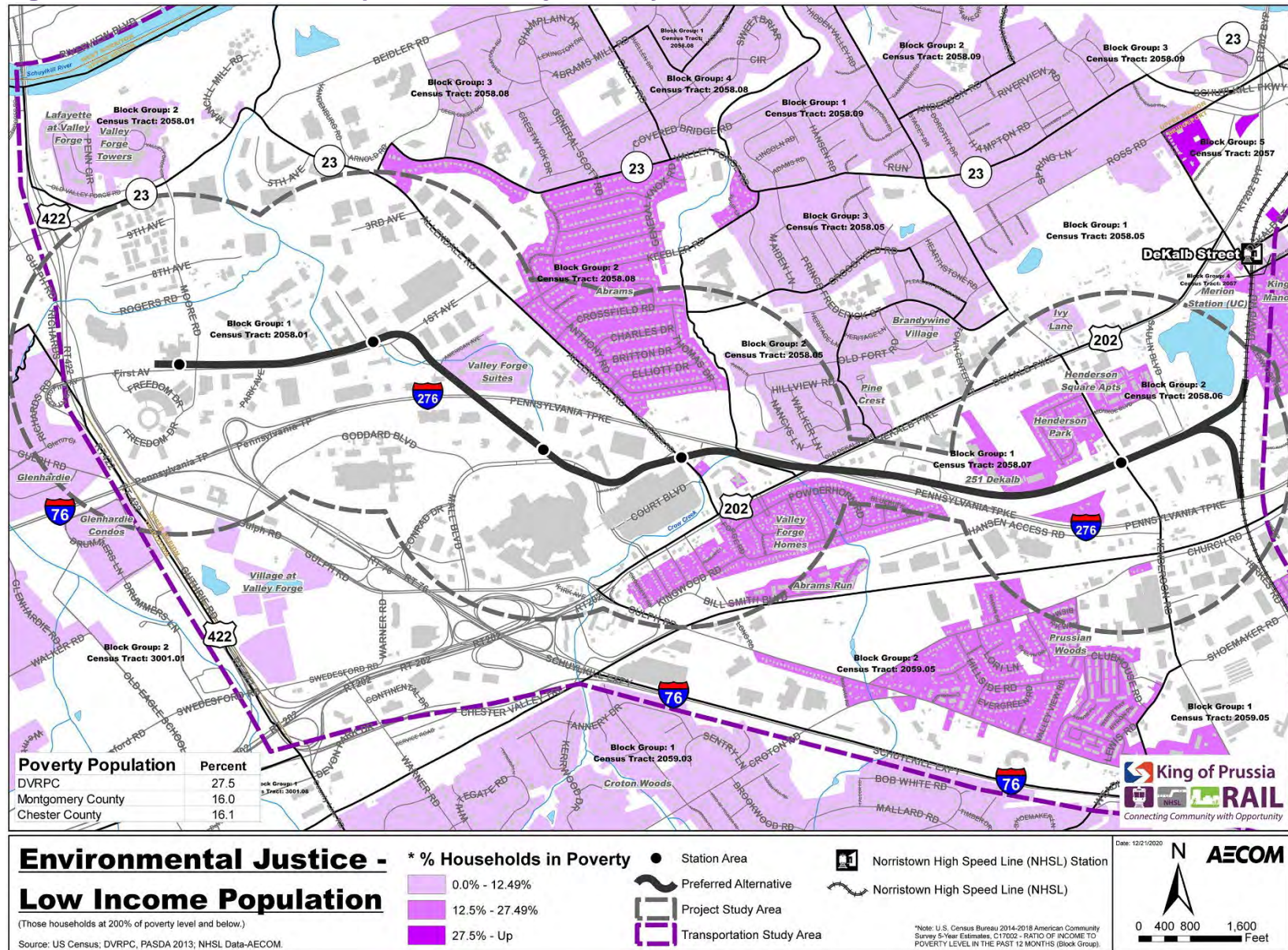


Figure 4.14-3: Low-Income Populations – Project Study Area



- Outreach to existing transit users (in-person surveys and Project flyer distribution at Norristown Transportation Venter and 69th Street Transportation Center, and Project meeting announcements on bus and rail transit vehicles).

Residents in non-EJ and EJ neighborhoods, including Brandywine Village and Valley Forge Homes, provided information on community concerns that was used by SEPTA in the design refinement and evaluation of the Preferred Alternative. SEPTA adopted the recommended LPA in part as a result of the input it received from residents in EJ neighborhoods (i.e., Brandywine Village and Valley Forge Homes); specifically, the recommended LPA would avoid or reduce the number of potentially affected residences in the Project study area compared to the other Action Alternatives. SEPTA also adopted the PA Turnpike North/South Option as part of the Preferred Alternative as a result of coordination with potentially affected residents in Brandywine Village and Valley Forge Homes who indicated that having the guideway cross from the north side of the Turnpike to the south side of the Turnpike would reduce potential proximity effects to residents (Section 4.8.3.2). Chapter 5 provides details on the public involvement activities that SEPTA has conducted.

4.14.6 Environmental Consequences

4.14.6.1 No Action Alternative

In the No Action Alternative, existing streets would continue to serve roadway traffic, including personal vehicles and buses. The No Action Alternative will not improve travel times and connections to major destinations within the Project study area. The No Action Alternative will not contribute to a reduction in VMT and, thus, will not benefit the area by contributing to improved air quality and public health. Because Project study area neighborhoods are comprised of EJ and non-EJ populations, the projects in the No Action Alternative (listed in Table 2.3-1) have the potential to affect EJ and non-EJ populations in the Project study area during construction and over the long-term.

Table 4.14-2 summarizes the nature of these effects. The No Action Alternative has the potential for adverse effects to EJ as well as non-EJ populations in the Project study area in the areas of transportation and air quality caused by increasing roadway congestion and the absence of expanded transit service. The No Action Alternative projects have the potential for adverse effects to EJ and non-EJ populations in the areas of economic development, community cohesion, property acquisitions and displacements, visual, and short-term construction effects. In all cases, the burden of long-term constraints to access, connectivity and failure to achieve local land use planning and economic development goals may be greater for minority and/or low-income populations than non-EJ populations if they depend on transit for access to employment, for example, or if local employment options become constrained because economic development occurs more slowly than planned.

Table 4.14-2: Summary of Potential No Action Alternative Effects

Transportation Systems and Facilities
Adverse effect: Increased roadway congestion and travel delays; slower bus service; no expansion of rail transit service to the Project study area
Economic Development
Potential adverse effect: Limited, localized benefits; will constrain long-term economic benefits
Community Cohesion and Facilities
Potential adverse effect: Limited, localized impacts on communities; no facilities impacts
Property Acquisitions and Displacements
Potential adverse effect: Potential for localized acquisitions and displacements if additional ROW is needed for No Action projects
Visual and Aesthetic Resources
Potential adverse effect: Potential for localized visual impacts
Air Quality and Greenhouse Gases
Adverse effect: Increase in VMT by 2040; no air quality benefit
Noise and Vibration
No effect: No noise or vibration impacts anticipated
Short-term Construction Effects
Potential adverse effect: Potential localized traffic impacts, soil disturbance, dust, visual, noise and vibration impacts

Source: AECOM, 2020.

4.14.6.2 Preferred Alternative

This section presents a neighborhood-based assessment of the benefits and impacts of the Preferred Alternative with the consideration of avoidance, minimization, and mitigation measures on all Project study area neighborhoods. Each neighborhood is assessed for potential impacts on EJ populations, and whether the impact will be equal or not equal to the impacts to non-EJ populations. This assessment uses the findings in Section 4.14.4 regarding EJ population clustering in Project study area neighborhoods. **Table 4.14-3** provides an at-a-glance summary of the benefits and impacts of the Preferred Alternative on Project study area neighborhoods, and provides a topical list of SEPTA's avoidance, minimization, and mitigation commitments to address Project impacts. More detail regarding Preferred Alternative impacts and SEPTA's avoidance, minimization, and mitigation commitments is provided in this FEIS; a compiled list of SEPTA's commitments as part of the Project is provided in **Table 4.18.2**.

Each Project Study Area Neighborhood

Benefits: The Preferred Alternative will serve each Project study area neighborhood because each neighborhood will be within ½ mile of a proposed Project station. As a result of being within a ½ mile of a station, benefits to neighborhoods could include improved access to transit service, improved travel times, increased transit capacity, reliability, and connectivity between residential areas, community facilities, employment centers, and businesses. In addition, the

Preferred Alternative could result in a reduction of daily vehicle miles traveled on Project study area and regional roadways because the Preferred Alternative will provide 6,755 average weekday “Trips on the Project.” Reduction in daily vehicle miles traveled could, in turn, result in a reduction of roadway vehicle emissions and air quality benefits compared to the No Action Alternative (Section 4.9.3). The Preferred Alternative will provide two parking structures to address off-street parking needs at stations and will provide other pedestrian and bicycle access improvements in station areas; these represent additional benefits expected from the Project.

No adverse impacts: With the implementation of avoidance, minimization, and mitigation measures, no adverse impacts are expected on roadway intersections as minimization and mitigation commitments will maintain or improve roadway intersections as a result of traffic generated by proposed stations (Section 3.2.3 and **Table 4.18.2**). Other resource areas that will not have adverse Project effects with the implementation of avoidance, minimization, and mitigation measures include community cohesion, community facilities, operational noise or vibration, access across transportation and utility rights-of-way during Project operations, private parking areas, parks, air quality, vibration during operations, threatened and endangered species, wellhead protection areas, and the Henderson Road Superfund Site.

Potential Adverse Impacts: Resource areas that will experience adverse effects after the application of avoidance, minimization, and mitigation measures include property acquisition and displacements, historic resources, visual change, new impervious area, impacts to wooded areas, fields, floodplains, and wetlands, and proximity effects associated with construction (e.g., air quality, noise, vibration, construction access, temporary easements, visual changes, and natural resources). As discussed in the following subsections, these effects will occur across the Project study area and similar effects will occur to EJ and non-EJ populations neighborhoods. Mitigation measures will be implemented with similar type and quality throughout the Project study area, for both EJ and non-EJ populations. **Table 4.14-3** presents the associated benefits and effects of the Project after the consideration of avoidance, minimization, and mitigation for the Project.

251 Dekalb Apartments

The Preferred Alternative guideway will be along the north side of the PA Turnpike, between the roadway and the 251 Dekalb Apartments. Preferred Alternative impacts, after the consideration of avoidance, minimization, and mitigation measures, to 251 Dekalb Apartments will include permanent acquisition of a portion of land from the apartment property. In addition, the Project will remove existing tree and shrub vegetation between the apartment buildings and the PA Turnpike, and provide the elevated guideway along the north side of the PA Turnpike. These activities will cause a visual change for viewers on the south side of the apartment building that faces the PA Turnpike.

During Project construction, the Preferred Alternative will require a temporary easement on a portion of the 251 Dekalb Apartments property. The easement has the potential to temporarily change access within the neighborhood. In addition, Project construction activities will temporarily cause visual changes (construction equipment, materials, and work activity) for viewers in south-facing units, air quality impacts, and noise and vibration impacts to the building adjacent to the PECO corridor.

Table 4.14-3: Summary of Preferred Alternative Effects and Minimization and Mitigation Commitments

Neighborhood Name (Type of Homes) (a)	Distance to Project (feet)	Effects	Topical List of Minimization and Mitigation Commitments (Details in Table 4.18-2)
251 Dekalb (Attached)	Adjacent	<p><u>Benefits:</u></p> <ul style="list-style-type: none"> • Provides 6,755 average weekday “Trips on the Project” because of reduced VMT • Increases access to transit with proposed Henderson Road Station • Off-street parking and pedestrian and bicycle access improvements at stations • Reduces daily vehicle miles traveled on Project study area and regional roadways • Operational air quality benefit <p><u>Long-term Operational Impacts:</u></p> <ul style="list-style-type: none"> • Partial land acquisition for guideway • Redevelopment around proposed stations • Visual change for south-facing units • Removal of trees and vegetation in LOD <p><u>Short-term Construction Impacts:</u></p> <ul style="list-style-type: none"> • Temporary easement on property • Potential change in access during Project Construction • Visual change for south-facing units • Potential air quality impacts during Project construction • Noise and vibration impacts at building adjacent to PECO corridor 	<p><u>Long-term Operations:</u></p> <ul style="list-style-type: none"> • Affected roadway intersections will be maintained or improved with traffic impact mitigation (Section 3.2.3.3) • Property acquisitions will be mitigated through the real estate acquisition process that will comply with federal and FTA requirements (Section 4.5.3.2) • Visual change because of the guideway will be minimized if feasible with a higher parapet wall/barrier on the guideway (Section 4.8.3.2) <p><u>Short-term Construction:</u></p> <ul style="list-style-type: none"> • Temporary property acquisitions will be mitigated through the real estate acquisition process that will comply with federal and FTA requirements (Section 4.2.3.2) • Maintenance of community access will be mitigated by the Project Transportation Management Plan (Section 4.4.3.2) • Visual change will be minimized by the Project Construction Plan (Section 4.8.3.2) • Air quality impacts will be minimized by the Project Construction Plan (Section 4.9.3.2) • Noise and vibration impacts will be minimized by the Project Construction Plan (Section 4.10.3.2)

Neighborhood Name (Type of Homes) (a)	Distance to Project (feet)	Effects	Topical List of Minimization and Mitigation Commitments (Details in Table 4.18-2)
Abrams Run (Attached)	1,300	<u>Benefits:</u> <ul style="list-style-type: none"> Provides 6,755 average weekday “Trips on the Project” because of reduced VMT Increases access to transit with Allendale Road Station Off-street parking and pedestrian and bicycle access improvements at stations Reduces daily vehicle miles traveled on Project study area and regional roadways Operational air quality benefit <u>Long-term Operational and Short-term Construction Impacts:</u> <ul style="list-style-type: none"> None 	<u>Long-term Operations:</u> <ul style="list-style-type: none"> Affected roadway intersections will be maintained or improved with traffic impact mitigation (Section 3.2.3.3)
Abrams (Detached)	1,040	<u>Benefits:</u> <ul style="list-style-type: none"> Provides 6,755 average weekday “Trips on the Project” because of reduced VMT Increases access to transit with Henderson Road Station Off-street parking and pedestrian and bicycle access improvements at stations Reduces daily vehicle miles traveled on Project study area and regional roadways Operational air quality benefit Potential Project benefit to property values <u>Long-term Operational and Short-term Construction Impacts:</u> <ul style="list-style-type: none"> None 	<u>Long-term Operations:</u> <ul style="list-style-type: none"> Affected roadway intersections will be maintained or improved with traffic impact mitigation (Section 3.2.3.3)
Brandywine Village (Detached & Attached)	Adjacent	<u>Benefits:</u> <ul style="list-style-type: none"> Provides 6,755 average weekday “Trips on the Project” because of reduced VMT 	<u>Long-term Operations:</u> <ul style="list-style-type: none"> Affected roadway intersections will be maintained or improved with traffic impact mitigation (Section 3.2.3.3)

Neighborhood Name (Type of Homes) (a)	Distance to Project (feet)	Effects	Topical List of Minimization and Mitigation Commitments (Details in Table 4.18-2)
		<ul style="list-style-type: none"> Increases access to transit with Allendale Road Station Off-street parking and pedestrian and bicycle access improvements at stations Reduces daily vehicle miles traveled on Project study area and regional roadways Operational air quality benefit <p><u>Long-term Operational Impacts:</u></p> <ul style="list-style-type: none"> Partial land acquisition from two properties for guideway Visual change <p><u>Short-term Construction Impacts:</u></p> <ul style="list-style-type: none"> Potential change in access during Project construction Visual change Potential air quality impacts during Project construction Noise impacts to 35 residences near the guideway Vibration impacts to 13 residences near the guideway 	<ul style="list-style-type: none"> Property acquisitions will be mitigated through the real estate acquisition process that will comply with federal and FTA requirements (Section 4.5.3.2) Visual change because of the guideway will be minimized if feasible with a higher parapet wall/barrier on the guideway (Section 4.8.3.2) Noise will be mitigated with a higher parapet wall/barrier on the guideway (Section 4.10.3.2) <p><u>Short-term Construction:</u></p> <ul style="list-style-type: none"> Temporary property acquisitions will be mitigated through the real estate acquisition process that will comply with federal and FTA requirements (Section 4.2.3.2) Maintenance of community access will be mitigated by the Project Transportation Management Plan (Section 4.4.3.2) Visual change will be minimized by the Project Construction Plan (Section 4.8.3.2) Air quality impacts will be minimized by the Project Construction Plan (Section 4.9.3.2) Noise and vibration impacts will be minimized by the Project Construction Plan (Section 4.10.3.2)
Glenhardie (Detached)	1,725	<p><u>Benefits:</u></p> <ul style="list-style-type: none"> Provides 6,755 average weekday "Trips on the Project" because of reduced VMT 	<u>Long-term Operations:</u>

Neighborhood Name (Type of Homes) (a)	Distance to Project (feet)	Effects	Topical List of Minimization and Mitigation Commitments (Details in Table 4.18-2)
		<ul style="list-style-type: none"> Increases access to transit with First & Moore Road Station Off-street parking and pedestrian and bicycle access improvements at stations Reduces daily vehicle miles traveled on Project study area and regional roadways Operational air quality benefit <p><u>Long-term Operational and Short-term Construction Impacts:</u></p> <ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Affected roadway intersections will be maintained or improved with traffic impact mitigation (Section 3.2.3.3)
Glenhardie Condos (Attached)	2,087	<p><u>Benefits:</u></p> <ul style="list-style-type: none"> Provides 6,755 average weekday “Trips on the Project” because of reduced VMT Increases access to transit with First & Moore Road Station Off-street parking and pedestrian and bicycle access improvements at stations Reduces daily vehicle miles traveled on Project study area and regional roadways Operational air quality benefit <p><u>Long-term Operational and Short-term Construction Impacts:</u></p> <ul style="list-style-type: none"> None 	<p><u>Long-term Operations:</u></p> <ul style="list-style-type: none"> Affected roadway intersections will be maintained or improved with traffic impact mitigation (Section 3.2.3.3)
Henderson Park and Nearby Homes (Detached & Attached)	290	<p><u>Benefits:</u></p> <ul style="list-style-type: none"> Provides 6,755 average weekday “Trips on the Project” because of reduced VMT Increases access to transit with Henderson Road Station Off-street parking and pedestrian and bicycle access improvements at stations 	<p><u>Long-term Operations:</u></p> <ul style="list-style-type: none"> Affected roadway intersections will be maintained or improved with traffic impact mitigation (Section 3.2.3.3) Property acquisitions will be mitigated through the real estate acquisition process that will comply with federal and FTA requirements (Section 4.5.3.2)

Neighborhood Name (Type of Homes) (a)	Distance to Project (feet)	Effects	Topical List of Minimization and Mitigation Commitments (Details in Table 4.18-2)
		<ul style="list-style-type: none"> Reduces daily vehicle miles traveled on Project study area and regional roadways Operational air quality benefit <p><u>Long-term Operational Impacts:</u></p> <ul style="list-style-type: none"> Full land acquisition of 3 parcels along Henderson Road for parking structure and displacement of 8 residential units on those parcels Redevelopment around proposed stations Visual change Wooded area impact for parking structure <p><u>Short-term Construction Impacts:</u></p> <ul style="list-style-type: none"> Visual change Potential air quality impacts during Project construction Noise impacts to 7 residences near the guideway Vibration impacts to 5 residences near the guideway 	<ul style="list-style-type: none"> Visual change because of the guideway will be minimized if feasible with a higher parapet wall/barrier on the guideway (Section 4.8.3.2) Noise will be mitigated with a higher parapet wall/barrier on the guideway (Section 4.10.3.2) <p><u>Short-term Construction:</u></p> <ul style="list-style-type: none"> Visual change will be minimized by the Project Construction Plan (Section 4.8.3.2) Air quality impacts will be minimized by the Project Construction Plan (Section 4.9.3.2) Noise and vibration impacts will be minimized by the Project Construction Plan (Section 4.10.3.2)
Henderson Square Apartments (Attached)	760	<p><u>Benefits:</u></p> <ul style="list-style-type: none"> Provides 6,755 average weekday "Trips on the Project" because of reduced VMT Increases access to transit with Henderson Road Station Off-street parking and pedestrian and bicycle access improvements at stations Reduces daily vehicle miles traveled on Project study area and regional roadways Operational air quality benefit <p><u>Long-term Operational Impacts:</u></p> <ul style="list-style-type: none"> Redevelopment around proposed stations 	<p><u>Long-term Operations:</u></p> <ul style="list-style-type: none"> Affected roadway intersections will be maintained or improved with traffic impact mitigation (Section 3.2.3.3)

Neighborhood Name (Type of Homes) (a)	Distance to Project (feet)	Effects	Topical List of Minimization and Mitigation Commitments (Details in Table 4.18-2)
Ivy Lane (Detached)	1,960	<u>Benefits:</u> <ul style="list-style-type: none"> Provides 6,755 average weekday “Trips on the Project” because of reduced VMT Increases access to transit with Henderson Road Station Off-street parking and pedestrian and bicycle access improvements at stations Reduces daily vehicle miles traveled on Project study area and regional roadways Operational air quality benefit <u>Long-term Operational and Short-term Construction Impacts:</u> <ul style="list-style-type: none"> None 	<u>Long-term Operations:</u> <ul style="list-style-type: none"> Affected roadway intersections will be maintained or improved with traffic impact mitigation (Section 3.2.3.3)
King Manor (Detached)	240	<u>Benefits:</u> <ul style="list-style-type: none"> Provides 6,755 average weekday “Trips on the Project” because of reduced VMT Increases access to transit with Henderson Road Station Off-street parking and pedestrian and bicycle access improvements at stations Reduces daily vehicle miles traveled on Project study area and regional roadways Operational air quality benefit <u>Long-term Operational Impacts:</u> <ul style="list-style-type: none"> Visual change to residences near existing NHSL <u>Short-term Construction Impacts:</u> <ul style="list-style-type: none"> Visual change 	<u>Long-term Operations:</u> <ul style="list-style-type: none"> Affected roadway intersections will be maintained or improved with traffic impact mitigation (Section 3.2.3.3) Visual change because of the guideway will be minimized if feasible with a higher parapet wall/barrier on the guideway (Section 4.8.3.2) <u>Short-term Construction:</u> <ul style="list-style-type: none"> Visual change will be minimized by the Project Construction Plan (Section 4.8.3.2)

Neighborhood Name (Type of Homes) (a)	Distance to Project (feet)	Effects	Topical List of Minimization and Mitigation Commitments (Details in Table 4.18-2)
Prussian Woods (Detached & Attached)	1,700	<u>Benefits:</u> <ul style="list-style-type: none"> Provides 6,755 average weekday “Trips on the Project” because of reduced VMT Increases access to transit with Henderson Road Station Off-street parking and pedestrian and bicycle access improvements at stations Reduces daily vehicle miles traveled on Project study area and regional roadways Operational air quality benefit <u>Long-term Operational and Short-term Construction Impacts:</u> <ul style="list-style-type: none"> None 	<u>Long-term Operations:</u> <ul style="list-style-type: none"> Affected roadway intersections will be maintained or improved with traffic impact mitigation (Section 3.2.3.3)
Valley Forge Homes (Detached)	Adjacent	<u>Benefits:</u> <ul style="list-style-type: none"> Provides 6,755 average weekday “Trips on the Project” because of reduced VMT Increases access to transit with Allendale Road Station Off-street parking and pedestrian and bicycle access improvements at stations Reduces daily vehicle miles traveled on Project study area and regional roadways Operational air quality benefit <u>Long-term Operational and Short-term Construction Impacts:</u> <ul style="list-style-type: none"> Visual change <u>Short-term Construction Impacts:</u> <ul style="list-style-type: none"> Visual change Potential air quality impacts during Project construction 	<u>Long-term Operations:</u> <ul style="list-style-type: none"> Affected roadway intersections will be maintained or improved with traffic impact mitigation (Section 3.2.3.3) Visual change because of the guideway will be minimized if feasible with a higher parapet wall/barrier on the guideway (Section 4.8.3.2) Noise will be mitigated with a higher parapet wall/barrier on the guideway (Section 4.10.3.2) <u>Short-term Construction:</u> <ul style="list-style-type: none"> Visual change will be minimized by the Project Construction Plan (Section 4.8.3.2) Air quality impacts will be minimized by the Project Construction Plan (Section 4.9.3.2)

Neighborhood Name (Type of Homes) (a)	Distance to Project (feet)	Effects	Topical List of Minimization and Mitigation Commitments (Details in Table 4.18-2)
		<ul style="list-style-type: none"> Noise impacts to 59 residences near PA Turnpike and the guideway Vibration impacts to 22 residences near PA Turnpike and the guideway 	<ul style="list-style-type: none"> Noise and vibration impacts will be minimized by the Project Construction Plan (Section 4.10.3.2)
Valley Forge Suites (Attached)	Adjacent	<p><u>Benefits:</u></p> <ul style="list-style-type: none"> Provides 6,755 average weekday “Trips on the Project” because of reduced VMT Increases access to transit with Allendale Road Station Off-street parking and pedestrian and bicycle access improvements at stations Reduces daily vehicle miles traveled on Project study area and regional roadways Operational air quality benefit <p><u>Long-term Operational Impacts:</u></p> <ul style="list-style-type: none"> Partial land acquisition from property for guideway Visual change <p><u>Short-term Construction Impacts:</u></p> <ul style="list-style-type: none"> Potential change in access during Project Construction Visual change Potential air quality impacts during Project construction Noise impacts to 2 residential buildings facing the guideway Vibration impacts to 2 residential buildings facing the guideway 	<p><u>Long-term Operations:</u></p> <ul style="list-style-type: none"> Affected roadway intersections will be maintained or improved with traffic impact mitigation (Section 3.2.3.3) Property acquisitions will be mitigated through the real estate acquisition process that will comply with federal and FTA requirements (Section 4.5.3.2) Visual change because of the guideway will be minimized if feasible with a higher parapet wall/barrier on the guideway (Section 4.8.3.2) <p><u>Short-term Construction:</u></p> <ul style="list-style-type: none"> Maintenance of community access will be mitigated by the Project Transportation Management Plan (Section 4.4.3.2) Visual change will be minimized by the Project Construction Plan (Section 4.8.3.2) Air quality impacts will be minimized by the Project Construction Plan (Section 4.9.3.2) Noise and vibration impacts will be minimized by the Project Construction Plan (Section 4.10.3.2)

Neighborhood Name (Type of Homes) (a)	Distance to Project (feet)	Effects	Topical List of Minimization and Mitigation Commitments (Details in Table 4.18-2)
Village at Valley Forge (Attached) (c)	2,385	<u>Benefits:</u> <ul style="list-style-type: none"> Provides 6,755 average weekday “Trips on the Project” because of reduced VMT Increases access to transit with First & Moore Road Station Off-street parking and pedestrian and bicycle access improvements at stations Reduces daily vehicle miles traveled on Project study area and regional roadways Operational air quality benefit <u>Long-term Operational and Short-term Construction Impacts:</u> <ul style="list-style-type: none"> None 	<u>Long-term Operations:</u> <ul style="list-style-type: none"> Affected roadway intersections will be maintained or improved with traffic impact mitigation (Section 3.2.3.3)

Source: AECOM, 2020.

SEPTA commits (**Table 4.18.2**) to minimize and mitigate Project impacts related to permanent property acquisitions and visual changes at 251 Dekalb Apartments; however, adverse impacts are still expected to occur from temporary impacts associated with construction activities including property acquisition, maintenance of access to the neighborhood, and temporary air quality, noise, and vibration impacts.

The Preferred Alternative impacts to 251 Dekalb Apartments, as well as SEPTA's commitments, will apply equally to EJ and non-EJ populations in the 251 Dekalb Apartments neighborhood because EJ and non-EJ populations are present and not clustered in the neighborhood as noted above.

Abrams Run

The Preferred Alternative will have no operational or construction impacts to the Abrams Run neighborhood because of the distance from Project to the neighborhood (1,300 feet), and because existing development separates the neighborhood from the Project (PECO ROW and Valley Forge Homes).

Abrams

The Preferred Alternative will have no operational or construction impacts to the Abrams neighborhood because of the distance from Project to the neighborhood (1,040 feet), and because existing development separates the neighborhood from the Project (Allendale Road, PA Turnpike, and Walker Field).

Brandywine Village

The Preferred Alternative guideway will be south of Brandywine Village, crossing over the PA Turnpike at US Route 202 and along the south side of the PA Turnpike west of US Route 202. Preferred Alternative impacts to Brandywine Village, after the consideration of avoidance, minimization, and mitigation measures, will include permanent acquisition of a portion of land from two properties for the guideway crossing at US Route 202. In addition, the Project guideway over and along the south side of the PA Turnpike will cause a visual change for viewers in the south portion of the neighborhood.

During Project construction, the Preferred Alternative has the potential to temporarily change access to the neighborhood in the area of Walker Lane. In addition, Project construction activities will temporarily cause visual changes (construction equipment, materials, and work activity) for viewers in the southern portion of the neighborhood, air quality impacts, noise impacts to 35 residences near the guideway, and vibration impacts to 13 residents near the guideway.

SEPTA commits (**Table 4.18.2**) to minimize and mitigate Project impacts related to permanent property acquisitions, and visual changes for Brandywine Village; however, adverse impacts are still expected to occur from temporary impacts associated with construction activities including property acquisitions, maintenance of access to the neighborhood, and temporary air quality, noise, and vibration impacts.

The Preferred Alternative impacts to Brandywine Village, as well as SEPTA's commitments, will apply equally to EJ and non-EJ populations in the Brandywine Village neighborhood because EJ and non-EJ populations are present and not clustered in the neighborhood as noted above.

Glenhardie

The Preferred Alternative will have no operational or construction impacts to the Glenhardie neighborhood because of the distance from Project to the neighborhood (1,725 feet), and because existing development separates the neighborhood from the Project (Route 422, VFCR, and Freedom Business Center).

Glenhardie Condos

The Preferred Alternative will have no operational or construction impacts to the Glenhardie Condos neighborhood because of the distance from Project to the neighborhood (2,087 feet), and because existing development separates the neighborhood from the Project (Route 422, VFCR, and Freedom Business Center).

Henderson Park and Nearby Homes

The Preferred Alternative guideway and proposed parking garage will be along the south side of the neighborhood. Preferred Alternative impacts to Henderson Park and Nearby Homes, after the consideration of avoidance, minimization, and mitigation measures, will include permanent acquisitions of three properties along Henderson Road (the Nearby Homes) for the parking garage, causing displacement of 8 residential units on those properties. In addition, existing tree and shrub vegetation will be removed from the properties of the Nearby Homes along Henderson Road to make way for the parking garage. These activities will cause a visual change for viewers on the east side of the Henderson Park neighborhood. Because the neighborhood is within ½ mile of Henderson Road Station, the potential exists for future redevelopment around the station.

Project construction activities will temporarily cause visual changes (construction equipment, materials, and work activity) for residents on the east side of the Henderson Park neighborhood, air quality impacts, and noise impacts to seven residences near the guideway, and vibration impacts to five residents near the guideway.

SEPTA commits (**Table 4.18.2**) to minimize and mitigate Project impacts related to permanent property acquisitions, and visual changes at Henderson Park and Nearby Homes; however, adverse impacts are still expected to occur from temporary impacts associated with construction activities, including temporary visual changes, and air quality, noise, and vibration impacts.

The Preferred Alternative impacts to Henderson Park and Nearby Homes, as well as SEPTA's commitments, will apply equally to EJ and non-EJ populations in the Henderson Park and Nearby Homes neighborhood because EJ and non-EJ populations are present and not clustered in the neighborhood as noted above.

Henderson Square Apartments

The Preferred Alternative guideway and Henderson Road Station will be 760 feet south of the neighborhood. Because the neighborhood is within ½ mile of Henderson Road Station, the

potential exists for future redevelopment around the station. The Preferred Alternative will have no other operational or construction impacts to the Henderson Square Apartments neighborhood because of the distance from Project to the neighborhood, and because existing development separates the neighborhood from the Project (Henderson Square Shopping Mall).

Ivy Lane

The Preferred Alternative will have no operational or construction impacts to the Ivy Lane neighborhood because of the distance from Project to the neighborhood (1,960 feet), and because existing development separates the neighborhood from the Project (Route 202, Henderson Park, Henderson Square, and Henderson Square Shopping Mall).

King Manor

The Preferred Alternative tracks will connect to the existing NHSL west of the southern portion of the King Manor neighborhood. The track connection will be at the same elevation as the existing NHSL and may be visible from a portion of the neighborhood and cause a visual change for residents in that portion of the neighborhood. During Project construction, the Preferred Alternative will cause temporary visual changes along the NHSL (construction equipment, materials, and work activity) for viewers from the southern portion of the King Manor neighborhoods.

SEPTA commits (**Table 4.18.2**) to minimize and mitigate Project impacts related to permanent visual changes at King Manor, as well as visual changes during Project construction activities.

The Preferred Alternative impacts to King Manor, as well as SEPTA's commitments, will apply equally to EJ and non-EJ populations in the King Manor neighborhood because EJ and non-EJ populations are present and not clustered in the neighborhood as noted above.

Prussian Woods

The Preferred Alternative will have no operational or construction impacts to the Prussian Woods neighborhood because of the distance from Project to the neighborhood (1,700 feet), and because existing development separates the neighborhood from the Project (PA Turnpike and industrial development).

Valley Forge Homes

The Preferred Alternative guideway will be north and adjacent to the Valley Forge Homes neighborhood, on the north side of the PA Turnpike, and crossing over the PA Turnpike at US Route 202. The Preferred Alternative guideway, after the consideration of avoidance, minimization, and mitigation measures, will cause a visual change for viewers in the north portion of the neighborhood.

Project construction activities will temporarily cause visual changes (construction equipment, materials, and work activity) for viewers in the northern portion of the neighborhood, air quality impacts, noise impacts to 59 residences near the guideway, and vibration impacts to 22 residents near the guideway.

SEPTA commits (**Table 4.18.2**) to minimize and mitigate Project impacts related to visual changes at Valley Forge Homes; however, adverse impacts are still expected to occur from temporary impacts associated with construction activities including temporary visual changes, and air quality, noise, and vibration impacts.

The Preferred Alternative impacts to Valley Forge Homes, as well as SEPTA's commitments, will apply equally to EJ and non-EJ populations in the Valley Forge Homes neighborhood because EJ and non-EJ populations are present and not clustered in the neighborhood as noted above.

Valley Forge Suites

The Preferred Alternative guideway will be west of Valley Forge Suites, between American Avenue and the PA Turnpike. Preferred Alternative impacts to Valley Forge Suites, after the consideration of avoidance, minimization, and mitigation measures, will include permanent acquisition of a portion of land from the apartment property; however, it will not result in acquisition of residential units or displacement of residents. In addition, the guideway will cause a visual change for viewers in the units facing west in the residential buildings.

During Project construction, the Preferred Alternative has the potential to temporarily change access to the neighborhood in the area of American Avenue. In addition, Project construction activities will temporarily cause visual changes (construction equipment, materials, and work activity) for viewers in the west portion of the neighborhood, air quality impacts, and noise impacts to residences in two residential buildings facing the guideway, and vibration impacts to two residential buildings facing the guideway.

SEPTA commits (**Table 4.18.2**) to minimize and mitigate Project impacts related to property acquisition and visual changes at Valley Forge Suites, as well as the impacts of Project construction activities including temporary visual changes, and air quality, noise, and vibration impacts.

As shown in **Table 4.14.1**, Valley Forge Suites is noted as being predominantly EJ with no known clusters of EJ populations within the neighborhood and EJ populations being relatively dispersed. For this reason, the Preferred Alternative impacts to Valley Forge Suites, as well as SEPTA's commitments, will apply equally to EJ and non-EJ populations in the Valley Forge Suites neighborhood.

Village at Valley Forge

The Preferred Alternative will have no operational or construction impacts to the Village at Valley Forge neighborhood because of the distance from Project to the neighborhood (2,385 feet), and because existing development separates the neighborhood from the Project (PA Turnpike Interchange, Freedom Business Center, and portion of Moore Park KOP south of First Avenue).

4.14.7 Potential for Disproportionately High and Adverse Effects on EJ Populations

A disproportionately high and adverse effect on minority and low-income populations is defined as an adverse effect that:

- Is predominantly borne by a minority population and/or a low-income population, or
- Will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population.

Determinations of whether a project will have disproportionately high and adverse effects must take into consideration “mitigation and enhancements measures that will be taken and all offsetting benefits to the affected minority and low-income populations...” (USDOT Order, Section 8.b).

EJ and non-EJ population engagement assisted SEPTA in identifying and assessing potential Project effects on Project study area residents, and to identify and refine the Preferred Alternative to minimize potential impacts on EJ as well as non-EJ populations. The benefits and impacts of the Preferred Alternative, along with SEPTA’s commitments to minimize and mitigate impacts, which are described in the FEIS and summarized in **Table 4.18.2**, were also considered. The Project study area has a relatively dispersed distribution of EJ populations, with a slightly higher concentration of EJ communities within the Prussian Woods, Valley Forge Suites, and Village at Valley Forge neighborhoods. As noted above, the Prussian Woods and Village at Valley Forge neighborhoods are farther removed from the Project and are not anticipated to experience adverse Project effects. EJ populations within the Valley Forge Suites neighborhood could experience some adverse Project effects; however, after the implementation of avoidance, minimization, and mitigation measures, these Project effects will not be predominantly borne by EJ populations because of the dispersion of EJ populations within this neighborhood.

The relative dispersion of EJ populations within the Project study area means that while some adverse effects, including property acquisitions, visual change, vegetation loss, and proximity effects associated with construction, cannot be fully avoided, minimized, or mitigated, the effects will not be disproportionately high and adverse on EJ populations. Any adverse effects that will occur will generally occur in similar nature and magnitude to both EJ populations and non-EJ populations. This also means that none of the benefits or adverse impacts of the Project will be predominantly borne by EJ populations. The potential adverse impacts will also be offset by several beneficial effects of the Project, which will accrue in similar nature and magnitude to both EJ and non-EJ populations. One benefit that may accrue to a greater degree for EJ populations compared to non-EJ populations is for those transit dependent populations that will have greater access to transit as a result of the Project. All minimization and mitigation commitments will be implemented equally for both EJ and non-EJ populations. Taking all these factors into consideration, the Preferred Alternative will not result in more severe adverse impacts to EJ populations compared with non-EJ populations. Therefore, the Preferred Alternative will not have disproportionately high and adverse effects on EJ populations.

4.15 Irreversible and Irretrievable Commitment of Resources

Pursuant to NEPA regulations (40 CFR § 1502.16), FTA and SEPTA assessed the irreversible and irretrievable commitment of resources associated with implementing the Preferred Alternative and the No Action Alternative. An irreversible and irretrievable commitment of resources results in the permanent loss of a resource for future uses (or alternative purposes) as the resources cannot be replaced or recovered. In addition, in accordance with NEPA requirements, FTA and SEPTA identified the relationship between local short-term uses of the human and natural environment and the maintenance and enhancement of long-term productivity (42 U.S.C. § 4332). This section compares the short-term uses of the environment (that is, impacts during construction) with long-term benefits over the operational lifetime of the No Action Alternative and the Preferred Alternative.

4.15.1 No Action Alternative

Each project in the No Action Alternative would require the commitment of natural, human, and monetary resources. While some resources could be recovered within a relatively short period of time, other resources would be committed irreversibly and irretrievably. The sponsors of each project will be responsible for assessing the relationships between the short-term use of human and natural resources and the long-term benefits that each No Action Alternative project is intended to provide.

4.15.2 Preferred Alternative

Construction of the Preferred Alternative will require the commitment of natural, human and monetary resources. While some resources could be recovered within a relatively short period of time, other resources would be committed irreversibly and irretrievably. As the Preferred Alternative will be largely constructed within existing transportation and utility ROW, potential impacts on natural resources have been minimized, as described in Chapter 4.11 of the FEIS. Construction materials such as steel, fossil fuels, energy, concrete, and aggregate would be irretrievably expended during grading and construction of the guideway and related facilities.

In some Project study area locations, short-term construction-related impacts of the Preferred Alternative, as discussed in Section 4.2.3.2, would include easements for staging areas and construction access and temporary interruptions to vehicular and pedestrian traffic. Additionally, short-term visual impacts, localized airborne dust and emissions, elevated noise and vibration levels, utility interruptions, and temporary disturbances to soils also are anticipated in some locations during the construction of the Preferred Alternative. As noted in previous sections of this chapter, SEPTA worked during the planning and early design stages to avoid or minimize impacts to resources. SEPTA undertook these efforts by integrating public involvement with design development (Chapter 5). In considering the trade-offs, FTA determined that the short-term use of human and natural resources will contribute to the long-term benefits that the Preferred Alternative is intended to provide, as described in the FEIS.

Construction of the Preferred Alternative will require a one-time financial expense of Federal, state, and local funds, and potentially contributions from private sources. Although the initial capital cost for the Preferred Alternative will be irretrievably committed and unavailable for other

projects, the Project will benefit local and regional economies by providing an additional transportation option in the Project study area. As estimated by the ELGP in its 2015 *Connecting KOP* report, the Project is expected to bring 900-1,500 permanent jobs per year to King of Prussia, or 17,000 to 29,000 new employees over 20 years. This estimate applies to the Preferred Alternative. This new employment will result in a \$79.1 million to \$132.6 million in earnings each year, totaling \$1.6 billion to \$2.7 billion in labor income over 20 years. The Preferred Alternative is also expected to stimulate development in King of Prussia, adding \$540 million to \$946 million to the assessed value of real estate over 20 years, and new annual property tax revenues of \$12.8 million to \$22.4 million annually.

4.16 Indirect and Cumulative Effects

This chapter identifies and describes the potential indirect (secondary) and cumulative effects of implementing the Preferred Alternative.

Indirect effects are defined as “effects which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems” (40 CFR §1508.8(b)).

Cumulative effects are defined as the “impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR § 1508.7). Cumulative effects include the direct and indirect impacts of a project together with the past, present, and reasonably foreseeable future actions of others.

This assessment is in accordance with the NEPA and CEQ regulations and is consistent with the CEQ’s 1997 *Considering Cumulative Effects under the National Environmental Policy Act*. The assessment follows the basic steps identified in the CEQ guidance:

- Identify resources of interest
- Establish geographic and temporal boundaries
- Determine past, present, and reasonably foreseeable future projects to be assessed as part of the indirect and cumulative effects analyses
- Assess indirect and cumulative effects to resources of interest within the defined geographic and temporal boundaries

This indirect effects assessment focuses on the station areas as the stations are where access to the Project service would be provided. The ability to access the proposed transit service directly relates to whether indirect development could occur because of the Project. The cumulative effects assessment examines the potential for the entirety or any part of the Preferred Alternative, including station areas, the guideway, or other associated facilities,

because the Preferred Alternative in combination with other activities can result in cumulative effects on the natural and human environment.

The primary data sources for this assessment included demographic data and projections, land use/land cover data, local land use plans, and information on planned development projects. The analysis employed a combination of methodologies to assess indirect and cumulative effects. These techniques included trend analysis and mapping analysis to assess patterns of past, existing, and future land use and the effects of development on resources of interest.

4.16.1 Resources of Interest

Resources selected for analysis are those that would be affected directly by the Preferred Alternative, those that would be affected by potential Project-related indirect development associated with the station areas, and those that are particularly susceptible to effects from other foreseeable projects over time that, in aggregate, result in a cumulative effect. Transportation is presented in this analysis in terms of the role it plays in affecting other resources. The resources assessed in the indirect and cumulative effects analysis are the following:

- Transportation Systems and Facilities
- Human Environment
 - Community Facilities
 - Parks, Recreational Land, and Open Space
 - Historic and Archaeological Resources
 - Visual and Aesthetic Resources
 - Air Quality
 - Noise
 - Vibration
 - Energy
 - Environmental Justice
- Natural Environment

Resources that are not assessed in this indirect and cumulative effects analysis are those, such as hazardous materials, which would not be affected indirectly by the Preferred Alternative and are not particularly susceptible to cumulative effects from other foreseeable projects.

4.16.2 Geographic Study Areas

In general, indirect impacts of the Preferred Alternative will be localized on and around the station areas because potential indirect effects typically occur in close proximity to the parts of a transit project where access is provided to the transit service. In this context, the indirect effects study area for the Preferred Alternative is defined by geographic areas one-half mile around

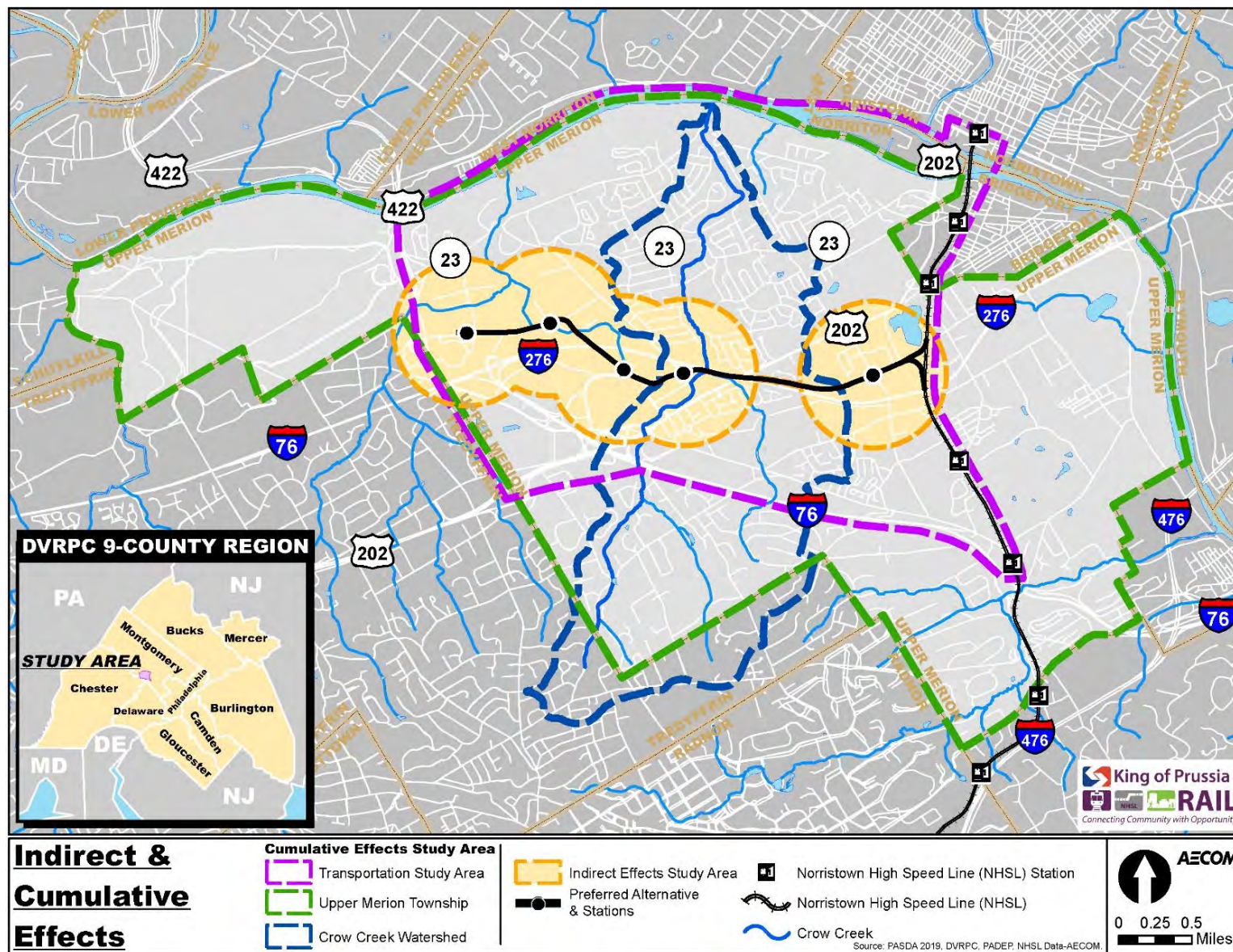
each station area. One-half mile is the generally accepted maximum distance that transit patrons would walk to a transit service, based on an average walking speed between 2 and 3 miles per hour and a 10-minute time period. This “walkshed” standard encompasses an area of about 500 acres. **Figure 4.16-1** shows the indirect effects study area as a composite of the one-half mile distances around the station areas of the Preferred Alternative.

The cumulative effects study area differs from the indirect effects study area because it encompasses resources that are potentially affected by multiple projects considered in aggregate. For example, the effect of multiple projects on community facilities such as parks should be examined at the municipal level to determine the effect of all projects on the inventory and availability of such facilities to Township residents. In this assessment and as shown in **Figure 4.16-1**, three cumulative effects study areas have been defined to appropriately assess the resources of interest:

- Upper Merion Township boundary - The municipal boundary contains the transportation study area and Project study areas within which the following resources are analyzed in the DEIS: transportation, historic and archaeological resources, visual impacts, noise and vibration impacts, and environmental justice.
- Watershed boundary – Crow Creek is the drainage area within which the Preferred Alternative would potentially impact wetlands near the creek’s crossing under the PA Turnpike. Examining the potential impacts of the Project and other projects on the wetlands in the watershed is helpful in evaluating the potential for cumulative change or loss of wetlands functions in that watershed.
- DVRPC’s nine-county region¹⁴ - DVRPC as the source for data on travel in the Greater Philadelphia region, provides context for air quality and energy use as measured by change in VMT.

¹⁴ DVRPC’s nine-county region includes the counties of Bucks, Chester, Delaware, Montgomery and Philadelphia in PA as well as Burlington, Camden, Gloucester and Mercer Counties in NJ.

Figure 4.16-1: Indirect and Cumulative Effects Study Areas



4.16.3 Temporal Boundaries

The timeframes for the cumulative effects analysis range from the 1950's in the past to 2040 in the future. The 1950's coincides with the beginning of the post-World War II suburban housing boom that led to significant outmigration from Philadelphia, suburban development including the King of Prussia Mall, and the convergence of the PA Turnpike, I-76, US Route 422, and US Route 202 at King of Prussia (Section 4.2.2.1). Present actions are those defined to occur through 2020, as 2020 is the latest year that county-level capital improvement project and budget information is available. Future actions (between 2020 and 2040, the Project design year) are those that can reasonably be anticipated based on DVRPC long-range planning documents.

4.16.4 Past, Present, and Reasonably Foreseeable Future Projects

Following the end of World War II in 1945, the trend of suburbanization accelerated nationwide. While outlying areas remained generally more rural in nature, suburban development in King of Prussia began to increase. Initially, transportation access constraints limited growth, but significant efforts by Federal and state agencies began to improve regional mobility. With better transportation access, residential development increased and will continue to increase as evidenced by the population data in Section 4.2.2.2.

4.16.4.1 Land Development Projects

Due to the already developed nature of most land in King of Prussia, the primary type of development activity occurring today is redevelopment of lands previously converted to human uses. The redevelopment activity at the Village at Valley Forge is an example of redevelopment in the transportation study area. In the case of the Village, the former use of the land was a golf course.

Upper Merion Township identifies planned development projects in meeting memoranda and other resources on their website. **Table 4.16-1** lists these projects, which include land development and redevelopment projects, many of which are within the transportation study area. If the planned development is near a proposed Project station, the name of the station is indicated. Notably, ten of the planned projects are not located near a proposed Project station. If each of the projects is implemented, the stock of residential and non-residential development in Upper Merion Township, and in the transportation study area, will increase.

It is important to understand that actual development may not occur at the densities proposed by current plans. In addition to the possibility that the plans may be revised, future development may be limited by various factors including market conditions, developer preferences, environmental permitting issues, and infrastructure availability. Future development may also be greater than forecasted depending on the same factors.

Table 4.16-1: Planned Development Projects in Upper Merion Township

Applicant	Proposed Development (acres/zoning/description)	Proximity to Project Station	Board of Supervisors Approval Date
DP 2019-01 455 West Dekalb Pike	Demolition of an existing gas station and construction of a new 1,514 square foot store/gas station building	Allendale Road	25-Apr-19
SD 2019-01 Glasgow Tract, West Dekalb Pike	79.18 acres, R-3A. Residential subdivision for 271 units	Henderson Road	16-Jul-20
SD 2019-02 Craft Custom Homes, 383 Anderson Road	1.95 acres, R-2. Residential subdivision into six lots for single-family detached dwellings	None	18-Jul-19
DP 2019-02 Top Golf, 588 N. Gulph Rd	23.61 Acres, KPMU. King of Prussia Mixed Use District; 588 N. Gulph Rd. Demolition of existing ABC Center and construction of a 68,000 SF Top Golf Entertainment/ Restaurant facility	First & Moore	15-Aug-19
DP 2019-03, CU 2019-01 650 Park Avenue	3.12 acres, KPMU. King of Prussia Mixed Use District. Demolition of existing 2-story (\pm 50,000 SF) office building and construction of a 4-story (\pm 100,000 SF) Office and a 4-level parking structure	First & Moore	20-Jun-19
DP 2019-04 Fire/EMS Station, Cube Smart, 400 Guthrie Road	0.71 acres. Construction of a seven-story building for a self-storage facility (133,466 SF), and a Fire/EMS Station (10,739 SF) on a portion of the ground level and second floor	First & Moore	23-May-19
DP 2019-05 Upper Merion High School	58.78 Acres, R-2. 440 Crossfield Road. Demolition of existing high school and construction of \pm 300,000 SF high school with park, athletic fields, landscaping, lighting, paths and municipal trail	Allendale Road	19-Sep-19
DP 2019-06 Malvern School, 880 Mancill Mill Rd	2.41 acres. Demolition of an existing office building and construction of a two-story preschool/daycare facility (5,375 SF per story) and 55 parking spaces	None	20-Feb-20
DP 2020-01 UDR, 140 Valley Green Drive	5.47 acres. Development of a 4-story apartment with one level of parking along with landscape areas and supporting utilities	First & Moore	12-Mar-20
DP 2020-02 900 River Road	29.84 acres. Development of a 331,000 SF warehouse/distribution center with supporting parking, utilities, landscaping, and stormwater management	None	6-Aug-20
DP 2020-03 GSK Building 40 Expansion, 893 River Road	252.8 acres. 12,000 SF expansion of Building 40 on the GSK campus at 893 River Road with supporting site improvements	None	12-Mar-20
SD 2020-01 641-51 Timber Drive (lot line adjustment)	1.44 acres. Lot line change between two existing single-family lots	None	12-Mar-20
DP 2020-04 127 S Gulph Road	5.2 acres. GC. Demolition of existing hotel and replacement with a new 5-story hotel on original building footprint, with parking, circulation and driveway re-configurations	Mall Blvd	20-Aug-20

Applicant	Proposed Development (acres/zoning/description)	Proximity to Project Station	Board of Supervisors Approval Date
DP 2020-05 125 Valley Green Lane, Toll Bros.	7.03 acres. Village at Valley Forge. Development of 142 stacked townhome units	First & Moore	18-Jun-20
DP 2020-06 411 Swedeland Road	141.9 acres. Construction of a two-level parking garage with a total of 236 parking spaces to serve existing buildings	None	Under Review
DP 2020-07 3700 Horizon Drive	5.92 acres, SM-1. Construction of a 74,000 SF building addition to include warehouse and office space with associated loading docks, parking, stormwater management, utilities, landscaping, and lighting. The existing building will remain and contain a research and development use	None	Under Review
DP 2020-08 PennDOT Regional Traffic Management Center	8.23 acres, KPMU. Demolition of existing parking garage at the District 6 office site, and construction of a Regional Traffic Management Center (RTMC) and a new parking garage	None	20-Aug-20
SD 2020-02 555 Lower E Valley Forge Road	1.62 acres, R-2. Subdivision of a single (1) parcel into three (3) parcels. Existing house and garage to remain on "Lot 2," while "Lots 1 and 3" are to be developed as new single-family dwellings with off-street parking	None	20-Aug-20
SD 2020-03 689 Jefferson Street	8,000 SF, R-3 Residential. Subdivision of one parcel into two parcels. Existing house to remain on "Lot 1" with additional off-street parking, while a new single-family detached dwelling and off-street parking are to be built on "Lot 2"	None	Under Review
SD 2020-04 GenTerra Corp, 624 Columbus Street	0.415 acres. 624 Columbus Street, R-3. 4-lot residential subdivision for 4 town homes	None	Under Review

Source: Upper Merion Township website, accessed October 2020. (<https://www.umtownship.org/departments/public-works/planning-and-development/proposed-land-development/>).

4.16.4.2 Transportation Projects

The following are major transportation projects that contributed to the changes in land use patterns and resource context in the King of Prussia/Valley Forge area of Upper Merion Township since World War II. The confluence of these several transportation projects increased the accessibility of the King of Prussia/Valley Forge area to Philadelphia as well as locations to the west:

- **US Route 202** – Consisting of various older roads between Bangor, Maine and State Road, Delaware, US Route 202 was officially and uniformly numbered by the American Association of State Highway Transportation Officials (AASHTO) in 1934.
- **I-276, Pennsylvania Turnpike** – Although parts of the Pennsylvania Turnpike were initiated in the 1930's, it was not until 1950 that the Turnpike was extended east as far as Valley Forge. In 1954, the Turnpike was extended from Valley Forge to the Delaware River, completing its cross-state route.

- **I-76 (Schuylkill Expressway)** – Completed in 1949, the “Schuylkill” connects the King of Prussia/Valley Forge area with Philadelphia in a north-to-south orientation. It was originally planned to tie into the east end of the PA Turnpike at Valley Forge before the PA Turnpike extension to the Delaware River was built.
- **US Route 422** – Comprised of two segments in Ohio and PA, and originally made up of older roads, US Route 422 is a spur route of US Route 22. The eastern spur extends from Hershey to Valley Forge. Reconstruction of the US Route 422 eastern spur to a multi-lane highway in the 2000’s was spurred by increases in traffic volumes.
- **Norristown High Speed Line** – The NHSL began rail service in 1907 as the Philadelphia and Western Railway. At the time, it ran from 69th Street in Upper Darby to Strafford. It was extended to Norristown in the 1930’s. SEPTA began service on the line in 1969.

Table 2.3-1 lists the major committed transportation projects within the transportation study area, which are presumed to be implemented by 2040. In addition to the long-range transportation plan projects, programmed intersection improvements are identified in the DVRPC’s adopted Transportation Improvement Program (TIP). With the exception of the County’s planned Chester Valley Trail Extension, and the two transit system preservation projects, each project is a road-based project intended to increase capacity, resolve operational constraints, or address maintenance issues.

4.16.5 Indirect Effects Assessment

It is reasonable to expect that the new transit access provided by the Preferred Alternative will enhance and encourage development and redevelopment near station areas in terms of timing, scale of planned projects, or geographical extent because of the connections, convenience, and reliability the new service would provide. The Project will be available to transport a customer and population base for future development in the King of Prussia and Upper Darby areas. The Project will provide additional transportation capacity as an alternative to travel on existing, congested roadways.

The potential for development to occur around proposed station areas as a result of the Preferred Alternative was assessed by examining the Upper Merion Township zoning ordinance for transit-supportive provisions, including allowable density, provisions for pedestrians, and parking policies. Several zoning classifications allow greater development intensity, such as KPMU, SC-Shopping Center, C-O-Commercial Office, and LI-Light Industry, compared to other zoning designations. Using GIS analysis, the amount of square footage of higher intensity development allowable within a ½-mile radius of each proposed station area was calculated.

Table 4.16.2 reports the results of this assessment. Land within ½ mile of proposed station areas in Moore Park KOP and the King of Prussia Mall area has the potential for more square feet of higher density/intensity development compared to land around other proposed stations. In particular, the 1st & Moore, 1st & American, and Mall Blvd Station areas have the largest areas of higher intensity zoning within a ½ mile radius (19.4, 18.6, and 18.8 million square feet, respectively).

In addition to zoning implications for future redevelopment, planned and recent projects within ½ mile of proposed stations areas may also be an indicator of future redevelopment potential. For example, the First & Moore and First & American station areas are within Moore Park KOP, which is identified by the Township as having potential for future redevelopment.

Table 4.16.2: Areas of Potential Higher Intensity Zoning Within ½ Mile of Proposed Station Areas

Stations	Existing and Potential Land Use	Area of Higher Intensity Zoning for Development Within ½ Mile of Station Areas (SF millions)
Allendale Road (kiss-and-ride)	Office/hotel/light industry (Shopping Center/Commercial)	9.6
First & Moore (park-and-ride)	Office/hotel/light industry (KPMU)	19.4
First & American (kiss-and-ride)	Office/hotel/light industry (KPMU)	18.6
Henderson Road (park-and-ride)	Office/hotel/light industry/ village residential (Heavy Industrial/Commercial/ Residential)	10.3
Mall Blvd (kiss-and-ride)	Office/hotel/light industry (Shopping Center/Commercial)	13.7

Source: AECOM, 2016.

In their 2015 report, *Understanding the Economic Impacts of SEPTA's Proposed King of Prussia Rail Project*, the ELGP notes that growth in resident and worker populations caused by the Project as well as redevelopment spurred by Upper Merion Township actions, would potentially change the types of business sectors, income levels, and the commute to work pattern, as well as increase the numbers of visitors to the transportation study area. Thus, future development with the Preferred Alternative could be greater than with the No Action Alternative, resulting in economic benefits and potential indirect effects on the human and natural environment.

4.16.5.1 Human Environment

While not the sole or primary driver of change, the Project would contribute to social and economic forces that transform the indirect effects study area over time. The effects of development and redevelopment could include changes in housing values and affordable housing opportunities, changed employment opportunities, different availability of consumer goods and services, changes to business revenues and operations, changes in neighborhood character (such as noise and visual change), and changes in demand for community facilities and parks. These potential impacts could be felt most acutely by environmental justice populations in this indirect effects study area because environmental justice populations tend to be more sensitive than non-environmental justice populations to changes in housing values (rents), changes in their business revenues and operations, and the availability of employment and public transportation.

Studies of the effect of transit on property values using sales data typically have indicated increases in residential real estate values in close proximity to stations, with a reduced influence beyond a one-half mile radius¹⁵. This premium depends on several factors, including the design of the station, the level of ridership, local real estate market conditions, neighborhood characteristics, and adjacent land uses. These economic effects can be both a benefit and a burden. While the Project may help communities achieve positive economic growth, the diversity and the economic needs of the entire community must be considered. During evaluation of the Preferred Alternative, SEPTA has been engaged with Project study area residents to understand their concerns. SEPTA will continue working with Upper Merion Township regarding the effects of land use changes on residents.

Planned development and redevelopment projects have the potential to affect historic and archaeological sites if such sites are present where projects occur. Such projects may also increase demands on community facilities such as schools and parks. The effects of planned development and redevelopment projects could be physical impacts if such projects require additional ROW or could be proximity effects, such as visual or noise changes.

4.16.5.2 Natural Environment

Indirect impacts on the natural environment from additional development could occur, such as increased energy use, stormwater runoff, vegetation removal, floodplain and wetland impacts, and water quality impacts resulting from impervious surfaces.

4.16.6 Cumulative Effects Assessment

Past and present land use patterns in the cumulative effects study area tend to be suburban in character within Montgomery County, but more rural and agricultural in the western extent of the Schuylkill River drainage area. Foreseeable future development and infrastructure projects are programmed by their sponsors to occur independently of the Project, though as described in Section 4.16.5, the Preferred Alternative may have a catalytic effect on the pace, scale and geographic extent of development within King of Prussia. This effect has the potential to contribute incrementally to the overall human and natural environment effects of all past, present, and reasonably foreseeable actions in the cumulative effects study area. Specifically, population and employment growth in the cumulative effects study area, supported by township and county planning and zoning actions, in conjunction with the Preferred Alternative, is expected to have the following consequences:

4.16.6.1 Transportation Systems and Facilities

Increased local travel demand, traffic congestion, and demand for transit services are anticipated to occur. Past and present transportation projects have formed a network of local and regional roadways designed to connect King of Prussia as a focal point of activity with the Greater Philadelphia area and areas west of King of Prussia using road-based transportation such as bus and automobile. Future projects, other than the proposed Project, will primarily serve to address congestion and constraints in the existing roadway network. The Preferred

¹⁵ "Public Transportation Boosts Property Values" in *Transportation: A Toolkit for Realtors* 2nd Edition, National Association of Realtors, 2012, updated 2014
<http://www.realtor.org/articles/public-transportation-boosts-property-values>

Alternative will help to satisfy the demand for transit access to and from King of Prussia and would transfer demand from private vehicles to transit service.

As described in Section 3.1.3.2, the ridership forecasting results show changes in other transit service ridership with the Preferred Alternative in operation as compared to the transit ridership forecasted to occur under the No Action Alternative including connecting transit services. For example, the forecasts for the Preferred Alternative show increased transit boardings not only on the SEPTA NHSL, but also on the SEPTA Market-Frankford Line, which connects the NHSL at 69th Street Transportation Center to Center City Philadelphia. Transit boarding increases are also expected on the SEPTA Frontier Bus division and SEPTA 101 and 102 Trolleys. Transit boardings decreases are forecasted on the SEPTA Victory Bus division and Regional Rail services. These changes could result in adjustments being made to affected transit services in the long-term.

4.16.6.2 Community Facilities

Increased pressure on public infrastructure and services would occur as a result of the Project. County and local land use plans and regulations serve to direct future growth and limit excessive pressure on public facilities and services. The large number and scale of planned projects listed in **Table 4.16-1** could place additional demands on community facilities, a factor Upper Merion Township must take into consideration as they review development applications. As the Project is included in county and local plans, its demands on infrastructure in the context of other planned projects is incremental and will be accounted for in future infrastructure planning, such as safety.

4.16.6.3 Parks, Recreational Land, and Open Space

Increased demand and capacity pressure on public parks and recreation facilities in the region will occur as a result of the Project. Due to limited land availability and funding for acquisitions, future park improvements by the township, county, and National Park Service are geared toward investing in and encouraging the use of already protected land to meet recreational demands. Given the large amount of planned land development in the Township, which will increase the residential population of the Township and demand on parks, a long-term decrease in the ratio of park and recreation land area to population could result. To offset this decrease, the Township and County may have to allocate funding to increase the number and size of parks, recreational land, and open space in the transportation study area. The Preferred Alternative will provide access to some parks, but will not physically impact park land and facilities. The impact of the Project on parks, recreational land, and open space as described in Section 4.6.3.2 will be incremental in the context of other planned projects.

4.16.6.4 Historic and Archaeological Resources

A cumulative effect on known historic properties will not occur because none of the other planned projects will impact the PA Turnpike: Delaware River Extension, the Philadelphia and Western Railway; Norristown High Speed Line, or the PNJ Interconnection: Conowingo to Plymouth Meeting Transmission Line.

4.16.6.5 Visual and Aesthetic Resources

The assessment of potential cumulative visual and aesthetic impacts focused on the Project in combination with the other projects within the viewshed of the Project, such as the recently completed First Avenue Road Diet. The Preferred Alternative in conjunction with Upper Merion Township's First Avenue Road Diet project will cumulatively change the visual appearance of First Avenue between the VFCR and American Avenue. As described in Section 4.8.3.2, the Preferred Alternative will be a new visual element in the First Avenue corridor. The Township's reconfiguration of travel lanes on First Avenue, that added a center median with streetscaping and sidewalks alongside the roadway, in combination with the Project will change the wide, multi-lane roadway appearance of First Avenue to a multi-featured transportation corridor with the roadway and sidewalks at ground level and the elevated Project guideway and stations on the north side of the roadway.

4.16.6.6 Air Quality

Air quality characteristics in Upper Merion Township are influenced primarily by emissions from road-based transportation as well as regional power generation. Forecasted future land development will potentially increase VMT and emissions from road-based vehicles and power generation over time. While planned roadway capacity improvement projects will help to accommodate VMT growth, congestion and road-based vehicle emissions will likely increase. As indicated in Section 4.9.3.2, the Preferred Alternative will reduce growth in VMT by diverting travelers to transit. By reducing growth in VMT, the Project would have a positive net benefit on air quality. Thus, in a cumulative effects context, the Preferred Alternative will provide an incremental air quality benefit.

4.16.6.7 Noise and Vibration

The assessment of potential cumulative noise and vibration impacts focused on the Preferred Alternative in combination with the other planned projects within the Project study area in King of Prussia as well as along the existing NHSL.

King of Prussia

Within the Project study area is one planned transportation project: the Chester Valley Trail Extension. The Chester Valley Trail Extension will be a ground level multi-use path that is unlikely to contribute to a cumulative noise or vibration change. For this reason, no cumulative effect will occur.

NHSL Corridor

This section describes the potential noise and vibration impacts of operating additional N5 rail vehicles on the existing NHSL for the Project. The noise and vibration study was conducted in accordance with FTA's *Transit Noise and Vibration Impact Assessment Manual* (Manual)¹⁶ to assess the potential for impact from the Project. The analysis includes a detailed assessment to predict future levels from long-term operations on the NHSL and commitments by SEPTA to continue to assess minimization and mitigation measures for impacts. Further details of the

¹⁶ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, FTA Report No. 0123, Washington, DC, September 2018

noise and vibration assessment for Project are provided in the 2020 *King of Prussia Rail Noise and Vibration Technical Memorandum* (www.kingofprussiarail.com and Appendix B).

Along the existing NHSL rail corridor, noise levels from existing rail service at the closest residences in the Hughes Park neighborhood, for example, are estimated at 57 dBA Ldn. In accordance with the FTA's allowable increase in cumulative noise by the criteria, future Project operational noise above 59.6 dBA will result in a *moderate* impact. In other words, a *moderate* noise impact will occur if the existing noise level increases by 2.6 dBA. Based on SEPTA's future operating plan along the existing NHSL rail corridor, the number of trains will increase 167 percent between the existing condition and Project operations (from 202 to 539 trains per day).¹⁷ This net increase in operations (with no change in the track alignment or operating speeds) will contribute to an operational noise level increase of 4.3 dBA. Because the increase in operations will cause a noise increase that is greater than 2.6 dBA, *moderate* operational noise impacts will occur at first-row residences along the existing NHSL corridor between 69th Street Transportation Center and Norristown Transportation Center under the Preferred Alternative.

Along the existing NHSL, the potential for Project operational vibration impacts was assessed qualitatively. Because vibration is assessed based on single events and the same type of rail vehicles are proposed for the Preferred Alternative, no change in future vibration is expected to occur along the existing NHSL. Therefore, no operational vibration impacts are expected along the existing NHSL as a result of the Preferred Alternative.

The FTA Manual specifies that 'severe' noise impacts require mitigation. Because no 'severe' impacts are predicted to occur as a result of the Project, mitigation measures have not been identified in this FEIS.

4.16.6.8 Natural Environment

Past and present development in the cumulative effects study area has impacted natural resources by converting wooded areas, undeveloped land, and water resources including wetlands to manmade uses. Examples of impacts of past and present development impacts on the natural environment include the placement of Crow Creek in an underground pipe under the King of Prussia Mall property and conversion of portions of previously pervious soils on the Village at Valley Forge property to impervious building and pavement cover. Most land area within the Crow Creek watershed between the Schuylkill River and the edge of Tredyffrin Township has been converted to residential or non-residential development. These conditions have reduced the area of natural floodplains and ecosystems that manage flooding, support good water quality, and sustain natural productivity.

As indicated in **Table 4.16-1**, many of the planned projects, as well as the Preferred Alternative, will involve redevelopment of existing developed properties. For example, the Top Golf project will redevelop a portion of the existing Freedom Business Center. In another example, redevelopment of 650 Park Avenue will occur on land already developed for an office use. Although cumulative reduction in natural areas (wetlands, for example) could occur with

¹⁷ Gannett Fleming, *Draft Rail Operations Simulation Report – Norristown High Speed Line Extension*, August 25, 2020.

implementation of all planned projects, the impact of any one project, including the Project, will be incremental. Potential impacts on natural resources including wetlands are governed by Federal, state, and local laws and regulations, which are intended to guide development to prevent or minimize degradation or loss of natural resources on which human health and welfare depend.

As described in Section 4.11.3.2, the Preferred Alternative will potentially affect natural resources, including wooded areas, adding new impervious surfaces and affecting wetlands. For example, the Preferred Alternative will add impervious pavement surfaces at proposed park-and ride facility sites. The cumulative effect of the Project and other projects is the continuation of the suburbanization process begun in 1945. The role of the Preferred Alternative is incremental in the larger context of past, present, and reasonably foreseeable development effects. During subsequent design and permitting, and in consultation with regulatory agencies, SEPTA will examine ways to avoid or minimize natural environment impacts and will mitigate Project-related impacts as required by Federal and state laws.

4.16.6.9 Energy Use

Suburbanization of the Project study area and its attendant increase in housing since the end of World War II has increased energy needs to power and heat buildings, fuel automobiles and buses, and provide communications, to name a few types of energy use. Currently major regional committed transportation projects, other than the Project and the Chester Valley Trail Extension and the two transit system preservation projects, are focused on accommodating existing and future road-based travel. Growth in the number of automobiles and other road-based vehicles will increase demand for fuel. Foreseeable development, such as at the Village at Valley Forge and Moore Park KOP, will incur greater energy demands than those experienced today. As indicated above for air quality, the Preferred Alternative will reduce the growth of VMT by 2040 despite all other planned transportation projects being implemented. Thus, although the Project will use electricity as a power source, the Project will have a positive net benefit on reducing energy consumption.

4.16.6.10 Environmental Justice (EJ) Conclusion

Past, present, and reasonably foreseeable projects considered individually or cumulatively, could have benefits and/or impacts on all Project study area populations as described in the FEIS, such as increasing or decreasing affordable housing opportunities, changing employment opportunities, affecting business operations, changing neighborhood character, changing the availability of consumer goods and services, and changing natural resources. As reported in Section 4.14.7, FTA has determined that the Preferred Alternative will have benefits as well as impacts, those benefits and impacts will be experienced by EJ as well as by non-EJ populations. None of the benefits or impacts will be predominantly borne by a minority and/or low-income population, and none of the potential impacts on EJ populations will be more severe or greater in magnitude than the potential impacts on non-EJ populations. As a result, FTA has determined that the Preferred Alternative will not have a disproportionately high and adverse effect upon EJ populations.

4.17 Environmental Permits

Implementing the Preferred Alternative will require disturbing land to the extent that a PADEP Chapter 102 National Pollutant Discharge Elimination System (NPDES) Permit will be required to protect waterways from soil erosion and sediment migration during construction. Regarding waterways, the Preferred Alternative may also require a Pennsylvania State Programmatic General Permit (PASPGP-4), which provides both Federal USACE Section 404 nationwide permit authorization and State general permit authorization where the guideway crosses existing waterways.

Under Section 404 of the Clean Water Act of 1977, the USACE regulates the discharge of dredged or fill material into waters of the U.S., including wetlands. Pursuant to the Pennsylvania Dam Safety and Encroachments Act of 1978 and 25 PA Code Chapter 105, the PADEP regulates any activity that affects the course, current, or cross section of a watercourse, floodway, or body of water (including wetlands) and any structure located in, along, across, or projecting into a watercourse, floodway, or body of water. The proposed Project includes the aerial crossing of 0.08 acres of wetland. No direct impact or filling is proposed within the wetland area. Likewise, the proposed Project will cross approximately 1,580 linear feet of waterways on elevated guideway on embankment or structure. Supporting piers for the structure will be placed to enable crossings without physically impacting the waterways. SEPTA will obtain the appropriate Section 404/Chapter 105 water obstruction and encroachment permit for all Project impacts to waters of the U.S. and waters of the Commonwealth and follow all conditions set forth by the permit.

The proposed guideway will cross over existing floodplains, potentially requiring supporting structures in floodplains. SEPTA will obtain the appropriate PADEP Chapter 106 permit and Upper Merion Township floodplain approval for activities in floodplains.

During subsequent design, SEPTA will examine ways to avoid or minimize impacts to regulated natural resources, and will obtain permits and approvals, as appropriate. The Environmental Compliance Plan component of SEPTA's Project construction plan, described in Section 2.3.2.9, will identify and direct SEPTA and its contractor(s)' activities during construction to ensure protection of the natural environment as required by the applicable permits.

4.18 Summary of FEIS Findings and SEPTA Commitments

Table 4.18-1 presents a summary of the effects of the Preferred Alternative. **Table 4.18-2** summarizes the commitments SEPTA makes as part of the Preferred Alternative to minimize and mitigate Project impacts.

Table 4.18-1: Summary of Effects of Preferred Alternative

Description of Preferred Alternative Effects	
Transportation (Chapter 3)	
▪ Benefit: Increases access to transit with proposed stations in the King of Prussia/Valley Forge area (Section 3.1.3.2)	
▪ Benefit: Creates 6,755 average weekday “Trips on the Project” and reduces average weekday vehicle miles traveled in 2040 by 61,303 miles (Section 3.1.3.2)	
▪ Benefit: Connects to bus and shuttle services; changes to bus and shuttle services will occur; see SEPTA’s commitments (Section 3.1.3.2)	
▪ Benefit: Connects to the existing bicycle and pedestrian network; bicycles will be accommodated at proposed stations (Section 3.3.3.2)	
▪ No impact: Maintains or improves affected roadway intersection levels of service in 2040 with mitigation; see SEPTA’s commitments (Section 3.2.3.2)	
▪ Impact: Temporary impacts to the existing transportation system will occur during Project construction; see SEPTA’s minimization commitments (Section 2.3.2.9 and Chapter 3)	
Land Use Patterns and Consistency with Plans (Section 4.2)	
▪ Benefit: Consistent with Township and County land use plans (Section 4.2.3.2)	
▪ Benefit: Proposed stations are within ½ mile of 15 million non-residential (commercial and industrial) square feet (DEIS Section 8.2.2)	
▪ Benefit: Proposed stations are within ½ mile of seven community facilities (Section 4.4.2)	
▪ No impact: Temporary changes in access to businesses will occur during construction, but access will be maintained; see SEPTA’s minimization commitments (Section 4.3.3.2)	
▪ Impact: Construction easements will temporarily change land use, access, and private parking on affected properties; features on that land (such as trees or buildings) may be removed if their presence conflicts with temporary Project construction needs; see SEPTA’s minimization commitments (Section 4.2.3.2 and Section 4.5.3.2)	
Economic Development (Section 4.3)	
▪ Benefit: Two stations are within Upper Merion Township’s Mixed Use (KPMU) zoning district (Section 4.2.3.2)	
▪ Benefit: Project could support future economic development in the Project study area by extending rail transit service to King of Prussia (Section 4.3.3.2)	
▪ Potential impact: Project operations could affect private property values as a result of direct or proximity effects (Section 4.3.3.2)	
▪ Impact: Potential for temporary access impacts to businesses during construction; see SEPTA’s minimization commitments (Section 4.3.3.2)	
Community Cohesion and Facilities (Section 4.4)	
▪ No impact: Avoids splitting or fragmenting residential or business communities (Section 4.4.3.2)	

Description of Preferred Alternative Effects
<ul style="list-style-type: none"> ▪ No impact: Preserves access across existing transportation and utility rights-of-way during operations (Section 4.4.3.2)
<ul style="list-style-type: none"> ▪ Impact: Three community facility properties will be directly impacted: Philadelphia Suburban Water (Aqua Pennsylvania) reservoir (portion of land), King of Prussia Volunteer Fire Company (relocation), and the 9/11 Memorial (on the Fire Company property) (relocation); see SEPTA's minimization and mitigation commitments (Section 4.4.3.2)
<ul style="list-style-type: none"> ▪ Impact: Potential for temporary changes to access to communities and community facilities; see SEPTA's minimization commitments (Section 4.4.3.2)
Property Acquisitions and Displacements (Section 4.5)
<ul style="list-style-type: none"> ▪ Impact: Number of potential permanent partial property (parcel) acquisitions; see SEPTA's commitments (Section 4.5.3.2): <ul style="list-style-type: none"> ▪ 8 Residential; 33 Commercial; 13 Other; 54 Total
<ul style="list-style-type: none"> ▪ Impact: Number of potential permanent full property (parcel) acquisitions; see SEPTA's commitments (Section 4.5.3.2) <ul style="list-style-type: none"> ▪ 1 Residential; 11 Commercial; 1 Other; 13 Total
<ul style="list-style-type: none"> ▪ Impact: Number of potential permanent displacements; see SEPTA's commitments (Section 4.5.3.2): <ul style="list-style-type: none"> ▪ 8 Residential, 22 Commercial, 1 Other; 31 Total
<ul style="list-style-type: none"> ▪ Impact: Number of temporary construction easement impacts; see SEPTA's commitments (Section 4.5.3.2): <ul style="list-style-type: none"> ▪ 6 Residential, 30 Commercial, 8 Other; 44 Total
<ul style="list-style-type: none"> ▪ Impact: Non-residential property acquisitions could impact private parking; see SEPTA's commitments (Section 4.5.3.2)
<ul style="list-style-type: none"> ▪ No impact: Project does not require transit rider use of private parking areas near stations; see SEPTA's commitments (Section 4.5.3.2)
Parks, Recreational Land, and Open Space (Section 4.6)
<ul style="list-style-type: none"> ▪ Benefit: Proposed stations are within ½ mile of five parks: Walker Field, the Chester Valley Trail Extension, the former Burgess Arboretum property, Betzwood Park, and Valley Forge National Historical Park (Section 4.6.3.2)
<ul style="list-style-type: none"> ▪ No impact: No parks directly or indirectly impacted (Section 4.6.3.2)
<ul style="list-style-type: none"> ▪ Impact: One park crossed: Chester Valley Trail Extension; see SEPTA's commitments (Section 4.6.3.2)
Historic and Archeological Resources (Section 4.7)
<ul style="list-style-type: none"> ▪ No impact: Low potential for archaeological sites within the limits of disturbance (Section 4.7.3.2)
<ul style="list-style-type: none"> ▪ Impact: Three historic properties will be impacted; see SEPTA's commitments (Section 4.7.3.2): <ul style="list-style-type: none"> ▪ Philadelphia and Western Railway (NHSL); PA Turnpike: Delaware River Extension; and PNJ Interconnection
<ul style="list-style-type: none"> ▪ Impact: An adverse impact will occur to one historic property as defined by Section 106: PNJ Interconnection; see SEPTA's commitments (Section 4.7.3.2)

Description of Preferred Alternative Effects	
Visual and Aesthetic Resources (Section 4.8)	
<ul style="list-style-type: none"> Impact: Visual impacts will occur during construction and operations; see SEPTA's minimization commitments (Section 4.8.3.2) 	
Air Quality (Section 4.9)	
<ul style="list-style-type: none"> Benefit: Project operations will reduce the growth of average weekday vehicle miles traveled by 61,603 miles in 2040; reduced growth in vehicle miles traveled will reduce vehicular emissions (Section 4.9.3.2) 	
<ul style="list-style-type: none"> No impact: Project operations will not cause an air quality impact (Section 4.9.3.2) 	
<ul style="list-style-type: none"> Impact: Potential for temporary air quality impacts during construction; see SEPTA's minimization commitments (Section 4.9.3.2) 	
Noise and Vibration (Section 4.10)	
<ul style="list-style-type: none"> No impact: The Project will not cause operational vibration impacts (Section 4.10.3.2) 	
<ul style="list-style-type: none"> Impact: Potential number of noise impacts during construction and operation (Category 2 = where people sleep such as residences; Category 3 = daytime institutional or office use); see SEPTA's commitments: <ul style="list-style-type: none"> King of Prussia - Moderate operational noise impacts: 51 Category 2; 2 Category 3 King of Prussia – Moderate construction noise impacts: 13 Category 2 (daytime); 119 Category 2 (nighttime); 2 Category 3 (daytime) (Section 4.10.3.2) 	
<ul style="list-style-type: none"> Impact: Potential number of vibration impacts during construction (Category 2 = where people sleep such as residences; Category 3 = daytime institutional or office use); see SEPTA's commitments: <ul style="list-style-type: none"> King of Prussia – Construction vibration impacts: 57 Category 2; 16 Category 3 (Section 4.10.3.2) 	
Natural Resources (Section 4.11)	
<ul style="list-style-type: none"> No impact: Project area is unlikely to support the State-threatened red-bellied cooter turtle; see SEPTA's commitments (Section 4.11.3.2) 	
<ul style="list-style-type: none"> No impact: The Project will not impact existing wellhead protection areas (4.11.3.2) 	
<ul style="list-style-type: none"> Potential impact: Potential for impacts to natural resources during Project construction: soils, sole source aquifers, waterways, floodplains, wetlands, and wooded areas; see SEPTA's commitments (Section 4.11.3.2) 	
<ul style="list-style-type: none"> Potential impact: Risk regarding underlying geologic conditions during construction and operation; see SEPTA's commitments (Section 4.11.3.2) 	
<ul style="list-style-type: none"> Impact: Six acres of new impervious surfaces; see SEPTA's commitments (Section 4.11.3.2) 	
<ul style="list-style-type: none"> Impact: 20.3 acres of potential wooded area disturbance; see SEPTA's commitments (Section 4.11.3.2) 	
<ul style="list-style-type: none"> Impact: 11.1 acres of potential field disturbance (Section 4.11.3.2) 	
<ul style="list-style-type: none"> Impact: 1,580 linear feet of waterways and floodplains potentially affected; see SEPTA's commitments (Section 4.11.3.2) 	
<ul style="list-style-type: none"> Impact: 0.08 acres of potential wetlands disturbance; see SEPTA's commitments (Section 4.11.3.2) 	

Description of Preferred Alternative Effects	
Contaminated Materials and Hazardous Waste (Section 4.12)	
<ul style="list-style-type: none"> No impact: Project operations will not be a source of accidental fuel spills because the power source will be electricity (4.12.3.2) 	
<ul style="list-style-type: none"> No impact: The Preferred Alternative will not impact the Henderson Road Superfund (NPL) site (Section 4.12.2) 	
<ul style="list-style-type: none"> Potential impact: Potential to introduce oils and lubricants that could drip from operating Project rail vehicles (Section 4.12.3.2) 	
<ul style="list-style-type: none"> Potential impact: Potential to impact or be impacted by 17 areas of contaminated materials concern within the limits of disturbance during construction; see SEPTA's commitments (Section 4.12.3.2) 	
Utilities and Energy Use (Section 4.13)	
<ul style="list-style-type: none"> Benefit: Growth in passenger vehicle energy consumption by 2040 will be reduced by an estimated 165,200 megawatt hours per year (Section 4.13.3.2) 	
<ul style="list-style-type: none"> Benefit: Annual automobile vehicle miles traveled will be reduced by 17.5 million miles (Section 4.13.3.2) 	
<ul style="list-style-type: none"> Benefit: Annual bus vehicle miles traveled will be reduced by 86,000 miles (Section 4.13.3.2) 	
<ul style="list-style-type: none"> Benefit: Annual cost savings for motor vehicle fuel will be \$3 million (Section 4.13.3.2) 	
<ul style="list-style-type: none"> Potential impact: Potential to disrupt existing utilities during Project construction; see SEPTA's commitments (Section 4.13.3.2) 	
<ul style="list-style-type: none"> Impact: Approximately four PECO transmission towers will be replaced; see SEPTA's commitments (Section 4.13.3.2) 	
Environmental Justice (EJ) (Section 4.14)	
<ul style="list-style-type: none"> Impact: No disproportionately high and adverse effects on environmental justice populations; see SEPTA's commitments (Section 4.14.3.2) 	
Irreversible and Irretrievable Commitment of Resources (Section 4.15)	
<ul style="list-style-type: none"> Benefit: Permanent, positive employment, earnings and output effects to King of Prussia: <ul style="list-style-type: none"> 900 to 1,500 new jobs annually 17,000 to 29,000 new employees over 20 years \$79.1 million to \$132.6 million in earnings annually (Section 4.15.2) 	
<ul style="list-style-type: none"> Impact: Permanent commitment of natural, material and financial resources (Section 4.15.3.2) 	
Final Section 4(f) Evaluation (Technical Memorandum)	
<ul style="list-style-type: none"> Impact: Project will permanently use portions of three Section 4(f) properties: Philadelphia and Western Railway (NHSL) (<i>de minimis</i> impact); PA Turnpike: Delaware River Extension (<i>de minimis</i> impact); and PNJ Interconnection (not <i>de minimis</i> impact); see SEPTA's commitments (Final Section 4(f) Evaluation) 	

Description of Preferred Alternative Effects	
Indirect and Cumulative Impacts (Section 4.16)	
■ Potential impact: Potential for an indirect and cumulative operational effect of enhancing and encouraging development and redevelopment near Project stations (Section 4.16)	
■ Potential impact: Potential for a moderate, cumulative operational noise impact along the existing NHSL; see SEPTA's commitments (Section 4.16.6.7)	
Preliminary Cost Estimates (Chapter 6)	
■ Impact: Preliminary capital cost estimate for Project is \$2.08 billion (Chapter 6)	
■ Impact: Preliminary annual increase in NHSL operations and maintenance cost estimate is \$10.87 million (Chapter 6)	

Sources: SEPTA, AECOM, and HNTB, 2020; 2017 King of Prussia Rail Extension Draft Environmental Impact Statement

Table 4.18-2: Summary of SEPTA's Commitments as Part of the Preferred Alternative

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
Transportation (Chapter 3)	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will develop a program of bus service changes to eliminate service redundancies created by Project operations, adjust routes to serve proposed stations and park-and-ride facilities, and optimize operating efficiency. • During subsequent design, SEPTA will coordinate with the Greater Valley Forge Transportation Management Association (GVFTMA) and King of Prussia Business Improvement District (KOP-BID) to plan appropriate shuttle service modifications to serve Project stations. • During subsequent design, SEPTA will prepare a Transportation Management Plan to minimize the potential impacts of construction on the transportation system. The plan will include a temporary transit service plan developed by SEPTA in coordination with shuttle operators. This plan will identify potential service changes, and include actions to minimize or mitigate temporary impacts, such as bus re-routing and adjusted service schedules. During subsequent design, SEPTA will update the NHSL operating plan to accommodate Project service. If NHSL schedule adjustments are required, SEPTA will issue service advisories in advance of the temporary schedule impact occurring and implement substitute bus service, where necessary. To the extent reasonably feasible, temporary suspension of rail service will occur during off-peak hours to minimize impacts to transit riders. In all cases, the plan will include a public outreach and information component to inform the public of unavoidable short-term changes in transit (bus and NHSL) and shuttle bus systems before they occur. 	<ul style="list-style-type: none"> • During construction, SEPTA will implement the Transportation Management Plan. • During operations, SEPTA will implement its program of bus service changes and will coordinate with the GVFTMA and KOP-BID to implement appropriate shuttle service modifications to serve Project stations.
<ul style="list-style-type: none"> • During subsequent design, SEPTA will coordinate with state and local officials to determine the need for improvements to mitigate traffic impacts on roadways and intersections affected by Project stations, and design the specific improvements to the roadways and intersections affected as part of the Highway Occupancy Permit process. • During subsequent design, SEPTA will coordinate with PennDOT, Montgomery County, Upper Merion Township, and the PA Turnpike Commission as it develops a Transportation Management Plan for affected roadways during construction with the goals of maintaining traffic operations and minimizing additional congestion to the extent reasonably feasible. The plan will identify specific impacts to roadways (such as lane or street closures) and specific actions SEPTA will implement to minimize and mitigate temporary construction impacts on roadways. Such actions could include, but may not be limited to: <ul style="list-style-type: none"> • Ensuring access to residences and businesses is maintained during Project construction; 	<ul style="list-style-type: none"> • During construction, SEPTA will construct the specific improvements to roadways and intersections affected by the Project per the requirements of the Highway Occupancy Permit. • During construction, SEPTA will coordinate with PennDOT, Montgomery County, Upper Merion Township, and the PA Turnpike Commission as it implements the Transportation Management Plan for affected roadways during construction.

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
<ul style="list-style-type: none"> • Ensuring emergency access for fire-fighting equipment and evacuations is maintained during construction; • Implementing temporary routing and circulation, as needed, with directional signing; • Installing temporary traffic control devices to improve construction-related congestion impacts or other temporary traffic flow problems; • Providing a public outreach and information component to inform the public of changes in the roadway system before they occur; and • Restoring affected roadways upon completion of construction. <p>As part of the plan, SEPTA will identify and implement temporary traffic re-routing or roadway closures, signing, and public outreach as needed to inform the public of temporary roadway changes before they occur. Roadway closure times and durations will be determined in coordination with the public agency with jurisdiction over the particular roadway and will occur during late night hours to minimize disruption of travel operations.</p>	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will work with PennDOT, the County, and the Township to accommodate pedestrian and bicycle movements at intersections the Project will affect, design pedestrian and bicycle routing along and across roadways at appropriate locations near Project station facilities, and make connections to sidewalks adjacent to Project station facilities and to the elevated boarding platforms at stations. • During subsequent design, SEPTA will develop a Transportation Management Plan, which will include temporary bicycle and pedestrian accommodation in areas affected by construction. SEPTA will work with Upper Merion Township, Montgomery County, and PennDOT to identify and implement temporary routing, signing, and public outreach as needed to inform the public of temporary changes before they occur. 	<ul style="list-style-type: none"> • During construction, SEPTA will implement the Transportation Management Plan.
<ul style="list-style-type: none"> • During subsequent design, SEPTA will continue to coordinate with NS regarding proposed use of a portion of their North Abrams Industrial Track corridor. 	<ul style="list-style-type: none"> • None warranted.
<ul style="list-style-type: none"> • During subsequent design, SEPTA will develop construction protocols and procedures prior to the start of construction with the goal of providing a safe and secure environment in and near the Project construction site. SEPTA will incorporate its standard worksite safety procedures into the Project-specific plan. The protocols and procedures will be Project-specific and will focus on worker and public safety, securing work and staging areas including equipment, materials, and permanent elements of the Project. Temporary fencing with locking gates around construction staging areas is an example of a typical technique to secure a work area. SEPTA will incorporate its standard worksite safety procedures into the Project-specific plan. SEPTA will also work with Upper Merion Township law enforcement personnel and emergency service providers in developing and implementing its 	<ul style="list-style-type: none"> • During construction, SEPTA will implement the project-specific safety plan. SEPTA's construction contractor(s) will be required to adopt SEPTA's procedures and protocols, including monitoring and reporting. • During operations, SEPTA will implement its operational safety plans, protocols, and procedures.

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
<p>Project safety plan to ensure it is consistent and coordinated with local safety and emergency response procedures, including monitoring and reporting.</p> <ul style="list-style-type: none"> During subsequent design, SEPTA will evaluate and design appropriate operational safety elements, modify existing incident management plans, coordinate with emergency response personnel, and develop operational protocols and procedures to be followed. 	
<p align="center">Land Use Patterns and Consistency with Plans (Section 4.2)</p>	
<ul style="list-style-type: none"> During subsequent design, SEPTA will coordinate with the Township and County to align final design with future land use planning, such as the Township's land use planning for Moore Park KOP. 	<ul style="list-style-type: none"> None warranted.
<ul style="list-style-type: none"> During subsequent design, SEPTA will develop a construction plan and right-of-way plans that refine temporary construction right-of-way needs, including specific locations of temporary staging areas and construction access points. SEPTA will coordinate with Upper Merion Township, PennDOT, the PA Turnpike Commission and other potentially affected property owners in this activity. To the extent reasonably feasible, SEPTA will identify such areas within the Project ROW or on vacant or publicly-owned property. During subsequent design, SEPTA will develop a plan to restore properties affected by temporary, construction easements to an acceptable pre-construction condition at the end of construction activities, in accordance with individual easement agreements. At public outreach events during subsequent design, SEPTA will provide a real estate representative to explain SEPTA's construction easement acquisition process. During subsequent design, SEPTA will initiate the real estate acquisition process, during which time SEPTA will work with each affected property owner to achieve construction easement acquisition agreements. 	<ul style="list-style-type: none"> During construction, SEPTA will implement construction activities in accordance with all real estate agreements. Prior to the end of Project construction, SEPTA will implement the plan to restore properties affected by temporary easements to an acceptable pre-construction condition, in accordance with individual easement agreements.
<ul style="list-style-type: none"> During subsequent design, SEPTA will coordinate with impacted property owners to develop an operational parking management plan to discourage transit rider use of private parking areas. 	<ul style="list-style-type: none"> During operations, SEPTA will implement the operational parking management plan.
<p align="center">Economic Development (Section 4.3)</p>	
<ul style="list-style-type: none"> During subsequent design, SEPTA will develop a business mitigation plan in coordination with the KOP-BID to address temporary construction impacts related to access to businesses. 	<ul style="list-style-type: none"> During construction, SEPTA will implement its business mitigation plan for the Project.

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
<p align="center">Community Cohesion and Facilities (Section 4.4)</p>	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will examine opportunities to further minimize and mitigate for community impacts and incorporate feasible and reasonable measures into the construction and operations plans for the Project. 	<ul style="list-style-type: none"> • During Project construction, SEPTA will implement minimization and mitigation measures for community impacts related to construction. • During Project operations, SEPTA will implement minimization and mitigation measures for community facility impacts related to operations.
<ul style="list-style-type: none"> • During subsequent design, SEPTA will work with the Upper Merion Township's Unified Safety Department's Public Safety Director and the Fire & Emergency Service Department as they identify a suitable location for the fire company and 9/11 Memorial and undertake the relocation process. SEPTA will provide the funds for relocation of the King of Prussia Fire Company and 9/11 Memorial. • During subsequent design, SEPTA will coordinate with emergency service providers in the Township to identify and develop their emergency response plans regarding provider access and circulation in the Project construction and operational plans. 	<ul style="list-style-type: none"> • During Project construction, SEPTA will continue coordination with the Township and the King of Prussia Volunteer Fire Company as SEPTA implements relocation of the existing functions of the King of Prussia Fire Company and 9/11 Memorial. • During Project construction, SEPTA will continue coordinating with Township emergency service providers as it implements the Project construction plan. • During Project operations, SEPTA will continue coordinating with Township emergency service providers as it implements the Project operations plan.
<p align="center">Property Acquisitions and Displacements (Section 4.5)</p>	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will refine permanent right-of-way needs and develop right-of-way plans, and prepare a real estate acquisition management plan. • During subsequent design, SEPTA will refine the area of permanent land acquisition to be provided to PECO to offset permanent right-of-way needs for the Project on the PECO property. 	<ul style="list-style-type: none"> • See commitments for temporary construction phase mitigation in this table under Land Use Patterns and Consistency with Plans. • Regarding the potential for Project riders to use private parking areas near stations, SEPTA will continue

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
<ul style="list-style-type: none"> • During subsequent design, SEPTA will initiate the real estate acquisition and relocation process, during which time SEPTA will work with each affected property owner to achieve permanent real estate acquisition agreements. SEPTA's property acquisition activities will occur in accordance with the Uniform Act as amended and FTA Circular 5010.1E, Award Management Requirements and State laws that establish the process through which SEPTA may acquire real property through a negotiated purchase or through condemnation (ROD Section 1.3.5.1). • See the commitments for temporary construction phase mitigation in this table under Land Use Patterns and Consistency with Plans. • SEPTA will coordinate with potentially impacted property owners during subsequent design to develop an operational parking management plan prior to Project operations to discourage transit rider use of private parking areas. 	<p>coordinating with potentially impacted property owners during Project construction to develop an operational parking management plan prior to Project operations to discourage transit rider use of private parking areas.</p>
<p align="center">Parks, Recreational Land, and Open Space (Section 4.6)</p>	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will develop the Project design at the crossing of the planned Chester Valley Trail Extension in coordination with Montgomery County at major milestones (30%, 60%, 90% and final plan, specifications and estimates). • During subsequent design, SEPTA will develop the Project construction plan for the crossing of the planned Chester Valley Trail Extension in timely coordination with Montgomery County. • During subsequent design, SEPTA will develop a cost reimbursement agreement with Montgomery County to reimburse the County for expenses incurred by the County's engineering consultant or other County consultants deemed necessary by Montgomery County and SEPTA for coordination and services related to: reviewing Project construction plans and specifications; coordinating with SEPTA during Project design and construction phases; and potentially implementing temporary modifications (such as but not limited to: signage, re-routing, restoration, striping) to the planned Chester Valley Trail Extension to accommodate Project construction. All planning and design costs for the Project related to its impact upon the planned Chester Valley Trail Extension, including consultant fees as described above, shall be borne by SEPTA. 	<ul style="list-style-type: none"> • During construction, SEPTA will implement its Project construction plan in the area of the planned Chester Valley Trail Extension. SEPTA will coordinate with Montgomery County during Project construction. All costs to construct the Project at the planned Chester Valley Trail Extension crossing will be the responsibility of SEPTA.
<p align="center">Historic and Archeological Resources (Section 4.7)</p>	
<ul style="list-style-type: none"> • During subsequent design and prior to demolition of any PECO transmission towers as part of the Project, SEPTA will implement the terms of the Section 106 Memorandum of Agreement (11/25/2020 – Appendix C). 	<ul style="list-style-type: none"> • None warranted

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
<p align="center">Visual and Aesthetic Resources (Section 4.8)</p>	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will continue to examine the feasibility of providing a higher parapet wall/barrier on the elevated guideway to block rider views of residential neighborhoods. • During subsequent design and prior to the start of Project construction, SEPTA will develop and implement a Project construction plan. The plan will identify procedures and protocols for avoiding impacts to the transportation, natural and human environments during Project construction, including visual impacts. As part of the plan, SEPTA will require the Project contractor(s) to assess the potential for visual impacts during construction and identify means to minimize or mitigate temporary visual impacts. Examples of potential mitigation strategies that SEPTA will require the Project contractor(s) to consider include storage of equipment and materials in designated staging areas only, use of opaque fencing to visually screen staging areas, soil containment to avoid migration of soils onto public roads as required by erosion control regulations, and permanent landscaping or seeding of disturbed areas as soon as construction work is completed. 	<ul style="list-style-type: none"> • During construction, SEPTA will implement visual mitigation according to the design plans.
<p align="center">Air Quality (Section 4.9)</p>	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will identify air quality control measures and best management practices for control of dust and vehicle emissions during Project construction. SEPTA will include these measures and practices in the Project construction plan. 	<ul style="list-style-type: none"> • During Project construction, SEPTA will implement air quality control measures and best management practices according to the Project construction plan.
<p align="center">Noise and Vibration (Section 4.10)</p>	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will continue to assess the potential for noise impacts as a result of further design of the Project, and will evaluate the need for and design of mitigation for noise impacts. SEPTA will report the results of the evaluation on the Project website. • The following noise mitigation and minimization measures will be assessed by SEPTA during subsequent design to determine their feasibility and reasonableness: <ul style="list-style-type: none"> • Parapet Walls on Guideway - Solid parapets in lieu of open safety railings would eliminate noise impacts from train operations along the guideway. Increasing the height of the proposed edge of the guideway from 2.2 feet above top of rail to 6 feet above top of rail at the following locations would eliminate all predicted moderate noise impacts: <ul style="list-style-type: none"> • Valley Forge Homes 	<ul style="list-style-type: none"> • During Project construction, SEPTA will implement noise and vibration commitments according to the Project construction plan.

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
<ul style="list-style-type: none"> • Station No. 227+00 to 247+00 (south side) • 37 residential impacts • Brandywine Village <ul style="list-style-type: none"> • Station No. 243+00 to 250+00 (north side) • 11 residential impacts • Allendale Road Station <ul style="list-style-type: none"> • Station No. 259+00 to 269+00 (south side) • 3 residential impacts • 1 office impact <p>Because the Valley Forge Homes and Brandywine Village neighborhoods currently benefit from a highway noise barrier, the effectiveness of parapet walls on the guideway will need to be investigated in more detail during subsequent design by SEPTA.</p> <ul style="list-style-type: none"> • Station-specific Noise Control – SEPTA will investigate the feasibility and reasonableness of station-specific noise minimization and mitigation measures for Allendale Road Station during subsequent design. • During subsequent design, SEPTA will continue to evaluate the potential for temporary construction noise and vibration impacts and identify measures to minimize or mitigate construction impacts as warranted. SEPTA will also continue the Project public outreach program during construction to inform the public about the schedule of activities and provide for public input. SEPTA will include control measures in their procurement specifications and construction plans, and report the results of the evaluation on the Project website. During Project construction, SEPTA will implement the control measures according to the Project construction plan. • The following noise and vibration mitigation and minimization measures will be assessed by SEPTA during subsequent design to determine their feasibility and reasonableness: <ul style="list-style-type: none"> • At staging and laydown areas, consider installing acoustical curtains or other temporary noise shields along perimeter fencing to act as a temporary noise barrier. • Strategic placement of containers or other barriers along the perimeter of staging areas would shield nearby residences from construction activities within the laydown area. • Substituting impulsive equipment such as pile drivers and hoe rams with augers and vibratory pile drivers whenever possible. • In general, utilize equipment enclosures or shrouds for all exposed stationary equipment while other solutions (such as portable acoustical curtains hung from cranes) may be more practical for mobile sources. • All equipment should include properly tuned exhaust mufflers or attenuators that comply with the local and municipal noise ordinances. 	

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
<ul style="list-style-type: none"> • Additionally, utilize regional roadways rather than local streets for excavation of spoils and new deliveries to further minimize the construction impacts (i.e., noise, vibration, air quality, visual, traffic, etc.) on the nearby community. 	
<p align="center">Natural Resources (Section 4.11)</p>	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will complete a geotechnical investigation to identify soils and geological conditions within the Project limits of disturbance (LOD). The investigation will use subsurface testing and laboratory analysis to determine soil and rock properties (such as water, chemical and mineral contents, soil and rock strength, depth of rock, and delineation of karst features). This information will assist SEPTA in designing the Project to location-specific soil and geological conditions. • During subsequent design, SEPTA will develop a plan of action in the event of a geological event, such as a sinkhole, during Project construction. The program of actions will include the following elements: communication protocol, securing the site of the sinkhole, implementing an action plan to resolve the issue, and restoring construction activities. • During subsequent design, SEPTA will develop an operations plan in the event of a geological event, such as a sinkhole. The program of actions will include the following elements: communication protocol, securing the site of the sinkhole, implementing an action plan to resolve the issue, and restoring normal activities. 	<ul style="list-style-type: none"> • During construction, SEPTA will implement the construction plan related to geological conditions. • During operations, SEPTA will implement the operations plan related to geological conditions.
<ul style="list-style-type: none"> • During subsequent design, SEPTA will consider means to further reduce the amount of new impervious surfaces. • During subsequent design, SEPTA will prepare PA-approved erosion and sediment control plans and applicable stormwater management plans during Project construction. These plans will identify appropriate best management practices to reduce erosion, control sedimentation, and maintain water quality. • During subsequent design, SEPTA will design stormwater best management practices to reduce Project runoff impacts. 	<ul style="list-style-type: none"> • During construction, SEPTA will implement the Project in accordance with the provisions and conditions of all permits and approvals related to waterways and floodplains. • During construction, SEPTA will implement the approved erosion and sediment control plan. • During operations, SEPTA will implement the Project stormwater management plan.
<ul style="list-style-type: none"> • During subsequent design and to the extent reasonably feasible, SEPTA will identify additional means to avoid or minimize impacts to existing wooded areas through design refinements. • During subsequent design, SEPTA will develop a construction plan that limits disturbance of 20.3 acres of wooded areas within the proposed construction area and provides for protection of such areas that are adjacent to and outside the construction area. 	<ul style="list-style-type: none"> • During construction, SEPTA will implement the construction plan elements that protect wooded areas from Project impacts. • During construction, SEPTA will implement the Project in

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
	accordance with the provisions and conditions of all permits and approvals related to wooded areas.
<ul style="list-style-type: none"> During subsequent design, SEPTA will comply with Executive Order 11988 and applicable state laws and implementing regulations regarding Project activities in existing Federal Emergency Management Agency (FEMA)-mapped floodplains. 	<ul style="list-style-type: none"> During operations, SEPTA will implement the Project in accordance with the provisions and conditions of all permits and approvals related to waterways and floodplains.
<ul style="list-style-type: none"> During subsequent design, SEPTA will obtain and comply with Pennsylvania Water Obstruction and Encroachment Permit and a US Army Corps of Engineers (USACE) Section 404 Nationwide Permit as required by the USACE and PA Department of Environmental Protection (PADEP) for activities in waterways and wetlands. 	<ul style="list-style-type: none"> During construction, SEPTA will implement the Project in accordance with the provisions and conditions of all permits and approvals related to waterways and wetlands.
<ul style="list-style-type: none"> During subsequent design, SEPTA will coordinate with the PA Fish & Boat Commission in regard to the presence/absence of State-threatened northern red-bellied cooter. If present, SEPTA will assess the potential for adverse impacts to the species, and identify appropriate minimization and mitigation measures. 	<ul style="list-style-type: none"> If warranted as a result of further coordination with the PA Fish & Boat Commission in regard to the State threatened northern red-bellied cooter, SEPTA will implement appropriate minimization and mitigation measures during Project construction.
<p align="center">Contaminated Materials and Hazardous Waste (Section 4.12)</p>	
<ul style="list-style-type: none"> During subsequent design and prior to right-of-way acquisition, SEPTA will complete a Phase II Environmental Site Assessment for properties that will be acquired by SEPTA. During subsequent design, SEPTA will seek input from EPA regarding the Henderson Road Superfund Site to minimize the potential for the Preferred Alternative to adversely affect the hydrological conditions controlling the contaminant plume at the site. During subsequent design and if warranted as a result of the Phase II assessment, SEPTA will examine means to avoid or minimize and mitigate impacts if the Preferred Alternative has the potential to impact a site with potential contaminated materials and hazardous waste concerns. SEPTA will select appropriate strategies in coordination with Federal and state regulators to meet applicable laws. SEPTA will incorporate appropriate strategies as minimization and mitigation measures into the Project design and construction plans. 	<ul style="list-style-type: none"> During construction and if warranted as a result of the Phase II assessment, SEPTA will implement commitments to address contaminated materials and hazardous waste concerns. During construction, SEPTA will implement the following plans developed during subsequent design for structures to be demolished: Asbestos Abatement Plan and a Lead-Based Paint Assessment Plan. During construction, SEPTA will implement Project health and safety plans.

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
<ul style="list-style-type: none"> • During subsequent design, SEPTA will develop an Asbestos Abatement Plan and a Lead-Based Paint Assessment Plan for structures to be demolished during construction. The plans will document methodologies for surveying, containing, and remediating such materials as warranted. • During subsequent design, SEPTA will develop and implement Health and Safety Plans and Materials Management Plans for use during construction and operation phases. 	<ul style="list-style-type: none"> • During operation, SEPTA will implement Project health and safety plans.
Utilities and Energy Use (Section 4.13)	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will continue coordinating with utility service providers to verify the locations of existing utilities, and develop construction and operations plans related to utilities. • During subsequent design, SEPTA will plan and schedule Project construction activities to avoid or minimize utility service disruptions. • During subsequent design, SEPTA will coordinate with and obtain approvals from each affected utility owner regarding Project activity related to utilities. 	<ul style="list-style-type: none"> • During construction, SEPTA will implement the construction phase utility plan and the conditions of each utility approval. • During construction, SEPTA will comply with utility owner notification requirements and the PJM Interconnection outage planning process regarding potential utility outages required by the Project.
Environmental Justice (Section 4.14)	
<ul style="list-style-type: none"> • During subsequent design, Project construction, and Project operations, SEPTA will continue public outreach activities. The goals of SEPTA's public outreach activities will continue to be public awareness of Project activities, opportunity for the public to share concerns with SEPTA related to Project construction, and an avenue for SEPTA to address those concerns. 	<ul style="list-style-type: none"> • During Project construction, SEPTA will continue public outreach activities. • During Project operations, SEPTA will continue public outreach activities.
Section 4(f) (Technical Memorandum)	
<ul style="list-style-type: none"> • See commitments for Historic and Archaeological Resources. • Chester Valley Trail Extension: During subsequent design, SEPTA will develop the Project design at the crossing of the planned Chester Valley Trail Extension in coordination with Montgomery County at major milestones (30%, 60%, 90% and final plan, specifications and estimates). • During subsequent design, SEPTA will develop the Project construction plan for the crossing of the planned Chester Valley Trail Extension in timely coordination with Montgomery County. • During subsequent design, SEPTA will develop a cost reimbursement agreement with Montgomery County to reimburse the County for expenses incurred by the County's engineering 	<ul style="list-style-type: none"> • See commitments for Historic and Archaeological Resources. • During Project construction, SEPTA will implement its Project construction plan in the area of the planned Chester Valley Trail Extension. SEPTA will coordinate with Montgomery County during Project construction. All costs to

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
consultant or other County consultants deemed necessary by Montgomery County and SEPTA for coordination and services related to: reviewing Project construction plans and specifications; coordinating with SEPTA during Project design and construction phases; and potentially implementing temporary modifications (such as but not limited to: signage, re-routing, restoration, striping) to the planned Chester Valley Trail Extension to accommodate Project construction. All planning and design costs for the Project related to its impact upon the planned Chester Valley Trail Extension, including consultant fees as described above, shall be borne by SEPTA.	construct the Project at the planned Chester Valley Trail Extension crossing will be the responsibility of SEPTA.

Notes: During subsequent design is meant to represent the period after which FTA approves the combined FEIS/ROD and before Project construction activities begin. During that time, SEPTA will complete engineering design of the Project, prepare Project construction plans, and acquire the property on which the Project will be built. During construction is meant to represent the period after which SEPTA is building the Project; and during operations is meant to represent the period after Project construction is completed when the Project is providing rail transit service as described in the FEIS.

Sources: SEPTA, AECOM, and HNTB, 2020; 2017 King of Prussia Rail Extension Draft Environmental Impact Statement

Chapter 5 Public Outreach, Agency Coordination, and Responses to Public Comments on the DEIS

From the initiation of the King of Prussia Rail Extension Project (Project) planning, public and agency involvement has been a key element. This chapter describes the early outreach, outreach and coordination activities undertaken by SEPTA after the Notice of Intent (NOI), published in the Federal Register on June 27, 2013, and through completion of this combined Final Environmental Impact Statement/Record of Decision (FEIS/ROD).

This chapter also documents public and agency comments on the Draft Environmental Impact Statement (DEIS) and responses to public comments and agency comments on the DEIS :

- Section 5.4 presents responses to substantive comments on the DEIS. Substantive comments are comments that raise specific issues or concerns regarding the Project or the study process, suggest new alternatives, or question or raise concern over new impacts not previously addressed in the DEIS;
- Appendix D documents public and agency comments on the DEIS; Appendix D presents responses to agency comments on the DEIS.

5.1 Public Outreach

Public outreach is an essential component of the National Environmental Policy Act (NEPA) as it establishes and maintains a collaborative decision-making process that engages the public and stakeholders in the development of the Project's purpose and need, the evaluation of alternatives, selection of a Preferred Alternative, and evaluation of the Preferred Alternative. The objectives of public outreach are:

- Inform and educate the public and stakeholders about the Project;
- Provide opportunities for meaningful input and dialogue throughout the alternatives development and NEPA processes;
- Understand community values in order to better develop alternatives; and,
- Foster productive public relations.



Project public outreach activity.
Source: McCormick Taylor, 2016.

5.1.1 Approach

SEPTA developed a *KOP Rail Public Involvement Plan* (PIP) in 2013 that outlines outreach activities and communication methods to be used throughout the NEPA process. The PIP is appended to SEPTA's 2014 *KOP Rail Draft Scoping Meeting Technical Memorandum*, which is available on the Project website, www.kingofprussiarail.com. As the NEPA process advanced, SEPTA enhanced outreach activities when appropriate in response to communication needs and decision-making milestones.

5.1.2 Public Outreach Communication Methods

SEPTA applied traditional as well as non-traditional methods for public outreach activities. Since the NOI was published in the Federal Register on June 27, 2013, SEPTA has maintained a mailing list of people interested in the Project, with an open invitation to be included on the mailing list. SEPTA uses multiple means of communication to share Project information with the public and obtain public input (Project website, hardcopy mail, email, flyers, third party, social media, newsletters, press releases, meetings and information sessions).

- **Project Website** - A stand-alone Project website communicates Project activities and enables users to receive timely information regarding Project activities. The website – www.kingofprussiarail.com – presents the key Project theme: Strengthening Growth and Opportunity. Supporting content categories include Project Status, Alignment, Funding, and Community Involvement. The Project theme and online content are supported by graphics, tables and figures, as well as interactive links to advance the level of public involvement. SEPTA maintains “virtual meeting” capability by uploading materials from public meetings on the Project website. Printed materials are also posted in electronic format for download.
- **Hardcopy Mail** – SEPTA mailed newsletters and meeting notifications to each Project study area address.
- **Email** – SEPTA responds to questions posed to the info@kingofprussiarail.com address. SEPTA also uses email to provide Project updates, meeting announcements and other Project communications.
- **Flyers** – SEPTA put Project meeting notification flyers on its transit vehicles and at stations.
- **Third Party** – SEPTA coordinates with Upper Merion Township regarding posting Project meeting notices at the Township Hall and in their weekly e-newsletter. Additionally, SEPTA coordinates with the KOP-BID and major King of Prussia employers to post and/or email meeting announcements to tenants. SEPTA also coordinates with the KOP-BID to post meeting announcements on shuttle buses. SEPTA coordinates with Greater Valley Forge Transportation Management Association (GVFTMA) to gain contacts of organizations (e.g., chambers of commerce) that would be willing to email meeting announcements to contact lists.

- **Social Media** - SEPTA's Project-specific Facebook page (www.facebook.com/KOPRail/) for the public to obtain information about the Project. The Project has a YouTube channel as well. News alerts and meeting announcements are pushed to social media followers on a Project-specific Twitter account: www.twitter.com/KOPRail. Additionally, the hashtag #KOPRail has been used to connect people who are talking about the Project on social media platforms.
- **Newsletters** - In addition to online Project news and information, the public can sign up to receive Project updates through regular newsletter releases at key Project milestones. E-blasts are sent to those who request to be added to the Project database. Copies of newsletters are also provided to key stakeholders to distribute.
- **Press Releases** - SEPTA uses press releases at key milestones to alert the public of important Project decisions. Local and regional newspapers used include *Norristown Times Herald*, *Main Line Times*, *King of Prussia Courier*, *Delaware County Times* and the *Philadelphia Inquirer*.
- **Meetings and Information Sessions** – As described in this section and Section 5.2, SEPTA provides direct engagement with agencies, stakeholders and the public, enabling information about the Project to be shared and comments and questions from attendees to be received. SEPTA selects venues in and near the transportation study area that provide access for persons with disabilities and are accessible by bus routes that serve the transportation study area, by bus or rail transit in Norristown, or by provision of a SEPTA shuttle during meeting times.

In its public communications, SEPTA accommodates limited English-proficient individuals in several ways. Meeting announcements are posted in English and in Spanish, and language translators are offered, if requested, at public meetings. At the scoping meetings, for example, a sign language interpreter was present. The website also has a multi-lingual web tool.

SEPTA monitors the effectiveness of its activities and adjusted the methods to increase public participation. For example, SEPTA expanded its public notification approach during the DEIS to include not only property owners but also residents in multi-family units. By supplementing traditional techniques, SEPTA was able to notify and achieve involvement from more residents and other members of the public, including current transit riders.

5.1.3 Summary of Public Outreach Activities

Public outreach activities began prior to the initiation of NEPA and continued throughout the NEPA process with pre-scoping, scoping, stakeholder committees, meetings with jurisdictional owners, elected officials briefings, meetings and workshops with residents, public hearings for the DEIS, and a virtual public briefing during the FEIS. These activities and the entities involved are described in the following subsections. **Table 5.1-1** summarizes public outreach activities.

Table 5.1-1: Summary of Public Meetings and Workshops

Public Meetings and Workshops			Key Comment Themes	SEPTA Response Actions
Date & Location	Types	Objective		
Week of 1/29/2013 (actual meetings 1/29 at Valley Forge National Historical Park, 1/30 at Villanova University, 1/31 at Montgomery County Planning Commission)	Public (pre-scoping)	Project introduction	<ul style="list-style-type: none"> • Transit solution to congestion needed • Visual impacts • Noise and vibration impacts • Multi-modal access and connections • Various alignment routes suggested 	<ul style="list-style-type: none"> • SEPTA examined suggested alignment routes considering purpose and need during Tier 1 screening (Section 2.1.2) • Potential transportation, visual, noise and vibration impacts of the Action Alternatives are assessed in the DEIS (Chapters 3 and 4)
7/16/2013 at the Radisson Hotel – Valley Forge	Scoping meeting	Formal scoping for EIS; long list of alternatives; Tier 1 screening process and results presented	<ul style="list-style-type: none"> • Urbanizing effect • Visual impacts • Noise and vibration impacts • Shadows from elevated structures • Traffic impacts including construction • Multi-modal access and connections • Benefits for impacted residents 	<ul style="list-style-type: none"> • Potential changes to land use patterns, size of elevated structure, multi-modal access and connections and benefits of the Action Alternatives are assessed in the DEIS (Chapters 3 and 4) • SEPTA evaluated potential for at-grade segments during screening (Section 2.1.3)
1/30/2014 at the Radisson Hotel – Valley Forge	Public; elected officials briefing	At-grade alternatives introduced; scoping comments summary; examples of existing elevated and at-grade rail operations	<ul style="list-style-type: none"> • Alignment routes suggested • Property impacts • Importance of Mall and First Avenue Stations • Importance of serving VFNHP • Need for multi-modal station access/parking • Visual impacts • Safety • Project cost and funding 	<ul style="list-style-type: none"> • SEPTA retained initially feasible at-grade segments in Action Alternatives (Section 2.1.3) • DVRPC's ridership analysis focused on King of Prussia Mall and First Avenue areas (Section 3.1.3.2) • Each DEIS Action Alternative would serve VFNHP (Section 3.1.3.2) • SEPTA's station concepts address multi-modal access; park-and-ride facilities address parking (Section 2.3) • Potential for property impacts and visual impacts assessed in DEIS

Public Meetings and Workshops			Key Comment Themes	SEPTA Response Actions
Date & Location	Types	Objective		
				(Sections 4.5 and 4.8); DEIS also assesses safety (Section 3.6) and reports preliminary Project costs and potential funding sources (Section 8.6.2)
Week of 11/17/2014 (actual meetings 11/17 at the Radisson Hotel – Valley Forge, 11/19 at Norristown Municipal Building; 11/21 for Mall tenants/employees in King of Prussia Mall's Community Room)	Public; Mall tenant/employee; elected officials briefing	Tier 2 Screening; Retained Alternatives	<ul style="list-style-type: none"> •Primarily support Project •Need to serve key destinations •Need for multi-modal station access/parking •Visual impacts •Property impacts along PECO-1st Ave. •Funding sources •Sinkhole conditions 	<ul style="list-style-type: none"> •Each Action Alternative would serve key destinations (Section 3.1.3.2) •Potential for property impacts, visual impacts and sinkhole conditions assessed in DEIS (Sections 4.5, 4.8 and 4.11); DEIS also identifies potential funding sources (Section 8.6.2) •Proposed park-and-ride facilities address parking (Section 2.3)
3/16/2015 at the Radisson Hotel – Valley Forge and 3/25/2015 at the DoubleTree Hotel Valley Forge	Public meetings, workshop s and elected officials briefing	Tier 2 screening results; five Build Alternatives for Tier 3	<ul style="list-style-type: none"> •Alignments behind the King of Prussia Mall preferred •Parking at western terminus station a good idea •Visual and noise impacts •Need for multi-modal station access/parking •No benefits for impacted residents •Economic and property value effects •High construction and visual impacts of alternatives using US Route 202 •High residential impacts of PECO-1st Ave. 	<ul style="list-style-type: none"> •Action Alternatives aligned behind the King of Prussia Mall assessed in the DEIS (Section 2.2) •Proposed Convention Center park-and ride facility retained for each Action Alternative (Section 2.3) •SEPTA's station concepts address multi-modal access (Section 2.3) •Potential for safety, economic, property value, visual, noise, and construction impacts are assessed in DEIS (Chapters 3 and 4)

Public Meetings and Workshops			Key Comment Themes	SEPTA Response Actions
Date & Location	Types	Objective		
			<ul style="list-style-type: none"> • Alternatives using First Avenue complement the planned Road Diet project • Safety 	
Week of 3/7/2016 (actual meetings 3/7 at the Radisson Hotel – Valley Forge, 3/9 at Norristown Municipal Building, 3/15 at the DoubleTree Hotel Valley Forge)	Public meetings; elected officials briefing;	Tier 3 screening; recommended LPA; LPA in DEIS	<ul style="list-style-type: none"> • Visual and noise impacts • Project cost and funding • Economic effects • Safety • Parking and multi-modal access to stations • Property impacts 	<ul style="list-style-type: none"> • PA Turnpike North/South Option is assessed in the DEIS to reduce potential visual, noise, economic and property impacts (Section 2.2) • A PA Turnpike At-Grade South Side Option was considered during screening but eliminated due to potentially complex construction and maintenance issues (Section 4.8.3.2) • Potential for safety, economic, property, visual, and noise impacts are assessed in the DEIS (Sections 3.6, 4.3, 4.5, 4.8, and 4.10) • SEPTA's station concepts address multi-modal access (Section 2.3)
Week of 3/7/2016 Public information sessions (actual meetings 3/10 at Dilworth Park in Center City Philadelphia and King of Prussia Mall Transportation Center, 3/12 at King of Prussia Mall at the Court and King of Prussia Mall the Plaza, 3/17 at 69th Street Transportation)	Public information sessions	Tier 3 screening; recommended LPA; LPA in DEIS	<ul style="list-style-type: none"> • Visual and noise impacts • Project cost and funding • Economic effects • Safety • Parking and multi-modal access to stations • Property impacts • Need for current transit users 	<ul style="list-style-type: none"> • PA Turnpike North/South Option is assessed in the DEIS to reduce potential visual, noise, economic and property impacts (Section 2.2) • Potential for safety, economic, property, visual, and noise impacts are assessed in the DEIS (Sections 3.6, 4.3, 4.5, 4.8, and 4.10); Project cost and funding addressed in DEIS (Section 8.6.2) • SEPTA's station concepts address multi-modal access; proposed park-

Public Meetings and Workshops			Key Comment Themes	SEPTA Response Actions
Date & Location	Types	Objective		
Center and Norristown Transportation Center)				and-ride facilities address parking (Section 2.3)
November 13, 2017, DoubleTree Hotel, Valley Forge, PA, 1 p.m. to 4 p.m.	DEIS Public Hearing	Obtain public comments on DEIS	•See Section 5.4	•See Responses to Comments, Section 5.4
November 13, 2017, DoubleTree Hotel, Valley Forge, PA, 5 p.m. to 8 p.m.	DEIS Public Hearing	Obtain public comments on DEIS	•See Section 5.4	•See Responses to Comments, Section 5.4
November 15, 2017, Norristown Municipal Building, Norristown, PA, 5 p.m. to 7 p.m.	DEIS Public Hearing	Obtain public comments on DEIS	•See Section 5.4	•See Responses to Comments, Section 5.4
December 1, 2020, Webinars, 12 p.m. to 1 p.m. and 7 p.m. to 8 p.m.	Virtual Public and Elected Officials Briefings	Engineering refinements for Project's alignment and proposed stations	<ul style="list-style-type: none"> •Project cost and funding •Pandemic effects •Fares and service plan •Property effects •Connections with existing and future development and shuttle services •Traffic •Modifications to existing bus routes •Community participation •Home values •Bicycle and pedestrian access •Noise •ADA accessibility 	•SEPTA committed to hosting public meetings and elected officials' briefings during subsequent design

5.1.3.1 Pre-scoping and Scoping

Prior to initiating the NEPA process, SEPTA undertook pre-scoping activities that consisted of technical work to support NEPA scoping. Technical work activities included developing a three-tiered alternatives screening and evaluation process, as well as applying the first (Tier 1) screening step to evaluate a long list of alternatives. Details regarding the screening process are provided in DEIS Chapter 2.

FTA and SEPTA initiated NEPA scoping with publication of the NOI on June 27, 2013; scoping continued through the tiered alternatives screening process described in Chapter 2. Public and agency scoping meetings were held on July 16, 2013. The scoping process is documented in the 2014 *Draft Scoping Meeting Technical Memorandum* for the Project. Scoping is required under NEPA regulations and guidelines; it is an early and open process for determining the scope of issues to be addressed and for identifying significant issues related to a proposed action. Scoping offers the opportunity for the public and government agencies to review information on the Project and provide comments with the intent of establishing the scope and content of the DEIS.

SEPTA received 79 comments from commenters (public and agency) during the 45-day scoping comment period. Of these comments, more than one-third of them were about Purpose and Need (34 percent) followed closely by Alternatives at 30 percent. Affected Environment generated 10 percent of comments, Study Area 8 percent, Costs and Funding 6 percent, and Public and Agency Involvement represented 4 percent of the total. Outside of Scope comments were 8 percent. Project-related themes heard included:

- Support and non-support of increased transit services to King of Prussia/Valley Forge area;
- Minimize transfers;
- Support and non-support for Regional Rail extensions;
- Visual and habitat impacts along PECO right-of-way (ROW);
- Effect on water supply;
- Property impacts/proximity to residences; and,
- Cost/tax effect.

5.1.3.2 Steering Committee

The Project's Steering Committee (SC) offers guidance and direction regarding overall Project activities, including the direction of the public involvement program. The SC comprises representatives from SEPTA, the Montgomery County Planning Commission, the Delaware County Planning Department, the GVFTMA, Upper Merion Township and the Delaware Valley Regional Planning Commission (DVRPC). The SC provided input at multiple meetings with SEPTA during alternatives development and evaluation (**Table 5.1-2**), including the following key themes:

- Importance of serving key destinations and businesses;
- Importance of rail transit service to recently rezoned mixed-use area;
- Number and locations of stations and park-and-ride facilities;
- Elevated versus at-grade guideway;
- Importance of US Route 202 as Upper Merion Township's "Main Street";
- Sensitivity of Upper Merion and public to construction and traffic disruptions along US Route 202;
- Coordination with jurisdictional owners;
- Role of the Project in supporting Upper Merion's economic development planning;
- The Project role in County planning;
- Safety;
- Ridership modeling;
- Screening process methodology;
- Cost;
- Design refinements; and,
- Financial plan.

5.1.3.3 Technical Advisory Committee

The Project's Technical Advisory Committee (TAC) serves as both a sounding board and resource for the Project, providing an informed review of technical analyses, design guidance and operational strategies. Primary membership includes representatives from Federal Transit Administration (FTA), SEPTA, PennDOT District 6, PECO, the Pennsylvania Turnpike Commission, Montgomery County Planning Commission, Delaware County Planning Department, Norfolk Southern, Federal Highway Administration (FHWA), DVRPC and Upper Merion Township. The committee provided input at multiple meetings with SEPTA during the EIS process (**Table 5.1-2**), including the following key themes:

- Integration of the Project and First Avenue Road Diet project;
- Number and locations of stations and park-and-ride facilities;
- Alternative alignment routes;
- Consideration of noise and visual impacts;
- Approach to neighborhood coordination;
- Effect of mixed use rezoning on residential population;
- Connection to Valley Forge National Historical Park (VFNHP);
- Future plans of jurisdictional owners;
- Screening methodology;

- Community engagement;
- DEIS public and agency comments; and,
- Design refinement.

5.1.3.4 Stakeholder Advisory Committee

The Project's Stakeholder Advisory Committee provides a forum to communicate and discuss local issues and ideas important to the development of the DEIS and FEIS. Primary membership includes major property owners and employers in the study area, including Simon Properties (owner of the King of Prussia Mall), Chambers of Commerce, KOP-BID, VFNHP, Montgomery County Planning Commission and the Delaware County Planning Department. The committee provided input at multiple meetings with SEPTA during the EIS process (**Table 5.1-2**), including the following key themes:

- Need for sufficient parking for park-and-ride access at terminal stations;
- Travel times should be as quick as possible;
- Preference for alternatives that go behind the Mall;
- Number and locations of stations and park-and-ride facilities;
- Alignment routes;
- Guideway structure dimensions;
- Property impacts;
- Access to other destinations such as the Parkview Towers;
- Costs of alternatives and funding;
- Public impacts;
- Screening methodology;
- Trail interconnectivity;
- Community engagement;
- DEIS public and agency comments; and,
- Design refinement.

Table 5.1-2: Summary of Other Interested Parties Meetings

Interested Parties Meetings			Key Comment Themes	SEPTA Response Actions
Date	Types	Objective		
Week of 12/10/2012 (actual meetings 12/10, 12/12, 12/14)	Stakeholder Interviews	To develop clear understandings of local issues, concerns, goals and strategies	<ul style="list-style-type: none"> •The King of Prussia/Valley Forge area: has great auto access but is auto dependent; experiences cut-through traffic in residential areas off US Route 202; suffers from unpredictable bus travel times due to traffic; needs improved access to the region's talent pool; lacks an identity. •The Project is viewed positively by improving mobility options •During planning, the Project should provide pedestrian amenities at and around stations; be designed so as to reduce curves to increase rail travel speed; not create conflicts with vehicle traffic 	<p>Reliability and access included in Project purpose and need (DEIS and FEIS Chapter 1)</p> <p>Stations include pedestrian access elements (FEIS Section 2.3.2.2)</p> <p>Elevated guideway in each Action Alternative, including Preferred Alternative eliminates most potential Project impacts on traffic (DEIS Section 3.2.3.2)</p>
10/29/2014	Local business outreach	To inform the business community (owners, managers and employees) about the Project and to collect feedback.	<ul style="list-style-type: none"> •A rail line in King of Prussia would be beneficial to the area •Parking concerns •Supportive of the Project 	<p>Two park-and-ride facilities are included in Project (FEIS Section 2.3.2.2)</p> <p>Investigate parking management best-practices</p>
3/14/2016	Valley Forge Homes' residents	Listen to concerns	<ul style="list-style-type: none"> •Residents' concerned they are not being heard during the outreach process •Effect on residents' homes and surrounding area •No residential benefits •Concerns regarding the Project decision-making process 	<p>SEPTA established regular neighborhood meetings with Valley Forge Homes and Brandywine Village (DEIS Section 7.1.3.7)</p> <p>SEPTA established Community Working Group to engage Project-wide residents (DEIS Section 7.1.3.6)</p> <p>PA Turnpike North/South Option is assessed in the DEIS</p>

Interested Parties Meetings			Key Comment Themes	SEPTA Response Actions
Date	Types	Objective		
				<p>to reduce residential impacts, and incorporated into the Preferred Alternative in the FEIS (FEIS Section 2.1 and Chapter 4)</p> <ul style="list-style-type: none"> •DEIS and FEIS explains Project decision-making process and public role (DEIS Chapters 7 and 8, FEIS Chapter 5))
5/12 and 5/14/2016	Valley Forge Homes backyard visits	Listen to concerns	<ul style="list-style-type: none"> •Visual, privacy impacts •Noise and vibration impacts •Property impacts •Drainage •Sinkholes •Property value effects •No benefits for impacted residents 	<p>PA Turnpike North/South Option is incorporated in the Preferred Alternative and assessed in the FEIS to reduce visual, privacy, noise, vibration and property impacts (FEIS Chapters 2.1 and 4</p> <p>FEIS assesses potential drainage and sinkhole impacts (FEIS Section 4.11)</p> <ul style="list-style-type: none"> •A PA Turnpike At-Grade South Side Option was considered during screening but eliminated due to potentially complex construction and maintenance issues (DEIS Section 4.8.3.2)
6/21/2016	Valley Forge Homes' residents	Present initial concepts for north side of PA Turnpike alignment and lower elevation south side alignment; listen to concerns	<ul style="list-style-type: none"> •Visual impacts •Project impacts on population and demand on water treatment infrastructure •No benefit for impacted residents; benefits businesses only 	<p>PA Turnpike North/South Option incorporated in the Preferred Alternative and assessed in the FEIS to reduce visual, noise, vibration, and safety impacts (FEIS Chapters 2.1, 3 and 4)</p>

Interested Parties Meetings			Key Comment Themes	SEPTA Response Actions
Date	Types	Objective		
			<ul style="list-style-type: none"> •Noise impacts, including from alignment on north side of PA Turnpike •Vibration and flooding impacts •Crime not an issue •Use trolley connection in Delaware County •North side of Turnpike alignment preferred •Project would not relieve congestion •Park-and-ride facilities would limit parking conflicts at King of Prussia Mall •Support Project 	<p>FEIS assesses potential population, drainage, flooding and sinkhole impacts (FEIS Sections 4.3 and 4.11)</p> <ul style="list-style-type: none"> •A PA Turnpike At-Grade South Side Option was considered during screening but eliminated due to potentially complex construction and maintenance issues (DEIS Section 4.8.3.2)
6/29/2016	Brandywine Village residents	Share updates on Project; listen to concerns	<ul style="list-style-type: none"> •Prefer bus service and NHSL station improvements •Use existing freight rail and nature trail corridors (Abrams Yard, NS) •Alignment under US Route 202 instead of elevated •Potable water impacts •No benefits for impacted residents •Noise, vibration, crime, property value and tax impacts •Property acquisitions •Sinkholes and drainage impacts •Emergency services impacts 	<ul style="list-style-type: none"> •DEIS and FEIS document other potential alignments considered (Section 2.1) <p>DEIS and FEIS assess potential for safety, property value, economic, noise, vibration and water resources impacts (DEIS and FEIS Sections 3.6, 4.3, 4.10 and 4.11, 4.16.5); DEIS and FEIS assess sinkholes and potential drainage and emergency services impacts (DEIS and FEIS Sections 3.6 and 4.11)</p>
10/4 and 10/11/2016	Valley Forge Homes and Brandywine Village residents	Share updates on Project; present renderings of the recommended LPA, PA Turnpike North/South	<ul style="list-style-type: none"> •Concerns about impacts to the 9/11 Memorial •Increased need for public safety services 	<ul style="list-style-type: none"> •DEIS includes 9/11 Memorial Avoidance Option (DEIS Section 2.2.5) •DEIS and FEIS assess potential for safety, property, construction, vibration, traffic,

Interested Parties Meetings			Key Comment Themes	SEPTA Response Actions
Date	Types	Objective		
		Option, and at-grade option; listen to concerns	<ul style="list-style-type: none"> •Easements and taking of resident property •Disruption to a stable neighborhood during construction with heavy equipment and contractor vehicles •Vibration impacts •Increase in crime •Impact of additional traffic to casino •Noise and lights during construction •Visual impacts •Several residents felt the PA Turnpike North/South elevated Option is the best option •Concerns about traveling through 69th Street Transportation Center •Suggested adding a visual barrier on the guideway to offer privacy to residents 	<p>noise and visual impacts (DEIS and FEIS Chapters 3.6 and 4)</p> <ul style="list-style-type: none"> •PA Turnpike North-South Option is assessed in the DEIS and in the FEIS as part of the Preferred Alternative (FEIS Section 2.2.4)
2/16/2017	King of Prussia Volunteer Fire Company and Upper Merion Township Board of Supervisors member Bill Jenaway	Present 9/11 Memorial Avoidance Options	<ul style="list-style-type: none"> •Company to consider the potential to relocate firehouse and 9/11 Memorial 	<ul style="list-style-type: none"> •DEIS assesses 9/11 Memorial Avoidance Option (DEIS Sections 2.2.5 and 4.8.3.2)
10/16/2017	Steering Committee	Announce DEIS release, present DEIS analysis and findings, review and present the design options for LPA, summarize outreach	<ul style="list-style-type: none"> •NEPA impact analysis and key alternatives distinctions •Right of way/proximity impacts, mitigation •Residential concerns •Fire department concerns 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination, considered stakeholder input during design refinement, evaluated impacts in the FEIS, and developed mitigation

Interested Parties Meetings			Key Comment Themes	SEPTA Response Actions
Date	Types	Objective		
		efforts, garner committee member support	<ul style="list-style-type: none"> •Public outreach activities •Parking impacts •Constructability •Geotechnical considerations •LPA selection process 	commitments as warranted (FEIS Chapters 2, 4 and 5)
10/26/2017	Community Working Group	Discuss DEIS publication, findings, next steps and CWG role as Project advances	<ul style="list-style-type: none"> •Clarifying questions on the content presented by SEPTA 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through the design and FEIS process (FEIS Chapter 5)
11/1/2017	Agency Coordination Committee	Announce DEIS release, present DEIS analysis and findings, review and present the design options for LPA, summarize outreach efforts, garner committee member support	<ul style="list-style-type: none"> •NEPA impact analysis and key alternatives distinctions •Natural resource impacts and minimization/mitigation and permitting requirements •Residential and fire department concerns •Public outreach activities •Potential for archaeology or hazardous waste involvement •Incorporation of green stormwater infrastructure 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination, considered stakeholder input during design refinement, evaluated impacts in the FEIS, and developed mitigation commitments as warranted (FEIS Chapter 2, Section 4.11 and Chapter 5)
11/1/2017	Technical Advisory Committee	Announce DEIS release, present DEIS analysis and findings, review and present the design options for LPA, summarize outreach efforts, garner committee member support	<ul style="list-style-type: none"> •NEPA impact analysis and key alternatives distinctions •Residential and fire department concerns •Public outreach activities •Project opposition status 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination, considered stakeholder input during design refinement, evaluated impacts in the FEIS, and developed mitigation commitments as warranted (FEIS Section 2.3.2.8, Chapter 4 and Chapter 5)

Interested Parties Meetings			Key Comment Themes	SEPTA Response Actions
Date	Types	Objective		
11/2/2017	Stakeholder Advisory Committee	Announce DEIS release, present DEIS analysis and findings, review and present the design options for LPA, summarize outreach efforts, garner committee member support	<ul style="list-style-type: none"> •NEPA impact analysis and key alternatives distinctions •Residential and fire department concerns •Public outreach activities 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination, considered stakeholder input during design refinement, evaluated impacts in the FEIS, and developed mitigation commitments as warranted (FEIS Section 2.3.2.8, Chapter 4 and Chapter 5)
11/8/2017	Neighborhood Coordination	Status report, information session and public comment opportunity	<ul style="list-style-type: none"> •Fire company concerns •Opposition to 9/11 Memorial impacts •Possibility of public opposition ending Project and related fund reallocation •Residential privacy concerns •Train & station operational concerns (speed, horn operation, operating hours, parking lots, station locations) •Rail car longevity •Capital expenditure questions/timeframe •Construction vibration concerns •Petition submission procedures •Business/casino disposition 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination, considered stakeholder input during design refinement, evaluated impacts in the FEIS, and developed mitigation commitments as warranted (FEIS Sections 2.3.2 and 2.3.2.8, Section 4.10, Chapter 5, and Chapter 6)
1/17/2018	Community Working Group	Discuss outreach efforts, public/stakeholder comments, outreach commitments and FEIS/next steps	<ul style="list-style-type: none"> •Clarifying questions on the content presented by SEPTA 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination, considered stakeholder input during design refinement, evaluated impacts in the FEIS, and developed mitigation commitments as warranted (FEIS Chapters 2 and 5)

Interested Parties Meetings			Key Comment Themes	SEPTA Response Actions
Date	Types	Objective		
4/18/2018	Community Working Group	Discuss FTA New Starts Federal Grant Program	<ul style="list-style-type: none"> •Clarifying questions on the content presented by SEPTA 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination, considered stakeholder input during design refinement, evaluated impacts in the FEIS, and developed mitigation commitments as warranted (FEIS Chapters 6)
4/26/2018	Neighborhood Coordination	Discussion of FEIS and next steps	<ul style="list-style-type: none"> •Clarifying questions on the content presented by SEPTA 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination, considered stakeholder input during design refinement, evaluated impacts in the FEIS, and developed mitigation commitments as warranted (FEIS Chapters 2 and 5)
7/10/2018	Steering Committee	Project/contract status update, DEIS comment overview, stakeholder and community outreach summary	<ul style="list-style-type: none"> •NEPA procedures •9/11 Memorial impacts •Community impact assessment and minimization •Design refinement effort •Public/agency comments on DEIS •Public hearings •Program financial planning 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination, considered stakeholder input during design refinement, evaluated impacts in the FEIS, and developed mitigation commitments as warranted (FEIS Sections 2.2 and 2.3.2.8, Chapter 5 and Chapter 6)
7/11/2018	Agency Coordination Committee	Project/contract status update, DEIS comment overview, stakeholder and community outreach summary	<ul style="list-style-type: none"> •NEPA procedures •Natural, Section 4(f) and historic resource considerations •Permitting implications 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination, considered stakeholder input during design refinement, evaluated impacts in the FEIS, and developed mitigation commitments as warranted (FEIS Sections 4.7, 4.11, and

Interested Parties Meetings			Key Comment Themes	SEPTA Response Actions
Date	Types	Objective		
				4.17, and Final Section 4(f) Evaluation)
7/11/2018	Technical Advisory Committee	Project/contract status update, DEIS comment overview, stakeholder and community outreach summary	<ul style="list-style-type: none"> •NEPA procedures •Public/agency comments on DEIS •Community engagement process •Program financial planning 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination, considered stakeholder input during design refinement, evaluated impacts in the FEIS, and developed mitigation commitments as warranted (FEIS Chapters 5 and 6)
7/12/2018	Stakeholder Advisory Committee	Project/contract status update, DEIS comment overview, stakeholder and community outreach summary	<ul style="list-style-type: none"> •NEPA procedures •Public/agency comments on DEIS •Community engagement process •Potential for trail connectivity •Program financial planning 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination, considered stakeholder input during design refinement, evaluated impacts in the FEIS, and developed mitigation commitments as warranted (FEIS Section 3.3, and Chapters 5 and 6)
7/18/2018	Community Working Group	Discuss SEPTA's RFP for project development, FTA New Starts, FEIS, 20-year financial plan	<ul style="list-style-type: none"> •Project design procurement •NEPA procedures •Parking considerations •Program financial planning 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination, considered stakeholder input during design refinement, evaluated impacts in the FEIS, and developed mitigation commitments as warranted (FEIS Sections 2.3.2.2, 3.4, 4.5 and Chapter 6)
9/17/2018	Community Working Group	DVRPC Station Area Plan update	<ul style="list-style-type: none"> •DVRPC Station Area Plan 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through design refinement and the FEIS process (FEIS Sections 2.3.2.2 and 4.2 5)

Interested Parties Meetings			Key Comment Themes	SEPTA Response Actions
Date	Types	Objective		
9/26/2018	Neighborhood Coordination	Discuss SEPTA's RFP for project development, FTA project development and FEIS	<ul style="list-style-type: none"> •NEPA procedures •Neighborhood project development update •Project design procurement 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through design refinement and the FEIS process (FEIS Chapters 5 and 6)
3/12/2019	Upper Merion Township Public Works	Project update and overview	<ul style="list-style-type: none"> •The Township will provide data and planning information to SEPTA for the FEIS 	<ul style="list-style-type: none"> •SEPTA applied the Township's data and planning information to the FEIS analyses (FEIS Chapters 1, 3 and 4)
3/19/2019	Neighborhood Coordination	Allow residents to meet the design team and inform residents on scope of design refinement	<ul style="list-style-type: none"> •Connection would benefit business community, but local residents will not use •Shuttles from existing nearby stations would be sufficient •Safety concerns regarding sidewalks and platform/wait areas •SEPTA should provide a summary of time/cost/transfer information for new route •Noise and vibration concerns •ADA accessibility at 69th Street Transportation Center 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination, considered stakeholder input during design refinement, evaluated impacts in the FEIS, and developed mitigation commitments as warranted (FEIS Sections 2.3.2.7, 3.1.3, 3.6, 4.4.3, and 4.10)
3/20/2019	Community Working Group	Update CWG on design refinement scope and introduce design team, discuss Project costs and funding	<ul style="list-style-type: none"> •Design process and scope •Project funding •FEIS/ROD process and completion schedule 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Section 2.3.2.9, and Chapters 5 and 6)
3/21/2019	Phila CONNECT Committee	City Planning coordination	<ul style="list-style-type: none"> •Design process and scope •FEIS/ROD process and completion schedule 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through the design refinement and the

Interested Parties Meetings			Key Comment Themes	SEPTA Response Actions
Date	Types	Objective		
			•Ridership projections	FEIS process (FEIS Sections 2.2, 2.3.2.9, and 3.1.3)
3/22/2019	KOP BID Annual Report Luncheon	Project update and overview	•Clarifying questions on the content presented by SEPTA	•SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Chapter 2)
3/25/2019	Core Stakeholders	Project update on Preliminary Engineering, FEIS, 20-year financial plan, Advocacy/Political Outreach and stakeholder updates	•Clarifying questions on the content presented by SEPTA	•SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Chapter 2)
3/25/2019	Steering Committee	Team introductions, Project update, NEPA FEIS/ROD status, 20-year financial plan overview, preliminary engineering findings and alignment/station options	•Alternatives/station location refinements •Discussion of design alternatives and options	•SEPTA continued outreach and coordination, considered stakeholder input during design refinement (FEIS Section 2.3)
4/3/2019	Agency Coordination Committee	Project update, new team member introductions, FEIS/ROD status, 20-year financial plan overview, design refinement scope and findings	•Alternatives/station location refinements •Discussion of design alternatives and options •Wetlands/waters and Section 4(f) resource considerations	•SEPTA continued outreach and coordination, considered stakeholder input during design refinement, evaluated impacts in the FEIS, and developed mitigation commitments as warranted (FEIS Sections 2.3, 4.11.3, and Final Section 4(f) Evaluation)
4/3/2019	Technical Advisory Committee	Project update, new team member introductions, FEIS/ROD status, 20-year financial plan	•Alternatives/station location refinements •Discussion of design alternatives and options	•SEPTA continued outreach and coordination through the design refinement and the

Interested Parties Meetings			Key Comment Themes	SEPTA Response Actions
Date	Types	Objective		
		overview, design refinement scope and findings	<ul style="list-style-type: none"> •Station drop-off/pick-up/shuttle/parking, etc. 	FEIS process (FEIS Section 2.3)
4/8/2019	PECO Coordination	Discussion of Project design along PECO ROW	<ul style="list-style-type: none"> •Project design along PECO ROW 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Section 2.3 and 2.3.2.9)
4/11/2019	Stakeholder Advisory Committee	Project background and update on Preliminary Engineering, FEIS, 20-year financial plan, FTA NEPA process, summarize ongoing outreach efforts	<ul style="list-style-type: none"> •Project overview/update meeting •Clarifying questions on the content presented by SEPTA 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Chapters 2 and 6)
4/11/2019	Montgomery County Commerce Department	Project update	<ul style="list-style-type: none"> •Clarifying questions on the content presented by SEPTA 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Chapters 2 and 6)
4/15/2019	Core Stakeholders	Project update on Preliminary Engineering, FEIS, 20-year financial plan, FTA NEPA process, Advocacy/Political Outreach and stakeholder updates	<ul style="list-style-type: none"> •Clarifying questions on the content presented by SEPTA 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Chapters 2 and 6)
4/16/2019	PA Turnpike Commission Meeting	Review conceptual alignment and discuss PTC coordination and approval	<ul style="list-style-type: none"> •As-built plan information •Various PTC design considerations 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Sections 2.2 and 2.3.2.1)

Interested Parties Meetings			Key Comment Themes	SEPTA Response Actions
Date	Types	Objective		
4/17/2019	Simon Properties Coordination	Simon Properties coordination	<ul style="list-style-type: none"> •Parking impacts should be minimized and mitigated •Potential pedestrian bridge to KOP mall •Stations should not conflict with planned improvements at KOP mall 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination, considered stakeholder input during design refinement, evaluated impacts in the FEIS, and developed mitigation commitments as warranted (FEIS Sections 2.3.2.2 and 4.5.3)
4/25/2019	KOP Rail Coalition Advisory Committee Meeting	Project update, discuss coalition awareness initiatives	<ul style="list-style-type: none"> •Clarifying questions on the content presented by SEPTA 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Chapters 2 and 6)
5/9/2019	KOP Transformation Symposium - Harvard Club of Phila	Project update	<ul style="list-style-type: none"> •Clarifying questions on the content presented by SEPTA 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Chapters 2 and 6)
5/10/2019	Piazza Management Group, Design Coordination	Project update, obtain station location/design insight	<ul style="list-style-type: none"> •Commercial property impacts •Stakeholder coordination 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Sections 4.1.3 and 4.5.3, and Chapter 5)
5/15/2019	Community Working Group	Discussion of Project capital funding	<ul style="list-style-type: none"> •FTA New Starts funding •Project financial planning 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Chapter 6)
5/16/2019	Montgomery County	Project update	<ul style="list-style-type: none"> •Clarifying questions on the content presented by SEPTA 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through the design refinement and the

Interested Parties Meetings			Key Comment Themes	SEPTA Response Actions
Date	Types	Objective		
	Commerce Department			FEIS process (FEIS Chapters 2 and 6)
5/20/2019	Core Stakeholders	Project update on Preliminary Engineering, FEIS, 20-year financial plan, Advocacy/Political Outreach and stakeholder updates	<ul style="list-style-type: none"> •Clarifying questions on the content presented by SEPTA 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Chapters 2 and 6)
5/22/2019	Valley Forge Casino Resort Design Coordination	Project update, obtain design and station location insight	<ul style="list-style-type: none"> •Commercial property impacts •Stakeholder coordination •Station/VFCR parking connections 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination, considered stakeholder input during design refinement, evaluated impacts in the FEIS, and developed mitigation commitments as warranted (FEIS Sections 2.3.2, 4.1.3 and 4.5.3, and Chapter 5)
5/30/2019	PennDOT District 6 Meeting	Design refinement update and solicit early feedback from PennDOT	<ul style="list-style-type: none"> •Design issues affecting U.S. 202 and Henderson Road 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Sections 2.3.2.1 and 2.3.2.2, and 3.2)
5/30/2019	Keystone Property Group Coordination	Project update, obtain design and station location insight	<ul style="list-style-type: none"> •Commercial property impacts •Stakeholder coordination •Alignment and station design refinement •Station/Parkview Tower parking impacts 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination, considered stakeholder input during design refinement, evaluated impacts in the FEIS, and developed mitigation commitments as warranted (FEIS Sections 2.2, 2.3, 3.4, 4.1.3 and 4.5.3, and Chapter 5)

Interested Parties Meetings			Key Comment Themes	SEPTA Response Actions
Date	Types	Objective		
6/20/2019	Kravco Properties Coordination	Project update, obtain design and station location insight	<ul style="list-style-type: none"> •Commercial property impacts (circulation, visibility, parking) •Alignment and station design refinement 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination, considered stakeholder input during design refinement, evaluated impacts in the FEIS, and developed mitigation commitments as warranted (FEIS Sections 2.2, 2.3, 3.4, 4.1.3, 4.5.3, 4.8.3, and 4.10.3)
6/28/2019	Goodman Properties Coordination	Project update, obtain design and station location insight	<ul style="list-style-type: none"> •Commercial property impacts •Visibility, parking and Costco long-term lease considerations •Alignment and station design refinement 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination, considered stakeholder input during design refinement, evaluated impacts in the FEIS, and developed mitigation commitments as warranted (FEIS Sections 2.2, 2.3, 3.4, 4.1.3, 4.5.3, 4.8.3, and 4.10.3)
7/11/2019	Simon Properties Coordination	Design overview and update, discuss guideway and station(s) proximity and connections to KOP mall, design/geotech/redevelopment plan information exchange	<ul style="list-style-type: none"> •Station-KOP Mall connectivity •Mall redevelopment considerations •Geotechnical (sinkhole) considerations •Information/data sharing 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Sections 2.3.2.2, 4.11.3, and Chapter 5)
7/22/2019	Core Stakeholders	Project update on Preliminary Engineering, FEIS, 20-year financial plan, Advocacy/Political Outreach and stakeholder updates	<ul style="list-style-type: none"> •Clarifying questions on the content presented by SEPTA 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Chapters 2 and 6)
8/2/2019	Henderson Road Station &	Introductions, Project update, PA Turnpike Interchange Project	<ul style="list-style-type: none"> •Coordination of PTC/Henderson Road interchange improvements and rail alignment 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through the design refinement and the

Interested Parties Meetings			Key Comment Themes	SEPTA Response Actions
Date	Types	Objective		
	Turnpike Interchange	update, Henderson Road Station Design, next steps		FEIS process (FEIS Section 2.3.2.2 and 3.2)
8/7/2019	Park-and-Ride Facility Sizing	Discuss sizing of parking lots at Henderson Road and Convention Center Stations	•Park-and-Ride Facility Sizing	•SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Section 2.3.2.2)
8/14/2019	Congresswoman Dean Briefing and Tour	Project update	•Clarifying questions on the content presented by SEPTA	•SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Chapters 2 and 6)
8/19/2019	Core Stakeholders	Project update, design refinement update, Advocacy/Political Outreach	•Clarifying questions on the content presented by SEPTA	•SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Chapters 2 and 6)
9/10/2019	Kravco Properties Coordination	DEIS publication, design refinement iterations	•Alignment/station locations, related potential parking and visibility impacts	•SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Sections 2.2, 2.3, 2.3.2.2, 4.8.3)
9/10/2019	Upper Merion Township Manager Presentation	Project progress update	•Project progress update •Clarifying questions on the content presented by SEPTA	•SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Chapters 2 and 6)
9/11/2019	Montgomery County Commission Tour	Project update	•Clarifying questions on the content presented by SEPTA	•SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Chapters 2 and 6)

Interested Parties Meetings			Key Comment Themes	SEPTA Response Actions
Date	Types	Objective		
9/19/2019	KOP Big 3 Breakfast	Project update	<ul style="list-style-type: none"> •Clarifying questions on the content presented by SEPTA 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Chapters 2 and 6)
9/30/2019	PECO Design Review	Project update, organize for future SEPTA/PECO coordination	<ul style="list-style-type: none"> •Reimbursement agreement for engineering/review process for engineering •Station /parking location •Alignment cut area/other design considerations/constraints •Other PECO concerns 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Sections 2.3.2.1, 2.3.2.2, 2.3.2.8 and Chapter 5)
11/26/2019	PECO Design Review	Project discussion, Project schedule, PECO concerns, PECO design data	<ul style="list-style-type: none"> •Proposed SEPTA facilities in PECO ROW (clearance parameters, tower replacement, PECO's design parameters, future PECO expansion, maintenance, outage conditions during construction) 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Sections 2.3.2.1, 2.3.2.2, and 2.3.2.8)
3/20/20	PECO's Design Review	PECO's future expansion plan discussion, relationship to SEPTA design	<ul style="list-style-type: none"> •PECO's future expansion plan, PECO clearance requirements, guideway alignment, PECO corridor cross section concepts, station parking, monopole height 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Sections 2.3.2.1, 2.3.2.2, and 2.3.2.8)
4/28/2020	PECO design Review	Project discussion, Project schedule, PECO concerns, PECO design data	<ul style="list-style-type: none"> •Project cannot impede future PECO plans, SEPTA continuing to work toward addressing PECO concerns, design challenges with northerly guideway shift, substation relocation 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Sections 2.3.2.1, 2.3.2.2, and 2.3.2.8)
6/2/2020	AQUA Coordination	Project update, establish procedures to obtain existing and planned AQUA facilities information	<ul style="list-style-type: none"> •Location of Aqua facilities (existing and planned), subsurface utilities engineering 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through the design refinement and the

Interested Parties Meetings			Key Comment Themes	SEPTA Response Actions
Date	Types	Objective		
				FEIS process (FEIS Sections 2.2, 2.3.2.1, and 4.13)
6/10/2020	PA Turnpike Commission	Project update, discuss Commission comments on design refinement submission of 9/30/19	<ul style="list-style-type: none"> •PTC design refinement review/comment resolution, PECO coordination regarding Henderson Road Station location, Project ROW and limits of disturbance, guideway maintenance and access agreement 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Sections 2.2, 2.3.2.1, and 2.3.2.2)
6/16/2020	PennDOT update meeting	Update to PennDOT staff	<ul style="list-style-type: none"> •Design and NEPA update, Henderson Road vertical clearance, Commercial land use scenario, bus pull-offs, station parking alternatives, SR 202 crossing, signalized intersections along township-owned roads 	<ul style="list-style-type: none"> •SEPTA continued outreach and coordination through the design refinement and the FEIS process (FEIS Sections 2.2, 2.3.2.1, 2.3.2.2, and 3.2)

5.1.3.5 Stakeholder Advisory Committee

The Project's Stakeholder Advisory Committee provides a forum to communicate and discuss local issues and ideas important to the development of the DEIS and FEIS. Primary membership includes major property owners and employers in the study area, including Simon Properties (owner of the King of Prussia Mall), Chambers of Commerce, KOP-BID, VFNHP, Montgomery County Planning Commission and the Delaware County Planning Department. The committee provided input at multiple meetings with SEPTA during the EIS process

(**Table 5.1-2**), including the following key themes:

- Need for sufficient parking for park-and-ride access at terminal stations;
- Travel times should be as quick as possible;
- Preference for alternatives that go behind the Mall;
- Number and locations of stations and park-and-ride facilities;
- Alignment routes;
- Guideway structure dimensions;
- Property impacts;
- Access to other destinations such as the Parkview Towers;
- Costs of alternatives and funding;
- Public impacts;
- Screening methodology;
- Trail interconnectivity;
- Community engagement;
- DEIS public and agency comments; and,
- Design refinement.

5.1.3.6 Core Stakeholder Group

A core group of stakeholders regularly meet with SEPTA at decision points and milestones. Attendees at these meetings include the KOP-BID, GVFTMA, Upper Merion Township and Montgomery County, the entities that lead the land use and transportation planning decision-making process in the transportation study area. The Core Stakeholders provided input at meetings with SEPTA during the EIS process (**Table 5.1-2**). For example, SEPTA met with the Core Stakeholders group to help SEPTA identify a recommended LPA for the DEIS. In a series of two work sessions on August 18, 2015 and September 16, 2015, the group considered the preliminary technical analysis results for the Action Alternatives (DEIS Table 8-4.1), public and stakeholder input regarding the potential benefits and impacts of the alternatives, and the factors the Core Stakeholders group identified as important to decision-making. Key themes provided by the group include:

- Cost;
- Ability of the alternatives to serve commercial and office areas;
- Importance of providing access to jobs, large employer access;
- Alignment behind the Mall preserves Mall visibility;
- Screening should consider visual impacts, temporary access impacts and support for Transit Oriented Development (TOD);
- Serve areas with redevelopment/development potential;
- Ease of adopting new transit supportive zoning;
- Tourism access;
- Bicycle/pedestrian access;
- Visual impacts;
- Need for broad acceptance by key stakeholders/political leaders;
- Need for County support;
- Resident needs and concerns;
- Construction impacts, including traffic and property access
- Potential for future extension;
- Number and locations of stations;
- Community engagement;
- DEIS public and agency comments; and,
- Design refinement.

5.1.3.7 Community Working Group

SEPTA also established a Community Working Group (CWG), an advisory body made up of representatives of the various Project study area neighborhoods and residential areas as well as members from Upper Merion Township Planning Commission. Upper Merion Township Supervisors are informed of the meetings and are encouraged to attend as their schedules allow in an ex-officio fashion. Currently there are 10 resident members and two members from Upper Merion Township's Planning Commission. The purpose of the CWG is to work with SEPTA during the EIS process and as the Project advances to communicate and resolve issues related to the Project. Focused meetings with the CWG include SEPTA updates of Project progress, in depth discussion of issues and concerns, and consideration of minimization and mitigation strategies.

Key issues the CWG is focused on include visual impacts and property impacts. CWG meeting topics have included the Federal EIS process, ridership data and modeling, safety and crime, Project development and FTA New Starts processes, station area planning, 20-year financial plan and Project funding, FEIS process, and FEIS schedule. SEPTA asks guest speakers to

attend and present information in topics in which they are experts. For example, Chris Puchalsky, Ph. D., formerly from DVRPC, presented information on ridership data and modeling. Upper Merion Township's Chief of Police, Thomas Nolan and Captain Charles Lawson from SEPTA's Transit Police presented on crime and safety. The CWG will continue to meet to discuss topics suggested by the members.

5.1.3.8 Public Meetings and Workshops

SEPTA hosted meetings and workshops with the public at key milestones during the NEPA process. The purposes of these meetings was to convey information about the Project to the public and seek public input. For persons not able to attend public meetings, SEPTA uploaded meeting materials to the Project website in the form of "virtual meetings." In addition, videos of public meetings were made available on Upper Merion's public access channel (UMGA-TV) and at <https://www.youtube.com/user/KOPRail>. The input SEPTA received from the public has been factored into the EIS process.



Project public outreach activity, 2016.

Source: McCormick Taylor, 2016.

Additionally, SEPTA hosted less formal public information sessions at stations along the current NHSL and at other key locations. The goal of these public information sessions was to offer the public an additional opportunity to learn about the Project and provide input.

Table 5-1.1 summarizes the public meetings, workshops and information sessions for the Project to date, including locations, meeting objectives, key comment themes, and actions SEPTA has taken as a result of the input it received. SEPTA has made a conscientious effort to hold meetings at locations within the Project study area as well as at locations currently connected to the NHSL, such as in Norristown and Upper Darby. In response to public comment and feedback, SEPTA did the following:

- Focused on conceptually designing the guideway with minimum required dimensions, such as single-column supports;
- Prepared still and animated renderings what the guideway might look like;

- Examined the potential for at-grade alternatives, described in DEIS Chapter 2; and,
- Examined the potential to shift a portion of the recommended LPA alignment to the north side of the PA Turnpike (PA Turnpike North/South Option).

Table 5.1-2 lists meetings with interested parties and SEPTA's actions in response to specific concerns.

5.1.3.9 Meetings with Jurisdictional Owners

Jurisdictional owners are those transportation, utility and major commercial facility entities in the study area, such as: PECO, PennDOT, the PA Turnpike Commission, Simon Property Group, Kravco Company, LLC, Piazza Management Company, Valley Forge Casino Resort, Keystone Property Group, and Goodman Properties. SEPTA initiated coordination with these jurisdictional owners early in the EIS process and has met periodically with them during the EIS and conceptual design. Each jurisdictional owner has specific concerns for the continued operation of their facilities, such as existing and future development planning, mandatory design standards, and safety and access issues. Coordination with jurisdictional owners has been essential in SEPTA's alternatives development and evaluation process, in SEPTA's selection of the Preferred Alternative, and in the conceptual design of the Preferred Alternative.

5.1.3.10 Notice of Availability, DEIS Public Comment Period, and Public Hearings

A Notice of Availability (NOA) for the DEIS was published on October 17, 2017, in the Federal Register, which also included announcement of the DEIS public comment period and public hearing schedule, along with ways to comment on the DEIS. The comment period provided 53 days (October 17, 2017 to December 4, 2017) for the public to review and provide input on the findings presented in the DEIS. The DEIS public comment period complied with the requirements codified at 23 CFR §§ 771.123(g) and (h). The NOA announced three public information sessions and three public hearings and encouraged viewers to provide comments through multiple means. Comments on the DEIS could be provided by the following means:

- By **email** to info@kingofprussiarail.com;
- By **postal mail** to SEPTA Project Manager, c/o McCormick Taylor, Inc. (ATTN: ECW), 2001 Market Street, 10th Floor, Philadelphia, PA 19103;
- By **comment card** at three public hearing/information sessions:
 - Monday, November 13, 2017, from 1 p.m. to 4 p.m. at DoubleTree Hotel Valley Forge, Jefferson Ballroom, 301 West DeKalb Pike, King of Prussia, PA 19406
 - Monday, November 13, 2017, from 5 p.m. to 8 p.m. at DoubleTree Hotel Valley Forge, Jefferson Ballroom, 301 West DeKalb Pike, King of Prussia, PA 19406
 - Wednesday, November 15, 2017, from 5 p.m. to 5 p.m. at Norristown Municipal Building, Norristown, PA 19401
- **In-person** during three public hearing sessions:

- Monday, November 13, 2017, from 1 p.m. to 4 p.m. at DoubleTree Hotel Valley Forge, Jefferson Ballroom, 301 West DeKalb Pike, King of Prussia, PA 19406
- Monday, November 13, 2017, from 5 p.m. to 8 p.m. at DoubleTree Hotel Valley Forge, Jefferson Ballroom, 301 West DeKalb Pike, King of Prussia, PA 19406
- Wednesday, November 15, 2017, from 5 p.m. to 7 p.m. at Norristown Municipal Building, Norristown, PA 19401
- Through the Project's website: <http://www.kingofprussiarail.com/comment.html>.

Following the publication of the NOA, the DEIS was made available in public libraries in Upper Merion Township, Upper Darby Township and the Montgomery County-Norristown Public Library, and on the Project website, www.kingofprussiarail.com. A summary of these locations is listed in DEIS Appendix D. Digital copies of the DEIS were also distributed to agencies and stakeholders for their review. The list of agencies and entities that received the DEIS is included in DEIS Appendix D.

In addition, SEPTA used the following tools to seek comment on the DEIS: Project website (www.kingofprussiarail.com); flyers on SEPTA vehicles and at stations; announcements in Upper Merion Township Hall and Upper Merion Township's e-newsletter; KOP-BID postings at businesses and on shuttle buses; chambers of commerce email; the Project-specific Facebook page (www.facebook.com/KOPRail); Project-specific Twitter account: www.twitter.com/KOPRail; Project newsletter; press releases in local and regional newspapers, including *Norristown Times Herald*, *Main Line Times*, *King of Prussia Courier*, *Daily News* and the *Philadelphia Inquirer*; and postcard announcements mailed to each address in Upper Merion Township. SEPTA also hosted less formal public information sessions at stations along the current NHSL and at other key locations. These meetings were focused on providing public access to SEPTA representatives and design staff to help answer questions and offer guidance on how to review and comment on the DEIS.

A total of 147 individuals attended at least one of the public hearings. A total of 279 public comments were provided by 216 public commenters. In addition to public comments, SEPTA received 2 resolutions of support, 53 letters of support, 2 public petitions opposing the Project, and 24 comments by letter or email from three agencies.

5.1.3.11 Public Outreach and Agency Coordination After the DEIS

Following publication of the DEIS and public comment period, SEPTA continued the public outreach and agency coordination efforts using the same methods to reach the public, Project stakeholders and participating agencies, continuing to host Project committee meetings for the four committees convened for the EIS process, hosting other meetings, continuing and enhancing the Project website, newsletter and email updates, flyer distribution on SEPTA transit vehicles and at stations, postings of meeting notices at the Upper Merion Township Hall and in the township's e-newsletter, coordination with the KOP-BID and GVFTMA to post and email meeting announcements, as well as press releases and social media updates.

Key topics of discussion during public outreach and agency coordination after the DEIS included:

- Project development and 15% engineering design;
- The FEIS process;
- Project financial plan;
- FTA New Starts Federal Grant Program; and,
- DVRPC's Station Area Plan update.

During design refinement, SEPTA met with the following jurisdictional owners to refine SEPTA's adopted LPA: PA Turnpike Commission, Simon Properties, Piazza Management Group, Valley Forge Casino Resort, PECO, PennDOT, Keystone Property Group, Kravco Properties, Goodman Properties, and Aqua PA. The purpose of these meetings was to identify opportunities to improve the Project design to address issues and concerns on the part of the jurisdictional owners including reviewing mitigation and commitments. Through coordination with jurisdictional owners, SEPTA made the following design refinements to the Project:

- Minimized ROW needs from PECO;
- Reduced impacts to the PA Turnpike Service Area;
- Eliminated the station Allendale Road Station structure over Mall Boulevard;
- Reduced Costco driveway impacts;
- Reduced traffic impacts during Project construction;
- Reduced permanent impacts during Project operations;
- Shifted the guideway from over Wills and Mall Boulevards to alongside the roadways;
- Reduced property impacts in the Mall Boulevard area;
- Eliminated Mall Blvd Station structure over Mall Boulevard;
- Provided elevated pedestrian walkways at Allendale Road and Mall Blvd Stations; and,
- Accommodate redevelopment plans being advanced by Simon Properties and other commercial property owners.

5.2 Agency Coordination

5.2.1 Approach

SEPTA developed a 2013 *KOP Rail Agency Coordination Plan* (ACP) that outlines outreach activities and communication methods to be used throughout the NEPA process. The ACP is appended to SEPTA's 2014 *KOP Rail Draft Scoping Meeting Technical Memorandum*, which is available on the Project website (www.kingofprussiarail.com). The plan specifies communication with relevant agencies on a periodic basis with the goals of awareness and involvement in the alternatives development and decision-making processes. These activities began with scoping

and are ongoing. SEPTA developed and manages a master list of participating agencies, described within the following subsections, which it uses throughout the agency coordination process.

5.2.2 Summary of Agency Coordination Activities

5.2.2.1 Cooperating and Participating Agencies

SEPTA invited applicable Federal, state, regional and local agencies to be involved in the EIS process by becoming participating agencies, defined as agencies with an interest in the Project. **Table 5-2.1** lists the participating agencies for the Project. SEPTA works to keep these entities informed of Project activities and involved in the alternatives development and evaluation process, by means of an agency coordination committee, in addition to the other committees described in Section 5.1.3, and other consultation processes such as Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended. Within the list of participating agencies, SEPTA invited several to be cooperating agencies: FHWA, United States Environmental Protection Agency (USEPA) and United States Army Corps of Engineers (USACE). A cooperating agency commits to FTA's NEPA process so that it can use FTA's EIS to meet its NEPA responsibilities. For example, in the case of the Project requiring future environmental permitting by the USACE, that agency considered committing to be a cooperating agency so that it could use FTA's EIS to satisfy its own NEPA requirements. Through SEPTA's coordination with FHWA, USEPA and USACE, each agency determined that they would not act as a cooperating agency at this time, but each reserves the right to accept the invitation in the future, if warranted.

Table 5-2.1: List of Participating Agencies for the Project

Federal Agencies
Federal Highway Administration (potential Cooperating Agency)
Federal Railroad Administration
National Park Service, Northeast Region
Natural Resource Conservation Service
United States Environmental Protection Agency Region III (potential Cooperating Agency)
United States Army Corps of Engineers (potential Cooperating Agency)
United States Fish & Wildlife Service (potential Cooperating Agency)
U.S. Department of Housing and Urban Development, Regional Office of Environment
U.S. Department of the Interior, Office of Environmental Policy & Compliance
U.S. Geological Survey, Environmental Affairs Program
State Agencies
Pennsylvania Department of Environmental Protection
Pennsylvania Department of Transportation, District 6
Pennsylvania Fish and Boat Commission
Pennsylvania Game Commission
Pennsylvania Historical and Museum Commission

Pennsylvania Turnpike Commission
County Agencies
Delaware County Planning Department
Montgomery County Department of Economic and Workforce Development
Montgomery County Division of Parks, Trails and Historic Sites
Montgomery County Assets and Infrastructure Department
Montgomery County Planning Commission
Municipal Agencies
Bridgeport Borough
Lower Merion Township
Municipality of Norristown
Philadelphia City Planning Commission
Radnor Township
Tredyffrin Township
Upper Darby Township
Upper Merion Township
Upper Merion Department of Planning and Development
Upper Merion Department of Public Works
Recognized Native American Tribes
The Delaware Tribe
The Delaware Nation
The Eastern Shawnee Tribe of Oklahoma
The Oneida Indian Nation
Stockbridge-Munsee Community of Mohican Indians

Source: AECOM, 2020

5.2.2.2 Scoping

During Project scoping, six agencies provided comments: Montgomery County Planning Commission; PA Commission; USEPA, Region III; United States Coast Guard, 5th District, Bridge Branch; Pennsylvania Historical and Museum Commission (PHMC) and VFNHP. The key themes of these comments, with the responsible entity noted in parentheses, were:

- Support the Project purpose and need (Montgomery County);
- Non-support for alternatives using N. Gulph Road, as there is limited opportunity for intensification of transit supportive land uses (Montgomery County);
- Concern for use of PA Turnpike ROW (PA Turnpike Commission);
- DEIS content guidance (USEPA);
- Project is outside jurisdiction; declined participation (US Coast Guard);

- Section 106 consultation regarding historic resources is advised (PHMC);
- Project would benefit VFNHP (VFNHP);
- Include VFNHP in assessment (VFNHP); and,
- Consider stop in proximity to VFNHP (VFNHP).

5.2.2.3 Agency Coordination Committee

SEPTA established an Agency Coordination Committee (ACC) whose responsibility is to review technical methodologies used in the DEIS, the alternatives analysis process, assist in decision-making regarding the Locally Preferred Alternative, provide comment on the DEIS, and provide input regarding the Preferred Alternative. Primary membership in the committee includes representatives from FTA, SEPTA, FHWA, PennDOT District 6, Federal Railroad Administration, PHMC, USEPA, PADEP, USACE, US Coast Guard, National Park Service, US Fish and Wildlife Service and VFNHP. Key themes and guidance from coordination with the committee include:

- NEPA procedures;
- Planned transportation projects;
- Section 106 of the NHPA procedures;
- Executive Order 12898 Environmental Justice guidance;
- Indirect and cumulative effects guidance;
- PA regulatory guidance on activities in and near waterways;
- Section 404 of the Clean Water Act guidance;
- Section 9 of the Rivers and Harbors Act of 1899 guidance;
- General Bridges Act of 1946 guidance;
- US Department of the Interior, National Park Service Management Policies guidance;
- PA Wild Resource Conservation Act, the PA Fish and Boat Code and the PA Wildlife Code; and,
- VFNHP access goals.

5.2.2.4 Field Tours

SEPTA offered a tour of the study area for any agency interested in such a review. FTA and USACE accepted the invitation and visited the study area on March 3, 2015. The USACE visited the study area again on September 18, 2015, investigating streams and wetlands.

5.2.2.5 Section 106 Consultation

As described in FEIS Section 4.7.1, the NHPA requires that Federal agencies consider the effects of their undertakings on historic properties, which includes historic and archaeological resources including above-ground (architectural) and below-ground (archaeological) “districts,

sites, buildings, structures, and objects significant in American history, architecture, archaeology, engineering, and culture” and eligible for inclusion in or listed in the National Register of Historic Places (NRHP). In accordance with Section 106 of the NHPA, FTA initiated consultation with the PHMC in March 2013. Through consultation, historic and archaeological resources were identified and the potential effects of the recommended LPA upon these resources were evaluated. FTA and SEPTA also engaged with other consulting parties, such as federally-recognized Tribes/Nations, in this evaluation process. FTA and SEPTA met with the consulting parties on September 8, 2016 to discuss protected resources in the Project area. Key Project-related themes from the consulting parties are listed below with references to FEIS sections for further information as appropriate:

- Need to assess potential for impacts of Project elements on archaeological sites, including stormwater management facilities, power substations and signal huts (Section 4.7.2.2);
- Consult the *Delaware County Archaeological Resource Inventory and Management Plan, Volume I* for information on resources in the County (Section 4.7.1);
- Is Valley Forge National Historical Park a consulting party? (Section 4.7.1);
- Project would not endanger sites of interest to the Delaware Nation (Appendix C);
- No significant cultural resources concerns from the Stockbridge Munsee Community (Appendix C); and,
- No additional comments regarding cultural resources from Montgomery County (Appendix C).

After the DEIS public comment period and SEPTA’s adoption of the Preferred Alternative in January 2018, SEPTA completed additional engineering study, prompting FTA to reinitiate Section 106 consultation in September 2020. Participating consulting parties were copied on FTA’s October 19, 2020 letter to the PHMC (Appendix C). FTA, SEPTA, and the PHMC signed a Memorandum of Agreement (MOA) on November 25, 2020 containing stipulations for mitigation of the adverse effects to the additional historic property identified in 2020, the PNJ Interconnection. The consulting parties were invited to provide suggestions for the mitigation of adverse effects to the property. In addition, the property owner, PECO Energy Corporation, was invited to concur with the MOA. No consulting party comments were received as a result of the 2020 consultation. FTA and SEPTA considered the consulting parties’ comments in the EIS process and as part of the Section 106 consultation process. Documentation of Section 106 consultation activities including PHMC concurrence on eligibility and potential effects is provided in Appendix C. FTA and SEPTA completed Section 106 consultation; a summary of consultation is provided in Section 4.7.

5.2.3 Summary of Key Agency Themes and SEPTA Actions

Table 5-2.2 summarizes the agency correspondence, coordination, meetings and field tours undertaken for the Project to date, including key comment themes, and actions SEPTA has taken as a result of the agency input it received. SEPTA has actively considered the agency input it has received, particularly in regard to comparing the alternatives as to the ability to avoid or minimize impacts, identifying potential strategies to minimize or mitigate adverse impacts, assessing future ability for obtain permits during subsequent design, complying with applicable assessment methodologies, and documenting results. For example, input from the USACE during field tours and ACC meetings informed SEPTA's evaluation of potential Project impacts on wetlands and waterways. This coordination revealed differences in the location and extent of resources compared with available mapping.

5.2.4 Notice of Availability

Following the NOA publication on October 17, 2017, the DEIS was provided to the agencies requesting their review of the document and identification of comments and revisions necessary. This notice carried the same 53-day comment period for the agencies to review and provide input on the findings presented in the DEIS. The DEIS public comment period complied with the requirements codified at 23 CFR §§ 771.123(g) and (h).

5.2.4.1 Agency Comments

Agencies include all Federal, state, regional, and local agencies. The following agencies provided comments:

- United States Environmental Protection Agency, Region III (USEPA);
- United States Department of the Interior (USDOI), Fish and Wildlife Service; and,
- USDOI, Office of Environmental Policy and Compliance, and National Park Service (NPS) (combined comments).

Appendix D includes letters from the agencies that provided comments during the DEIS public comment period. Twenty-four comments were provided by agencies during the DEIS public comment period. This section organizes the comments into seven broad categories: DEIS Review Outcome; Comments on DEIS Document; Transportation Effects, Affected Environment and Environmental Consequences; Draft Section 4(f) Evaluation; and Indirect and Cumulative Effects.

5.2.4.2 Agency Coordination Committee

Following the DEIS comment period and subsequent review of the comments provided by the agencies, SEPTA and FTA held two ACC meetings to follow up on the response to comments. These meetings were held to confirm that the comment was understood and the response was determined to be adequate to address the comments provided. The first meeting was held during the DEIS comment period on November 1, 2017, the second was held following the identification of the Preferred Alternative by FTA and SEPTA, on July 11, 2018.

Table 5.2-2: Summary of Agency Comments and SEPTA Actions

Agency Coordination, Meetings and Field Tours			Key Comment Themes	FTA/SEPTA Response Actions
Date	Types	Objective		
3/27/13	ACC meeting	Purpose and need, Project background, screening process, initial alternatives	<ul style="list-style-type: none"> •USACE tabled cooperating agency invitation •FTA's LPA does not have to be the USACE's least environmentally damaging yet practicable alternative •PHMC interested in consulting parties list for Section 106 consultation; USACE suggested additional consulting party coordination to meet USACE's Section 106 process •Potential need to document Project compliance with Section 404(b)(1) guidelines in DEIS •Alternatives development and screening process •Composition of ACC •Impacts on NHSL and 69th Street Transportation Center facilities •Cost as a factor in screening 	<ul style="list-style-type: none"> •USACE retained as participating agency (Section 7.2.2.1) •USACE comment regarding identifying the least environmentally damaging yet practicable alternative, and documenting compliance with Section 404(b)(1) is tabled pending USACE decision to be a cooperating agency; •Consulting parties list provided to and approved by PHMC (Appendix C)
8/14/13	USEPA letter	Scoping	<ul style="list-style-type: none"> •Recommendations regarding studies and analyses to be included in the EIS 	<ul style="list-style-type: none"> •DEIS responds to recommendation regarding purpose and need (Chapter 1), natural and human environment impacts including air quality (conformity), community, noise, visual, traffic, hazardous materials, environmental justice, indirect and cumulative effects (Chapters 3, 4 and 6), and agency coordination (Chapter 7)

Agency Coordination, Meetings and Field Tours			Key Comment Themes	FTA/SEPTA Response Actions
Date	Types	Objective		
8/14/13	PHMC call	Scoping	<ul style="list-style-type: none"> • Approach to Section 106 consultation 	<ul style="list-style-type: none"> • Section 106 consultation activities respond to PHMC's recommendations to initiate consultation, identify and engage consulting parties, assess eligibility of properties, and assess Project effects on historic properties (Section 4.7)
2/21/14	ACC meeting	Scoping summary	<ul style="list-style-type: none"> • Need for USACE permits • Desire for USACE field tour • Public input on at-grade versus elevated guideway 	<ul style="list-style-type: none"> • USACE field tour date occurred on 9/18/15 • DEIS Action Alternatives avoid or minimize impacts to waters of the US and wetlands (Section 4.11)
10/20/14	ACC meeting	Preliminary Alternatives	<ul style="list-style-type: none"> • Status of environmental justice outreach • At-grade alternatives status • Consider local pedestrian access plan • Pedestrian/bicycle access to VFNHP provided by station near VFCR 	<ul style="list-style-type: none"> • Outreach methodology described in documented in Section 7.1; activities described in Section 4.14) • Coordinated with USEPA Environmental Justice Coordinator • Station concepts address pedestrian access in general (Section 2.3) and access to VFNHP (Section 4.6.3.2)
3/5/15	ACC meeting	Build Alternatives	<ul style="list-style-type: none"> • No input 	<ul style="list-style-type: none"> • No new action
9/18/15	USACE Field tour	Regulatory	<ul style="list-style-type: none"> • USACE regulates direct impacts to waters of US; shading and tree removal are only regulated if a direct impact also occurs • PADEP regulates impacts to waterways and wetlands • Viewed 7 stream and potential wetlands locations 	<ul style="list-style-type: none"> • DEIS Action Alternatives avoid or minimize impacts to waters of the US and wetlands (Section 4.11). Reviewed PADEP regulations regarding waterway and wetlands impacts (Section 4.16) • Documented USACE jurisdictional areas for on-going planning (Section 4.11)

Agency Coordination, Meetings and Field Tours			Key Comment Themes	FTA/SEPTA Response Actions
Date	Types	Objective		
12/30/15	PHMC call	Section 106 consultation	<ul style="list-style-type: none"> • Discussion of approach and schedule 	<ul style="list-style-type: none"> • On-going consultation
2/2/2016	ACC meeting	recommended LPA	<ul style="list-style-type: none"> • In DEIS, acknowledge Project's indirect economic effects, role of County and Township in economic development, and partnership of these entities with SEPTA in New Starts planning for the Project • Water resources permitting for Project later in design could warrant evaluation of alternatives • DEIS should document resource evaluation methodologies and compare results among alternatives 	<ul style="list-style-type: none"> • Economic effects are discussed in Section 4.3.3.2 and Chapter 6 • Water resources permitting is discussed in Section 4.16 • Each resource section in the DEIS includes a methodology and results by alternative. Chapter 8 compares the results among the alternatives
10/25/2016	ACC meeting	March 2016 public meeting outcomes, design options, DEIS publication	<ul style="list-style-type: none"> • Water resources should be avoided; unavoidable impacts should be minimized and/or mitigated to satisfy applicable federal and state regulations • Share Section 106 consultation record with USACE 	<ul style="list-style-type: none"> • PA Turnpike North-South Option and 9/11 Memorial Avoidance Option carried into DEIS (Section 2.2) • Elevated structure concept spans waterways to avoid most impacts; potential for small wetland impact to be examined as design is refined after DEIS (Section 4.11) • USACE copied on Section 106 consultation memoranda
3/3/16	PHMC call	Section 106 consultation	<ul style="list-style-type: none"> • PHMC to concur on area of potential effects • Coordination on properties to be surveyed 	<ul style="list-style-type: none"> • PHMC concurred on eligibility and effects determinations (Section 4.7)
9/8/16	Section 106 Consulting Parties meeting	Section 106 consultation	<ul style="list-style-type: none"> • Assess potential for impacts of Project elements on archaeological sites, including stormwater management facilities, power substations and signal huts; • Consult the <i>Delaware County Archaeological Resource Inventory and</i> 	<ul style="list-style-type: none"> • PHMC concurred on effects assessment for archaeology (Section 4.7) • Consulted the <i>Delaware County Archaeological Resource Inventory and Management Plan, Volume I</i> for

Agency Coordination, Meetings and Field Tours			Key Comment Themes	FTA/SEPTA Response Actions
Date	Types	Objective		
			<i>Management Plan, Volume I</i> for information on resources in the County; • Is Valley Forge National Historical Park a consulting party; • Project would not endanger sites of interest to the Delaware Nation; • No significant cultural resources concerns from the Stockbridge Munsee Community; • No additional comments regarding cultural resources from Montgomery County.	information on resources in the County (Section 4.7) • Valley Forge National Historical Park is a consulting party (Section 4.7) • Consulting party documentation in DEIS (Appendix C).
12/8/2016	PHMC call	Section 106 consultation	• Additional information required for McCoy quarry property if formal concurrence from the PA SHPO is wanted for DEIS purposes	• PHMC concurred on eligibility determination for McCoy quarry property (Section 4.7 and Appendix C)
11/1/2017	ACC meeting	DEIS publication	• Natural resources impacts • Minimization and mitigation • Permitting requirements • Summary of public outreach	• FTA and SEPTA reviewed and responded to agency comments on the DEIS
7/11/2018	ACC meeting		• DEIS comment overview • Summary of public outreach	• FTA and SEPTA reviewed and responded to agency comments on the DEIS
4/3/2019	ACC Meeting	15% design	• Waterway effects along American Avenue, and in Mall and Allendale Road areas • Visual effects not an issue for Valley Forge National Historical Park • Section 106 consultation for design refinements	• FEIS includes SEPTA commitment during subsequent design to obtain and comply with permits and approvals as required by the Army Corps and PADEP • FTA and SEPTA notes assessment by Valley Forge National Historical Park in Section 4.8.3 of the FEIS • FTA and SEPTA completed Section 106 consultation for the design refinements (FEIS Section 4.7).

Agency Coordination, Meetings and Field Tours			Key Comment Themes	FTA/SEPTA Response Actions
Date	Types	Objective		
8/26/2020	PHMC Meeting	Re-initiate Section 106	<ul style="list-style-type: none"> •Design refinements •Modified APE •New resource: PNJ Interconnection •Low sensitivity for archaeology 	<ul style="list-style-type: none"> •SEPTA evaluated eligibility of new resource and Project effects to the resource
9/11/2020	PHMC Meeting	Section 106 update on evaluation of new resource	<ul style="list-style-type: none"> •PECO corridor is part of the historic PNJ Interconnection •Effect of replacing approximately 4 PECO towers is an adverse effect to the resource 	<ul style="list-style-type: none"> •SEPTA completed evaluation of the new resource •FTA provided letter to PHMC documenting evaluation results with FTA's proposed findings under Section 106
9/10/2020	Montgomery County Trail and Open Space Department Meeting	Section 4(f) consultation: guideway crossing of planned Chester Valley Trail Extension	<ul style="list-style-type: none"> •Design refinements •No permanent Project impacts to trail •Temporary construction impacts to trail •Warrant for commitments to manage Project construction to address trail impacts 	<ul style="list-style-type: none"> •SEPTA and the County developed commitments as part of the FEIS to address Project impacts to the trail
10/16/2020	FTA letter	Section 106 consultation	<ul style="list-style-type: none"> •Provided PHMC with eligibility and effects evaluations for Preferred Alternative 	<ul style="list-style-type: none"> •None required
10/30/2020	PHMC letter	Section 106 consultation	<ul style="list-style-type: none"> •PHMC concurrence on Section 106 findings of eligibility and Project effects 	<ul style="list-style-type: none"> •None required
11/10/2020	FTA letter	Section 106 consultation	<ul style="list-style-type: none"> •Adverse effect notification provided to the Advisory Council on Historic Preservation 	<ul style="list-style-type: none"> •None required
11/19/2020	ACHP letter	Section 106 consultation	<ul style="list-style-type: none"> •ACHP will not participate in Section 106 for the Project 	<ul style="list-style-type: none"> •None required
11/25/2020		Section 106 consultation	<ul style="list-style-type: none"> •Final Section 106 MOA signed by PHMC 	<ul style="list-style-type: none"> •FTA executed and filed with the Advisory Council on Historic Preservation the Section 106 MOA on November 25, 2020 (FEIS Appendix C)

Agency Coordination, Meetings and Field Tours			Key Comment Themes	FTA/SEPTA Response Actions
Date	Types	Objective		
12/21/2020	FTA email to PHMC	Section 4(f) consultation	• FTA informed PHMC of its intent to make a <i>de minimis</i> impact finding for the Pennsylvania Turnpike: Delaware Extension	• Provided in Appendix C
12/22/2020	US Department of the Interior (DOI) Letter	Section 4(f) Evaluation	• DOI provided comments and concurrence on the Draft Section 4(f) Evaluation	• Provided in Appendix C.
12/24/2020	SEPTA Letter	Section 4(f) concurrence	• County concurred by signature to FTA's finding of temporary occupancy exception for the Chester Valley Trail Extension	• Provided in Appendix C.

Source: AECOM, 2020

5.2.5 Agency Coordination After the DEIS

Following publication of the DEIS and public comment period, SEPTA continued agency coordination efforts using the same methods to reach participating agencies, and continuing to host ACC meetings convened for the EIS process. Topics of discussion included:

- Project development and design refinement of the Preferred Alternative;
- The FEIS process;
- Project financial plan; and,
- FTA New Starts Federal Grant Program.

5.3 Role of Input in Selection of the Preferred Alternative

During the NEPA process, SEPTA held over 100 public meetings, including pre-scoping and scoping meetings, public information sessions, public meetings and public workshops, committee meetings (steering, technical advisory, stakeholder advisory, and agency coordination committees), agency coordination meetings, elected officials' briefings, public hearings, community working group meetings, neighborhood meetings and backyard visits.

SEPTA, in coordination with FTA, examined all agency, stakeholder, and public input received. On March 2016, SEPTA had a public meeting and questionnaire for the purpose of obtaining public input to assist SEPTA in identifying a recommended LPA. The March 2016 *Public Meeting Summary* and 2016 *Survey Reports* describe each event and the public input received. Of the Action Alternatives being considered by SEPTA, the recommended LPA had the most public support at the meeting and in the questionnaire. Other alternatives that would use the US Route 202 corridor or the PECO corridor west of the Turnpike had little public support. Despite these findings, the recommended LPA had opposition, primarily from residents in King of Prussia who live adjacent to or near the proposed alignment in the vicinity of the PA Turnpike. SEPTA acknowledged these concerns and responded in three ways:



Project public outreach activity.

Source: McCormick Taylor, 2016.

- Examining design and alignment refinements to reduce or eliminate impacts;
- Visiting affected residents (backyard visits) to view the Project context and listen to their concerns; and
- Facilitating a CWG to focus on concerns as the Project advances.

As required by 40 CFR § 1502.14(c), and after considering the Tier 3 technical screening results and the input received from agencies, stakeholders and the public, SEPTA identified the recommended LPA as the environmentally preferable alternative in the DEIS. Compared to the other alternatives, the recommended LPA was identified as best meeting the purpose and need while avoiding or minimizing impacts and being responsive to agency, stakeholder, and public concerns. SEPTA also identified the PA Turnpike North/South Option, developed in response to public input, as part of the recommended LPA because it would minimize specific Project impacts on residential areas. Chapter 8 of the DEIS provides a detailed comparison of the five Action Alternatives and how well each met the Project's purpose and need.

The DEIS was published in the Federal Register on October 17, 2017. A public comment period following publication of the DEIS provided an opportunity for interested parties to review the DEIS and provide comments. SEPTA, in coordination with FTA, held a public hearing on the DEIS during the comment period, which provided an opportunity for agencies, stakeholders and the public to provide comments on the DEIS. SEPTA received comments during the DEIS public hearing and comment period from stakeholders, agencies and the public. Opinions included support or opposition to all or parts of the Project and the Action Alternatives. Comment themes pertained primarily to the purpose and need, the Action and No Action Alternatives, the potential impacts of the Project on the natural and human environment (particularly in regard to proximity noise and visual impacts, safety, economic development and parking), study area geographical coverage, costs and funding, and public outreach.

Following the close of the comment period on December 4, 2017, FTA and SEPTA reviewed comments received during the DEIS public comment period. On January 25, 2018, SEPTA adopted the recommended LPA (the PECO/TP-1st Ave. Action Alternative with the PA Turnpike North/South Option) as its Preferred Alternative. The FEIS evaluates the Preferred Alternative as well as the No Action Alternative. During the FEIS, SEPTA evaluated the Preferred Alternative at a higher level of planning and engineering pursuant to 23 U.S.C. § 139(f)(4)(D) and refined the Preferred Alternative to provide improved operations and fewer impacts.

5.4 Responses to DEIS Comments

Because many of the public and agency comments received during the DEIS public comment period were similar, FTA and SEPTA organized similar comments into master themes. Section 5.4.1 presents responses to comments by master theme. Listings of all public and agency comments received during the DEIS public comment period are provided in Appendix E; in these listings FTA and SEPTA responded to each comment, making references as appropriate to the master themes in Section 5.4.1 as appropriate.

5.4.1 Overview

The DEIS was available for a 53-day comment period (October 17, 2017 to December 4, 2017) during which the public, stakeholders and agencies were invited to review the DEIS and provide written and verbal comments. The DEIS public comment period complied with the requirements codified at 23 CFR §§ 771.123(g) and (h). A total of 279 public comments were provided by 216 public commenters (**Table 5.4-1**). In addition to public comments, SEPTA received 2 resolutions

of support, 53 letters of support, 2 public petitions opposing the Project, and 24 comments by letter or email from three agencies.

Table 5.4-1: Summary of Methods by Which Public Comments Were Provided

Public Comment Method	Number of Comments
Email and Project Website Comments	130
Regular Mail	57
November 13, 2017 Public Hearing Testimony	48
November 13, 2017 Private Testimony	9
November 15, 2017 Public Hearing Testimony	16
November 15, 2017 Private Testimony	1
Comment Cards	18
Total Number of Public Comments	279

Source: King of Prussia Rail DEIS Public Comment Summary Report, January 2018.

After the close of the DEIS public comment period on December 4, 2017, FTA and SEPTA reviewed all comments. Of the 216 public and stakeholder commenters, 121 support the Project, with an additional eight comments that specifically support the recommended LPA and five that support one or both recommended LPA design options. Ten public comments were received supporting DEIS Action Alternatives that would use US Route 202 and/or would have a station along N. Gulph Road to serve the Village at Valley Forge.

Among the comments made, 40 do not support the Project and two public petitions oppose the Project. Five comments indicated no preference among the DEIS Action Alternatives and recommended LPA design options but indicated the need for further consideration of specific issues or concerns during subsequent design (such as the need to coordinate with the PA Turnpike and Aqua Pennsylvania). Fourteen comments asked questions about the Project but did not provide an opinion about the Project or the alternatives and design options. Six comments related to the public outreach process and another seven comments discussed issues that are outside the Project scope (such as the condition of Route 422)

FTA and SEPTA are required to respond to all substantive comments (40 CFR § 1503.4(b)) to help FTA and SEPTA make informed decisions about the Project. FTA defines a substantive comment as a comment that raises a specific issue or concern about the Project or the study process for the Project.¹ A substantive comment may suggest new alternatives; and it may question or raise concern over new impacts not previously addressed in the DEIS. In contrast, FTA defines a non-substantive comment as being not relevant to the topics discussed in the

¹ Federal Transit Administration, *Standard Operating Procedures for Managing the Environmental Review Process* (<https://www.transit.dot.gov/regulations-and-guidance/environmental-programs/environmental-standard-operating-procedures>).

DEIS, such as general statements of support or opposition to the Project, or comments concerning information that was already included in the DEIS, but the reader overlooked. FTA and SEPTA evaluated all of the comments received during the DEIS public comment period, identifying each comment as either substantive or non-substantive.

This section responds to substantive comments received during the DEIS public comment period. The comments are grouped into themes, which are listed in **Table 5.4-2**. The numbering of themes in **Table 5.4-2** corresponds to the subsection numbering that follows the table. Within each theme are specific comments that are relevant to each theme. Each comment is followed by a response. To support each response, references are made to relevant information in the DEIS, FEIS, or technical studies.

Table 5.4-2: Master Response Summary

Master Response Section Number	DEIS General Comment and Master Response Theme
1	Benefits to Residents
2	Property Impacts
3	Public Safety
4	Recommended Locally Preferred Alternative (recommended LPA) and Design Options
5	Traffic
6	Planning
7	Design
8	Water Quality and Geology
9	Air Quality Impacts
10	Visual Impacts
11	King of Prussia Volunteer Fire Company Impacts
12	Ridership
13	Project Development Process
14	Stations/Parking/Fares
15	Financial Considerations and Costs
16	Noise
17	Maintenance

Source: AECOM 2020

Public comments on the DEIS are documented in Appendix D. The appended table lists each individual comment by number, and provides the text of each comment. This section refers to the comment table in Appendix D as appropriate. Agency comments are grouped and addressed in the agency comment table that is provided in Appendix D.

5.4.2 Master Responses to DEIS Comments

5.4.2.1 No Benefits to Residents

- 1 Commenters stated their opinion that the Project would provide no benefits for residents in King of Prussia.
 - 1A. **Proposed stations are not in residential areas and will not be accessible to residents. Response:** See Master Response 6E.
 - 1B. **I can park at stations along the existing NHSL; I will not use the proposed park-and-rides. Response:** The Project proposes park-and-ride facilities at two Project stations: Henderson Road Station and First & Moore Station, eliminating the need for residents to leave the King of Prussia/Valley Forge area to access rail transit. As ridership grows on the NHSL in the future, the additional parking provided at these two Project stations will benefit King of Prussia residents as available parking at existing NHSL stations becomes more difficult to find.
 - 1C. **I can get to Center City Philadelphia faster using existing transportation modes than Project service can provide. Response:** Regional growth over time could increase traffic congestion on roadways, thereby increasing travel time by personal vehicle and bus. Increased roadway congestion could also lead to increased riders on existing Regional Rail services. The Project will provide an additional transportation choice in the transportation study area. Mode shift data presented in DEIS Chapter 3, Table 3-1.7 show forecasted diversions from auto to transit and Table 3-1.8 in the same chapter presents future transit travel time savings on the Project.
 - 1D. **I only see economic benefits to King of Prussia businesses; residents will not benefit economically. Response:** FEIS Section 4.3.3.2 describes the economic growth potential for the King of Prussia/Valley Forge area with the proposed Project, citing the results of analyses by the Economy League of Philadelphia. In part, the section reads, “Upper Merion Township residents in general could benefit economically from the Project by having access to more job opportunities, better salaries, and the stability afforded by expanded sources of income.” In addition, the Project will provide a rail transit service option in King of Prussia that will be available as a transportation option for all Project study area residents, and may particularly provide access to jobs, services, and other daily needs for transit-dependent residents. Other benefits for residents include business tax revenues that support the majority of municipal spending, while keeping residential property taxes low. As demonstrated by the Economy League of Greater Philadelphia and presented in DEIS Section 4.3.3.2, the Project will benefit residents in King of Prussia in part because of forecasted growth in business investment in and desirability of living, working and operating a business in King of Prussia as a direct result of the Project. See Master Response 15B and FEIS Section 4.3 regarding economic benefits.
 - 1E. **The Project will have no environmental benefits. Response:** Ridership forecasting completed for the FEIS shows over 6,700 average weekday Trips on the Project in 2040, and nearly 4,600 new riders to transit services in the region in 2040 (FEIS Section 3.1.3).

As described in FEIS Section 4.9, the Project is expected to reduce vehicular use in the transportation study area by 61,303 vehicle miles traveled on an average weekday in 2040 and reduce automobile emissions. The Project will reduce vehicle miles traveled because it is forecast to attract riders to transit who would otherwise travel by personal vehicle. The provision of Project stations near businesses and residents in King of Prussia provides the opportunity for some travelers to make bicycle and pedestrian connections and eliminate travel by personal vehicle. See Master Response 6E.

5.4.2.2 Property Impacts

- 2 Commenters expressed concerns about privacy impacts, property values and fair compensation. Additional comments were received specific to property impacts from visual intrusion and noise, which are addressed in separate Master Responses 10A and 15A through 15D. Impact minimization for the recommended LPA and design options are discussed in Master Response 4B.
- 2A. **Privacy for residential properties abutting the proposed guideway. Response:** In response to this public concern, as well as public concerns about visual and noise impacts to residences, SEPTA undertook neighborhood meetings during the DEIS that identified visual impacts and privacy as key issues for residents. At that time, SEPTA developed and presented the PA Turnpike North/South Option as a minimization strategy. Neighborhood response to the PA Turnpike North/South Option was favorable because it would reduce visual and noise impacts, as well as privacy concerns, because the option would provide more distance between residences and the guideway. SEPTA's adoption of the PA Turnpike North/South Option as part of the Preferred Alternative reduces the number of residential properties that will be visible from Project trains. Further design refinement by SEPTA for the combined FEIS/ROD has resulted in placing the Project alignment on the north side of the PA Turnpike even further away from Valley Forge Homes compared to the alignment placement in the PA Turnpike North/South Option. Residential properties that may be visible from Project rail vehicles with this option include residents on the south side of the high-rise along the PECO corridor (215 West Dekalb Pike), several residents in Valley Forge Homes (472, 476, 480, 484, 488, and 492 Powderhorn Road), one resident in Brandywine Village near the US 202/PA Turnpike crossing (103 Walker Lane), and west-facing residents in the Valley Forge Suites building closest to the Hyatt Place Hotel (550 American Avenue). FEIS Section 4.8.3.2 states SEPTA's commitment to examine the feasibility of providing a parapet wall or barrier structure on the guideway during subsequent Project design. The purpose of a parapet wall or barrier structure would be to block rider views of residential neighborhoods, thereby addressing residents' privacy concerns.
- 2B. **Potential negative effects on residential property values. Response:** FEIS Section 4.3.3.2 describes the economic growth potential for the King of Prussia/Valley Forge area with the proposed Project, citing the results of analyses by the Economy League of Greater Philadelphia. In part, the section reads, "Upper Merion Township residents in general could benefit economically from the Project by having access to more job opportunities, better salaries, and the stability afforded by expanded sources of income."

Stable or increased property values is an additional potential benefit cited by the Economy League of Greater Philadelphia

- 2C. **Fair compensation for impacts to property owners. Response:** As noted in DEIS and FEIS Sections 4.5.1, SEPTA is required to comply with the Uniform Relocation and Real Property Acquisitions Policies Act of 1970 (codified in Chapter 61 of Title 42 of the United States Code), as amended (the Uniform Act), Public Law 105-117, and FTA Circular 5010.1E for all temporary (construction) and permanent property acquisitions. This law requires that certain relocation services and payments be made available to eligible residents, businesses and nonprofit organizations displaced as a direct result of projects undertaken by a federal agency or with federal financial assistance. The Uniform Act provides for uniform and equitable treatment for persons displaced from their homes and businesses, and it establishes uniform and equitable land acquisition policies.

Property acquisitions and displacements will also be conducted by SEPTA in conformance with the regulations implementing the following Pennsylvania statutes and Executive Orders: Pennsylvania Act 120, governing conveyance of Commonwealth lands to municipalities; Pennsylvania Act 247, the PA Municipal Planning Code; and Pennsylvania Executive Orders 1993-3 (State Land Use Planning Goals and Objectives) and 1999-1 (land use planning and decision-making). These regulations are in place to protect the rights of individual property owners in a property acquisition process in Pennsylvania; SEPTA is required by these laws to abide by the processes that are prescribed in these regulations.

Liable parties are those entities that are responsible in the event of damages to property by the Project. The liable parties for damages to property by the Project that do not involve property acquisitions or displacements differ for Project construction and operations. During Project construction, the contractor is the liable party. During Project operations, SEPTA and the Commonwealth of Pennsylvania are the liable parties.

Regarding impacts to businesses during Project construction and as stated in FEIS **Table 4.18-2**, SEPTA will develop a business mitigation plan in coordination with the KOP-BID to address temporary construction impacts related to access to businesses. This plan will be developed during subsequent design and implemented during Project construction.

- 2D. **Impacts to the planned Chester Valley Trail Extension. Response:** The Chester Valley Trail is a county-administered regional trail that currently runs for 13.5 miles in Chester County into Montgomery County and Upper Merion Township for 1.2 miles to its current terminus on the west side of South Gulph Road. As noted in FEIS Section 4.6.2, Montgomery County is implementing a 3.5-mile extension of the trail. As currently proposed, the trail will extend east from its current terminus at the existing South Gulph Road park-and-ride facility within a County easement along the south side of the PECO utility corridor. At the PA Turnpike, the trail extension will follow Hansen Access Road and then turn north along the former East Penn Railroad right-of-way (now owned by the County). On the approach to Saulin Boulevard, the trail alignment has been modified by the County to follow the outside curve of the bend in Saulin Boulevard and then continue

north along the east side of Saulin Boulevard, crossing US 202 on its way to Bridgeport. Along the outside curve of Saulin Boulevard, the County will separate the trail from the traffic lanes with a raised roadway island.

The Project guideway will cross over the Chester Valley Trail Extension right-of-way near Saulin Boulevard; the guideway will be an elevated structure at the point of trail crossing and will avoid a direct, permanent impact on the trail. SEPTA will provide the minimum 21 feet of vertical clearance between the guideway and the ground surface; this provision, which is a requirement that stems from the County's agreement with the former railroad owner, may require lowering the trail and ground surface elevations at the crossing. The horizontal clearance at the crossing will be at least as wide as the trail ROW.

SEPTA has coordinated with Montgomery County Trails and Open Space regarding Montgomery County's planned Chester Valley Trail Extension during the conceptual engineering undertaken for the DEIS, the design refinement process during the combined FEIS/ROD, and the Section 4(f) Evaluation for the Project. The coordination activities resulted in SEPTA making specific commitments regarding the Project crossing of the planned Chester Valley Trail Extension that are presented in FEIS **Table 4.18-2**. FTA made a finding under Section 4(f) of the US Department of Transportation (USDOT) Act of 1966 (49 U.S.C. § 303) that the Project would result in a temporary occupancy exception, no use. This finding means that in consideration of the Project design and SEPTA's commitments, the Project will not impact the planned Chester Valley Trail Extension and will not result in a use of the trail as defined by Section 4(f).² Montgomery County Trails and Open Space Planning Section of the Montgomery County Planning Commission concurred with FTA's finding on December 24, 2020 (Appendix C).

5.4.2.3 Public Safety

- 3** Commenters expressed concerns about public safety, emergency services, sanitation and potential property damage.

- 3A. Need for support services: police, fire, EMT, sanitation/maintenance. Response:** SEPTA has made the following safety commitments as part of the Project; see FEIS Section 3.6.3. SEPTA will also work with Upper Merion Township law enforcement personnel and emergency service providers in developing and implementing its Project safety plan to ensure it is consistent and coordinated with local safety and emergency response procedures.

The same safety protocols will be implemented by SEPTA for the Project. Throughout SEPTA's transit system, SEPTA deploys its Transit Police unit, and SEPTA staff provides sanitation and maintenance of transit vehicles and transit stations. SEPTA will request fire, EMS, and police support for SEPTA's transit system in accordance with existing multilateral mutual aid agreements between SEPTA and Upper Merion Township for

² FTA and SEPTA, 2021. *King of Prussia Rail Extension Final Section 4(f) Evaluation* (www.kingofprussiarail.com)

these services. These agreements are in place at the two NHSL stations in Upper Merion Township: Gulph Mills Station and Hughes Park Station.

- 3B. **Perception of run down and insecure conditions at 69th Street Transportation Center. Response:** SEPTA Transit Police patrol all transit stations and actively maintain a presence during all operating hours at the 69th Street Transportation Center, a major intermodal station on the SEPTA transit system. The 69th Street Transportation Center has multiple cameras, lighting inside and outside the station, and the station design offers good sight lines. SEPTA Transit Police actively coordinate with Upper Darby Township, PA local law enforcement personnel to ensure station areas are safe.
- 3C. **A public safety impact study has not been completed to address community concerns. Response:** As noted above in response 3A, SEPTA has been and will continue to develop Project engineering plans and construction plans in consultation with the Upper Merion Township Manager, the Upper Merion Township Fire Marshall and the Upper Merion Township Director of Public Safety so that public safety is ensured in all phases of Project construction as well as Project operations once service is in place. Additionally, the FTA requires a Public Transportation Agency Safety Plan (PTASP) of all transit agencies in the nation, including SEPTA, and the plan identifies a Chief Safety Officer who has responsibility for safety and the authority and responsibility for the day-to-day implementation and operation of the agency's Safety Management System. More about the importance of safety and security on SEPTA's transit system can be found at <http://www.septa.org/safety/>
- 3D. **Private property safety in light of potential for incidents such as derailment, fire, etc. Response:** SEPTA, as a major public transit service provider, has a comprehensive safety plan and program in place that outlines SEPTA's protocols and procedures in the event of an incident in their transit system. As described in response 3A, incident response is the responsibility of both SEPTA forces and local, county and other state forces via multilateral mutual aid agreements. SEPTA's policies and procedures for incident response are in accordance with the National Incident Management System and the Commonwealth of Pennsylvania Emergency Operations Plan with the goals of protecting life and property. Further, SEPTA's Command Center located in SEPTA's state of the art Control Center is used to manage emergency situations and coordinate response during incidents. SEPTA's Command Center coordinates with Emergency Operations Centers throughout the Philadelphia region, including the center at Montgomery County. SEPTA's Command Center can interact with the Pennsylvania Emergency Management Agency's State Emergency Operations Center, which is the primary operational interface for coordination with state and federal authorities.
- 3E. **Safety for vehicles entering the PA Turnpike Service Plaza. Response:** The Preferred Alternative guideway will be aligned along the PA Turnpike Service Plaza driveway, which is between the PA Turnpike and the plaza parking area. The location of guideway structure supports will require realignment of the driveway as well as the portions of the entrance and exit ramps that connect to the driveway. Specifically, the driveway will be shifted to the north by approximately 40 feet. As the plaza entrance and

exit ramps will be on the south side of the guideway, the ramps will have to cross under the guideway structure to connect to the relocated plaza driveway on the north side. The guideway support piers will be spaced approximately 100 feet apart, enabling the ramps to pass between the support piers before connecting to the driveway on the north side of the guideway. SEPTA has identified that the required connections can be made. During subsequent design, SEPTA will refine the design of the plaza ramps and driveway in coordination with the PA Turnpike Commission, using the Commission's design requirements, which are intended to provide safe operating conditions for motorists using the PA Turnpike Service Plaza. Prior to construction, the Commission must review the final Project plans, which will include an assessment that the Project achieves the Commission's design criteria for operational safety of the plaza entrance and exit driveways. The locations and configurations of the ramp connections to the PA Turnpike will not be changed by the Project.

5.4.2.4 Recommended LPA and Design Options

- 4 Commenters expressed support or nonsupport for recommended LPA and the PA Turnpike North/South Option.

4A. **Recommended LPA is the best choice. Response:** Comment noted.

4B. **In addition to the PA Turnpike North/South Option, please identify impact minimization that will be part of the Project. Response:** Analyses in the FEIS examined public concerns about the potential for visual, privacy, noise, vibration, and safety impacts of the Project.

Visual: After the DEIS was published on October 17, 2017, SEPTA made a number of design refinements to reduce the impacts of the Project. Among these refinements is the selection and adoption of the PA Turnpike North/South Option which places the guideway on the opposite side of the PA Turnpike from existing residential development. Further design development to the 15 percent level by SEPTA for the combined FEIS/ROD has resulted in the guideway being placed on the north side of the PA Turnpike even further away from Valley Forge Homes and away from other residential areas. The guideway has also been shifted to the north side of First Avenue to eliminate the tunnel effect the guideway would have had by being above First Avenue. SEPTA also shifted the guideway off of Wills and Mall Boulevards to reduce the tunnel effect of the guideway being above those roadways and eliminate most guideway support structures. SEPTA has incorporated landscaping consisting of trees and shrubs at proposed stations, stormwater management facilities, TPSS, and intermittently along the guideway to provide visual appeal and screening as the materials mature.

Although SEPTA adoption of the PA Turnpike North/South Option reduces potential impacts to residences in Valley Forge Homes, concerns regarding visual, privacy, noise, vibration, and safety remain. In response to those concerns SEPTA commits in the combined FEIS/ROD (FEIS Sections 4.8.3, 4.10.3, and 3.6.3) to undertake specific activities during subsequent design, construction, and Project operations to reduce these concerns. For example, during subsequent design, SEPTA will continue to examine the

feasibility of providing a higher parapet wall/barrier on the guideway to block views of and from residential areas alongside the guideway

- 4C. **PA Turnpike North/South Option supported by public. Response:** Comment noted. The PA Turnpike North/South Options was developed in coordination with the public to minimize Project impacts to the residential areas of Valley Forge Homes and Brandywine Village. Public show of support for this option during the DEIS public comment period helped SEPTA identify the PA Turnpike North/South Option as part of the Preferred Alternative in the FEIS.
- 4D. **Recommended LPA does not service a large portion of the study area business core. Response:** The Preferred Alternative will provide five rail stations; each will serve a different part of the business community in the transportation study area. A business is considered to be served by the Project if it is located within walking distance (approximately ½-mile) of a station. Using this definition, Henderson Road Station will serve business and commercial areas near the intersection of Henderson Road and Saulin Boulevard. The Allendale Road Station will serve the eastern portion of the King of Prussia Mall and surrounding businesses, such as the Crowne Plaza Hotel, as well as the shopping destinations in Courtside Square along Allendale Road. The Mall Blvd Station will serve the western portion of the King of Prussia Mall and surrounding businesses, including the Regal Movie Theater, Lockheed Martin, and other nearby restaurants and businesses. First & American Station will be in the heart of Moore Park KOP (formerly known as the King of Prussia Business Park), serving office, research, light industrial, warehouse, hotel, and other existing business uses. The First & Moore Station will serve the western portion of Moore Park KOP as well as the commercial and business uses within the Village at Valley Forge.

SEPTA will work with the GVFTMA and KOP-BID to plan appropriate shuttle service modifications to serve Project stations. The purpose of shuttle service during Project operations will be to connect Project stations with destinations in the transportation study area that may not be within a short walk of a proposed Project station. Such a destination for the Preferred Alternative could be the Children's Hospital of Philadelphia (CHOP) campus at King of Prussia. In addition, and as presented in FEIS Section 3.3, SEPTA will work with PennDOT, the county and the township during subsequent design to accommodate pedestrian and bicycle movements at intersections the Project will affect design pedestrian and bicycle routing along and across roadways at appropriate locations near Project station facilities, and make connections to sidewalks adjacent to Project station facilities and to the elevated boarding platforms at stations.

5.4.2.5 Traffic

- 5 Commenters expressed concerns regarding traffic changes, including increased congestion and volumes.
- 5A. **Project could add to congestion on local roads. Response:** After issuance of the DEIS on October 17, 2017, SEPTA undertook and completed additional traffic analyses around proposed stations to assess the potential for impacts to the roadway networks in

each station area. These effects were assessed for 2040 conditions, consistent with other transportation effects analyzed. Because each proposed station will generate traffic, and because traffic volumes will increase by 2040 without the Project, SEPTA proposes the following improvements as part of the Project to accommodate the additional traffic and achieve acceptable levels of service: new or improved traffic signals at some roadway and driveway intersections; and new roadway markings to provide turn lanes at some intersections. More details regarding the need for and details of the proposed improvements may be found in FEIS Section 3.2 and the 2019 *King of Prussia Rail Basis of Design Report, Appendix 6b*. To implement the proposed roadway and signal improvements, SEPTA will obtain required permits from PennDOT and approvals from Upper Merion Township. SEPTA will seek these permits and approvals during subsequent design and prior to construction.

Regarding roadway congestion during construction, and as described in FEIS Chapter 2, prior to construction, SEPTA will prepare and implement a Transportation Management Plan (TMP) for the Project in coordination with other providers of roadway, transit and emergency services to minimize adverse impacts to transportation. The TMP will include, but may not be limited to, schedule and timeline, public information and outreach program, monitoring plan and a maintenance of traffic plan that includes traffic control, detours, temporary lane closures, transit and roadway operations management, including transit service adjustments and substitute services, bicycle and pedestrian accommodation and parking accommodation for affected non-residential property owners.

SEPTA will be responsible for implementing the TMP's public information and outreach program, which is intended to inform motorists, transit riders, residents, businesses, schools, emergency service and delivery providers and the public regarding temporary changes to traffic patterns, detours and transit services. Appropriate lines of communication will be maintained with emergency service providers throughout construction regarding current and upcoming construction activities, potential issues and planned route changes. Please see also the response to comment 5C.

- 5B. **Increased local roadway congestion could affect commuting time for residents working locally. Response:** The traffic impact analysis for the Project after the DEIS, which is described in FEIS Section 3.2, indicates growth in traffic volumes on local roadways by 2040 because of planned development and redevelopment in the transportation study area. The traffic impact analysis in the 2019 *King of Prussia Rail Basis of Design Report, Appendix 6b* identifies the Project as adding traffic volume to local roadways near Project stations. In the traffic impact analysis, specific improvements are identified for intersections the Project will affect; these improvements will address Project impacts on roadway operations. The improvements include traffic signal adjustments and roadway lane striping. The intersection improvements will be undertaken as part of the Project. During subsequent design, SEPTA will work with PennDOT and Upper Merion Township to design specific improvements to intersections affected by the Project.

- 5C. **Potential for construction-related traffic congestion at US 202 and Henderson Road guideway crossings. Temporary traffic control in place during construction of the line over US 202 and Henderson Road may increase congestion. Response:** As described in FEIS Section 3.2, SEPTA will develop and implement a construction phase maintenance and protection of traffic (MPT) plan to avoid or minimize Project impacts to traffic operations during construction. Construction activities typically require temporary lane closures for the safety of the public and construction contractor access to the work area when it is near existing roadways. At roadway crossings, such as along the PA Turnpike, US 202, and Henderson Road, placement of overhead beams for the guideway structure will require complete roadway closures for public safety and contractor access. SEPTA anticipates that complete roadway closures will occur for short durations or at night to minimize impacts to the traveling public. The MPT plan will include a communication plan to make stakeholders, businesses, and the public aware of the schedule and details of changes to roadway operations. SEPTA's MPT plan will be subject to review and approval by the PA Turnpike Commission, PennDOT, and Upper Merion Township. More detail on SEPTA's MPT plan may be found in FEIS Section 3.2 and the 2019 *King of Prussia Rail Basis of Design Report*.
- 5D. **Project effects on operating conditions along PA Turnpike, Schuylkill Expressway, and US 202. How will this design, if implemented, affect rush hour traffic conditions on the west bound PA Turnpike, on the Schuylkill Expressway, and both the north and south bound lanes on US Route 202? Response:** As described in Section 3.2.3, Project construction activities potentially will result in temporary interruptions or changes to vehicular in the vicinity of Project work areas. Temporary travel lane and/or roadway closures may be required for certain construction activities to enable construction access and provide for public and worker safety, such as installing support columns for the guideway structure in the PA Turnpike median. Lifting the overhead guideway sections into place at locations where the Preferred Alternative crosses roadways, including US Route 202 will also require roadway closure for limited periods of time to protect construction worker and public safety. Please see FEIS Section 3.3 for SEPTA's commitments as part of the Project regarding coordination with PennDOT, Montgomery County, Upper Merion Township, and the PA Turnpike Commission and development and implementation of a Transportation Management Plan for affected roadways during Project construction.

During Project operations, the rush hour and non-rush hour operating conditions of the PA Turnpike, Schuylkill Expressway, and US 202 will not be physically affected by the Project because no change to the travel lane configurations of the roadways will occur.

5.4.2.6 Planning

- 6 Commenters expressed concerns about how the Project could affect future land use and transportation planning at the municipal and county levels. Commenters requested review of SEPTA's planning for further potential expansion of the Project beyond King of Prussia as well as other alternative modes of transportation to extend access for transit users. Commenters also noted potential planning needs for other transportation corridors.

- 6A. **Land use planning: Planning needs to further address transit-oriented development. Response:** Land use planning and zoning decisions in the vicinity of proposed Project stations are the responsibility of Upper Merion Township. For example and as described in DEIS Section 1.2.2, the Township's designation of a portion of the King of Prussia Business Park (now known as Moore Park KOP) as the King of Prussia Mixed-Use (KPMU) zoning district, shown on the Township's Draft Zoning Map on FEIS Figure 4-2.2 and in the maps in Appendix A, allows for a redevelopment pattern in the business park that encourages a variety of residential and non-residential uses. On December 15, 2020, SEPTA was awarded a grant through FTA's Pilot Program for Transit-Oriented Development (TOD) Planning to plan for TOD at the five proposed Project stations.
- 6B. **Transportation planning in King of Prussia/Upper Merion Township: Upper Merion Township comprehensive planning efforts should address multimodal access between Project stations and destinations. Response:** The DVRPC's 2018 *Station Area Planning for the Norristown High Speed Line Extension to King of Prussia* examined and evaluated factors that influence the environment for walking and biking at proposed stations. The study process engaged the Project community through a Study Advisory Committee (of which SEPTA was a part); stakeholder workshops attended by Upper Merion Township residents, members of the Upper Merion Township Planning Commission, and representatives from the Township's Economic & Community Development Committee; and an open house for local business and property owners. These engagement activities enabled DVRPC to gather feedback from stakeholders on a variety of issues related to land use and transportation in the Project station areas. From the study activities, DVRPC developed strategies and recommendations that can help the Township achieve long-established pedestrian and mobility goals.
- As described in FEIS Section 3.3.3.2, Project stations and park-and-ride facilities are being planned for multimodal access. The stations and park-and-ride facilities will have appropriate pedestrian and bicycle facilities including sidewalks, crosswalks, stairs and elevators, elevated boarding platforms at stations providing access to both sides of roadways, and bicycle racks. These facilities will be connected to the existing, adjacent sidewalk network. Please see FEIS Section 3.4 regarding SEPTA's commitments as part of the Project to coordinate with PennDOT, the county and the township to accommodate pedestrian and bicycle movements at intersections the Project will affect, as well as SEPTA's commitments to coordinate with the GVFTMA and KOP-BID regarding appropriate shuttle service modifications to serve Project stations.
- 6C. **Regional and local planning should address last mile transportation needs. Response:** Please see the response to Comment 6B. During subsequent design, SEPTA will coordinate with the GVFTMA and KOP-BID to plan appropriate shuttle service modifications to serve Project stations (FEIS Section 3.1.3).
- 6D. **Planning should consider shuttles from stations to the King of Prussia Mall and Casino. Response:** During subsequent design, SEPTA will coordinate with the GVFTMA

and KOP-BID to plan appropriate shuttle service modifications to serve Project stations (FEIS Section 3.1.3).

- 6E. **Address the lack of proposed stations near any residential areas. Response:** SEPTA has coordinated with Upper Merion Township and residents in the transportation study area to identify station locations with a goal of stations being accessible to residents. SEPTA identified each Project station as serving a geographic area within a 1/2-mile radius, which represents a typical maximum potential walking distance to a transit station. The Henderson Road Station will serve existing residential areas north of Saulin Boulevard, west of Henderson Road, and north of US 202 near Henderson Road, which are within the 1/2-mile radius. Also, within the 1/2-mile radius are the apartments at 251 West De Kalb. In addition, the Henderson Road Station will be near Montgomery County's planned Chester Valley Trail Extension (which will serve the transportation study area and the City of Bridgeport), enabling bicycle and pedestrian connections between the Project and the trail.
- 6F. **Address the potential for direct service to the Village at Valley Forge. Response:** Although the Preferred Alternative will not provide direct service to the Village at Valley Forge, during subsequent design, SEPTA will coordinate with the GVFTMA and KOP-BID to plan appropriate shuttle service modifications to serve Project stations.
- 6G. **Address the potential for direct service to Valley Forge National Historical Park. Response:** Although the Project will not provide a station at Valley Forge National Historical Park, during subsequent design, SEPTA will coordinate with the GVFTMA and KOP-BID to plan appropriate shuttle service modifications to serve Project stations and area destinations, which could include Valley Forge National Historical Park.
- 6H. **Provide a bicycle and pedestrian connection from a Project station to the Valley Forge National Historical Park trail network. Response:** The North Gulph Road Trail Feasibility Study was conducted by Traffic Planning and Design, Inc. (TPD) for the Valley Forge Park Alliance and completed in December 2018. According to the TPD website (<https://trafficpd.com/tpd/services/multimodal-complete-streets-mobility-services/north-gulph-road-trail-feasibility-study>), accessed 10/31/2020, the scope of the Project was to identify feasible trail alternatives to connect Valley Forge Park and the Schuylkill River Trail to the Chester Valley Trail via North Gulph Road. This trail could serve as a major link and connection in the region's Circuit Trail Network by crossing the King of Prussia/Valley Forge area. The study included coordination with Valley Forge National Historical Park, PennDOT, the PA Turnpike, Upper Merion Township, and Boles Smyth (the firm designing the relocation of North Gulph Road as part of a local-led TIP project). Overall, the study identified five alignments for making the end-to-end trail connection, developed concept plans and cost estimates, and summarized environmental impacts of each alignment. The Valley Forge Park Alliance does not have a report available on their website for downloading but the North Gulph Road Trail Feasibility Study work effort is briefly described in their online 2018 Annual Report. Those interested in the study should contact the Valley Forge Park Alliance.

SEPTA supports planning by the township for a bicycle and pedestrian connection to the park from the First & Moore Station and is willing to work with the township during its planning efforts in this regard.

6I. **Continue to work with regional and local stakeholders to find common ground.**

Response: SEPTA has engaged regional and local stakeholders throughout the Project development process to enable the Project to address concerns. Chapter 7 of the DEIS documents SEPTA's coordination activities with regional and local stakeholders during DEIS activities (alternatives development and evaluation). During the FEIS and the evaluation of the Preferred Alternative, SEPTA continued to coordinate with regional and local stakeholders through meetings with its Project committees (FEIS Section 5.1.3.10). The purposes of these coordination activities was to inform regional and local stakeholders about SEPTA's activities with regard to the Project, and to seek input from stakeholders during the evaluation of the Preferred Alternative. During subsequent design, construction, and operation of the Project, SEPTA will continue coordination with regional and local stakeholders (FEIS Section 5.6). For example, during subsequent design, SEPTA will coordinate with PennDOT, Montgomery County, Upper Merion Township, and the PA Turnpike Commission as it develops a Transportation Management Plan for affected roadways during construction. In another example, during subsequent design, SEPTA will work with the Upper Merion Township's Unified Safety Department's Public Safety Director and the Fire & Emergency Service Department as they identify a suitable location for the fire company and 9/11 Memorial and undertake the relocation process. SEPTA will provide the funds for relocation of the King of Prussia Fire Company and 9/11 Memorial. See FEIS Chapter 5 for more commitments SEPTA has made as part of the Project to continue coordinating with regional and local stakeholders.

6J. **Incorporate infrastructure improvements, such as sidewalks, street lighting, bicycle lanes, walking trails, and bus transit stops (this comment pertains primarily to the existing NHSL because it also includes station improvements). Response:**

The Preferred Alternative will include specific infrastructure improvements at proposed stations in the King of Prussia transportation study area: connections to existing sidewalks as well as the planned Chester Valley Trail Extension; crosswalks at roadway intersections; dedicated drop off and pick up areas for shuttles; and station lighting. As stated in FEIS Section 3.3, SEPTA will be coordinating with Upper Merion Township to support the township's planning for other transportation infrastructure in the transportation study area, such as bicycle lanes and walking trails. SEPTA designed the following Project stations to include bus transit stops, which will enable riders to transfer between the Project and bus service at each station: Henderson Road Station, Mall Blvd Station, and First & Moore Station, with the First & Moore Station being planned as a major intermodal connection point between Project service and SEPTA Bus service.

As described in FEIS Section 2.3.2.2, the Project will include exterior and interior improvements to 69th Street Transportation Center to accommodate the new Project service. The exterior improvements will include extending one existing track to Platform 4 to serve Project trains. SEPTA will also widen Platform 4 from the existing one-sided operation (serving Track 3) to a two-sided operation (serving Tracks 3 and 4). The wider

platform will provide for pedestrian circulation to trains on both sides of the platform. The existing retaining wall will be removed, and a new retaining wall will be constructed to support the fourth track extension and the wider platform. The new retaining wall will require the existing bus loop road to be shifted to the north on the station property by approximately 20 feet. The interior improvement elements will include expanding the existing fare array on the concourse to provide bays for Project service.

SEPTA will not make improvements to other stations along the existing Norristown High Speed Line as part of the Project.

- 6K. **Address PACarpool.org on the DVRPC website and other alternate transportation modes and how these could be used to alleviate traffic congestion. Response:** Carpooling and alternative transportation modes (such as bicycle and pedestrian modes) are among the transportation choices travelers to, from, and within the transportation study area have in the existing condition. Other existing modes include personal vehicles, buses, shuttles, nearby rail transit and Regional Rail service, and Transportation Network Companies such as Uber and Lyft. The combination of these existing modes does not overcome existing roadway congestion and delays as described in FEIS Chapter 3. Because of forecasted growth in travel demand on area roadways by 2040, roadway congestion and delays will worsen as the combination of existing transportation modes continues to fall short of addressing these problems. The idea of expanding existing alternative transportation modes is addressed in FEIS Section 3.1.2.2 with the example of increasing existing SEPTA bus services. Although bus service reduces the number of personal vehicles on existing roadways, bus service cannot outpace growth in roadway congestion and delays.
- 6L. **If it is totally infeasible to extend the Paoli/Thorndale (formerly R5) Rail line, it should be better communicated as to why. Response:** Because the Paoli-Thorndale Regional Rail line operates within three miles of the transportation study area, SEPTA considered the potential to provide an extension between the line and the transportation study area. A key consideration for identifying the best way to extend rail service to the transportation study area is service frequency; as identified in FEIS Section 4.2.2.1, the transportation study area contains many businesses and commercial enterprises (the King of Prussia Mall and Moore Park KOP, for example) that are sustained by employees that work daytime and nighttime hours. In addition, entertainment destinations such as the movie theater, dining establishments, and the Valley Forge Casino Resort, have extended hours of operations. To serve transportation needs arising from these existing business and commercial operations, SEPTA determined that an extension of rail service to the transportation study area must provide frequent service and extended hours of service. As shown in **Table 5.4-3** below, the Paoli-Thorndale line provides a range of daytime and nighttime service hours to the Villanova and Radnor stations near the transportation study area. In comparison, the Norristown High Speed Line provides earlier morning service from nearby Gulph Mills Station. The Norristown High Speed Line also provides more frequent weekday service than the Paoli-Thorndale line: 7 minutes on weekdays and 20 minutes on weekends. SEPTA determined that extending Norristown High Speed Line service to the transportation study area will allow for earlier operating

times and comparatively more frequent service. These operating characteristics will better serve the transportation needs of people who live, work, and play in the transportation study area.

Table 5.4-3: Comparison of SEPTA Rail Services

Service Characteristic	Paoli-Thorndale Line (Villanova/Radnor) ¹	Norristown High Speed Line (Gulph Mills) ²
Weekday Service Hours (Range)	5:21 a.m. – 12:31 p.m. 5:21 a.m. – 1:54 a.m. (pre-COVID-19)	4:18 a.m. – 2:17 a.m. 4:18 a.m. – 1:59 a.m. (pre-COVID-19)
Saturday Service Hours (Range)	6:10 a.m. – 11:15 p.m. 6:42 a.m. – 2:14 a.m. (pre-COVID-19)	5:59 a.m. – 2:23 a.m. 5:05 a.m. – 2:02 a.m. (pre-COVID-19)
Sunday Service Hours (Range)	6:10 a.m. – 11:15 p.m. 6:42 a.m. – 2:14 a.m. (pre-COVID-19)	5:05 a.m. – 2:22 a.m. 5:05 a.m. – 2:02 a.m. (pre-COVID-19)
Weekday Time between Trains (Range)	9 minutes to 1 hour and 42 minutes	7 minutes – 32 minutes
Saturday Time between Trains (Range)	30 to 55 minutes	20 minutes
Sunday Time between Trains (Range)	60 minutes	20 minutes

¹Service hours and time between trains is approximate and based on SEPTA's 8/16/2020 schedule for the Paoli-Thorndale line. The source of pre-COVID-19 data is the 12/15/2019 schedule, provided for reference.

²Service hours and time between trains is approximate and based on SEPTA's 9/17/2020 schedule for the Norristown High Speed Line. The source of pre-COVID-19 data is the 9/2/2019 schedule, provided for reference.

With the outbreak of the coronavirus (COVID-19) in March 2020, the resulting mitigation measures by governmental authorities reduced economic activity and travel. In response to these measures, SEPTA modified their transit service schedules to focus on providing what at the time was called “Lifeline Services” for essential workers (access to hospitals, grocery stores and other life-sustaining services). SEPTA operated as much core transit service as possible for essential worker travel. As the region began to re-open with economic activity and travel rising, SEPTA returned to regular schedules on most of their transit services starting in mid-May 2020. SEPTA has continued to adjust their transit services and schedules to reflect the status of COVID-19 activity and the governmental restrictions and mitigation measures put in place, including the most recent mid-November 2020 schedules.

Another key consideration is the proximity of the existing service to the transportation study area. The Norristown High Speed Line is at the edge of the transportation study area, while the Paoli-Thorndale Line is three miles from the transportation study area. The combination of service frequency, hours of operation, and proximity to the transportation study area led to SEPTA's decision to consider an extension of the Norristown High Speed Line.

- 6M. **Review the Manayunk/Norristown (formerly R6) Rail line to extend from King of Prussia into Center City. Response:** SEPTA, in coordination with the Berks Area Reading Transportation Authority, conducted feasibility studies, and a major investment

study/draft environmental impact statement of the Schuylkill Valley Metro concept linking Reading to Philadelphia (<https://www.dvrpc.org/TOD/SchuylkillValleyMetro.htm>). In 2002, an application for the Project was made to FTA for a federal grant under their Capital Investment Grants program. As part of the application process FTA assigns a rating to a project based on project justification and local financing commitment. FTA gave the project an overall ranking of “Not Recommended” due to the high cost of the proposed service.

As a consequence, the Montgomery County Planning Commission completed the 2003 *R6 Norristown Line Service Extension Study* to determine the viability of lower cost commuter rail service to communities along the US 422 corridor. The study analyzed various rail service alternatives for providing a connection to Philadelphia utilizing the existing Norfolk Southern line between Norristown and Wyomissing and the existing R6 Norristown line to access Center City Philadelphia. In that study, Alternative 1 would extend existing R6 service from Norristown to Valley Forge Station; other alternatives would extend service beyond Valley Forge. The conclusion of the study found Alternative 1 to be one of the most feasible alternatives and worthy of further study because it was the alternative with potential eligibility for the FTA’s New Starts Program and therefore, potentially financially feasible. Alternative 1 also had the lowest operations and maintenance cost per rider compared to the other alternatives.

Further study of Alternative 1 culminated in the 2003 *Norristown High Speed Line (Route 100) Extension Draft Alternatives Analysis*, which also supported extension of rail service to Valley Forge Station. This analysis examined and ultimately found that a potential extension of NHSL rail transit service from the 69th Street Transportation Center to the transportation study area warranted further study because it would have the most ridership, would have the lowest cost in relation to benefits, improve access to jobs in the business park, would provide access to the King of Prussia Mall, and would provide a park and ride opportunity near US 422.

The foregoing studies led to SEPTA further studying extension of NHSL rail transit service from the 69th Street Transportation Center to the transportation study area, which is the King of Prussia Rail Extension Project that is the subject of this FEIS. SEPTA’s 2015 *King of Prussia Rail Tier 1 and Tier 2 Screening Results Technical Memorandum* summarizes the process SEPTA undertook to further evaluate an extension of rail service from 69th Street Transportation Center to King of Prussia/Valley Forge area. Among the long list of alternatives SEPTA considered in the Tier 1 screening phase was extension of service using the Norfolk Southern line. Ultimately, use of the Norfolk Southern line was determined to be not operationally feasible because the three rail services cannot operate within the same track segment (Norfolk Southern, the King of Prussia extension service to Norristown Transportation Center, and the King of Prussia extension service to the 69th Street Transportation Center), and because very slow operating speeds exiting and entering the existing Norristown High Speed Line would result in the slowest travel time among the alternatives considered in the study. For these reasons, the alternative along the Norfolk Southern line was eliminated from further consideration.

- 6N. **Address service to the Village at Valley Forge. Response:** Although the Preferred Alternative will not provide direct service to the Village at Valley Forge, SEPTA will coordinate with the GVFTMA and the KOP-BID during subsequent design to plan appropriate shuttle bus services and modifications to make connections between Project stations and transportation study area destinations, including the Village at Valley Forge. In addition, and as described in FEIS Section 3.3, SEPTA will continue coordinating with Upper Merion Township to support efforts to develop bicycle and pedestrian access to First & Moore Station from the Village at Valley Forge.
- 6O. **Discuss a route to 69th Street Transportation Center rather than a direct route to Center City, Philadelphia. Response:** SEPTA's existing rail service network provides Regional Rail service to and from the Norristown Transportation Center in the transportation study area and from other stations within approximately three miles of the transportation study area and Center City, Philadelphia. SEPTA considered extensions of regional rail to the transportation study area, but determined that extending Norristown High Speed Line service to the transportation study area would allow for earlier operating times and comparatively more frequent service than Regional Rail service. The operating characteristics of the Norristown High Speed Line would better serve the transportation needs of residents and businesses in the transportation study area.

As discussed in FEIS Section 3.1.3, the Norristown High Speed Line terminates at the 69th Street Transportation Center, requiring a traveler to Center City to transfer to the Market-Frankford line. Market-Frankford trains have a service frequency of 4 to 12 minutes depending on the time of day according to SEPTA's September 9, 2019 Market-Frankford line schedule. The June 14, 2020 schedule reflects COVID-19 conditions that are not normal; service frequency is approximately 12 minutes. SEPTA has continued to adjust and modify its transit services and schedules to reflect the status of COVID-19 activity and the governmental restrictions and mitigation measures put in place. The travel time estimate for Project service between the King of Prussia Mall and Center City by means of the Norristown High Speed Line and Market-Frankford line is approximately 30 minutes. In comparison, the travel time from Villanova Station to Center City Philadelphia on the Paoli-Thorndale line is approximately 28 to 40 minutes depending on the time of day. To accurately compare travel time with Project service, travel time from Villanova Station to the King of Prussia Mall would have to be added to provide a total travel time using the Paoli-Thorndale Regional Rail line. Even with the transfer at the 69th Street Transportation Center, Project service by means of the Norristown High Speed Line will provide the fastest travel time to Center City, Philadelphia.

- 6P. **Transportation planning outside Project area: Address traffic concern for areas to the north and west of King of Prussia, bringing customers into the King of Prussia Mall and Philadelphia. Response:** The traffic impact analysis for the Project focused on intersections in the transportation study area that will be affected by the Project (FEIS Section 3.2). Those intersections are near the access points to proposed Project stations and park-and-ride facilities. SEPTA did not analyze traffic conditions outside the transportation study area.

- 6Q. **Transportation planning outside Project area: SEPTA would be better served to connect the US Route 422 corridor to the King of Prussia, Conshohocken, and Main Line business communities. Consider providing a connection to the Regional Rail lines along the Schuylkill River to the Manayunk/Norristown line alongside of US Route 422 through Upper Merion/Tredyffrin Township line to the Paoli/Thorndale line.** **Response:** Comment noted. SEPTA, in coordination with the Berks Area Regional Transportation Authority, conducted feasibility studies, and a major investment study/draft environmental impact statement of the Schuylkill Valley Metro concept linking Reading to Philadelphia. In response to an application for a federal grant under FTA's Capital Investment Grants program in 2002, FTA gave the project an overall ranking of "Not Recommended" due to the high cost of the proposed service.

SEPTA considered an extension of Regional Rail to the transportation study area but determined that extending Norristown High Speed Line service to the transportation study area would allow for earlier operating times and comparatively more frequent service than Regional Rail service. Because the operating characteristics of the Norristown High Speed Line would better serve the transportation needs of residents and businesses in the transportation study area.

The metropolitan planning organizations studied the potential for additional rail service in the area, including the Delaware Valley Regional Planning Commission (for Bucks, Chester, Delaware, Montgomery, and Philadelphia counties, <https://www.dvrpc.org/>) and the Reading Area Transportation Study (for Reading and Berks County, <https://www.readingpa.gov/content/reading-area-transportation-study>). Please see response to Comment 6O regarding travel time.

- 6R. **Transportation planning outside Project area: Address planning to integrate an expansion of the regional rail network to the Phoenixville/Reading area.** **Response:** SEPTA, in coordination with the Berks Area Regional Transportation Authority, conducted feasibility studies, and a major investment study/draft environmental impact statement of the Schuylkill Valley Metro concept linking Reading to Philadelphia. In 2002, an application for the Project was made to FTA for a federal grant under their Capital Investment Grants program. As part of the application process FTA assigns a rating to a project based on project justification and local financing commitment. FTA gave the project an overall ranking of "Not Recommended" due to the high cost of the proposed service.

- 6S. **Transportation planning outside Project area: Address the potential for other rail lines to address traffic from different areas.** **Response:** As described in FEIS Sections 1.2.1 and 1.2.2, businesses and commercial activities in the transportation study area are local, regional and national attractions. Access to these activities is provided by the existing roadway network, SEPTA bus service and, indirectly, by SEPTA's rail network. Previous studies by SEPTA and others (for example, the 1998 *Norristown High Speed Line (Route 100) Extension Feasibility Study*, the 2003 *Norristown High Speed Line (Route 100) Extension Draft Alternatives Analysis*, the 2003 *R6 Norristown Line Service Extension Study* and the 2001 *Schuylkill Valley Metro Major Investment*

Study/Draft Environmental Impact Statement) examined the ability of other existing and potential future rail lines and extensions to provide a rail transportation alternative to automobile travel on roadways. The Norristown High Speed Line extension studies led to the Project as a feasible and effective solution. In contrast, the Schuylkill Valley Metro study received an overall ranking of “Not Recommended” from FTA due to the high cost of the proposed service.

SEPTA considered an extension of the Paoli-Thorndale line of its Regional Rail service to the transportation study area, but determined that extending Norristown High Speed Line service to the transportation study area would allow for earlier operating times and comparatively more frequent service than Regional Rail service. In addition, travel time between the transportation study area to Center City, Philadelphia would be comparatively faster with an extension of the Norristown High Speed Line (approximately 30 minutes as noted in FEIS Table 3-1.11) compared to the Paoli-Thorndale line (approximately 40 minutes to Villanova Station, which is three miles from King of Prussia Mall, plus additional travel time between Villanova Station and the mall). Another key consideration was the proximity of the existing service to the transportation study area. The Norristown High Speed Line is at the edge of the transportation study area, while the Paoli-Thorndale Line is three miles from the transportation study area. The combination of service frequency, hours of operation, and proximity to the transportation study area led to SEPTA’s decision to consider extension of the Norristown High Speed Line.

- 6T. **Address the use of the Route 100 right-of-way for a future rail-to-trail alignment for the Forge to Refuge Trail between Haverford and Radnor. Response:** The Forge to Refuge Trail consists of existing and planned segments of a 30-mile-long trail that would connect Valley Forge National Historical Park with the John Heinz National Wildlife Refuge near Philadelphia International Airport. Existing segments include the Radnor Trail, which is on a former rail bed between Sugartown Road and South Radnor Chester Road, and the Cobbs Creek Trail in Philadelphia. Proposed segments that are under study include an extension of the Radnor Trail to Villanova University, and extension of the Cobbs Creek Trail to Havertown. As documented in Radnor Township’s 2015 report *The Forge to Refuge Trail – A Feasibility Study*, SEPTA participated in the feasibility study and will continue to participate in planning for the future trail. The potential for use of the Norristown High Speed Line (Route 100) right-of-way for a portion of the future alignment of the trail will be the subject of future coordination activities.

5.4.2.7 Design

- 7 Commenters expressed concerns about the design of the recommended LPA, how it would affect/incorporate existing transportation facilities.
- 7A. **Design elements: Is it sound design practice to place the Project at the proposed height over the existing US 202 bridge? Response:** The proposed height of the guideway at the PA Turnpike/US 202 crossing will be approximately 60 feet above the PA Turnpike; the vertical clearance of the guideway over US 202 will be approximately 16 feet 6 inches, which is the minimum required vertical clearance over principal arterial highways and meets PennDOT requirements. These dimensions are well within

acceptable design parameters for rail structures over existing roadways, and achieve applicable vertical clearance requirements.

7B. Design elements: Verify the number of rail vehicles necessary for continual service, including spares. Describe bicycle accommodation on vehicles.

Response: After issuance of the DEIS on October 17, 2017, SEPTA performed updated ridership forecasting and rail operations simulation analyses. The results of these analyses indicate that 6 additional rail vehicles will be required in addition to the existing 26 unit N5 fleet and spares.

SEPTA allows bicycles to be brought on board the existing vehicle fleet on the NHSL; bicycles are permitted in the vestibule areas of the vehicles. SEPTA anticipates making no change to its bicycle policy; SEPTA will continue to allow bicycles on board the Project. To further accommodate bicycle use, bicycle parking racks are planned for Project stations.

7C. Design elements: Verify the proposed route, stations and technology are compatible with existing lines to ease maintenance, upkeep and future improvements. Response: Project design and operations will be compatible with and be an extension of existing Norristown High Speed Line service. One of SEPTA's goals for the Project is full integration of the Project into existing Norristown High Speed Rail Line operations along the existing line and at the 69th Street Transportation Center in a manner that simplifies and minimizes additional costs of maintenance and operation of the Project as part of the Norristown High Speed Line. The design and operation of the Project service will not preclude the ability of SEPTA to consider future improvements along the extension or along the existing line.

7D. Design elements: Address integration of the KOP line on First Avenue in light of the township's planned road diet. Response: During the FEIS, SEPTA refined the Preferred Alternative with the goals of optimizing operations and reducing or eliminating potential impacts. One of the locations where SEPTA made design refinements was along First Avenue where the guideway was aligned over First Avenue in the DEIS. As noted in Section 4.02.2.1 of the 2019 *King of Prussia Rail Basis of Design Report*, this design would require the structure to straddle the travel lanes using large support structures, or require support structures in the center of the roadway. Straddle bents are typically costlier to construct and maintain, and result in a more massive and visually obstructive structure than single structures in the center of a roadway. Structures in a roadway can challenge drivers making left turns. Structures in a roadway would require substantial construction activity in the roadway that would affect traffic.

To overcome these concerns, SEPTA through its 15 percent design development process has shifted the guideway to the north, adjacent to and outside the First Avenue travel lanes. By placing the guideway outside the roadway, overall Project costs are reduced, the guideway will be easier for SEPTA to access and maintain, the structure will be less massive and less of a visual change, and roadway operations will be unaffected during Project operations. The township's road diet project has been completed. SEPTA

will continue coordinating with Upper Merion Township in regard to the Project and township roadways.

- 7E. **Design elements: Consider a station in the area of the PA Turnpike crossing of US Route 202 to serve residents in Valley Forge Homes and Brandywine Village; also consider providing pedestrian access over the PA Turnpike for Valley Forge Homes and Brandywine Village residents. Response:** As described in DEIS Section 2.3, in considering station locations, SEPTA gave primary consideration to engineering feasibility, access to key transportation study area destinations, relative square footage of non-residential and office space within ½ mile of station areas as a measure of the size of potential service areas, existing land use, travel time effects, and ridership. Engineering feasibility has to do with whether a station could be built in a location as a matter of sound engineering judgment. The results of this assessment were that, whereas it may be feasible to provide a station in that location, the area within ½ mile of such a station does not have the development density to provide the ridership to justify a station. The provision of a pedestrian crossing over the PA Turnpike is not part of the Project because such a crossing is not supported by the Project purpose and need.
- 7F. **Design elements: What is the time estimate for the construction of the design option? Response:** SEPTA anticipates the construction phase of the Project to be less than 4 years in duration.
- 7G. **Design elements: Consider two tracks in each direction (an express track and a local track), to increase service and provide operational flexibility especially when a track is out of service. Response:** To minimize the amount of rail infrastructure required for the Project as well as Project costs, SEPTA has incorporated three crossover elements in the Project track design. A crossover is a track structure that allows trains to cross from one track to another. Crossovers increase operational flexibility without adding substantial cost and infrastructure.
- 7H. **Design elements: Address the need to qualify the chosen engineering company that will complete the design. Response:** SEPTA has a rigorous consultant procurement process during which capabilities for the specific tasks must be demonstrated by the prospective consultant, and relevant project experience and availability is considered. In addition, SEPTA's procurement process is subject to federal standards regarding consultant hiring practices for projects receiving federal funding. SEPTA applies these processes and standards in each consultant selection process it undertakes, including procurements for the Project.
- 7I. **Alternative design: Consider design of a loop from the King of Prussia Mall to First Avenue and Gulph Road, then back to the mall. Double track and run the cars around it. A loop would enable the Project to serve the King of Prussia Business Park (now Moore Park KOP) and the Village at Valley Forge. Response:** SEPTA considered the feasibility of a loop-like alignment in the Tier 1 screening phase of the Project. Such an alignment was eliminated from consideration because of engineering problems related to changes in terrain and the crossing of existing roadways, particularly the PA Turnpike. During subsequent design, SEPTA will coordinate with the GVFTMA

and KOP-BID to plan appropriate shuttle service modifications to serve Project stations and transportation study area destinations, such as the Village at Valley Forge.

- 7J. **Design elements: The best alternative needs to run through First Avenue and/or Moore Road. Response:** SEPTA selected and adopted the Preferred Alternative for the Project, which will traverse along the north side of First Avenue to the proposed First & Moore Station near the Valley Forge Casino Resort.

5.4.2.8 Water Supply and Geology

- 8 Commenters expressed concerns regarding the existence of a public water supply (Aqua PA) and adjacent site contamination near the Project. Commenters expressed concern regarding potential Project impacts on public drinking water. Regarding the local geology, commenters asked about the potential for the Project to cause geologically-related impacts to private properties, such as sinkholes.

- 8A. **Address protection of the drinking water supply, and the presence of the Superfund site adjacent to the Aqua PA facility and the potential for public water supply impacts from that site. Response:** During the DEIS comment period, Aqua PA provided SEPTA with information about its property, including the location of supporting drinking water infrastructure in the Project area. SEPTA incorporated that information into the Project design plans. Additionally, SEPTA met with Aqua PA on June 2, 2020 to further coordinate on Project design, obtain drawings and locational information for existing Aqua PA water infrastructure, future planned infrastructure by Aqua PA in the Project area and establish communication channels. During subsequent Project design, construction, and operations, SEPTA will continue coordinating with utility service providers, including Aqua PA, to verify the locations of existing utilities, and develop and implement construction and operations plans related to utilities (Section 4.13.3). Regarding water quality, SEPTA will incorporate best management practices (BMP) for stormwater management into Project design, construction and operations, including structural and non-structural controls to manage stormwater runoff and will follow the Pennsylvania Stormwater BMP Manual. FEIS Section 4.11 and 4.13.3 identify SEPTA's commitments with regard to protection of water quality and utilities. As part of the Project, SEPTA will be required to comply with Pennsylvania Department of Environmental Protection (PADEP) regulations to protect groundwater and drinking water supplies. SEPTA will also coordinate with PADEP and may be subject to regulations regarding the Superfund sites located south of the Project area. SEPTA's compliance and coordination activities with PADEP will occur during subsequent design and prior to construction.

As noted in DEIS Section 4.12.2 and shown on the maps in DEIS Appendix A, the Henderson Road Superfund Site is a former landfill along South Henderson Road, south of the PA Turnpike, and a property at 103 Queens Drive. The Henderson Road Superfund Site is outside and south of the Preferred Alternative limits of disturbance; the Preferred Alternative will have no direct, physical impact on this property. SEPTA will manage the potential for encountering contaminated materials and hazardous waste from these and other sites during construction and operation of the Project by identifying the presence or absence of such materials within the temporary and permanent limits of

Project disturbance in a Phase II Environmental Site Assessment (ESA). More detail on SEPTA's commitments regarding contaminated materials and hazardous waste are provided in FEIS Section 4.13.3.

8B. Address SEPTA's management of potential for geological impacts during construction and operation. Response: As part of the Project, SEPTA has made commitments to manage the potential for geological impacts related to Project construction and operation (FEIS Section 4.11.3). SEPTA's commitments are the following:

- During subsequent design, SEPTA will complete a geotechnical investigation to identify soils and geological conditions within the Project limits of disturbance. The investigation will use subsurface testing and laboratory analysis to determine soil and rock properties (such as water, chemical and mineral contents, soil and rock strength, depth of rock, and delineation of karst features). This information will assist SEPTA in designing the Project to location-specific soil and geological conditions.
- During subsequent design, SEPTA will develop a plan of action in the event of a geological event, such as a sinkhole, during Project construction. The program of actions will include the following elements: communication protocol, securing the site of the sinkhole, implementing an action plan to resolve the issue, and restoring construction activities.
- During subsequent design, SEPTA will develop an operations plan in the event of a geological event occurring during Project operations, such as a sinkhole. The program of actions will include the following elements: communication protocol, securing the site of the sinkhole, implementing an action plan to resolve the issue, and restoring normal operations.
- During construction, SEPTA will implement the construction plan related to geological conditions.
- During operations, SEPTA will implement the operations plan related to geological conditions.

8C. Who will assume responsibility for damages to personal property related to geology that are incurred as a result of Project construction and operation? Response: During Project construction, the contractor is responsible for property damage caused. During Project operations, SEPTA is responsible for property damage caused.

5.4.2.9 Air Quality Impacts

9 Commenters requested information on potential improvement (beneficial impact) to air quality.

- 9A. **Discuss potential for the Project to improve air quality, by reducing traffic congestion/volumes. Response:** As noted in FEIS Section 4.9, the anticipated VMT reduction by 2040 was calculated for the weekday peak hour using data from the ridership forecasting process. As shown in FEIS Table 4-9.5, the Preferred Alternative will result in a net reduction of peak hour VMT (61,303 average weekday miles) and motor vehicle emissions compared to the No Action Alternative. The reduction will be due to travelers changing mode from personal vehicles to Project service. Due to the peak hour VMT reduction, the Preferred Alternative will have a positive air quality benefit.

5.4.2.10 Visual Impacts

- 10 Commenters were concerned about potential visual impacts.

- 10A. **Address the visual impact of the train thirty feet or more in the air for private properties. Response:** SEPTA made a number of design refinements to reduce the visual impacts of the Project. Among these refinements is the selection and adoption of the PA Turnpike North/South Option which places the guideway on the opposite side of the PA Turnpike from existing residential development. Further design development to the 15 percent level by SEPTA for the combined FEIS/ROD has resulted in the Project alignment placement on the north side of the PA Turnpike even further away from Valley Forge Homes. Please see FEIS Section 4.8 for more discussion on visual impacts.

5.4.2.11 King of Prussia Volunteer Fire Company Impacts

- 11 Commenters were concerned with the potential impacts to the King of Prussia Volunteer Fire Company (KOP VFC), including potential relocation of the building and the 9/11 Memorial.
- 11A. **Address the potential relocation of 9/11 Memorial. Response:** The 9/11 Memorial, and the KOP VFC facility, will be relocated to build and operate the Project. SEPTA is coordinating with the township to identify an appropriate new and suitable location for the facility and memorial. Relocating the fire company facility and the 9/11 Memorial is a Project commitment as noted in FEIS Section 2.3.2.8.
- 11B. **Identify KOP VFC impacts/mitigation and coordination with KOP VFC board. Response:** To build and operate the Preferred Alternative, SEPTA will acquire the property on which the KOP VFC facility and 9/11 Memorial operate. The facility and 9/11 Memorial will be displaced by the proposed guideway and Allendale Road Station. As a consequence, the facility and memorial will be relocated at the Project's expense. SEPTA's commitments as part of the Project regarding the 9/11 Memorial are described in FEIS Section 4.4.3.

The KOP VFC is part of Upper Merion Township's unified Public Safety Department that encompasses the divisions of police, fire, ambulance services. Public Safety is overseen by, the chief of Police. The township's Fire & Emergency Medical Service Department consists of volunteer and career fire and emergency medical services personnel; the

Department is overseen by Chief of Fire & EMS. The Company is made up of Fire and Administrative officers, active firefighters, fire police, and other members.

SEPTA met with the King of Prussia Volunteer Fire Company on February 16, 2017 and on January 10, 2018. **Table 5.4-4** summarizes the attendees, discussions and outcomes of each meeting.

Table 5.4-4: SEPTA Coordination with Volunteer Fire Company

Date	Attendees	Discussion	Outcome
February 16, 2017	SEPTA, Fire Company, and Township Board of Supervisors member Bill Jenaway	Topics: recommended PA; relocation of firehouse and memorial	SEPTA identified and assessed 9/11 Memorial Avoidance Option in DEIS
January 10, 2018	SEPTA (Liz Smith, Pam McCormick); Fire Company (Mark Forster, Steve Geltman, Bill Jenaway, Kevin Katarynick, Carl Pinto, and Ben Williams); McCormick Taylor (Emily Watts); AECOM (Sam Pickard)	Topics: recommended PA and 9/11 Memorial Avoidance Option; relocation of firehouse and memorial; fire company concerns (public safety, travel time, availability of suitable sites, impact to billboard on property)	SEPTA and fire company to meet again as design progresses; Fire Company to meet with its board and 9/11 Memorial Committee (outcomes unknown)

5.4.2.12 Ridership

- 12** Commenters were concerned with the possibility of not meeting ridership projections and the ability of riders to use other currently available stations in the area.

12A. Address the potential of not having the ridership expected. Response: SEPTA completed updated ridership projections for the FEIS after publication of the DEIS on October 17, 2017. The results of the updated ridership forecasting for the FEIS are provided in FEIS Chapter 3, Section 3.1. While the potential for less ridership than forecasted could occur, the ridership forecasting processes are based on existing and anticipated land use and demographic data developed and adopted by the planning agencies in the region (DVRPC and Montgomery County, for example) as well as Census Transportation Planning Package worker travel flow data, travel data from origin-destination passenger intercept surveys from DVRPC, as well as Automated Passenger Count (APC) data of transit passengers from SEPTA. These data sources provide a strong foundation for the forecasting process because they are based on actual and anticipated conditions in the transportation study area. The ridership forecasting for the FEIS used FTA's STOPS model, which is a software package that forecasts detailed transit travel patterns for the No Action and Preferred Alternatives. More detailed information on the FEIS ridership forecasting process and results can be found in the 2020 *KOP Rail FEIS STOPS Ridership Forecasting Technical Memorandum* (AECOM) (www.kingofprussiarail.com).

- 12B. **Riders can use the current Norristown Transportation Center, Bridgeport, King Manor Hughes Park stations. Response:** Riders on the Norristown High Speed Line have several choices of existing stations to access service. With Project service in operation, these existing stations will continue to be station access choices for riders. However, the Project will increase station access options for riders and the Project service will bring new rail transit service into the transportation study area, thus eliminating a transit service gap between existing stations and destinations in the transportation study area such as the King of Prussia Mall, the Valley Forge Casino Resort, and Moore Park KOP.
- 12C. **In terms of ridership, please explain why the Preferred Alternative was selected instead of an alternative along N. Gulph Road that would serve the Village at Valley Forge? Response:** The results of the ridership forecasts discussed in DEIS Chapter 3 and in the evaluation of alternatives discussed in DEIS Chapter 8 indicated the recommended LPA (now the Preferred Alternative) would have as good or better ridership compared to the other DEIS Action Alternatives including the Action Alternatives using North Gulph Road. It is important to note that forecasted ridership was only one of many factors that helped SEPTA identify the recommended LPA (now the Preferred Alternative). The full range of factors evaluated is discussed in DEIS Chapter 8.

5.4.2.13 Project Development Process

- 13 Commenters asked about the process used to plan/develop transportation projects under the USDOT and NEPA.

- 13A. **Provide a Project development process summary and public involvement opportunities/purpose. Response:** SEPTA's Project development process for the Project included early planning, alternatives development and screening, and the NEPA process. This response summarizes each stage in the process and the public involvement opportunities during each stage.

Early planning includes the previous studies described in DEIS Section 2.1.1. The previous studies were regional transportation studies by SEPTA and others (Schuylkill Valley Metro, Cross County Metro, and Route 100 Extension), as well as land use planning efforts by Upper Merion Township that culminated in its 2005 Land Use Plan. The purpose of the early transportation planning studies was to identify the need for transit system improvements in the counties of Delaware, Montgomery, and Berks. The early studies identified potentially viable transportation solutions and the need for further study of those potential solutions. The studies also identified infeasible solutions that would not be studied further. Reasons for potential viability or infeasibility included one or a combination of factors, such as engineering, operational logistics, support or nonsupport by the public or other stakeholders, and cost. Public participation was a component of these early studies; for example, SEPTA's 2003 *Norristown High Speed Line (Route 100) Extension Alternatives Analysis* was informed by a technical advisory committee, general public meetings, and involvement by stakeholders, stakeholder groups, and relevant government agencies. Input received from the public at this early

stage in transportation planning enabled SEPTA and others to be aware of specific concerns and enabled such concerns to be considered during decision-making.

In 2012, prior to the initiation of the NEPA process, SEPTA began evaluating the potential to extend NHSL rail transit service to the King of Prussia/Valley Forge area. This planning work included developing the Project purpose and need, and evaluating a list of alternatives, which included alternatives from SEPTA's 2003 *Norristown High Speed Line (Route 100) Extension Draft Alternatives Analysis*, new concepts SEPTA developed, and ideas identified through agency, stakeholder, and public outreach activities. The Project purpose and need focuses on rail service, not a bus mode, because SEPTA provides six different bus routes to the King Prussia/Valley Forge area, including express bus service from Center City Philadelphia. As described in FEIS Sections 1.2.5 and 3.1, extensive existing roadway congestion makes additional bus service not a feasible solution.

A list of 30 alternatives was then screened through a three-tiered evaluation process consisting of progressively more detailed levels of scrutiny. Tier 1 screening (October 2012 – January 2014) eliminated alternatives that did not achieve the Project purpose and need or would not be reasonable to build, operate, or maintain. Tier 2 (February 2014 – December 2014) examined the surviving alternatives for engineering/right-of-way needs, markets to be served, system connectivity, support for transit-oriented development, and community and environmental impacts. As a result of Tier 2 analysis, all but the five Action Alternatives that were considered in the DEIS were eliminated; the alternatives that were eliminated did not perform as well as the five alternatives that were retained in terms of the engineering, transportation, and natural and built environment factors applied during Tier 2.

On June 27, 2013, FTA and SEPTA formally initiated the NEPA process for the Project with a Notice of Intent (NOI) in the Federal Register. Tier 3 analysis (January 2015 – December 2017) was conducted as part of the Draft Environmental Impact Statement (DEIS) process and included a detailed analysis of the five Action Alternatives, along with the No Action Alternative. Tier 3 identified the potential benefits and impacts of each of the five Action Alternatives on the transportation, natural, and human environments. SEPTA refined the Action Alternatives based on input received from the public, agencies, and other stakeholders.

After considering not only the Tier 3 screening process results, but also the input received from agencies, stakeholders, and the public (FEIS Chapter 5), SEPTA identified a recommended locally preferred alternative (LPA) as the environmentally preferable alternative in the DEIS. Compared to the other DEIS alternatives, the recommended LPA was identified as best meeting the purpose and need while avoiding or minimizing impacts and being responsive to agency, stakeholder, and public concerns. SEPTA also identified and evaluated two design options for the recommended LPA: the PA Turnpike North/South Option and the 9/11 Memorial Avoidance Option. Each of the recommended LPA design options would modify a portion of the recommended LPA; the remainder of the recommended LPA would be unchanged. Either or both design options could be applied to the recommended LPA as a minimization strategy.

The DEIS was published in the Federal Register on October 17, 2017. A public comment period following publication of the DEIS provided an opportunity for interested parties to review the DEIS and provide comments. Following the close of the comment period on December 4, 2017, FTA and SEPTA reviewed comments received during the DEIS public comment period. On January 25, 2018, SEPTA adopted the recommended LPA as its Preferred Alternative; the recommended LPA was adopted as presented in the 2017 DEIS as the PECO/TP-1st Ave. Action Alternative with the PA Turnpike North/South Option.

SEPTA's LPA resolution acknowledges the DEIS findings, noting that an extension of the NHSL to King of Prussia will provide benefits to the region, including providing travelers with a rail transit alternative to congested roadway travel, attracting new transit riders, supporting economic development opportunities, and meeting regional sustainability and livability goals. Among the DEIS alternatives, the recommended LPA was determined to best address the Project purpose and need; it was determined to best achieve the most important factors for broad acceptance by key stakeholders and political leaders; and it was determined to perform as well as or better than the other Action Alternatives in each of the most important natural and built environment factors, except wooded areas and potential threatened and endangered species habitat impacts.

Following the DEIS public comment period and SEPTA's adoption of the recommended LPA as the Preferred Alternative, FTA and SEPTA evaluated the Preferred Alternative at a higher level of planning and engineering pursuant to 23 U.S.C. § 139(f)(4)(D) to provide improved operations and fewer impacts. SEPTA's activities in this evaluation included:

- Responding to substantive comments made during the DEIS comment period (related to access and connections; development potential around stations; avoiding or minimizing impacts to traffic, noise, vibration, visual and property; and Project costs);
- Updating supporting information, including but not limited to: ridership projections, bus and shuttle routes, land use data, traffic analysis, Project operation plan, and Project costs;
- Committing to specific minimization and mitigation measures; and,
- Developing and evaluating construction and operation designs to 15 percent.

The FEIS evaluates the Preferred Alternative, as well as the No Action Alternative, and demonstrates why the PECO/TP-1st Ave. Action Alternative with the PA Turnpike North/South Option remains the Preferred Alternative. The other Action Alternatives in the DEIS remain unchanged and are hereby incorporated by reference into this FEIS. The other Action Alternatives are: PECO-1st Ave., PECO/TP-N. Gulph, US 202-1st Ave., US 202-N. Gulph, and the 9/11 Memorial Avoidance Option for the recommended LPA.

- 13B. **Please explain how the purpose and need of the Project plays into Project development. Response:** DEIS Chapter 1 and FEIS Chapter 1 describe the purpose and need for the Project. The Council on Environmental Quality regulations that implement NEPA require an EIS to identify the purpose and need for a project. FTA's

2019 *Standard Operating Procedures for Managing the Environmental Review Process* states the following about the purpose and need: The purpose is the “what” of the proposed project (i.e., what is the project sponsor trying to accomplish?). The need identifies the problem(s) the proposed project would address (i.e., why is the proposed project needed?). FTA further states in the Procedures that the purpose and need provides the rationale and justification for undertaking a major Federal action and forms the basis for the range of alternatives to be studied in the environmental document.

SEPTA identified a purpose and need for the Project, which was applied during alternatives development and screening studies, included in the Notice of Intent, and used to compare the alternatives in the DEIS and FEIS. For example, during Tier 2 screening, SEPTA applied factors that measured performance that is directly related to purpose and need (such as ridership and system connectivity). In the DEIS, factors directly related to the Project purpose and need included, for example, ridership and boardings, travel time and travel time savings, key destinations served, change in percent of transit and automobile trips, connections to bus and shuttle services, bicycle and pedestrian network connections, access to jobs and community facilities, and number of proposed stations in the township’s mixed-use zoning district. As described in DEIS Chapter 8, comparison of the performance of each DEIS Action Alternative using these factors enabled SEPTA to identify the recommended LPA as the Preferred Alternative because it best achieves the Project purpose and need.

- 13C. **Summarize the approach and results of the recommended LPA with design options. Response:** The recommended LPA was identified from among the alternatives examined in the screening phases and in the studies that are documented in the DEIS. As described in DEIS Chapter 8, SEPTA identified the recommended LPA as better achieving the Project purpose and need compared to the other DEIS Action Alternatives and having comparatively fewer environmental impacts. However, due to concerns of residents in the Valley Forge Homes neighborhood, SEPTA developed and ultimately adopted the PA Turnpike North/South Option as part of the Preferred Alternative, which would reduce impacts by relocating the guideway on the opposite side of the PA Turnpike and away from the community. In developing and evaluating the PA Turnpike North/South Option, SEPTA met with the Valley Forge Homes neighborhood to understand their concerns and develop the option as a minimization measure (DEIS Section 2.2.4 and FEIS Section 2.1).

FTA and SEPTA also evaluated and presented the 9/11 Memorial Design Option in the DEIS as a way of minimizing a Project impact on the 9/11 Memorial (DEIS Section 2.2.5). The 9/11 Memorial Design Option was not adopted into the Preferred Alternative as SEPTA learned from interactions with the Upper Merion Township Board of Supervisors and other stakeholders that the 9/11 Memorial and KOP VFC fire company facility were integral pieces of one and another, not meant to be separated. Thus, SEPTA has committed to relocating the facility and memorial at the Project’s expense. FEIS Section 4.4.3 describes SEPTA’s commitments regarding the VFC and 9/11 Memorial as part of the Project.

5.4.2.14 Stations/Parking/Fares

- 14 Commenters were concerned with no/limited parking at the three stations without park-and-ride facilities (Allendale Road Station, Mall Blvd Station, and First & American Station) and the ease of transferring between the various lines. Commenters requested further information regarding the ticketing process/fares and possible parking fees at proposed stations, as well as proposals for bicycle-ready rail cars.
- 14A. **Address ticketing process, fares, and parking fees at the stations. Response:** SEPTA will integrate the Project with the existing NHSL fare and ticketing system. SEPTA's Key Card is currently used on the NHSL as well as SEPTA's other bus, trolley, transit and Regional Rail lines. Fees for parking at the garage at the Henderson Road Station and the garage at First & Moore Station park-and-ride facilities will be similar to fees for garage parking at the Norristown Transportation Center and the 69th Street Transportation Center. During subsequent design, SEPTA will develop and implement fare, parking and ticketing for the Project as part of the Project operating plan.
- 14B. **Address that parking is not available at some stations. Response:** The Project will provide park-and-ride parking at two of the five stations: Henderson Road Station and First & Moore Station. These locations have the land space that is required to accommodate parking for riders, are at the end of the extension or at the start of the extension and offer easy access to the station's parking facility through close proximity to principal arterial roadways. The Project's other three stations are located near primary destinations within the transportation study area and are designed to accommodate easy walk access, bicycle access, short-term parking access associated with kiss-and-ride activity (drop off/pick up), and bus and shuttle access.
- 14C. **Address how SEPTA will manage transit riders using private parking facilities near stations with no park-and-ride facility. Response:** SEPTA has identified best practices for managing transit rider use of private parking areas by examining existing parking management strategies at similar mall and shopping center locations that are served by rail transit. These practices include signage to indicate parking restrictions; enforcement of those restrictions; use of tags or stickers to indicate employee vehicles; smart parking systems that indicate length of time a vehicle is parked; SEPTA system user education regarding parking; and physical restrictions such as gates. More detail regarding potential parking management strategies is provided in FEIS Sections 3.4 and 4.5 and in the *2019 King of Prussia Rail Basis of Design Report*. SEPTA will work with private parking owners to identify appropriate parking management strategies on a case by case basis.
- 14D. **At the 69th Street Transportation Center, create a more direct platform access between the Norristown High Speed Line and the Market-Frankford line. Improve upon the directional signage between the two lines for customers seeking to make this transfer. Response:** As part of the Project, SEPTA will make improvements to the Norristown High Speed Line turnstile area at the 69th Street Transportation Center to accommodate the addition of Project passengers and provide signage. The Norristown High Speed Line platforms and the Market-Frankford line platforms are at different levels and locations at the 69th Street Transportation Center. At this time, no change will be

made to the location of the Market-Frankford line circulation area or the way riders make a transfer between the two lines.

5.4.2.15 Financial

- 15 Commenters were concerned with the funding stream needed for construction and the on-going operation and maintenance of the Project, and taxpayer burden. Commenters noted that the additional emergency services that might be needed for the Project could be a local taxpayer impact.
- 15A. **Address funding (current availability and future flow) for construction, operation and maintenance. Response:** SEPTA's role in the Philadelphia region is to provide public transit services. SEPTA revenues from the services it provides come from fare collection in its existing transit system of trains, trolleys and buses. These revenues are used to pay for part of SEPTA's operating expenses (including, but not limited to, employee wages and benefits, fuel and materials, and insurance expenses). Like all transit agencies around the country, SEPTA does not bring in enough fare revenue to fully fund the cost to build, operate and improve public transportation. As with all transportation agencies in the nation, including transit, roads, or airports, SEPTA depends on federal, state, and other sources to fully cover these costs. SEPTA cannot rely on federal support alone to fully fund the construction of the Project; SEPTA will be seeking investment from state, regional, and other sources to complement its anticipated federal funding share. See FEIS Chapter 6 for more details regarding SEPTA's capital cost estimate, operating and maintenance cost estimate, and the anticipated funding plan for the Project.
- 15B. **Identify local tax benefits from increased business. Response:** As discussed in FEIS Section 4.3.3.2, the Economy League of Greater Philadelphia determined that the Project will generate \$19.7 to \$22.1 million per year in total tax revenue from construction spending alone (ELGP, 2015; values in 2015 dollars). During the operations, the Economy League identified the Project as generating \$1.1 to \$1.3 billion in local economic activity in the region. In addition, approximately 310,000 square feet of new non-residential development in King of Prussia could be stimulated by the Project. These potential benefits could translate to an increase in local tax benefits from increased business as a result of the Project.
- 15C. **Address the cost for additional support services (police and fire protection, for example). Response:** Throughout SEPTA's transit system, SEPTA's own Transit Police unit provides policing services. SEPTA requests fire, EMS, and police support for SEPTA's transit system in accordance with existing multilateral mutual aid agreements between SEPTA and Upper Merion Township for these services. These agreements are in place at the two NHSL stations in Upper Merion Township: Gulph Mills Station and Hughes Park Station. SEPTA will negotiate a multilateral mutual aid agreement with Upper Merion Township for the Project; cost is typically among the factors considered during development of such agreements.

- 15D. **Address that Project funding (construction, operations, maintenance) should not fall on the shoulders of township residents. Response:** As described in FEIS Section 6.1.1.1, building large-scale transit projects typically requires transit agencies, such as SEPTA, to combine multiple funding types (e.g. grants and loans) and multiple sources (Federal and non-Federal, such as state, regional, local and/or private). SEPTA is planning to pursue Federal project funding through FTA's Capital Investment Grant (CIG) program and will seek other Federal funding support as available SEPTA will seek approximately 50 percent of the capital cost for the Project through the FTA's CIG Program. The remaining capital funding will come from state and regional funding sources, plus SEPTA financing, representing the non-CIG sources of funding. SEPTA is anticipating state funding at 20 percent of the Project's capital cost and regional sources at five percent. Historically, county jurisdictions have typically provided three percent to the capital costs of SEPTA projects; the additional two percent of funds for the Project could come from Public Private Partnership funding for station areas, Transit-Oriented Development at stations, as well as other regional transportation funding options.

SEPTA will contribute 25 percent of the capital cost from financing backed by non-CIG funding sources. The state funding for SEPTA's Capital Program will shift from being sourced by Pennsylvania Turnpike funding to Pennsylvania Sales Tax. This shift will include the current amount the state provides SEPTA (about \$450 million), plus an additional \$50 million per year starting in 2022. This additional funding level could be used to back Project financing.

To assist with development of the Project, SEPTA procured the financial planning services of PFM to initiate the development of a twenty-year financial model for SEPTA and a twenty-year financial plan for the Project. This work will extend the typical five-year projections that SEPTA uses currently to a twenty-year outlook. The model and financial plan development will support SEPTA's intent to apply to FTA's CIG Program and will encompass capital costs and capital funding as well as operating costs and operating revenue and funding streams.

As described in FEIS Section 6.2.2, the twenty-year financial plan and model to be developed by PFM will include fare increases assumed at periodic intervals, along with continued assumptions on the prudent oversight of expenditures, the assumed growth in operating revenue from new services, including the Project, and the assumed modest increases in state, county, and Federal operating subsidy. Funding sources for SEPTA's annual fiscal year operating budget are from operating revenue, state and local/county subsidy, and Federal subsidy. Operating revenues and expenses generally result from SEPTA's principal operation of providing passenger transportation service. The principal operating revenues are passenger fares, and the principal operating expenses are related to the delivery of passenger transportation.

The twenty-year model will facilitate the future development of balanced Operating Budgets for future fiscal years by SEPTA, which will include operating new rail service on the Project.

5.4.2.16 Noise Impacts

- 16 Commenters were concerned with the potential noise impact to residences adjacent to the Project, noise during the proposed operational hours of service and from construction.
- 16A. **Address the noise impact of trains right next to private homes. Also, the lights from the trains at night will be problematic. Response:** FEIS Section 4.10.3 presents the findings of the detailed operational noise analysis for the Project. These findings indicate a moderate noise impact at 50 residences, one hotel, and two office buildings, including specific properties in the Valley Forge Homes and Brandywine Village residential neighborhoods (see FEIS Section 4.10.3). The FTA's *Transit Noise and Vibration Impact Assessment Manual*³ specifies that 'severe' noise impacts require mitigation. Because no 'severe' impacts are predicted to occur as a result of the Project, mitigation measures have not been identified in this FEIS. However, as described in Section 4.11.3, SEPTA has made the commitment as part of the Project to continue to assess the potential for noise impacts as a result of further design of the Project, and will evaluate the need for and design of mitigation for noise impacts. SEPTA will report the results of the evaluation on the Project website. Rail vehicle lights will include exterior lights on the front of the vehicles (FEIS Figure 2.3-15) and interior lights in the rail vehicles. These lights will be operational when the rail vehicles are operating. The elevated guideway will have a parapet wall along the outside edges of the guideway, which, in combination with the guideway being elevated in relation to nearby residences, will help to physically block lights from the rail vehicles.
- 16B. **How often will the Project trains be blowing their horns and whistles? Response:** SEPTA's use of train horns is governed by Federal regulations, which require train horns to be used when work zones are present along a rail line to warn workers of an approaching train, and in other situations, such as sounding the horn in a warning when anything is on the track (animal, etc.) or if a person is standing too close to the edge of the platform, requiring compliance with Federal regulations or railroad operating rules.
- 16C. **Address noise levels 22 hours a day passing close to study area neighborhood. Response:** Please see the response to Comment 16A regarding operational noise.
- 16D. **Address noise impacts during construction. Response:** FEIS Section 4.10.3 presents the findings of the construction noise analysis for the Project. These findings indicate that construction noise impacts will occur at 13 residences and 2 non-residential uses during daytime hours, and, if nighttime construction activities are proposed, construction noise impacts will occur at 119 residences and 2 non-residential uses. Because construction noise impacts are predicted to occur, SEPTA commits as part of the Project to assess specific construction noise control measures during subsequent design to address the impacts; see FEIS Section 4.10.3.

³ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, FTA Report No. 0123, Washington, DC, September 2018

- 16E. **Address SEPTA's management of potential for vibration impacts during construction and operation. Response:** FEIS Section 4.10.3 presents the assessment of potential for construction and operational vibration impacts because of the Project. The assessment found that construction vibration impacts will occur at 57 residences and 16 non-residential uses. Because construction vibration impacts are predicted to occur, SEPTA commits as part of the Project to assess specific construction vibration control measures during subsequent design to address the impacts; see FEIS Section 4.10.3.
- 16F. **Who will assume responsibility for vibration damages to personal property that are incurred as a result of Project construction and operation? Response:** During Project construction, the contractor will be responsible for property damage caused by vibration from construction equipment and activities. As no vibration impacts are predicted to occur during Project operations, SEPTA anticipates that no vibration damages to private property will occur during Project operations.

5.4.2.17 Maintenance

- 17 Commenters asked SEPTA to explain how it will maintain the Project facilities.
- 17A. **How will SEPTA maintain the Project facilities? Response:** Throughout SEPTA's transit system, including the Project once it is in operation, SEPTA's own forces will provide sanitation and maintenance of transit vehicles and transit stations.

5.5 Role of Input During the FEIS

SEPTA continued its program of public outreach and agency coordination for the Project during the FEIS process using the same objectives, approach, and communication methods described in Section 5.1. In addition, as part of this FEIS, FTA and SEPTA are responding to public and agency comments on the DEIS; responses to DEIS comments are provided in Section 5.4. The input received in the DEIS comments guided the design of the Preferred Alternative in ways that address public and agency concerns by reducing or eliminating impacts where reasonably feasible.

In addition to design refinements, the FEIS identifies actions SEPTA will take during subsequent design, construction, and operation of the Project to address public and agency concerns and to reduce or eliminate Project impacts to the extent reasonably feasible (Chapters 3 and 4). These actions are commitments FTA and SEPTA have made that are integral to the Project. By refining the design of the Preferred Alternative and committing to specific actions in later phases of the Project, FTA and SEPTA are advancing the Preferred Alternative that reflects the community's input.

5.6 Next Steps

FTA has reviewed and approved the FEIS, and a combined FEIS/ ROD for the Project has been published. SEPTA intends to proceed with subsequent design of the Project, incorporating the commitments from the NEPA process, and continuing public and agency outreach activities.

Chapter 6 Cost and Financial Analysis

The Southeastern Pennsylvania Transportation Authority (SEPTA) updated the capital cost information for the combined Final Environmental Impact Statement/Record of Decision (combined FEIS/ROD) as well as operating and maintenance (O&M) cost information for the No Action and the Preferred Alternative. SEPTA in conjunction with others, also assessed their financial capacity to fund the King of Prussia Rail Extension Project (Project). SEPTA will develop a twenty-year financial plan for the Project.

6.1 Capital Cost

Federal Transit Administration (FTA) standard methods of capital cost estimating were used, including construction cost categories, contingency, and the cost for additional vehicles. The Preferred Alternative, representing the design refinements, is estimated to cost \$2.08 billion (in 2025 dollars, as mid-point year of construction). **Table 6.1-1** summarizes the capital cost estimate for the Preferred Alternative. SEPTA's estimate assumes existing state of the art construction technology will be used as well as other standard procurement, productivity and construction conditions, such as typical Montgomery County weather conditions. The overall Project was broken down into 20 sections to provide more granular cost estimates. The major cost elements that have the most significant impact on the overall estimate include: trackwork, real estate, temporary facilities and indirect costs, stations, parking garages, contingency and escalation. It was assumed construction on the Project would start in 2023 and end in 2026.

6.1.1 Capital Cost Estimate

An independent capital cost estimate for the Preferred Alternative was prepared by a team led by Michael Baker International, Inc. for SEPTA as a program management work activity.

Table 6.1-1: Capital Cost Estimate

	No Action Alternative	Preferred Alternative
Capital Cost for Project (\$ billions)	\$0	\$2.08

Notes: Values in 2025 dollars.

Source: Michael Baker International, Pennoni Associates, Inc., and KCI Technologies, *Norristown High Speed Line - King of Prussia Rail Extension, Independent Capital Cost Estimate Report*, Revised September 18, 2020.

6.1.2 Proposed Capital Funding Sources (Federal and non-Federal)

SEPTA is the nation's sixth-largest public transit agency and the primary public transit provider in the greater Philadelphia region. SEPTA was created by the Pennsylvania state legislature in 1964 and is an instrument of the Commonwealth of Pennsylvania. SEPTA's multimodal network serves a 2,200 square-mile region with a population exceeding four million people.

Building large-scale transit projects typically requires transit agencies, such as SEPTA, to combine multiple funding types (e.g. grants and loans) and multiple sources (Federal and non-Federal, such as state, regional, local and/or private). The Project will require a combination of multiple funding types. SEPTA is planning to pursue Federal project funding through FTA's Capital Investment Grant (CIG) Program (for a "New Starts" project) and will seek other Federal funding support as available. For example, SEPTA intends to seek Federal stimulus funds that may become available in the future.

It is SEPTA's intent to apply to FTA's CIG Program, which is a discretionary, multi-year program authorized by the U.S. Congress to fund major transit capital investments. Applicants must complete a series of steps working with FTA and meet certain eligibility requirements. Projects are then rated and competitively recommended for funding. The U.S. Department of Transportation also offers other, smaller grant programs, which may serve to fund smaller aspects of the Project, as well as financing tools that can be used to leverage non-Federal sources of funding.

SEPTA is seeking approximately 50 percent of the capital cost for the Project through the FTA's CIG Program. The remaining capital funding will come from state and regional funding sources, plus SEPTA financing, representing the non-CIG sources of funding. SEPTA is anticipating state funding at 20 percent of the Project's capital cost (described below), and regional sources at five percent. Historically, county jurisdictions have typically provided three percent to the capital costs of SEPTA projects; the additional two percent of funds for the Project could come from Public Private Partnership funding for station areas, Transit-Oriented Development (TOD) at stations, as well as other regional transportation funding options.

SEPTA will contribute 25 percent of the capital cost from financing backed by non-CIG funding sources. The state funding for SEPTA's Capital Program will shift from being sourced by Pennsylvania Turnpike funding to Pennsylvania Sales Tax. This shift will include the current amount the state provides SEPTA (about \$450 million), plus an additional \$50 million per year starting in 2022. This additional funding level could be used to back Project financing.

State, as well as regional and county partners, have been fundamentally important to the Project's planning process and they will be essential in helping SEPTA develop the required twenty-year financial plan. SEPTA regularly works with the State and the five Southeastern Pennsylvania counties in its service area during its annual Capital and Operating budget processes; together, the agencies have a long history of working to meet the region's transportation needs. Looking forward to developing the Project's required twenty-year financial plan over the next year, SEPTA will continue to work with these partners to develop the financial plan.

Attracting private sources of funding from commercial entities that benefit from the Project will also be an important aspect of funding, especially when it comes to improvements in and around station areas. Transportation investments have benefits to commercial property in and around proposed stations and SEPTA intends to pursue these potential funding sources. Various value capture techniques exist such as Transit Revitalization Investment District (TRID), Business Improvement District (BID) assessment, Public-Private Partnership (PPP) strategies and funding for station areas including TOD, and Tax Increment Financing (TIF). SEPTA

intends to develop and evaluate these options. More information on value capture for transit infrastructure projects can be found on FTA's webpage (www.transit.dot.gov/valuecapture).

6.2 Operating and Maintenance Costs (O&M)

6.2.1 Operating and Maintenance (O&M) Cost Estimate

Table 6.2-1 summarizes the Norristown High Speed Line (NHSL) O&M cost estimate with the Project. Year 2019 dollars were used based on actual SEPTA operating costs for the NHSL. The O&M cost estimate was developed by Gannett Fleming for HNTB for the Preferred Alternative. SEPTA's NHSL O&M cost will increase by approximately \$10.87 million for the Preferred Alternative.

More detail on the NHSL O&M cost estimate analysis can be found in the August 25, 2020 *Draft Rail Operations Simulation Report – Norristown High Speed Line Extension*, prepared by Gannett Fleming.

Table 6.2-1: Operating & Maintenance Cost

O&M Cost Estimate	No Action Alternative	Preferred Alternative
Annual NHSL O&M Cost (\$ millions)	\$13.65	\$24.52

Notes: Values in 2019 dollars.

Sources: August 25, 2020 *Draft Rail Operations Simulation Report – Norristown High Speed Line Extension* by Gannett Fleming. SEPTA for Bus and Annual O&M Net Growth.

6.2.2 Proposed O&M Funding Sources

The SEPTA Board adopts a balanced budget or short-term operating spending plan before the start of each fiscal year in accordance with the enabling legislation of the Commonwealth of Pennsylvania. A balanced budget is one in which expected operating revenues and subsidies equal expected operating expenses. Funding sources for SEPTA's annual fiscal year operating budget are from operating revenue, state and local/county subsidy, and Federal subsidy. Operating revenues and expenses generally result from SEPTA's principal operation of providing passenger transportation service. The principal operating revenues are passenger fares, and the principal operating expenses are related to the delivery of passenger transportation.

In terms of long-range planning, SEPTA continually assesses the consequences of national, state, and local demographic, economic, travel, and development trends for SEPTA's current and future operations, services, and capital projects. This assessment includes the evaluation of current and potential service levels in accordance with SEPTA's Annual Service Plan, and the City Transit, the Suburban Transit, and the Regional Rail Service Standards and Processes. This assessment forms the backdrop for SEPTA's long-range planning, and is the basis for

SEPTA's five-year financial projections, which are included in the adopted budget for each fiscal year.

To assist with development of the Project, SEPTA procured the financial planning services of PFM to initiate the development of a twenty-year financial model for SEPTA and a twenty-year financial plan for the Project. This work will extend the typical five-year projections that SEPTA uses currently to a twenty-year outlook. The model and financial plan development will support SEPTA's intent to apply to FTA's CIG Program.

The twenty-year financial plan and model to be developed by PFM will include fare increases assumed at periodic intervals, along with continued assumptions on the prudent oversight of expenditures, the assumed growth in operating revenue from new services, including the Project, and the assumed modest increases in state, local/county, and Federal operating subsidy. The twenty-year model will facilitate the future development of balanced Operating Budgets for future fiscal years by SEPTA, which will include operating new rail service on the Project.

6.3 Next Steps

Following issuance of the combined FEIS/ROD, a number of milestones must be met by SEPTA to move the Project forward and comply with Federal funding requirements and FTA's CIG Program. FTA's CIG Program is a discretionary and competitive grant program that funds transit capital investments, including heavy or rapid rail, commuter rail, light rail, streetcars, bus rapid transit, and ferries. The CIG Program consists of four categories of eligible projects: New Starts projects, Small Starts projects, Core Capacity Improvements projects, and Programs of Interrelated Projects. Federal transit law requires transit agencies seeking CIG funding to complete a series of steps over several years. For projects, including this Project, the law requires completion of two phases in advance of receipt of a Full Funding Grant Agreement – 1) Project Development and 2) Engineering. The CIG Program also requires projects to be rated by FTA at various points in the process according to statutory criteria evaluating project justification and local financial commitment. For New Starts, SEPTA must request entry into Project Development. Following completion of Project Development, FTA evaluation, rating and approval are required to enter the Engineering phase. Subsequent to completion of Engineering, FTA evaluation, rating, and approval are then required for a Full Funding Grant Agreement. More information about FTA's CIG Program can be obtained on FTA's website (www.transit.dot.gov/CIG).

Prior to entry to the Project Development phase of the CIG Program, SEPTA will develop a twenty-year financial plan that will document the commitment of 30 percent of the non-Federal funds. The financial plan and commitment of funds are a necessary milestone for SEPTA to enter the "New Starts" Engineering phase. To receive a Full Funding Grant Agreement, which is FTA's commitment to provide multi-year Federal funds, SEPTA will need to update the twenty-year financial plan and show the commitment of all the non- "New Starts" funds.

SEPTA plans to enter the Project Development phase at the beginning of the 30 percent design effort for the Project, which SEPTA anticipates starting during the first quarter of 2021. This

work phase will include 30 percent engineering design and all program management and support documentation necessary to complete the Project Development phase as required for the CIG process. SEPTA anticipates that the work will be completed in less than the two-year time period allotted for the Project Development phase. The federal environmental review process under the National Environmental Policy Act of 1969 (NEPA) is required to be completed during the Project Development phase. Thus, even though SEPTA may not have formally entered the Project Development phase as of yet, SEPTA is already advancing certain aspects of that effort.

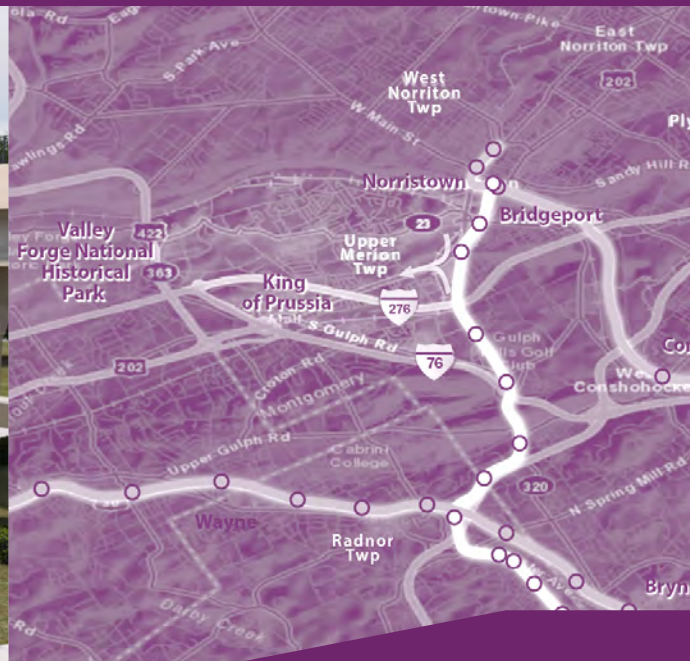
King of Prussia Rail Extension Project

An Extension of the Norristown High Speed Rail Line



January 2021

Record of Decision



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Record of Decision

1.1 Introduction

This Record of Decision (ROD) states the Federal Transit Administration's (FTA) decision for the King of Prussia Rail Extension Project (Project) proposed by the Southeastern Pennsylvania Transportation Authority (SEPTA) in Upper Merion Township, Montgomery County, and Upper Darby Township, Delaware County, Pennsylvania.

FTA has determined that the requirements of the National Environmental Policy Act (NEPA) and related federal environmental statutes have been satisfied for the Project pursuant to 23 U.S.C. § 139(n) and 23 CFR Part 771 and 40 CFR Parts 1500-1508. Based on the analyses presented in the October 17, 2017 *King of Prussia Rail Extension Draft Environmental Impact Statement/Draft Section 4(f) Evaluation* and the January 2021 *King of Prussia Rail Extension Final Environmental Impact Statement/Final Section 4(f) Evaluation* (FEIS), FTA's selected alternative is the Preferred Alternative as identified in the FEIS.

1.2 Planning for the Project

The need for improved and higher quality transit service has been identified in various regional transportation studies for more than 20 years including SEPTA's 1998 *Norristown High Speed Line (Route 100) Extension Feasibility Study* and the 2003 *Norristown High Speed Line (Route 100) Extension Alternatives Analysis* studies. In 2012, prior to the initiation of the NEPA process, SEPTA began evaluating the potential to extend Norristown High Speed Line (NHSL) rail transit service to the King of Prussia/Valley Forge area. This planning work included developing the Project purpose and need, and evaluating a list of alternatives, which included alternatives from SEPTA's 2003 *Norristown High Speed Line (Route 100) Extension Draft Alternatives Analysis*, new concepts SEPTA developed, and ideas identified through agency, stakeholder, and public outreach activities. The Project purpose and need focuses on rail service, not a bus mode, because SEPTA provides six different bus routes to the King of Prussia/Valley Forge area, including express bus service from Center City Philadelphia. As described in FEIS Sections 1.2.5 and 3.1, extensive existing roadway congestion makes additional bus service not a feasible alternative.

A list of 30 alternatives was then screened through a three-tiered evaluation process consisting of progressively more detailed levels of scrutiny. Tier 1 screening (October 2012 – January 2014) eliminated alternatives that did not achieve the Project purpose and need or would not be reasonable to build, operate, or maintain. Tier 2 (February 2014 – December 2014) examined the surviving alternatives for engineering/right-of-way needs, markets to be served, system connectivity, support for transit-oriented development, and community and environmental impacts. As a result of Tier 2 analysis, all but the five Action Alternatives that were considered in the Draft Environmental Impact Statement (DEIS) were eliminated; the alternatives that were eliminated did not perform as well as the five alternatives that were retained in terms of the engineering, transportation, and natural and built environment factors applied during Tier 2.

On June 27, 2013, FTA and SEPTA formally initiated the NEPA process for the Project with a Notice of Intent (NOI) published in the Federal Register. Tier 3 analysis (January 2015 – December 2017) was conducted as part of the DEIS process and included a detailed analysis of the five Action Alternatives, along with the No Action Alternative. Tier 3 identified the potential benefits and impacts of each of the five Action Alternatives on the transportation, natural, and human environments. SEPTA refined the Action Alternatives based on input received from the public, agencies, and other stakeholders.

After considering not only the Tier 3 screening process results, but also the input received from agencies, stakeholders, and the public (FEIS Chapter 5), SEPTA identified the PECO/TP-1st Ave as the recommended locally preferred alternative (LPA) and the environmentally preferable alternative in the DEIS. Compared to the other DEIS alternatives, the recommended LPA was identified as best meeting the purpose and need while avoiding or minimizing impacts and being responsive to agency, stakeholder, and public concerns. SEPTA also identified and evaluated two minimization design options for the recommended LPA: the PA Turnpike North/South Option and the 9/11 Memorial Avoidance Option. Each of the recommended LPA design options would modify a portion of the recommended LPA; the remainder of the recommended LPA would be unchanged.

The DEIS was published in the Federal Register on October 17, 2017 initiating a public comment period for interested parties to review the DEIS and provide comments until December 4, 2017. Following the close of the comment period on December 4, 2017, FTA and SEPTA reviewed comments received during the DEIS public comment period. On January 25, 2018, SEPTA adopted the recommended LPA as its Preferred Alternative; the recommended LPA was adopted as presented in the 2017 DEIS as the PECO/TP-1st Ave. Action Alternative with the PA Turnpike North/South Option.

The FEIS evaluates the Preferred Alternative, as well as the No Action Alternative, and demonstrates why the PECO/TP-1st Ave. Action Alternative with the PA Turnpike North/South Option remains the Preferred Alternative.

1.2.1 Description of the Preferred Alternative

The Preferred Alternative is the recommended LPA identified in the DEIS (also referred to in the DEIS as the PECO/TP-1st Ave. Action Alternative with the Pennsylvania (PA) Turnpike North/South Option) and as the Preferred Alternative in the FEIS. SEPTA adopted the Preferred Alternative on January 25, 2018.

The Preferred Alternative consists of 3.5 miles of new double-track guideway from the existing NHSL to First Avenue. Along the guideway, five new stations are proposed: Henderson Road, Allendale Road, Mall Boulevard, First & American, and First & Moore. The existing 69th Street Transportation Center will be renovated to accommodate the new Project service. New supporting facilities along the extension guideway will include park-and-ride facilities for 500 vehicles each at two locations (Henderson Road Station and First & Moore Station), three traction power substations, communications and signals equipment, and stormwater

management facilities. FEIS Figure 2.2-1 shows the alignment of the Preferred Alternative. A detailed description of the Preferred Alternative is presented in the FEIS Chapter 2.

1.3 Basis for the Decision

This section describes the factors FTA considered and how those factors entered into FTA's decision. The factors include: how well the alternatives met the Project purpose and need, findings of the DEIS,¹ findings of the FEIS,² the results of public outreach and comment, and SEPTA's mitigation commitments. Based on these factors, FTA has determined that the Project meets the purpose and need of the Proposed Action, as outlined in Chapter 2 and as discussed below.

1.3.1 Purpose and Need

The Project purpose and need was developed in 2012 prior to the NEPA process; no changes to the Project purpose and need were made during the NEPA process. The purpose of the Project is to provide faster, more reliable public transit service to the King of Prussia area that:

- Offers improved transit connections to the area from communities along the existing Norristown High Speed Line, Norristown, and Philadelphia;
- Improves connectivity between defined key destinations within the King of Prussia area; and
- Better serves existing transit riders and accommodates new transit patrons.

The need for expanded transit service in Montgomery County has been identified for more than 20 years in regional studies and local plans. The Project need stems from existing transit service deficiencies that are expressed by long travel times, delays due to roadway congestion, required transfers leading to two or more seat trips, and destinations that are underserved or currently not served by public transit. These needs are compounded by growing population and employment in the area, concentrations of major commercial development in King of Prussia, and significant planned development for the area.

The Preferred Alternative will provide faster, more reliable public transit service compared to the other Action Alternatives and the No Action Alternative. The Preferred Alternative will reduce travel time on transit to the King of Prussia Mall by 26 minutes from Center City Philadelphia, 23 minutes from Norristown Transportation Center, and 9 minutes from 69th Street Transportation Center. The Preferred Alternative will reduce travel time on transit to Moore Park KOP by 38 minutes from Center City, 23 minutes from Norristown Transportation Center, and 12 minutes from 69th Street Transportation Center. The Preferred Alternative will provide transit travel time savings for existing bus riders (217,000 travel hours annually) and travel time savings for

¹ FTA and SEPTA, October 17, 2017. *King of Prussia Rail Extension Draft Environmental Impact Statement/Draft Section 4(f) Evaluation* (<https://www.kingofprussiarail.com/deis>)

² FTA and SEPTA, January 8, 2021. *King of Prussia Rail Extension Final Environmental Impact Statement/Final Section 4(f) Evaluation* (<https://www.kingofprussiarail.com/feis>)

existing automobile travelers who shift to using the Project (2 million hours annually). By operating on its own rail corridor and not in mixed traffic on roadways, the Preferred Alternative will eliminate the extra time experienced by existing bus service operating on congested roadways, such as on the Schuylkill Expressway (I-76), as well as the unpredictability of travel time because of variable travel conditions on roadways.

The Preferred Alternative will improve transit connections to and within the transportation study area by:

- Providing direct, rail transit service between the 69th Street Transportation Center and King of Prussia as well as between Norristown Transportation Center and King of Prussia while continuing to provide service between 69th Street Transportation Center and Norristown Transportation Center; and,
- Serving three defined key destinations: King of Prussia Mall (by the Allendale Road and Mall Blvd Stations), Moore Park KOP (known in the DEIS as the King of Prussia Business Park) and Valley Forge National Historical Park (by the First & Moore and First & American Stations), and destinations in the Henderson Road portion of the transportation study area (Henderson Road Station).

The Preferred Alternative will serve existing transit patrons and accommodate new patrons by providing direct rail transit service to transportation study area destinations, and providing additional transit service capacity beyond what SEPTA can accommodate today by increasing its bus services to the maximum extent practicable.

1.3.2 Alternatives Considered

In 2012 prior to initiating the NEPA process, SEPTA developed the Project purpose and need, and began an alternatives development and a 3-tiered screening process along with a public and agency outreach program. FEIS Chapters 1, 2, and 5 describe the details of these activities. Of the thirty alternatives that were examined in Tier 1 screening, eighteen did not achieve the Project purpose and need or were not reasonable to build, operate, and maintain; these alternatives were eliminated from further consideration.

The twelve alternatives SEPTA retained for further study in Tier 2, plus four additional, at-grade alternatives were studied in more detail. In Tier 2 study, the alternatives were grouped because some shared portions of the alignments. The grouped alternatives were evaluated to comparatively assess engineering/right-of-way needs, markets served, system connectivity, support for transit-oriented development, and community and environmental impacts. Using this approach, SEPTA identified five alternatives that best represented the groups of alignments using the assessment factors.

The five Action Alternatives from the alternative's development and Tier 2 screening process were evaluated in Tier 3 as part of the DEIS along with a No Action Alternative. Each of the five Action Alternatives would extend NHSL rail service to King of Prussia for a distance of approximately 3.5 miles to the area of the Valley Forge Casino Resort (VFCR). Each of the five

Action Alternatives would have a dedicated, elevated guideway, and five or six proposed stations, two of which would have park-and-ride facilities. Each of the five Action Alternatives would have at least one station at the King of Prussia Mall. The five Action Alternatives differ in portions of alignment and station locations. In addition, the DEIS evaluated two design options: the PA Turnpike North/South Option and the 9/11 Memorial Avoidance Option. As required by 40 CFR § 1502.14(d), SEPTA identified its Preferred Alternative as the recommended LPA in the DEIS; the recommended LPA is the PECO/TP-1st Ave. Action Alternative with the PA Turnpike North/South Option. Each alternative and design option is described below:

- **PECO-1st Ave.:** The PECO-1st Ave. Action Alternative would use a portion of the PECO electric utility corridor, passing in front of (to the south of) the King of Prussia Mall, turning north to cross over the PA Turnpike before turning west along First Avenue and ending near the intersection of First Avenue and N. Gulph Road near the VFCR.
- **PECO/TP-1st Ave.:** SEPTA identified the PECO/TP-1st Ave. Action Alternative as the recommended LPA in the DEIS. The PECO/TP-1st Ave. Action Alternative would use portions of the PECO electric utility corridor and PA Turnpike, passing behind (to the north of) the King of Prussia Mall, turning north on a portion of the former Norfolk Southern (NS) Abrams Industrial Track right-of-way before turning west along First Avenue and ending near the intersection of First Avenue and N. Gulph Road near the VFCR.
 - **PA Turnpike North/South Option:** SEPTA identified the PA Turnpike North/South Option as part of the recommended LPA in the DEIS. As the recommended LPA alignment approaches the PA Turnpike crossing, the transition to the PA Turnpike North/South Option would begin. The guideway support would change from at-grade to a single concrete column structure to carry the guideway along the north side of the PA Turnpike. West of the US Route 202 overpass, the elevated guideway would cross over the PA Turnpike to the south side, resuming the recommended LPA alignment within the PA Turnpike ROW Alternative.
 - **9/11 Memorial Avoidance Option:** The 9/11 Memorial Avoidance Option would cross the King of Prussia Volunteer Fire Company property east of the 9/11 Memorial and cross Allendale Road, heading west toward the King of Prussia Mall. Just east of proposed Court Station, the 9/11 Memorial Avoidance Option would end, and the recommended LPA alignment would resume.
- **PECO/TP-N. Gulph:** The PECO/TP – N. Gulph Action Alternative would use portions of the PECO electric utility corridor and PA Turnpike, passing behind (to the north of) the King of Prussia Mall, turning south to connect to N. Gulph Road before turning west along N. Gulph Road and ending near the intersection of First Avenue and N. Gulph Road near the Convention Center.
- **US 202-1st Ave.:** The US 202-1st Ave. Action Alternative would use portions of the US Route 202 corridor and the PA Turnpike right-of-way, passing behind (to the north of) the King of Prussia Mall, turning north to use a small portion of the former NS Railroad

Abrams Industrial Track before turning west along First Avenue and ending near the intersection of First Avenue and N. Gulph Road near the VFCR.

- **US 202-N. Gulph:** The US 202-N. Gulph Action Alternative would use portions of the US Route 202 corridor and PA Turnpike right-of-way, passing behind (to the north of) the King of Prussia Mall, turning south to connect to N. Gulph Road before turning west along N. Gulph Road and ending near the intersection of First Avenue and N. Gulph Road near the VFCR.
- **No Action Alternative:** The No Action Alternative is the 2040 condition without the Project; it assumes the other major regional committed projects will occur. The No Action Alternative served as a baseline for comparing the Alternatives. In addition to the major regional committed projects, the No Action Alternative consists of roadway and transit networks, transit service levels, traffic volumes, and forecasted demographics for the horizon year 2040.

On January 25, 2018, SEPTA adopted the Preferred Alternative, which was the recommended LPA (the PECO/TP-1st Ave. Action Alternative with the PA Turnpike North/South Option) as the Preferred Alternative. The FEIS evaluates the Preferred Alternative as well as the No Action Alternative. During the FEIS, SEPTA evaluated the Preferred Alternative at a higher level of planning and engineering and refined the Preferred Alternative to provide improved operations and fewer impacts.

1.3.3 Environmentally Preferable Alternative

In accordance with 40 CFR § 1505.2b this section identifies the environmentally preferable alternative. The Preferred Alternative will:

- Increase access to transit with proposed stations in the King of Prussia/Valley Forge area;
- Create 6,755 average weekday "Trips on the Project" and reduce average weekday vehicle miles traveled in 2040 by 61,303 miles;
- Connect to bus and shuttle services; and connect to the existing bicycle and pedestrian network;
- Maintain or improve affected roadway intersection levels of service in 2040;
- Be consistent with Township and County land use plans;
- Provide stations within ½ mile of 15 million non-residential square feet; and providing two stations within Upper Merion Township's Mixed Use (KPMU) zoning district;
- Provide stations within ½ mile of seven community facilities and five parks; and not impacting existing parks;
- Maintain access to businesses during Project construction;
- Potentially supporting economic development in terms of employment and earnings by extending rail transit service to King of Prussia;

- Not split or fragment residential or business communities;
- Preserve access across transportation and utility rights-of-way during operations;
- Reduce average weekday miles traveled, reducing greenhouse gas emissions from motor vehicle use;
- Not cause an air quality impact during Project operations;
- Not cause operational noise impacts with mitigation;
- Not cause operational vibration impacts;
- Not impact threatened or endangered species;
- Not impact existing wellhead protection areas;
- Reduce energy consumption, annual automobile and bus miles traveled, and motor vehicle fuel costs; and,
- Not have disproportionately high and adverse effects on environmental justice populations.

Compared to the other Action Alternatives, and in consideration of SEPTA's minimization and mitigation commitments as part of the Project, the Preferred Alternative will have the same or fewer impacts in the following resource areas:

- Three community facility property impacts: will involve acquiring a portion of land from the Philadelphia Suburban Water (Aqua America) reservoir; and full property acquisition and relocation of the King of Prussia Volunteer Fire Company and the 9/11 Memorial (on the Fire Company property);
- Property acquisitions and displacements;
- Four Section 4(f) property impacts: the Chester Valley Trail Extension; Philadelphia and Western Railway (NHSL); PA Turnpike: Delaware River Extension; and PNJ Interconnection;
- Visual impacts;
- Geological conditions: Risk of sinkholes;
- Four elevated crossings over waterways;
- Floodplains: Impact to 1,580 linear feet of floodplains;
- Wetlands: Potential impact to 0.08 acres of wetlands;
- Groundwater: Reduce area for groundwater replenishment by 6.0 acres of new impervious surfaces;
- Wooded areas and fields: Impact to 20.3 acres of wooded area and 11.1 acres of fields;
- Potential for contaminated materials impacts: potential for oils and lubricants to drip from operating Project rail vehicles;
- Potential to impact or be impacted by existing areas of contamination concern;

- Historic property and utility impact: Removal of four PECO transmission towers; and
- Potential for an indirect and cumulative effect of enhancing and encouraging development and redevelopment near Project stations; potential for a moderate, cumulative noise impact along the existing NHSL.

The Preferred Alternative is estimated in the FEIS to have more impacts compared to the other Action Alternatives in the areas of new impervious surfaces, wooded areas, fields, waterways, floodplains, and wetlands. In the DEIS, the Preferred Alternative (known as the recommended LPA with the PA Turnpike North/South Option) did not have the highest impacts in the areas of new impervious surfaces, fields, waterways, floodplains, and wetlands. However, the Preferred Alternative had the highest impacts to wooded areas. For each of these resource areas, SEPTA has made commitments as part of the Preferred Alternative to further examine ways to avoid or minimize impacts during subsequent design or to mitigate impacts, if warranted by the regulations that protect the impacted resources or required by permits and approvals from agencies having authority over the impacted resources.

During Project construction, the Preferred Alternative and each of the other Action Alternatives have the same potential for temporary construction impacts because each alternative would require building an elevated guideway over the existing transportation system; would require temporary easements for construction work areas that would temporarily affect land use, access, and private parking on affected properties; potentially would temporarily change access to communities and community facilities because of construction work areas; and potentially would impact air quality, noise, vibration, and utilities.

In considering these findings, the Preferred Alternative will result in fewer environmental and socioeconomic impacts compared to the other Action Alternatives. In addition, all practicable measures to minimize environmental harm have been incorporated into the design of the Preferred Alternative and will ensure that the commitments outlined herein will be implemented as part of subsequent design, construction, and operations phases of the Project. In addition, the Preferred Alternative will achieve the Project purpose and need while having fewer or no impacts in most resource areas; because the Preferred Alternative is favored by key stakeholders and political leaders; and because SEPTA has made commitments as part of the Preferred Alternative that will minimize or mitigate Project impacts to the biological and physical environment. For these reasons, the Preferred Alternative, also the selected alternative, is the environmentally preferable alternative.

1.3.4 Public Involvement and Outreach

Following FTA's June 27, 2013 NOI that initiated the NEPA process for the Project, SEPTA has undertaken a robust public involvement and agency outreach program, holding over 100 public meetings, including pre-scoping and scoping meetings, public information sessions, public meetings and workshops, committee meetings (steering, technical advisory, stakeholder advisory, and agency coordination committees), agency coordination meetings, elected officials' briefings, public hearings, community working group meetings, neighborhood meetings, and

backyard visits. More detail regarding SEPTA's public involvement and outreach activities for the Project is provided in FEIS Chapter 5.

The DEIS was published on October 17, 2017. A 53-day public comment period following publication of the DEIS provided an opportunity for interested parties to review the DEIS. Following the close of the comment period on December 4, 2017, FTA and SEPTA considered the findings of the DEIS and the comments received during the DEIS public comment period. A total of 279 public comments were provided by 216 public commenters. Of the 216 public and stakeholder commenters, 121 support the Project, with an additional eight comments that specifically support the recommended LPA and five that support one or both recommended LPA design options. Ten public comments were received supporting DEIS Action Alternatives that would use US Route 202 and/or would have a station along N. Gulph Road to serve the Village at Valley Forge.

Among the comments made, 40 comments do not support the Project. Five comments indicated no preference among the DEIS Action Alternatives and recommended LPA design options (but indicated the need for further consideration of specific issues or concerns during subsequent design (such as the need to coordinate with the PA Turnpike and Aqua Pennsylvania)). Fourteen comments asked questions about the Project (but did not provide an opinion about the Project or the alternatives and design options. Six comments related to the public outreach process and another seven comments discussed issues that are outside the Project scope (such as the condition of Route 422). In addition to public comments, SEPTA received two resolutions of support, 53 letters of support, two petitions objecting to the Project and 24 comments by letter or email from three agencies.

FTA and SEPTA have responded to all substantive comments (40 CFR § 1503.4(b)) in the FEIS (FEIS Chapter 5.4). FTA defines a substantive comment as a comment that raises a specific issue or concern about the Project or the study process for the Project. Substantive comment themes included benefits of the Project to residents, property impacts, public safety, traffic, Project planning, Project design, water quality, geology, air quality, visual effects, King of Prussia Volunteer Fire Company effects, ridership, stations, parking, fares, financial considerations and cost, noise, and Project maintenance. Responses to the DEIS comments are included in FEIS Section 5.4 and in FEIS Appendix D – Comments Received on the DEIS.

The FEIS provides details on the public involvement and outreach activities. The FEIS also documents activities undertaken to engage the public. Among the key outcomes of the public involvement process were design refinements to avoid or reduce proximity effects such as noise, visual and privacy impacts, as well as safety.

1.3.5 Determinations and Findings

This section presents the findings for the Project regarding applicable federal laws and Executive Orders. Based on the current impacts of the recent social response to the COVID-19 virus and the resulting decline in travel demand, it is impossible to predict any future changes to the Determination and Findings of the Project that may result from a COVID-19 response of an unpredictable nature and length. Should significant changes in the planning assumptions,

Project schedule, Project scope, or surrounding Project environment result because of a prolonged COVID-19 response, SEPTA will consider additional Project evaluation and public input consistent with NEPA.

1.3.5.1 Uniform Relocation and Real Property Acquisitions Policies Act of 1970

Activities related to acquisitions and displacements for a project are required to conform with the Uniform Relocation and Real Property Acquisitions Policies Act of 1970 (the Uniform Act) (Public Law 91-646, 84 Stat. 1894; Public Law 105-117; 42 U.S.C. § 4601 *et seq.* as amended; and 49 CFR Part 24). These statutes mandate that certain relocation services and payments be made available to eligible residents, businesses, and nonprofit organizations displaced as a direct result of projects undertaken by a federal agency or with federal financial assistance. SEPTA will require additional right-of-way to accommodate the Preferred Alternative. Partial and full property acquisitions will be required for the Preferred Alternative. All activities related to acquisitions and displacements for the Project will be conducted in conformance with the Uniform Act, regulations implementing the following Pennsylvania statutes and Executive Orders: Pennsylvania Act 120, governing conveyance of Commonwealth lands to municipalities; Pennsylvania Act 247, the PA Municipalities Planning Code; and Pennsylvania Executive Orders 1993-3 (State Land Use Planning Goals and Objectives) and 1999-1 (land use planning and decision-making).

Additionally, relocation assistance for the Project will follow the relevant procedures set forth in FTA Circular 5010.1E, *Award Management Requirements* (2018).

1.3.5.2 Section 106 of the National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, (54 U.S.C. § 300101, *et seq.*), and its implementing regulations (36 CFR Part 800), require Federal agencies to take into account the effects of their undertakings on historic properties that are either listed in or eligible for listing in the National Register of Historic Places (NRHP). Historic properties are defined as “any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register of Historic Places.”

The Project was reviewed in accordance with Section 106 and its implementing regulations. FTA and SEPTA consulted with the PA State Historic Preservation Officer (SHPO) and Consulting Parties pursuant to Section 106 consultation requirements. FTA determined and the SHPO concurred that the Preferred Alternative would have no adverse effect on two historic properties: the Pennsylvania Turnpike: Delaware River Extension and the Philadelphia and Western Railway; Norristown High Speed Line. In addition, FTA determined and the SHPO concurred that the Preferred Alternative may have an adverse effect as defined by 36 CFR § 800.5(a) on one historic property: the Pennsylvania New Jersey (PNJ) Interconnection, as the Project requires replacement of approximately four existing PECO electric transmission towers that are contributing features to the historic property. See FEIS Appendix C for Section 106 correspondence.

On November 25, 2020, FTA, SEPTA, and the PA SHPO signed a Section 106 Memorandum of Agreement on November 25, 2020 (Attachment C) that stipulates the measures to be undertaken by SEPTA to resolve the adverse effects of the Project to the PNJ Interconnection, Conowingo to Plymouth Meeting Transmission Line. During subsequent design and prior to demolition of any PECO transmission towers as part of the Project, SEPTA will implement the terms of the Section 106 Memorandum of Agreement.

1.3.5.3 Section 4(f) of the US Department of Transportation Act

Section 4(f) of the US Department of Transportation (USDOT) Act of 1966, 49 U.S.C. Part 303(c) is a federal law that protects publicly owned parks, recreation areas, wildlife and/or waterfowl refuges, as well as significant historic sites, whether publicly or privately owned, from use in transportation projects unless there is no feasible and prudent alternative to meet the Project purpose and need. Section 4(f) requirements apply to all transportation projects that require funding or other approvals by the USDOT. As a USDOT agency, FTA must comply with Section 4(f). FTA's Section 4(f) regulations are codified in 23 CFR Part 774. The Project was evaluated in accordance with Section 4(f) and its implementing regulations. The Preferred Alternative will replace four electric transmission towers on one historic property: the Pennsylvania New Jersey (PNJ) Interconnection. Replacing the four towers as part of the Preferred Alternative will result in a permanent Section 4(f) use of PNJ Interconnection, Conowingo to Plymouth Meeting Transmission Line as defined in 49 U.S.C. § 303.

The Preferred Alternative will permanently incorporate land from a portion of the Pennsylvania Turnpike: Delaware River Extension, a NRHP-eligible multi-lane highway, which will have a *de minimis* impact on the Pennsylvania Turnpike: Delaware River Extension as defined in 49 U.S.C. § 303.

The Preferred Alternative will temporarily occupy a portion of the Chester Valley Trail Extension, a publicly accessible recreational trail owned by Montgomery County. However, this temporary occupancy will meet the temporary occupancy exception criteria at 23 CFR 774.13(d). Montgomery County concurred with FTA's finding of temporary occupancy exception for the Chester Valley Trail (FEIS Appendix C).

1.3.5.4 Clean Air Act/Air Quality Conformity

Section 176(c) of the Clean Air Act (CAA), as well as the transportation planning provisions of 23 U.S.C. § 135 and 49 U.S.C. § 5304, require transportation activities that receive federal funding or approval to be consistent with ("conform to") the air quality goals established by a state air quality implementation plan (SIP). Because the Project is in an ozone nonattainment area and PM_{2.5} maintenance area, transportation conformity rules also require that the Project must originate from a conforming Transportation Improvement Plan (TIP). Conformity with the SIP means that transportation activities will not cause new air quality violations, worsen existing

violations, or delay timely attainment of the National Ambient Air Quality Standards (NAAQS).³ The Project is listed as a major, regionally significant project in the conforming, constrained long range transportation plan for the region,⁴ and is listed in the adopted FY2021 TIP.⁵ Because the Project is included in the conforming regional transportation plan, the Project is included in the region's emissions budget. Therefore, the Project was determined to not be a project of Air Quality Concern under EPA's final rule.

1.3.5.5 Clean Water Act

Section 402 of the Clean Water Act requires that all construction sites with a disturbance of an acre or greater of land discharging stormwater directly from a point source (a pipe, ditch, or channel) into a surface water of the U.S. must obtain permission under the National Pollutant Discharge Elimination System (NPDES) permit. 25 PA Code Chapter 92a provides the baseline regulatory requirements for the Pennsylvania Department of Environmental Protection's (PADEP) implementation of the federal NPDES program, and 25 PA Code Chapter 102 sets forth the requirements for construction activities which includes the development of erosion and sediment (E&S) pollution control and post-construction stormwater management plans. Because Project construction will require greater than one acre of earth disturbance, SEPTA will obtain the appropriate NPDES permit for stormwater discharges associated with construction activities and follow all conditions set forth by the permit. The NPDES permit will also satisfy all state Chapter 102 regulations.

Pursuant to Section 404 of the Clean Water Act of 1977, the United States Army Corps of Engineers (USACE) regulates the discharge of dredged or fill material into waters of the U.S., including wetlands. The proposed Project includes the aerial crossing of 0.08 acres of wetland. No direct impact or filling is proposed within the wetland area. Likewise, the proposed Project will cross approximately 1,580 linear feet of waterways on elevated guideway on embankment or structure. Supporting piers for the structure will be placed to enable crossings without physically impacting the waterways. SEPTA will obtain the appropriate combined Section 404/Chapter 105 water obstruction and encroachment permit⁶ for all Project impacts to waters of the U.S. and waters of the Commonwealth of Pennsylvania and follow all conditions set forth by the permit.

³ The EPA develops and enforces the regulations related to air quality. In 1970, the federal Clean Air Act established the NAAQS to protect the public health. Six criteria air pollutants have been identified by the EPA as being of concern nationwide: carbon monoxide, sulfur oxides (sulfur dioxide), nitrogen oxides (nitrogen dioxide), ozone, particulate matter with a size of 10 micrometers or less, particulate matter with a size of 2.5 micrometers or less, and lead. In addition to these six criteria air pollutants, the EPA also regulates air toxics.

⁴ DVRPC, 2020. *Connections 2045 Plan for Greater Philadelphia*.

⁵ DVRPC, July 2020. *Transportation Improvement Program for Pennsylvania (FY21-FY24)*

⁶ Pursuant to the Pennsylvania Dam Safety and Encroachments Act of 1978 and 25 PA Code Chapter 105, the Pennsylvania Department of Environmental Protection (PADEP) regulates any activity that affects the course, current, or cross section of a watercourse, floodway, or body of water (including wetlands) and any structure located in, along, across, or projecting into a watercourse, floodway, or body of water.

1.3.5.6 Endangered Species Act

The Endangered Species Act of 1973 is a federal law regulated by the United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) to protect federally-listed rare, endangered and threatened species. SEPTA submitted an online Pennsylvania Natural Diversity Inventory (PNDI) records request to identify known protected species within the Project study area. The PNDI is an online screening tool, which identifies federally listed as well as state-listed species within a project area determined by the user. The results of the PNDI search for the Project indicate that no federally-listed threatened or endangered species are known to occur in the Project study area.

Regarding state-protected species, the PNDI identified the need for SEPTA to coordinate with the PA Fish & Boat Commission regarding potential impacts on study area waterways. The PA Fish & Boat Commission identified the Project study area as being within the range of one State threatened animal species – the northern red-bellied cooter turtle (*Pseudemys rubriventris*). Suitable habitat for the northern red-bellied cooter is open slack water of streams, lakes, or ponds, according to the PA Fish & Boat Commission. Investigation of the Project study area determined that the waterways are neither deep, nor permanent. Therefore, suitable habitat for the red-bellied cooter is unlikely to be present within the Project study area (within 300 feet of the Project limits of disturbance). SEPTA will coordinate with the PA Fish & Boat Commission during subsequent design in regard to the presence/absence of State-threatened northern red-bellied cooter.

1.3.5.7 Executive Order 11988 – Floodplain Management

Executive Order 11988 – Floodplain Management, 42 Fed Reg 26951 (May 24, 1977) was issued to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains as well as avoidance of direct or indirect support of floodplain development. USDOT Order 5650.2 (April 23, 1979) “Floodplain Management and Protection” contains policies and procedures for implementing Executive Order 11988. The Project guideway will cross over existing Federal Emergency Management Agency (FEMA)-mapped floodplains, potentially requiring supporting structures in floodplains. SEPTA will design the Project to not constrain water flow or floodplain capacity.

1.3.5.8 Executive Order 12898 - Environmental Justice

In accordance with Executive Order 12898 and FTA Circular 4703.1 *Environmental Justice Policy Guidance for Federal Transit Administration Recipients*, SEPTA identified minority populations and/or low-income populations (collectively environmental justice (“EJ”) populations) in the Project study area (500 feet on either side of the guideway and ½ mile around proposed stations) by using a combination of data from the US Census American Community Survey (2014-2018), the DVRPC’s low-income indicator,⁷ and SEPTA’s knowledge about the population characteristics of the Project study area gained from public outreach

⁷ Delaware Valley Regional Planning Commission. *Equity Analysis for the Greater Philadelphia Region*. <https://www.dvrpc.org/webmaps/IPD/>.

activities undertaken for the Project. As presented in FEIS Section 4.14.4, each neighborhood includes a mix of non-EJ and EJ populations that are not clustered and are relatively dispersed throughout the Project study area neighborhoods.

The Preferred Alternative will serve each Project study area neighborhood because each neighborhood will be within ½ mile of a proposed Project station. As a result of being within a ½ mile of a station, benefits to neighborhoods could include improved access to transit service; improved travel times; increased transit capacity, reliability, and connectivity between residential areas, community facilities, employment centers, and businesses. In addition, the Preferred Alternative could result in a reduction of daily vehicle miles traveled on Project study area and regional roadways because the Preferred Alternative will provide 6,755 average weekday “Trips on the Project.” Reduction in daily vehicle miles traveled could, in turn, result in a reduction of roadway vehicle emissions and air quality benefits compared to the No Action Alternative (Section 4.9.3). The Preferred Alternative will provide two parking structures to address off-street parking needs at stations and will provide other pedestrian and bicycle access improvements in station areas; these represent additional benefits expected from the Project.

With the implementation of avoidance, minimization, and mitigation measures, no adverse impacts are expected on roadway intersections as minimization and mitigation commitments will maintain or improve roadway intersections as a result of traffic generated by proposed stations. Other resource areas that will not have adverse Project effects with the implementation of avoidance, minimization, and mitigation measures include community cohesion, community facilities, access across transportation and utility rights-of-way during Project operations, private parking areas, parks, air quality, vibration during operations, red-bellied cooter turtle, wellhead protection areas, and the Henderson Road Superfund Site.

Resource areas that will experience adverse effects after the application of avoidance, minimization, and mitigation measures include property acquisition and displacements; historic resources; visual change; noise; new impervious area; impacts to wooded areas, fields, floodplains, and wetlands; and proximity effects associated with construction (e.g., air quality, noise, vibration, construction access, temporary easements, visual changes, and natural resources). These effects will occur across the Project study area and similar effects will occur to EJ and non-EJ populations. Mitigation measures will be implemented with similar type and quality throughout the Project study area, for both EJ and non-EJ populations.

The Project study area has a relatively dispersed distribution of EJ populations, with a slightly higher concentration of EJ communities within the Prussian Woods, Valley Forge Suites, and Village at Valley Forge neighborhoods. The Prussian Woods and Village at Valley Forge neighborhoods are farther removed from the Project and are not anticipated to experience adverse Project effects. EJ populations within the Valley Forge Suites neighborhood could experience some adverse Project effects; however, after the implementation of avoidance, minimization, and mitigation measures, these Project effects will not be predominantly borne by EJ populations because of the dispersion of EJ populations within this neighborhood.

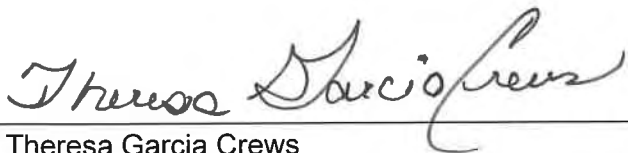
The relative dispersion of EJ populations within the Project study area means that while some adverse effects, including property acquisitions, visual change, vegetation loss, and proximity

effects associated with construction, cannot be fully avoided, minimized, or mitigated, the effects will not be disproportionately high and adverse on EJ populations. Any adverse effects that will occur will generally occur in similar nature and magnitude to both EJ populations and non-EJ populations. This also means that none of the benefits or adverse impacts of the Project will be predominantly borne by EJ populations. The potential adverse impacts will also be offset by several beneficial effects of the Project, which will accrue in similar nature and magnitude to both EJ and non-EJ populations. One benefit that may accrue to a greater degree for EJ populations compared to non-EJ populations is for those transit dependent populations that will have greater access to transit as a result of the Project. All minimization and mitigation commitments will be implemented equally for both EJ and non-EJ populations. Taking all these factors into consideration, the Preferred Alternative will not result in more severe adverse impacts to EJ populations compared with non-EJ populations. Therefore, the Preferred Alternative will not have disproportionately high and adverse effects on EJ populations.

1.3.6 Commitments to Minimize and Mitigate Project Impacts

Attachment B lists SEPTA's minimization and mitigation commitments for the Project as required by 23 CFR § 771.127(a). With these commitments as part of the Project and as required by 40 CFR § 1505.2, all practicable means to avoid or minimize environmental harm from the Project have been adopted for the Preferred Alternative.

Mitigation will be implemented in accordance with the combined FEIS/ROD. FTA will require the grant recipient (SEPTA) to submit quarterly reports on its progress in implementing the mitigation commitments, and FTA will monitor this progress through quarterly reviews of the Project's progress.



Theresa Garcia Crews
Regional Administrator
Federal Transit Administration, Region III

1-8-2021

Date

Attachment A

Summary of Effects of Preferred Alternative

Table A-1: Summary of Effects of Preferred Alternative

Description of Preferred Alternative Effects	
Transportation (Chapter 3)	
▪ Benefit: Increases access to transit with proposed stations in the King of Prussia/Valley Forge area (Section 3.1.3.2)	
▪ Benefit: Creates 6,755 average weekday “Trips on the Project” and reduces average weekday vehicle miles traveled in 2040 by 61,303 miles (Section 3.1.3.2)	
▪ Benefit: Connects to bus and shuttle services; changes to bus and shuttle services will occur; see SEPTA’s commitments (Section 3.1.3.2)	
▪ Benefit: Connects to the existing bicycle and pedestrian network; bicycles will be accommodated at proposed stations (Section 3.3.3.2)	
▪ No impact: Maintains or improves affected roadway intersection levels of service in 2040 with mitigation; see SEPTA’s commitments (Section 3.2.3.2)	
▪ Impact: Temporary impacts to the existing transportation system will occur during Project construction; see SEPTA’s minimization commitments (Section 2.3.2.9 and Chapter 3)	
Land Use Patterns and Consistency with Plans (Section 4.2)	
▪ Benefit: Consistent with Township and County land use plans (Section 4.2.3.2)	
▪ Benefit: Proposed stations are within ½ mile of 15 million non-residential (commercial and industrial) square feet (DEIS Section 8.2.2)	
▪ Benefit: Proposed stations are within ½ mile of seven community facilities (Section 4.4.2)	
▪ No impact: Temporary changes in access to businesses will occur during construction, but access will be maintained; see SEPTA’s minimization commitments (Section 4.3.3.2)	
▪ Impact: Construction easements will temporarily change land use, access, and private parking on affected properties; features on that land (such as trees or buildings) may be removed if their presence conflicts with temporary Project construction needs; see SEPTA’s minimization commitments (Section 4.2.3.2 and Section 4.5.3.2)	
Economic Development (Section 4.3)	
▪ Benefit: Two stations are within Upper Merion Township’s Mixed Use (KPMU) zoning district (Section 4.2.3.2)	
▪ Benefit: Project could support future economic development in the Project study area by extending rail transit service to King of Prussia (Section 4.3.3.2)	
▪ Potential impact: Project operations could affect private property values as a result of direct or proximity effects (Section 4.3.3.2)	
▪ Impact: Potential for temporary access impacts to businesses during construction; see SEPTA’s minimization commitments (Section 4.3.3.2)	

Description of Preferred Alternative Effects	
Community Cohesion and Facilities (Section 4.4)	
<ul style="list-style-type: none"> ▪ No impact: Avoids splitting or fragmenting residential or business communities (Section 4.4.3.2) 	
<ul style="list-style-type: none"> ▪ No impact: Preserves access across existing transportation and utility rights-of-way during operations (Section 4.4.3.2) 	
<ul style="list-style-type: none"> ▪ Impact: Three community facility properties will be directly impacted: Philadelphia Suburban Water (Aqua Pennsylvania) reservoir (portion of land), King of Prussia Volunteer Fire Company (relocation), and the 9/11 Memorial (on the Fire Company property) (relocation); see SEPTA's minimization and mitigation commitments (Section 4.4.3.2) 	
<ul style="list-style-type: none"> ▪ Impact: Potential for temporary changes to access to communities and community facilities; see SEPTA's minimization commitments (Section 4.4.3.2) 	
Property Acquisitions and Displacements (Section 4.5)	
<ul style="list-style-type: none"> ▪ Impact: Number of potential permanent partial property (parcel) acquisitions; see SEPTA's commitments (Section 4.5.3.2): <ul style="list-style-type: none"> ▪ 8 Residential; 33 Commercial; 13 Other; 54 Total 	
<ul style="list-style-type: none"> ▪ Impact: Number of potential permanent full property (parcel) acquisitions; see SEPTA's commitments (Section 4.5.3.2) <ul style="list-style-type: none"> ▪ 1 Residential; 11 Commercial; 1 Other; 13 Total 	
<ul style="list-style-type: none"> ▪ Impact: Number of potential permanent displacements; see SEPTA's commitments (Section 4.5.3.2): <ul style="list-style-type: none"> ▪ 8 Residential, 22 Commercial, 1 Other; 31 Total 	
<ul style="list-style-type: none"> ▪ Impact: Number of temporary construction easement impacts; see SEPTA's commitments (Section 4.5.3.2): <ul style="list-style-type: none"> ▪ 6 Residential, 30 Commercial, 8 Other; 44 Total 	
<ul style="list-style-type: none"> ▪ Impact: Non-residential property acquisitions could impact private parking; see SEPTA's commitments (Section 4.5.3.2) 	
<ul style="list-style-type: none"> ▪ No impact: Project does not require transit rider use of private parking areas near stations; see SEPTA's commitments (Section 4.5.3.2) 	
Parks, Recreational Land, and Open Space (Section 4.6)	
<ul style="list-style-type: none"> ▪ Benefit: Proposed stations are within ½ mile of five parks: Walker Field, the Chester Valley Trail Extension, the former Burgess Arboretum property, Betzwood Park, and Valley Forge National Historical Park (Section 4.6.3.2) 	
<ul style="list-style-type: none"> ▪ No impact: No parks directly or indirectly impacted (Section 4.6.3.2) 	
<ul style="list-style-type: none"> ▪ Impact: One park crossed: Chester Valley Trail Extension; see SEPTA's commitments (Section 4.6.3.2) 	

Description of Preferred Alternative Effects	
Historic and Archeological Resources (Section 4.7)	
<ul style="list-style-type: none"> ■ No impact: Low potential for archaeological sites within the limits of disturbance (Section 4.7.3.2) 	
<ul style="list-style-type: none"> ■ Impact: Three historic properties will be impacted; see SEPTA's commitments (Section 4.7.3.2): <ul style="list-style-type: none"> ■ Philadelphia and Western Railway (NHSL); PA Turnpike: Delaware River Extension; and PNJ Interconnection 	
<ul style="list-style-type: none"> ■ Impact: An adverse impact will occur to one historic property as defined by Section 106: PNJ Interconnection; see SEPTA's commitments (Section 4.7.3.2) 	
Visual and Aesthetic Resources (Section 4.8)	
<ul style="list-style-type: none"> ■ Impact: Visual impacts will occur during construction and operations; see SEPTA's minimization commitments (Section 4.8.3.2) 	
Air Quality (Section 4.9)	
<ul style="list-style-type: none"> ■ Benefit: Project operations will reduce the growth of average weekday vehicle miles traveled by 61,603 miles in 2040; reduced growth in vehicle miles traveled will reduce vehicular emissions (Section 4.9.3.2) 	
<ul style="list-style-type: none"> ■ No impact: Project operations will not cause an air quality impact (Section 4.9.3.2) 	
<ul style="list-style-type: none"> ■ Impact: Potential for temporary air quality impacts during construction; see SEPTA's minimization commitments (Section 4.9.3.2) 	
Noise and Vibration (Section 4.10)	
<ul style="list-style-type: none"> ■ No impact: The Project will not cause operational vibration impacts (Section 4.10.3.2) 	
<ul style="list-style-type: none"> ■ Impact: Potential number of noise impacts during construction and operation (Category 2 = where people sleep such as residences; Category 3 = daytime institutional or office use); see SEPTA's commitments: <ul style="list-style-type: none"> ■ King of Prussia - Moderate operational noise impacts: 51 Category 2; 2 Category 3 ■ King of Prussia – Moderate construction noise impacts: 13 Category 2 (daytime); 119 Category 2 (nighttime); 2 Category 3 (daytime) (Section 4.10.3.2) 	
<ul style="list-style-type: none"> ■ Impact: Potential number of vibration impacts during construction (Category 2 = where people sleep such as residences; Category 3 = daytime institutional or office use); see SEPTA's commitments: <ul style="list-style-type: none"> ■ King of Prussia – Construction vibration impacts: 57 Category 2; 16 Category 3 (Section 4.10.3.2) 	
Natural Resources (Section 4.11)	
<ul style="list-style-type: none"> ■ No impact: Project area is unlikely to support the State-threatened red-bellied cooter turtle; see SEPTA's commitments (Section 4.11.3.2) 	
<ul style="list-style-type: none"> ■ No impact: The Project will not impact existing wellhead protection areas (4.11.3.2) 	
<ul style="list-style-type: none"> ■ Potential impact: Potential for impacts to natural resources during Project construction: soils, sole source aquifers, waterways, floodplains, wetlands, and wooded areas; see SEPTA's commitments (Section 4.11.3.2) 	

Description of Preferred Alternative Effects
<ul style="list-style-type: none"> Potential impact: Risk regarding underlying geologic conditions during construction and operation; see SEPTA's commitments (Section 4.11.3.2)
<ul style="list-style-type: none"> Impact: Six acres of new impervious surfaces; see SEPTA's commitments (Section 4.11.3.2)
<ul style="list-style-type: none"> Impact: 20.3 acres of potential wooded area disturbance; see SEPTA's commitments (Section 4.11.3.2)
<ul style="list-style-type: none"> Impact: 11.1 acres of potential field disturbance (Section 4.11.3.2)
<ul style="list-style-type: none"> Impact: 1,580 linear feet of waterways and floodplains potentially affected; see SEPTA's commitments (Section 4.11.3.2)
<ul style="list-style-type: none"> Impact: 0.08 acres of potential wetlands disturbance; see SEPTA's commitments (Section 4.11.3.2)
Contaminated Materials and Hazardous Waste (Section 4.12)
<ul style="list-style-type: none"> No impact: Project operations will not be a source of accidental fuel spills because the power source will be electricity (4.12.3.2)
<ul style="list-style-type: none"> No impact: The Preferred Alternative will not impact the Henderson Road Superfund (NPL) site (Section 4.12.2)
<ul style="list-style-type: none"> Potential impact: Potential to introduce oils and lubricants that could drip from operating Project rail vehicles (Section 4.12.3.2)
<ul style="list-style-type: none"> Potential impact: Potential to impact or be impacted by 17 areas of contaminated materials concern within the limits of disturbance during construction; see SEPTA's commitments (Section 4.12.3.2)
Utilities and Energy Use (Section 4.13)
<ul style="list-style-type: none"> Benefit: Growth in passenger vehicle energy consumption by 2040 will be reduced by an estimated 165,200 megawatt hours per year (Section 4.13.3.2)
<ul style="list-style-type: none"> Benefit: Annual automobile vehicle miles traveled will be reduced by 17.5 million miles (Section 4.13.3.2)
<ul style="list-style-type: none"> Benefit: Annual bus vehicle miles traveled will be reduced by 86,000 miles (Section 4.13.3.2)
<ul style="list-style-type: none"> Benefit: Annual cost savings for motor vehicle fuel will be \$3 million (Section 4.13.3.2)
<ul style="list-style-type: none"> Potential impact: Potential to disrupt existing utilities during Project construction; see SEPTA's commitments (Section 4.13.3.2)
<ul style="list-style-type: none"> Impact: Approximately four PECO transmission towers will be replaced; see SEPTA's commitments (Section 4.13.3.2)
Environmental Justice (EJ) (Section 4.14)
<ul style="list-style-type: none"> Impact: No disproportionately high and adverse effects on environmental justice populations; see SEPTA's commitments (Section 4.14.3.2)

Description of Preferred Alternative Effects	
Irreversible and Irretrievable Commitment of Resources (Section 4.15)	
<ul style="list-style-type: none"> Benefit: Permanent, positive employment, earnings and output effects to King of Prussia: <ul style="list-style-type: none"> 900 to 1,500 new jobs annually 17,000 to 29,000 new employees over 20 years \$79.1 million to \$132.6 million in earnings annually (Section 4.15.2) Impact: Permanent commitment of natural, material and financial resources (Section 4.15.3.2) 	
Final Section 4(f) Evaluation (Technical Memorandum)	
<ul style="list-style-type: none"> Impact: Project will permanently use portions of three Section 4(f) properties: Philadelphia and Western Railway (NHSL) (<i>de minimis</i> impact); PA Turnpike: Delaware River Extension (<i>de minimis</i> impact); and PNJ Interconnection (not <i>de minimis</i> impact); see SEPTA's commitments (Final Section 4(f) Evaluation) 	
Indirect and Cumulative Impacts (Section 4.16)	
<ul style="list-style-type: none"> Potential impact: Potential for an indirect and cumulative operational effect of enhancing and encouraging development and redevelopment near Project stations (Section 4.16) Potential impact: Potential for a moderate, cumulative operational noise impact along the existing NHSL; see SEPTA's commitments (Section 4.16.6.7) 	
Preliminary Cost Estimates (Chapter 6)	
<ul style="list-style-type: none"> Impact: Preliminary capital cost estimate for Project is \$2.08 billion (Chapter 6) Impact: Preliminary annual increase in NHSL operations and maintenance cost estimate is \$10.87 million (Chapter 6) 	

Sources: SEPTA, AECOM, and HNTB, 2020; 2017 King of Prussia Rail Extension Draft Environmental Impact Statement

Attachment B

Summary of SEPTA's Commitments as Part of the Preferred Alternative

Table B-1: Summary of SEPTA's Commitments as Part of the Preferred Alternative

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
<p style="text-align: center;">Transportation (Chapter 3)</p>	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will develop a program of bus service changes to eliminate service redundancies created by Project operations, adjust routes to serve proposed stations and park-and-ride facilities, and optimize operating efficiency. • During subsequent design, SEPTA will coordinate with the Greater Valley Forge Transportation Management Association (GVFTMA) and King of Prussia Business Improvement District (KOP-BID) to plan appropriate shuttle service modifications to serve Project stations. • During subsequent design, SEPTA will prepare a Transportation Management Plan to minimize the potential impacts of construction on the transportation system. The plan will include a temporary transit service plan developed by SEPTA in coordination with shuttle operators. This plan will identify potential service changes, and include actions to minimize or mitigate temporary impacts, such as bus re-routing and adjusted service schedules. During subsequent design, SEPTA will update the NHSL operating plan to accommodate Project service. If NHSL schedule adjustments are required, SEPTA will issue service advisories in advance of the temporary schedule impact occurring and implement substitute bus service, where necessary. To the extent reasonably feasible, temporary suspension of rail service will occur during off-peak hours to minimize impacts to transit riders. In all cases, the plan will include a public outreach and information component to inform the public of unavoidable short-term changes in transit (bus and NHSL) and shuttle bus systems before they occur. 	<ul style="list-style-type: none"> • During construction, SEPTA will implement the Transportation Management Plan. • During operations, SEPTA will implement its program of bus service changes and will coordinate with the GVFTMA and KOP-BID to implement appropriate shuttle service modifications to serve Project stations.
<ul style="list-style-type: none"> • During subsequent design, SEPTA will coordinate with state and local officials to determine the need for improvements to mitigate traffic impacts on roadways and intersections affected by Project stations, and design the specific improvements to the roadways and intersections affected as part of the Highway Occupancy Permit process. • During subsequent design, SEPTA will coordinate with PennDOT, Montgomery County, Upper Merion Township, and the PA Turnpike Commission as it develops a Transportation Management Plan for affected roadways during construction with the goals of maintaining traffic operations and minimizing additional congestion to the extent reasonably feasible. The plan will identify specific impacts to roadways (such as lane or street closures) and specific actions SEPTA will implement to minimize and mitigate temporary construction impacts on roadways. Such actions could include, but may not be limited to: 	<ul style="list-style-type: none"> • During construction, SEPTA will construct the specific improvements to roadways and intersections affected by the Project per the requirements of the Highway Occupancy Permit. • During construction, SEPTA will coordinate with PennDOT, Montgomery County, Upper Merion Township, and the PA Turnpike Commission as it implements the Transportation Management Plan for affected roadways during construction.

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
<ul style="list-style-type: none"> • Ensuring access to residences and businesses is maintained during Project construction; • Ensuring emergency access for fire-fighting equipment and evacuations is maintained during construction; • Implementing temporary routing and circulation, as needed, with directional signing; • Installing temporary traffic control devices to improve construction-related congestion impacts or other temporary traffic flow problems; • Providing a public outreach and information component to inform the public of changes in the roadway system before they occur; and • Restoring affected roadways upon completion of construction. <p>As part of the plan, SEPTA will identify and implement temporary traffic re-routing or roadway closures, signing, and public outreach as needed to inform the public of temporary roadway changes before they occur. Roadway closure times and durations will be determined in coordination with the public agency with jurisdiction over the particular roadway and will occur during late night hours to minimize disruption of travel operations.</p>	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will work with PennDOT, the County, and the Township to accommodate pedestrian and bicycle movements at intersections the Project will affect, design pedestrian and bicycle routing along and across roadways at appropriate locations near Project station facilities, and make connections to sidewalks adjacent to Project station facilities and to the elevated boarding platforms at stations. • During subsequent design, SEPTA will develop a Transportation Management Plan, which will include temporary bicycle and pedestrian accommodation in areas affected by construction. SEPTA will work with Upper Merion Township, Montgomery County, and PennDOT to identify and implement temporary routing, signing, and public outreach as needed to inform the public of temporary changes before they occur. 	<ul style="list-style-type: none"> • During construction, SEPTA will implement the Transportation Management Plan.
<ul style="list-style-type: none"> • During subsequent design, SEPTA will continue to coordinate with NS regarding proposed use of a portion of their North Abrams Industrial Track corridor. 	<ul style="list-style-type: none"> • None warranted.
<ul style="list-style-type: none"> • During subsequent design, SEPTA will develop construction protocols and procedures prior to the start of construction with the goal of providing a safe and secure environment in and near the Project construction site. SEPTA will incorporate its standard worksite safety procedures into the Project-specific plan. The protocols and procedures will be Project-specific and will focus on worker and public safety, securing work and staging areas including equipment, materials, and permanent elements of the Project. Temporary fencing with locking gates around construction staging areas is an example of a typical technique to secure a work 	<ul style="list-style-type: none"> • During construction, SEPTA will implement the project-specific safety plan. SEPTA's construction contractor(s) will be required to adopt SEPTA's procedures and protocols, including monitoring and reporting. • During operations, SEPTA will implement its operational

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
<p>area. SEPTA will incorporate its standard worksite safety procedures into the Project-specific plan. SEPTA will also work with Upper Merion Township law enforcement personnel and emergency service providers in developing and implementing its Project safety plan to ensure it is consistent and coordinated with local safety and emergency response procedures, including monitoring and reporting.</p> <ul style="list-style-type: none"> • During subsequent design, SEPTA will evaluate and design appropriate operational safety elements, modify existing incident management plans, coordinate with emergency response personnel, and develop operational protocols and procedures to be followed. 	<p>safety plans, protocols, and procedures.</p>
<p align="center">Land Use Patterns and Consistency with Plans (Section 4.2)</p>	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will coordinate with the Township and County to align final design with future land use planning, such as the Township's land use planning for Moore Park KOP. 	<ul style="list-style-type: none"> • None warranted.
<ul style="list-style-type: none"> • During subsequent design, SEPTA will develop a construction plan and right-of-way plans that refine temporary construction right-of-way needs, including specific locations of temporary staging areas and construction access points. SEPTA will coordinate with Upper Merion Township, PennDOT, the PA Turnpike Commission and other potentially affected property owners in this activity. To the extent reasonably feasible, SEPTA will identify such areas within the Project ROW or on vacant or publicly-owned property. • During subsequent design, SEPTA will develop a plan to restore properties affected by temporary, construction easements to an acceptable pre-construction condition at the end of construction activities, in accordance with individual easement agreements. • At public outreach events during subsequent design, SEPTA will provide a real estate representative to explain SEPTA's construction easement acquisition process. • During subsequent design, SEPTA will initiate the real estate acquisition process, during which time SEPTA will work with each affected property owner to achieve construction easement acquisition agreements. 	<ul style="list-style-type: none"> • During construction, SEPTA will implement construction activities in accordance with all real estate agreements. • Prior to the end of Project construction, SEPTA will implement the plan to restore properties affected by temporary easements to an acceptable pre-construction condition, in accordance with individual easement agreements.
<ul style="list-style-type: none"> • During subsequent design, SEPTA will coordinate with impacted property owners to develop an operational parking management plan to discourage transit rider use of private parking areas. 	<ul style="list-style-type: none"> • During operations, SEPTA will implement the operational parking management plan.
<p align="center">Economic Development (Section 4.3)</p>	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will develop a business mitigation plan in coordination with the KOP-BID to address temporary construction impacts related to access to businesses. 	<ul style="list-style-type: none"> • During construction, SEPTA will implement its business mitigation plan for the Project.

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
Community Cohesion and Facilities (Section 4.4)	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will examine opportunities to further minimize and mitigate for community impacts and incorporate feasible and reasonable measures into the construction and operations plans for the Project. 	<ul style="list-style-type: none"> • During Project construction, SEPTA will implement minimization and mitigation measures for community impacts related to construction. • During Project operations, SEPTA will implement minimization and mitigation measures for community facility impacts related to operations.
<ul style="list-style-type: none"> • During subsequent design, SEPTA will work with the Upper Merion Township's Unified Safety Department's Public Safety Director and the Fire & Emergency Service Department as they identify a suitable location for the fire company and 9/11 Memorial and undertake the relocation process. SEPTA will provide the funds for relocation of the King of Prussia Fire Company and 9/11 Memorial. • During subsequent design, SEPTA will coordinate with emergency service providers in the Township to identify and develop their emergency response plans regarding provider access and circulation in the Project construction and operational plans. 	<ul style="list-style-type: none"> • During Project construction, SEPTA will continue coordination with the Township and the King of Prussia Volunteer Fire Company as SEPTA implements relocation of the existing functions of the King of Prussia Fire Company and 9/11 Memorial. • During Project construction, SEPTA will continue coordinating with Township emergency service providers as it implements the Project construction plan. • During Project operations, SEPTA will continue coordinating with Township emergency service providers as it implements the Project operations plan.
Property Acquisitions and Displacements (Section 4.5)	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will refine permanent right-of-way needs and develop right-of-way plans, and prepare a real estate acquisition management plan. • During subsequent design, SEPTA will refine the area of permanent land acquisition to be provided to PECO to offset permanent right-of-way needs for the Project on the PECO property. 	<ul style="list-style-type: none"> • See commitments for temporary construction phase mitigation in this table under Land Use Patterns and Consistency with Plans. • Regarding the potential for Project riders to use private parking areas near stations,

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
<ul style="list-style-type: none"> • During subsequent design, SEPTA will initiate the real estate acquisition and relocation process, during which time SEPTA will work with each affected property owner to achieve permanent real estate acquisition agreements. SEPTA's property acquisition activities will occur in accordance with the Uniform Act as amended and FTA Circular 5010.1E, Award Management Requirements and State laws that establish the process through which SEPTA may acquire real property through a negotiated purchase or through condemnation (ROD Section 1.3.5.1). • See the commitments for temporary construction phase mitigation in this table under Land Use Patterns and Consistency with Plans. • SEPTA will coordinate with potentially impacted property owners during subsequent design to develop an operational parking management plan prior to Project operations to discourage transit rider use of private parking areas. 	<p>SEPTA will continue coordinating with potentially impacted property owners during Project construction to develop an operational parking management plan prior to Project operations to discourage transit rider use of private parking areas.</p>
<p align="center">Parks, Recreational Land, and Open Space (Section 4.6)</p>	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will develop the Project design at the crossing of the planned Chester Valley Trail Extension in coordination with Montgomery County at major milestones (30%, 60%, 90% and final plan, specifications and estimates). • During subsequent design, SEPTA will develop the Project construction plan for the crossing of the planned Chester Valley Trail Extension in timely coordination with Montgomery County. • During subsequent design, SEPTA will develop a cost reimbursement agreement with Montgomery County to reimburse the County for expenses incurred by the County's engineering consultant or other County consultants deemed necessary by Montgomery County and SEPTA for coordination and services related to: reviewing Project construction plans and specifications; coordinating with SEPTA during Project design and construction phases; and potentially implementing temporary modifications (such as but not limited to: signage, re-routing, restoration, striping) to the planned Chester Valley Trail Extension to accommodate Project construction. All planning and design costs for the Project related to its impact upon the planned Chester Valley Trail Extension, including consultant fees as described above, shall be borne by SEPTA. 	<ul style="list-style-type: none"> • During construction, SEPTA will implement its Project construction plan in the area of the planned Chester Valley Trail Extension. SEPTA will coordinate with Montgomery County during Project construction. All costs to construct the Project at the planned Chester Valley Trail Extension crossing will be the responsibility of SEPTA.
<p align="center">Historic and Archeological Resources (Section 4.7)</p>	
<ul style="list-style-type: none"> • During subsequent design and prior to demolition of any PECO transmission towers as part of the Project, SEPTA will implement the terms of the Section 106 Memorandum of Agreement (11/25/2020 – Appendix C). 	<ul style="list-style-type: none"> • None warranted

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
Visual and Aesthetic Resources (Section 4.8)	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will continue to examine the feasibility of providing a higher parapet wall/barrier on the elevated guideway to block rider views of residential neighborhoods. • During subsequent design and prior to the start of Project construction, SEPTA will develop and implement a Project construction plan. The plan will identify procedures and protocols for avoiding impacts to the transportation, natural and human environments during Project construction, including visual impacts. As part of the plan, SEPTA will require the Project contractor(s) to assess the potential for visual impacts during construction and identify means to minimize or mitigate temporary visual impacts. Examples of potential mitigation strategies that SEPTA will require the Project contractor(s) to consider include storage of equipment and materials in designated staging areas only, use of opaque fencing to visually screen staging areas, soil containment to avoid migration of soils onto public roads as required by erosion control regulations, and permanent landscaping or seeding of disturbed areas as soon as construction work is completed. 	<ul style="list-style-type: none"> • During construction, SEPTA will implement visual mitigation according to the design plans.
Air Quality (Section 4.9)	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will identify air quality control measures and best management practices for control of dust and vehicle emissions during Project construction. SEPTA will include these measures and practices in the Project construction plan. 	<ul style="list-style-type: none"> • During Project construction, SEPTA will implement air quality control measures and best management practices according to the Project construction plan.
Noise and Vibration (Section 4.10)	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will continue to assess the potential for noise impacts as a result of further design of the Project, and will evaluate the need for and design of mitigation for noise impacts. SEPTA will report the results of the evaluation on the Project website. • The following noise mitigation and minimization measures will be assessed by SEPTA during subsequent design to determine their feasibility and reasonableness: Parapet Walls on Guideway - Solid parapets in lieu of open safety railings would eliminate noise impacts from train operations along the guideway. Increasing the height of the proposed edge of the guideway from 2.2 feet above top of rail to 6 feet above top of rail at the following locations would eliminate all predicted moderate noise impacts: <ul style="list-style-type: none"> • Valley Forge Homes • Station No. 227+00 to 247+00 (south side) 	<ul style="list-style-type: none"> • During Project construction, SEPTA will implement noise and vibration commitments according to the Project construction plan.

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
<ul style="list-style-type: none"> • 37 residential impacts • Brandywine Village <ul style="list-style-type: none"> • Station No. 243+00 to 250+00 (north side) • 11 residential impacts • Allendale Road Station <ul style="list-style-type: none"> • Station No. 259+00 to 269+00 (south side) • 3 residential impacts • 1 office impact <p>Because the Valley Forge Homes and Brandywine Village neighborhoods currently benefit from a highway noise barrier, the effectiveness of parapet walls on the guideway will need to be investigated in more detail during subsequent design by SEPTA.</p> <ul style="list-style-type: none"> • Station-specific Noise Control – SEPTA will investigate the feasibility and reasonableness of station-specific noise minimization and mitigation measures for Allendale Road Station during subsequent design. • During subsequent design, SEPTA will continue to evaluate the potential for temporary construction noise and vibration impacts and identify measures to minimize or mitigate construction impacts as warranted. SEPTA will also continue the Project public outreach program during construction to inform the public about the schedule of activities and provide for public input. SEPTA will include control measures in their procurement specifications and construction plans, and report the results of the evaluation on the Project website. During Project construction, SEPTA will implement the control measures according to the Project construction plan. • The following noise and vibration mitigation and minimization measures will be assessed by SEPTA during subsequent design to determine their feasibility and reasonableness: <ul style="list-style-type: none"> • At staging and laydown areas, consider installing acoustical curtains or other temporary noise shields along perimeter fencing to act as a temporary noise barrier. • Strategic placement of containers or other barriers along the perimeter of staging areas would shield nearby residences from construction activities within the laydown area. • Substituting impulsive equipment such as pile drivers and hoe rams with augers and vibratory pile drivers whenever possible. • In general, utilize equipment enclosures or shrouds for all exposed stationary equipment while other solutions (such as portable acoustical curtains hung from cranes) may be more practical for mobile sources. • All equipment should include properly tuned exhaust mufflers or attenuators that comply with the local and municipal noise ordinances. 	

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
<ul style="list-style-type: none"> • Additionally, utilize regional roadways rather than local streets for excavation of spoils and new deliveries to further minimize the construction impacts (i.e., noise, vibration, air quality, visual, traffic, etc.) on the nearby community. 	
<p align="center">Natural Resources (Section 4.11)</p>	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will complete a geotechnical investigation to identify soils and geological conditions within the Project limits of disturbance (LOD). The investigation will use subsurface testing and laboratory analysis to determine soil and rock properties (such as water, chemical and mineral contents, soil and rock strength, depth of rock, and delineation of karst features). This information will assist SEPTA in designing the Project to location-specific soil and geological conditions. • During subsequent design, SEPTA will develop a plan of action in the event of a geological event, such as a sinkhole, during Project construction. The program of actions will include the following elements: communication protocol, securing the site of the sinkhole, implementing an action plan to resolve the issue, and restoring construction activities. • During subsequent design, SEPTA will develop an operations plan in the event of a geological event, such as a sinkhole. The program of actions will include the following elements: communication protocol, securing the site of the sinkhole, implementing an action plan to resolve the issue, and restoring normal activities. 	<ul style="list-style-type: none"> • During construction, SEPTA will implement the construction plan related to geological conditions. • During operations, SEPTA will implement the operations plan related to geological conditions.
<ul style="list-style-type: none"> • During subsequent design, SEPTA will consider means to further reduce the amount of new impervious surfaces. • During subsequent design, SEPTA will prepare PA-approved erosion and sediment control plans and applicable stormwater management plans during Project construction. These plans will identify appropriate best management practices to reduce erosion, control sedimentation, and maintain water quality. • During subsequent design, SEPTA will design stormwater best management practices to reduce Project runoff impacts. 	<ul style="list-style-type: none"> • During construction, SEPTA will implement the Project in accordance with the provisions and conditions of all permits and approvals related to waterways and floodplains. • During construction, SEPTA will implement the approved erosion and sediment control plan. • During operations, SEPTA will implement the Project stormwater management plan.
<ul style="list-style-type: none"> • During subsequent design and to the extent reasonably feasible, SEPTA will identify additional means to avoid or minimize impacts to existing wooded areas through design refinements. • During subsequent design, SEPTA will develop a construction plan that limits disturbance of 20.3 acres of wooded area within the proposed construction area and provides for protection of such areas that are adjacent to and outside the construction area. 	<ul style="list-style-type: none"> • During construction, SEPTA will implement the construction plan elements that protect wooded areas from Project impacts. • During construction, SEPTA will implement the Project in

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
	accordance with the provisions and conditions of all permits and approvals related to wooded areas.
<ul style="list-style-type: none"> During subsequent design, SEPTA will comply with Executive Order 11988 and applicable state laws and implementing regulations regarding Project activities in existing Federal Emergency Management Agency (FEMA)-mapped floodplains. 	<ul style="list-style-type: none"> During operations, SEPTA will implement the Project in accordance with the provisions and conditions of all permits and approvals related to waterways and floodplains.
<ul style="list-style-type: none"> During subsequent design, SEPTA will obtain and comply with Pennsylvania Water Obstruction and Encroachment Permit and a US Army Corps of Engineers (USACE) Section 404 Nationwide Permit as required by the USACE and PA Department of Environmental Protection (PADEP) for activities in waterways and wetlands. 	<ul style="list-style-type: none"> During construction, SEPTA will implement the Project in accordance with the provisions and conditions of all permits and approvals related to waterways and wetlands.
<ul style="list-style-type: none"> During subsequent design, SEPTA will coordinate with the PA Fish & Boat Commission in regard to the presence/absence of State-threatened northern red-bellied cooter. If present, SEPTA will assess the potential for adverse impacts to the species, and identify appropriate minimization and mitigation measures. 	<ul style="list-style-type: none"> If warranted as a result of further coordination with the PA Fish & Boat Commission in regard to the State threatened northern red-bellied cooter, SEPTA will implement appropriate minimization and mitigation measures during Project construction.
<p align="center">Contaminated Materials and Hazardous Waste (Section 4.12)</p>	
<ul style="list-style-type: none"> During subsequent design and prior to right-of-way acquisition, SEPTA will complete a Phase II Environmental Site Assessment for properties that will be acquired by SEPTA. During subsequent design, SEPTA will seek input from EPA regarding the Henderson Road Superfund Site to minimize the potential for the Preferred Alternative to adversely affect the hydrological conditions controlling the contaminant plume at the site. During subsequent design and if warranted as a result of the Phase II assessment, SEPTA will examine means to avoid or minimize and mitigate impacts if the Preferred Alternative has the potential to impact a site with potential contaminated materials and hazardous waste concerns. SEPTA will select appropriate strategies in coordination with Federal and state regulators to meet applicable laws. SEPTA will incorporate appropriate strategies as minimization and mitigation measures into the Project design and construction plans. 	<ul style="list-style-type: none"> During construction and if warranted as a result of the Phase II assessment, SEPTA will implement commitments to address contaminated materials and hazardous waste concerns. During construction, SEPTA will implement the following plans developed during subsequent design for structures to be demolished: Asbestos Abatement Plan and a Lead-Based Paint Assessment Plan.

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
<ul style="list-style-type: none"> • During subsequent design, SEPTA will develop an Asbestos Abatement Plan and a Lead-Based Paint Assessment Plan for structures to be demolished during construction. The plans will document methodologies for surveying, containing, and remediating such materials as warranted. • During subsequent design, SEPTA will develop and implement Health and Safety Plans and Materials Management Plans for use during construction and operation phases. 	<ul style="list-style-type: none"> • During construction, SEPTA will implement Project health and safety plans. • During operation, SEPTA will implement Project health and safety plans.
Utilities and Energy Use (Section 4.13)	
<ul style="list-style-type: none"> • During subsequent design, SEPTA will continue coordinating with utility service providers to verify the locations of existing utilities, and develop construction and operations plans related to utilities. • During subsequent design, SEPTA will plan and schedule Project construction activities to avoid or minimize utility service disruptions. • During subsequent design, SEPTA will coordinate with and obtain approvals from each affected utility owner regarding Project activity related to utilities. 	<ul style="list-style-type: none"> • During construction, SEPTA will implement the construction phase utility plan and the conditions of each utility approval. • During construction, SEPTA will comply with utility owner notification requirements and the PJM Interconnection outage planning process regarding potential utility outages required by the Project.
Environmental Justice (Section 4.14)	
<ul style="list-style-type: none"> • During subsequent design, Project construction, and Project operations, SEPTA will continue public outreach activities. The goals of SEPTA's public outreach activities will continue to be public awareness of Project activities, opportunity for the public to share concerns with SEPTA related to Project construction, and an avenue for SEPTA to address those concerns. 	<ul style="list-style-type: none"> • During Project construction, SEPTA will continue public outreach activities. • During Project operations, SEPTA will continue public outreach activities.
Section 4(f) (Technical Memorandum)	
<ul style="list-style-type: none"> • See commitments for Historic and Archaeological Resources. • Chester Valley Trail Extension: During subsequent design, SEPTA will develop the Project design at the crossing of the planned Chester Valley Trail Extension in coordination with Montgomery County at major milestones (30%, 60%, 90% and final plan, specifications and estimates). • During subsequent design, SEPTA will develop the Project construction plan for the crossing of the planned Chester Valley Trail Extension in timely coordination with Montgomery County. • During subsequent design, SEPTA will develop a cost reimbursement agreement with Montgomery County to reimburse the County for expenses incurred by the County's engineering 	<ul style="list-style-type: none"> • See commitments for Historic and Archaeological Resources. • During Project construction, SEPTA will implement its Project construction plan in the area of the planned Chester Valley Trail Extension. SEPTA will coordinate with Montgomery County during Project construction. All costs to construct the Project at the

SEPTA's Commitments During Subsequent Design	SEPTA's Commitments During Construction and Operation
consultant or other County consultants deemed necessary by Montgomery County and SEPTA for coordination and services related to: reviewing Project construction plans and specifications; coordinating with SEPTA during Project design and construction phases; and potentially implementing temporary modifications (such as but not limited to: signage, re-routing, restoration, striping) to the planned Chester Valley Trail Extension to accommodate Project construction. All planning and design costs for the Project related to its impact upon the planned Chester Valley Trail Extension, including consultant fees as described above, shall be borne by SEPTA.	planned Chester Valley Trail Extension crossing will be the responsibility of SEPTA.

Notes: During subsequent design is meant to represent the period after which FTA approves the combined FEIS/ROD and before Project construction activities begin. During that time, SEPTA will complete engineering design of the Project, prepare Project construction plans, and acquire the property on which the Project will be built. During construction is meant to represent the period after which SEPTA is building the Project; and during operations is meant to represent the period after Project construction is completed when the Project is providing rail transit service as described in the FEIS.

Sources: SEPTA, AECOM, and HNTB, 2020; 2017 *King of Prussia Rail Extension Draft Environmental Impact Statement*

Attachment C

Section 106 Memorandum of Agreement

**MEMORANDUM OF AGREEMENT
AMONG
THE FEDERAL TRANSIT ADMINISTRATION,
THE PENNSYLVANIA STATE HISTORIC PRESERVATION OFFICER, AND
THE SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
REGARDING THE KING OF PRUSSIA RAIL EXTENSION PROJECT
UPPER MERION TOWNSHIP, MONTGOMERY COUNTY AND UPPER DARBY
TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA**

WHEREAS, the Federal Transit Administration (FTA) plans to provide financial assistance to the Southeastern Pennsylvania Transportation Authority (SEPTA) for the construction of the King of Prussia (KOP) Rail Extension Project, with improvements in Upper Merion Township, Montgomery County and Upper Darby Township, Delaware County, Pennsylvania (Undertaking); and

WHEREAS, the Undertaking consists of construction of a new rail line and stations branching off the west side of the existing Norristown High Speed Line (NHSL), passing through King of Prussia, and terminating on the north side of First Avenue in Upper Merion Township, and includes track, platform, and interior passenger circulation improvements at the 69th Street Transportation Center in Upper Darby Township; and

WHEREAS, FTA has defined the Undertaking's Area of Potential Effects (APE) as the area within which the Undertaking may cause changes in the character or use of standing resources listed in or eligible for the National Register of Historic Places (NRHP), including resources from which the Undertaking may be visible and/or create a visual impact to the integrity of a historic property for above-ground properties (encompassing 485 acres). The APE includes the limits of disturbance for archaeological resources (encompassing 92 acres). The APE for the Undertaking is shown on the map in Attachment A; and

WHEREAS, pursuant to 36 CFR § 800.5(a), FTA has determined that the Undertaking may have an adverse effect on the Pennsylvania-New Jersey (PNJ) Interconnection; Conowingo to Plymouth Meeting Transmission Line (Key No. 156601), which is eligible for listing in the NRHP, and has consulted with the Pennsylvania State Historic Preservation Officer (PA SHPO) pursuant to 36 CFR Part 800, the regulations implementing Section 106 of the National Historic Preservation Act (NHPA; 54 U.S.C. § 306108); and

WHEREAS, SEPTA, as a recipient of Federal assistance for the Undertaking, is a consulting party in the Section 106 process pursuant to 36 CFR § 800.2(c)(4) with a responsibility in implementing the terms of the MOA, and is invited to sign this MOA as an invited signatory pursuant to 36 CFR § 800.6(c)(2); and

WHEREAS, FTA invited the National Park Service, Northeast Region; Valley Forge National Historical Park; the Montgomery County Planning Commission; the Montgomery County Division of Parks, Trails and Historic Sites; the Historical Society of Montgomery County; the Heritage Conservancy; the Upper Merion Township Planning Commission; the King of Prussia Historical Society; the Chester County Historic Preservation Network; the Chester County Historical Society; the Chester County Planning Commission; the Tredyffrin Historic Preservation Trust; the Tredyffrin Township Historical Commission; Upper Darby Township; the Upper Darby

Historical Society; the Delaware County Planning Department; the Delaware County Historical Society; the Preservation Alliance for Greater Philadelphia; The Delaware Tribe; The Delaware Nation; The Oneida Indian Nation; The Eastern Shawnee Tribe of Oklahoma; the Stockbridge-Munsee Community of Mohican Indians; and the PECO Energy Company (PECO) to participate as consulting parties to the Undertaking; and

WHEREAS, the Montgomery County Planning Commission, the Montgomery County Division of Parks, Trails and Historic Sites, the Historical Society of Montgomery County, the King of Prussia Historical Society, the Upper Merion Township Planning Commission, Upper Darby Township, and the PECO Energy Company (PECO) have agreed to be consulting parties to the Undertaking; and

WHEREAS, PECO is the owner and operator of the portion of the NRHP-eligible resource that will be adversely affected by the Undertaking and is a consulting party in the Section 106 process pursuant to 36 CFR §800.2(c)(5). FTA invited PECO to concur with this MOA pursuant to 36 CFR § 800.6(c)(3) but PECO declined to participate as a concurring party; and

WHEREAS, in accordance with 36 CFR § 800.6(a)(1), FTA has notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination with specified documentation, and the ACHP has chosen not to participate in the consultation pursuant to 36 CFR § 800.6(a)(1)(iii); and

NOW, THEREFORE, FTA, SEPTA, and PA SHPO agree that the Undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the Undertaking on historic properties.

STIPULATIONS

FTA and SEPTA will ensure that the following measures are carried out:

I. Mitigation Measures

SEPTA shall prepare GIS mapping of the portion of the PNJ Interconnection; Conowingo to Plymouth Meeting Transmission Line (Key No. 156601) in Pennsylvania for submittal to PA SHPO and integration into PA SHPO's Cultural Resources Geographic Information System (CRGIS) and/or any successor GIS systems. Mapping shall be a boundary shape and cover the area of the resource between the Commonwealth of Pennsylvania border with Maryland and PECO's Plymouth Meeting Substation in Plymouth Meeting, Pennsylvania. The mapping shall be provided as ArcGIS shapefiles and shall be prepared and submitted in compliance with PA SHPO guidelines for GIS deliverables. This mapping will be an addendum to the resource as mapped in the previous Historic Resources Survey Form (HRSF) for the PNJ Interconnection; Conowingo to Plymouth Meeting Transmission Line (Key No. 156601).

The GIS mapping shall be a desktop task, using readily available online information. SEPTA's GIS analyst shall coordinate with an architectural historian during the GIS

mapping task to identify the boundary in areas where data is available, as well as to identify areas where the resource boundary is unclear and will require verification by means of additional study by others in the future. The architectural historian shall meet the *Secretary of the Interior's Professional Qualification Standards* (48 FR 44738-9). In addition, the GIS mapping effort shall identify notable features or losses of integrity to the extent that the available desktop data can provide, scaled to within a two-day work effort.

The GIS mapping shall be accompanied by a brief memorandum that identifies the methodology, assumptions, and data sources used. The notable features or losses of integrity identified during GIS mapping will be recorded in a table or as notes in the memorandum. To the extent that the GIS mapping effort identifies sources of information that may be useful to others in future research regarding the PNJ Interconnection; Conowingo to Plymouth Meeting Transmission Line, the memorandum shall cite those sources.

II. General Provisions

A. Undertaking Changes

If SEPTA proposes changes to the Undertaking that may result in additional or new effects on historic properties, SEPTA will notify FTA and the PA SHPO of such changes. Before SEPTA takes any action that may result in additional or new effects on historic properties, SEPTA, FTA, and PA SHPO will consult to determine the appropriate course of action.

B. In the event that another federal agency not initially a party to or subject to this MOA receives an application for funding/license/permit for the Undertaking as described in this MOA, that agency may fulfill its Section 106 responsibilities by stating in writing it concurs with the terms of this MOA and notifying FTA, SHPO, and SEPTA that it intends to do so. Such agreement shall be evidenced by filing their intent use this MOA to fulfill their Section 106 responsibilities with the ACHP, and implementation of the terms of this MOA.

III. Duration

FTA and SEPTA will implement the terms of this MOA, including Stipulation I, prior to demolition of any transmission towers related to construction of the Undertaking. SEPTA will notify the signatories to this MOA in writing of the start date of Undertaking construction in the portion of the PNJ Interconnection; Conowingo to Plymouth Meeting Transmission Line (Key No. 156601) that is within the Undertaking's limit of disturbance (also known as the PECO corridor), and the expected duration of construction in that location. SEPTA will again notify the signatories to this MOA in writing of the end date of construction in the PECO corridor. This MOA will expire if its terms are not carried out within ten (10) years from the date of its execution; prior to such time, FTA may consult with the other signatories to reconsider the terms of the MOA and amend it in accordance with Stipulation VII.

IV. Post-Review Discoveries

If any newly identified historic properties are discovered or unanticipated effects on known historic properties are identified during the implementation of this Undertaking, SEPTA shall immediately notify FTA. FTA will notify the PA SHPO of the discovery within 48 hours and consult with PA SHPO in accordance with 36 C.F.R. § 800.13(b)(3) to develop and implement actions to identify historic properties and resolve adverse effects.

V. Monitoring and Reporting

On or before September 30 of each year following the execution of this MOA until all stipulations are satisfied or the MOA is terminated, SEPTA shall provide all parties to this MOA a summary report detailing work undertaken pursuant to its terms. Such report shall include any scheduling changes proposed, any problems encountered, and any disputes and objections received in FTA and SEPTA's efforts to carry out the terms of this MOA.

VI. Dispute Resolution

Any Signatory or concurring party to this MOA may object at any time to any actions proposed or to the manner in which the terms of this MOA are implemented by providing written notice to FTA, and FTA shall consult with such party to resolve the objection. If FTA determines that such objection cannot be resolved, FTA will:

- A. Forward all documentation relevant to the dispute, including the FTA's proposed resolution, to the ACHP. The ACHP shall provide FTA with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, FTA shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, Signatories, and concurring parties, and provide them with a copy of this written response. FTA will then proceed according to its final decision.
- B. If the ACHP does not provide its advice regarding the dispute within the thirty (30) day time period, FTA may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, FTA shall prepare a written response that takes into account any timely comments regarding the dispute from the Signatories and concurring parties to the MOA, and provide them and the ACHP with a copy of such written response.
- C. FTA's responsibility to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remain unchanged.

VII. Amendments

This MOA may be amended when such an amendment is agreed to in writing by all Signatories. The amendment will be effective on the date a copy signed by all the Signatories is filed with the ACHP.

VIII. Termination

If any Signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other Signatories to attempt to develop an amendment per Stipulation VII, above. If within thirty (30) calendar days (or another time period agreed to by all Signatories) an amendment cannot be reached, any Signatory may terminate the MOA upon written notification to the other Signatories. Once the MOA is terminated, and prior to work continuing on the Undertaking, FTA must either (a) execute an MOA pursuant to 36 CFR § 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR § 800.7. FTA shall notify the Signatories as to the course of action it will pursue.

IX. Anti-Deficiency Act

FTA's obligations under this MOA are subject to the availability of appropriated funds, and the stipulations of this MOA are subject to the provisions of the Anti-Deficiency Act. FTA shall make reasonable and good faith efforts to secure the necessary funds to implement this MOA in its entirety. If compliance with the Anti-Deficiency Act alters or impairs FTA's ability to implement the stipulations of this agreement, FTA shall consult in accordance with the amendment and termination procedures found at Stipulations VII and VIII of this agreement.

EXECUTION of this MOA by FTA, SEPTA, and PA SHPO, and implementation of its terms are evidence that FTA and SEPTA have taken into account the effects of this Undertaking on historic properties and afforded the ACHP an opportunity to comment.

**MEMORANDUM OF AGREEMENT
AMONG
THE FEDERAL TRANSIT ADMINISTRATION,
THE PENNSYLVANIA STATE HISTORIC PRESERVATION OFFICER, AND
THE SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
REGARDING THE KING OF PRUSSIA RAIL EXTENSION PROJECT
UPPER MERION TOWNSHIP, MONTGOMERY COUNTY AND UPPER DARBY
TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA**

SIGNATORY


FEDERAL TRANSIT ADMINISTRATION (FTA)

Theresa "Tony" Garcia Crews Digitally signed by THERESA
GARCIA CREWS
By: _____ Date: 2020.11.25 12:14:43 -05'00' Date: _____
Theresa Garcia Crews, Regional Administrator
Federal Transit Administration, Region 3

**MEMORANDUM OF AGREEMENT
AMONG
THE FEDERAL TRANSIT ADMINISTRATION,
THE PENNSYLVANIA STATE HISTORIC PRESERVATION OFFICER, AND
THE SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
REGARDING THE KING OF PRUSSIA RAIL EXTENSION PROJECT
UPPER MERION TOWNSHIP, MONTGOMERY COUNTY AND UPPER DARBY
TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA**

SIGNATORY

PENNSYLVANIA STATE HISTORIC PRESERVATION OFFICE (PA SHPO)

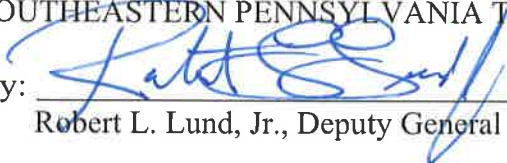
By:  Date: 11/23/2020
Andrea MacDonald, Director, State Historic Preservation Office, and
Deputy State Historic Preservation Officer

**MEMORANDUM OF AGREEMENT
AMONG
THE FEDERAL TRANSIT ADMINISTRATION,
THE PENNSYLVANIA STATE HISTORIC PRESERVATION OFFICER, AND
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REGARDING THE KING OF PRUSSIA RAIL EXTENSION PROJECT
UPPER MERION TOWNSHIP, MONTGOMERY COUNTY AND UPPER DARBY
TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA**

INVITED SIGNATORY

SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY (SEPTA)

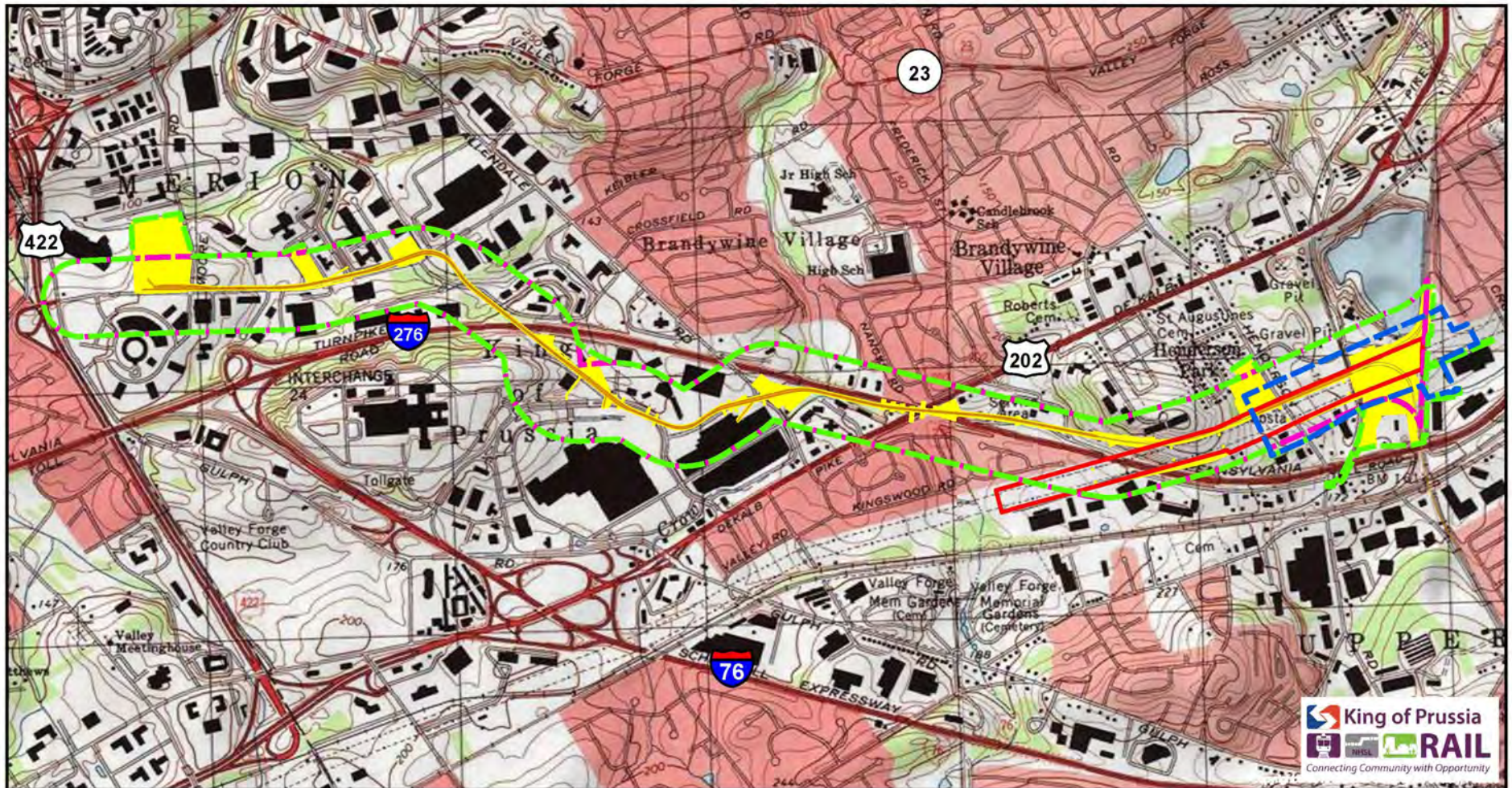
By:


Robert L. Lund, Jr., Deputy General Manager

Date:

11/24/2020

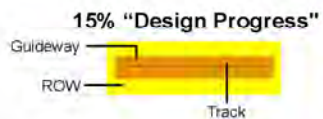
MOA Attachment A – Modified APE Map



Preferred Alternative:

Previous and Modified APEs for Historic Architecture

10/2/2020
Source: Upper Merion Twp, SEPTA, PASDA, DVRPC, AECOM



- Modified APE for Historic Architecture
- Previous APE for Historic Architecture

- PECO Visual APE
- PNJ Interconnection; Conowingo to Plymouth Meeting Transmission Line Resource Boundary



