

***DETERMINATION OF EFFECTS REPORT
AMTRAK ZOO TO PAOLI ELECTRIFICATION
TRANSMISSION LINE PROJECT***

CHESTER, DELAWARE, MONTGOMERY, AND
PHILADELPHIA COUNTIES, PENNSYLVANIA

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EXECUTIVE SUMMARY

This report presents the results of a Determination of Effects assessment undertaken for the proposed Amtrak Zoo to Paoli Electrification Transmission Line Project. The proposed modernization project includes the replacement of approximately 325 80- to 100-year-old catenary structures, transmission lines, signal power lines, and the 100-year-old Bryn Mawr Substation building at the Bryn Mawr switching station. The proposed work is located within the right-of-way (ROW) of a 20-mile section of Amtrak's Keystone Corridor, between the Philadelphia Zoo in Philadelphia and the substation at Paoli, and extends through portions of Philadelphia, Montgomery, Delaware, and Chester counties. The existing overhead catenary system of wires that extends between the structures will not be replaced and instead will be moved from the old catenary structures to the new catenary structures.

The proposed project is funded by the Federal Railroad Administration (FRA) and is subject to the National Historic Preservation Act, as amended (NHPA) (16 U.S.C. 470) and the review process mandated by Section 106 and outlined in 36 Code of Federal Regulations (CFR) Part 800, as amended. Stell Environmental (Stell) conducted the required cultural resources studies between 2011 and 2015 as a subconsultant to The Burns Group, on behalf of Amtrak and the FRA, utilizing guidance from the Advisory Council on Historic Preservation (ACHP) set forth in 36 CFR 800, as amended, and Executive Order 11593.

The project's Area of Potential Effects (APE) was defined in consultation with the Pennsylvania (PA) State Historic Preservation Office (SHPO) and Consulting Parties. It was delineated to include all known historic properties—within the railroad ROW, directly adjacent to it, and in the immediate vicinity of the ROW—for which there could be direct physical effects as a result of the construction work and indirect effects, primarily visual, as a result of the increased heights of the new catenary structures and the limited, but necessary, tree trimming that will be performed in certain areas at the edge of the ROW for the new catenary structure installation.

A total of 28 historic properties were included in the APE. As one of these historic properties, the subject railroad, known as the Pennsylvania Railroad Main Line (Philadelphia to Harrisburg) (Key No. 105675), was determined by the PA SHPO to be eligible for listing in the National Register of Historic Places (NRHP) on September 14, 1993, and November 16, 2007. The PA SHPO concurred with the identification of the 28 historic properties on March 16, 2015, and April 24, 2015.

The subsequent effects analysis resulted in a finding of Adverse Effect because of the direct physical effects of the project to the Pennsylvania Railroad Main Line (Philadelphia to Harrisburg) due to the removal and replacement of the catenary structures and the demolition of the Bryn Mawr Substation, both of which are Contributing Resources to the railroad historic district. An assessment of the project's indirect visual effects on each identified resource and

historic district in the APE resulted in the finding that none of the visual effects, including the introduction of the increased catenary structure heights and the limited tree trimming, will adversely affect the characteristics that qualify the resources for listing in the NRHP. The railroad infrastructure, including its catenary system, has historically been an integral and necessary component of the railroad and its overall physical setting. Furthermore, the nineteenth- and early twentieth-century siting and construction of the historic properties in the railroad's immediate vicinity were a direct result of the railroad's presence. The properties have historically had the railroad and all features of its accompanying infrastructure within their view. Thus, the presence of new catenary structures, including the height addition, will not present an adverse effect.

A Phase IA geomorphology and archaeology reconnaissance survey resulted in the finding that the project, as currently designed, will not impact any known NRHP-eligible archaeological properties, and there is low or no likelihood of encountering archaeological resources in the APE. The SHPO concurred with the findings for archaeological properties on January 15, 2013.

Coordination with the PA SHPO and Consulting Parties has occurred throughout the course of the project. Minimization and mitigation measures of the adverse effects of this project on historic properties have been identified in consultation with the Consulting Parties. FRA has included measures to minimize the adverse effects by keeping the height of the new catenary structures as low as possible while meeting requirements, locating new catenary structures within close proximity to the existing ones, and producing tree trimming plans to indicate locations where overhanging trees limbs within the ROW will be trimmed to enable catenary structure replacement.

Measures to mitigate the adverse effects of this project have been identified at the public involvement meetings and include recordation of historic resources before they are demolished, interpretive activities, and using context solutions in the project design. Other mitigation measures will be identified in further consultation with the PA SHPO and the Consulting Parties. The mitigation measures proposed for the project will be included in a Memorandum of Agreement (MOA) between FRA, PA SHPO, and Amtrak.

1.0 INTRODUCTION

Amtrak (National Railroad Passenger Corporation) proposes to upgrade the overhead electrification system along a portion of its Keystone Corridor between the Philadelphia Zoo and Paoli substations in Pennsylvania (Figures 1, 2, and 3). The 20-mile-long project area lies within a section of the corridor that stretches between Philadelphia and Harrisburg, historically known as the Pennsylvania Railroad Main Line (Philadelphia to Harrisburg) (Key No. 105675), a linear historic district that was determined eligible for listing in the National Register of Historic Places (NRHP) by the Pennsylvania State Historic Preservation Office (PA SHPO) on September 14, 1995, and again on November 16, 2007. The historic district is eligible under Criterion A in the areas of transportation and economics and Criterion C for engineering. The eligible historic district includes a number of Contributing Resources, those major built elements that were constructed during the railroad's period of significance of 1832 to 1957, and that combine with the railroad to convey the resource's significance. Two of the Contributing Resources affected by the project are the catenary structures and the Bryn Mawr Substation, both of which will be removed and replaced. A thorough description of the proposed work is described below in Section 2.0 Description of Undertaking.

The Area of Potential Effects (APE) was developed through close coordination with the PA SHPO and Consulting Parties, a list of which is included in Appendix A. After development and finalization of the APE, Stell conducted identification and eligibility studies between 2012 and 2014 and found that there are 28 historic properties—those that are NRHP-eligible or NRHP-listed—in the project's APE (see Figure 4). On March 16, 2015, and April 24, 2015, the PA SHPO concurred with eligibility determinations provided by the Federal Railroad Administration (FRA) (see Appendix B).

Following PA SHPO concurrence, Stell conducted an effects assessment to determine the direct and indirect effects of the proposed undertaking on all of the historic properties in the APE. The Definition of Effect and the Criteria of Adverse Effect were applied to each NRHP-eligible or NRHP-listed resource, and it was found that the proposed project will have an Adverse Effect on one of the historic properties, the Pennsylvania Railroad Main Line (Philadelphia to Harrisburg) (Key No. 105675). The project will have direct, physical effects on the railroad resource because two of the railroad's Contributing Resources, the catenary structures and the Bryn Mawr Substation building, will be removed and replaced. An analysis of the indirect effects of the project, those that encompass visual, audible, and other types of effects, found that the project will not adversely affect the properties in the APE.

This document presents descriptions of the undertaking, the project's stated purpose and need, the alternatives considered, a description of agency coordination, identification of historic properties, the results of the analysis of the effects of the preferred alternative on the historic

properties, a summary of public coordination efforts for the project, and proposed mitigation and minimization measures. The cultural resources work for this project was conducted between 2011 and 2014 in conjunction with The Burns Group for Amtrak and the FRA.

The project was completed in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, and *Procedures for the Protection of Historic and Cultural Properties* set forth in 36 Code of Federal Regulations (CFR) 800, as amended. Additional legislation and guidance used included:

- *Procedures for the Protection of Historic and Cultural Properties* set forth in 36 CFR 800, as amended;
- “Working with Section 106” Guidance published by the Advisory Council on Historic Preservation (ACHP) on <https://achp.org>;
- Federal-Aid Highway Act of 1966, as amended in 1968;
- Executive Order 11593, Protection and Enhancement of the Cultural Environment; and
- 42 U.S.C. § 4331(b) (4) and 4332, the National Environmental Policy Act of 1969.

2.0 DESCRIPTION OF UNDERTAKING

The proposed Amtrak Zoo to Paoli Electrification Transmission Line Project is approximately 20 miles long and extends northwest from the Zoo Substation, in Philadelphia, through several municipalities within Montgomery, Delaware, and Chester counties, before terminating at the Paoli Substation in Chester County. The project area follows Amtrak's Keystone Corridor, which consists of the original Pennsylvania Railroad Main Line (Philadelphia to Harrisburg) (Key No. 105675), determined eligible for listing in the NRHP by the PA SHPO on September 14, 1995, and again on November 16, 2007. Both Amtrak and the Southeastern Pennsylvania Transportation Authority (SEPTA) use the corridor for its rail service.

The railroad along the Keystone Corridor has an electrification system consisting of catenary structures that support an overhead contact system. The overhead contact system supplies electric traction power to the locomotives used by both Amtrak and SEPTA. The catenary structures themselves consist of a pair of vertical poles on the field side of the outermost track that are joined together by wire head-spans. The poles are made up of circular steel tubes that are welded together, with large diameter tubes at the bottom and progressively smaller-diameter tubes rising up the pole. The diameter of the tube changes abruptly at the welded joints, and the poles are sometimes referred to as "stepped" tubes. The existing catenary structures are approaching 80-100 years in age and are beyond their useful life. Most, if not all, are showing signs of significant deterioration and require extensive emergency repairs when they fail, which is occurring more frequently.

Amtrak plans to upgrade the existing electrification system along the Keystone Corridor's Pennsylvania Railroad Main Line (Philadelphia to Harrisburg), between the Zoo and Paoli substations. The proposed electrification improvement work will occur within the Amtrak right-of-way (ROW), with only the catenary structures and head-spans replaced. The overhead contact system is in reasonable condition and will not be replaced. After the installation of new catenary structures, the overhead contact system will be detached from the old structures and reattached to the new ones. The old catenary structures will then be removed. The replacement of the old catenary structures will begin at approximately 51st Street and will extend to the Paoli Substation, for a total of approximately 16 miles out of the overall 20-mile-long project. A total of 325 catenary structures will be replaced with new structures along the project. Between the Zoo Substation and 51st Street, no catenary structures will be replaced; however, the signal cable will be replaced in this area.

It should be noted that 12 old signal bridges along the ROW (which are also holding up the contact system) will remain, and one lattice catenary structure at Overbrook Station will remain. Other structures in the ROW that will remain are structures that Amtrak has replaced within the last 25 years and include approximately 10 portals and a new K-frame structure.

To complete some of the catenary structure replacement it will be necessary to perform tree limb trimming in the areas where tree limbs overhang the ROW and interfere with construction work. Tree limb trimming will be limited and is to be performed according to tree trimming plans prepared by The Burns Group.

All work in the ROW will be performed in areas of previous construction activity and ground disturbance. The project work will involve:

- Construction of new 138kV transmission lines within Amtrak ROW to replace aging and inaccessible transmission lines that are not on Amtrak ROW. The power feed to the former transmission lines will be deactivated, but the infrastructure will not be physically altered.
- 1-for-1 replacement of deteriorated catenary structures within Amtrak ROW, which will henceforth carry both the contact system (catenary lines) and the transmission lines. The new structures will be taller to accommodate the added traction power transmission lines.
- Construction of an additional gantry at Paoli substation.
- Demolition of the obsolete switching station at Bryn Mawr (also known as the Bryn Mawr Substation) and the construction of a new traction power substation in the same location but on a slightly larger footprint.

Much of the subject portion of the railroad corridor, as well as many of the surrounding communities in the Main Line region, already have been subjected to historic documentation, with numerous architectural resource surveys conducted and various levels of recordation completed. In addition to the eligible Pennsylvania Railroad Main Line (Philadelphia to Harrisburg) railroad corridor, there are various previously recorded NRHP-eligible or -listed historic resources that are either within the railroad ROW or are adjacent to it. Some of the historic resources are individual resources while others are historic districts. The historic districts are either NRHP-listed districts or locally designated historic districts. Typical communities along the Keystone Corridor with documented historic resources and historic districts include Tredyffrin, Wayne, Ardmore, and Overbrook, to name a few.

The section of the Pennsylvania Railroad Main Line (Philadelphia to Harrisburg), beginning in central Philadelphia and ending approximately at milepost 20.5 in Paoli, Pennsylvania, constituted the Pennsylvania Railroad's (PRR's) initial step towards electrifying its Philadelphia suburban passenger service. By 1913, the PRR realized the economic potential of the electric locomotive and moved towards a conversion to electric motive power using high voltage, single-phase alternating current that could be transmitted over long distances economically and with little to no line loss.

The 20-mile stretch of electrification was completed in 1915 and consisted of a 44,000-volt transmission, 11,000-volt traction power, and 3,300-volt underground signal power feeder system. The electric power was generated by the Philadelphia Electric Company and fed to the line through four railroad substations where the 44,000-volt transmission was stepped down to 11,000-volt traction power. The 132,000-volt transmission network was constructed for the remaining electrification in 1938, providing the redundancy necessary to eventually remove the original 44,000-volt transmission system. Sections of the original single-phase transmission between Bryn Mawr and Paoli have been leased to the local utility and converted to three-phase transmission.

2.1 PROJECT PURPOSE AND NEED

The purpose of the project is to upgrade Amtrak's existing electrification system between the Zoo Substation and Paoli. The 80- to 100-year old catenary structures, which are in almost daily need of repair, will be replaced with new structures. The project will also bring Amtrak's 138kV transmission line for the system back onto the line that it serves. The transmission system presently serving the railroad section takes a circuitous route leading away from the railroad and onto another nearby railroad ROW that Amtrak can only access in a limited fashion for maintenance and repairs.

The section between Zoo and Paoli is the only portion of the Keystone Corridor that has not had a traction power upgrade. Amtrak typically spaces traction power substations every 10 miles. The section between Zoo and Paoli is 20 miles. A consequence of the existing 20-mile spacing is that today's trains operated by Amtrak and SEPTA experience low-voltage conditions during periods of higher train density. Amtrak desires to build a traction power substation at Bryn Mawr, the mid-point between Zoo and Paoli, to provide additional power and mitigate the low-voltage condition. The building used at Bryn Mawr for the existing transmission system is nearing the end of its useful life, and replacing it with a traction power substation will address low-voltage conditions experienced by Amtrak and SEPTA trains in the middle of the 20-mile stretch between the substations. In summary, the project is needed to bring Amtrak's line into a state of good repair and to help Amtrak meet its mandate for cost-effective maintenance of its system.

2.2 ALTERNATIVES CONSIDERED

Five alternatives were considered for this project, four of which were eliminated because they did not meet the project Purpose and Need. Alternative 1, an alternative that will result in the continuation and improvement of electric passenger train service for both Amtrak and SEPTA, has been selected as the Preferred Alternative. As the most viable alternative, it proposes improvements to the electrification system within the existing Amtrak ROW between the Zoo

Substation and the Paoli Substation. It satisfies the Project Purpose and Need and results in the least harm to the environment. The alternatives considered are listed and described below.

2.2.1 ALTERNATIVE 1-PREFERRED ALTERNATIVE

Alternative 1 involves replacing 325 existing catenary structures with new ones between 51st Street in Philadelphia and Paoli, and incorporating the new transmission line into the catenary structure replacement. This alternative includes construction of a traction power substation at Bryn Mawr, the mid-point between Zoo and Paoli, to provide additional power and mitigate the low-voltage condition. The construction of the new traction power substation will require the demolition of the Bryn Mawr Substation building, now used as the Bryn Mawr Switching Station, and which has reached functional obsolescence. In this alternative, the new catenary structures will be tall enough to accommodate the new transmission line Amtrak deems is necessary to upgrade the system's electrification. The increased height of the structures also will accommodate the distances between transmission and catenary lines that are required by the National Electric Safety Code. In this alternative, none of the extant train stations or other major built elements of the railroad corridor will be demolished or otherwise physically affected, other than the Bryn Mawr Substation and the catenary structures. This alternative satisfies the Project Purpose and Need and results in the least harm to the environment. Therefore, it was selected as the Preferred Alternative.

2.2.2 ALTERNATIVE 2

Alternative 2 involves keeping Alternative 1, but not demolishing the existing Bryn Mawr switching station building. A new traction power substation would be built elsewhere in Bryn Mawr. Because Bryn Mawr is densely populated and developed, with little land available for acquisition, finding several acres of available land in the vicinity of Bryn Mawr adjacent to the Main Line and utilizing it for a traction power substation would be very difficult, if not impossible. The area is densely developed, with either commercial or residential land use, and acquiring land for the substation construction would result in costly legal fees, possible public opposition, and displacement. Amtrak does own the land used for a parking lot adjacent to the current Bryn Mawr Switching Station; however, using this land for a new station would result in the decrease of many commuter parking spaces that are necessary to retain. Amtrak already owns the land at the location of the existing substation. Because of the problems with land acquisition that this alternative would present, Alternative 2 is not viable and does not meet the Project Purpose and Need; therefore, it was eliminated.

2.2.3 ALTERNATIVE 3

Alternative 3 involves replacing the existing catenary structures with new ones on the Keystone Corridor, installing new transmission lines only on the ROW that feeds into the Keystone Corridor and currently carries the transmission lines for it. Compared to Alternative 1, this

alternative would be approximately 60% more costly to complete, because the route is approximately 60% longer. Additionally, the problem of accessibility to the structures on the transmission line feeder for inspection and maintenance would not be resolved. Because this alternative does not meet the Project Purpose and Need, it was eliminated.

2.2.4 ALTERNATIVE 4

Alternative 4 involves removing obsolete catenary structures and all catenary wires and transmission lines and returning the railroad system to one that supports a diesel line. This alternative would result in a functionally obsolete system and would not result in the improvement of electric passenger train service for both SEPTA and Amtrak. It would also be inconsistent with other segments of the line, which rely on electrical power and have recently undergone traction power upgrades. The alternative does not meet the Project Purpose and Need and was eliminated.

2.2.5 ALTERNATIVE 5

Alternative 5 is a no-build alternative where all catenary structures, catenary wires, transmission lines, and the Bryn Mawr Switching Station building are left standing, with no equipment upgrades completed. This alternative risks a possible breakdown of the system. Retaining the obsolete Bryn Mawr Substation will lead to slower, less reliable operation of the Keystone Corridor for both Amtrak and SEPTA, both currently and in future years when train traffic is projected to increase. Additionally, the traction power system is currently operating at its capacity because of densities on the line and the large distance between substations. Because this alternative does not meet the Project Purpose and Need of causing improvements to Amtrak's electrification system, it was eliminated.

2.3 AREA OF POTENTIAL EFFECTS (APE)

2.3.1 DEVELOPMENT OF APE

The APE includes those areas at which an undertaking may alter the character or use of historic properties, if any such properties exist (36 CFR 800.16[d]) and includes resources that are affected either directly or indirectly by proposed project activities (ACHP 2014).

The APE for the proposed project was developed in coordination with the PA SHPO and Consulting Parties. The Consulting Parties are composed of members of the citizenry, of government agencies, or others that identified themselves early in the planning process as having an interest in the outcome of the project. The APE incorporates the areas that could potentially experience direct and indirect effects from the proposed action (see Figure 4). The following resources were identified within the APE:

- All previously recorded NRHP-eligible and NRHP-listed individual historic properties and contributing resources within the Pennsylvania Railroad Main Line (Philadelphia to Harrisburg) (Key No. 105675) historic district;
- All NRHP-eligible and NRHP-listed individual historic properties and historic districts that are adjacent to the ROW; and
- All NRHP-eligible and NRHP-listed individual historic properties and historic districts within the immediate vicinity of the ROW (within a distance of approximately 150 feet or less).

A description of the methodology and decision-making process to delineate the APE is found in the August 2014 report under separate cover entitled *Area of Potential Effects (APE) Study* (Ross 2014).

The APE for this proposed project is defined as follows:

The APE begins at the eastern terminus of the project at the Zoo Substation and continues along the lines of the ROW to the western limit of the project at the Paoli Substation. Its northern and southern boundaries are generally the limits of the railroad ROW. At certain locations along the ROW, the APE expands outward at least 150 feet to include specific areas where historic resources—both individual historic resources and local and NRHP historic districts—are adjacent to the ROW, such as at the Zoo Substation, at each railroad station, and at locations where a historic district is adjacent to the ROW. After including a portion of the historic resource, the boundary returns to the ROW boundary line.

2.4 AGENCY COORDINATION

The consultation process with the PA SHPO occurred throughout the APE development and the historic property identification. Coordination with Federally recognized Native American tribes occurred as well (see copies of correspondence in Appendix B).

2.5 STATUS OF ARCHAEOLOGY

In 2012, Stell completed a Phase IA geomorphology and archaeology reconnaissance survey for the project, the results of which are presented in *Phase 1A Geomorphology / Archaeology Reconnaissance Report*, dated December 2012 (Baker et al. 2012). The survey included intensive background research and a field survey of the entire project APE for archaeology to determine the probabilities for the presence of intact, significant historic and precontact archaeological resources that might be adversely impacted by the project construction. One previously recorded historic archaeological site noted as adjacent to the existing project right-of-way was field checked and determined to be located entirely outside the current project APE. No other areas suitable for subsurface testing were found within the project APE for

archaeology. Therefore, the project, as currently designed, will not impact any known NRHP-eligible archaeological properties. The PA SHPO concurred with this finding in a letter dated January 15, 2013 (McLearen 2013).

DRAFT

3.0 IDENTIFIED HISTORIC PROPERTIES

3.1 DESCRIPTION OF HISTORIC PROPERTIES

Historic properties within the APE are those that are determined eligible for listing or are listed in the NRHP. Identification efforts resulted in the finding that there are 28 NRHP-eligible and NRHP-listed historic resources, including contributing resources, in the APE. A list of the identified resources is presented in Table 3-1 below, and descriptions of each resource follow. Figure 4, Sheets 1-16 depict the resources and their locations within the APE. The identification efforts are described more fully in a report under separate cover, *Historic Resources Study/Eligibility Report*, dated February 2015 (Ross 2015). The PA SHPO concurred with the report findings on March 16, 2015 (McDonald 2015a) and April 24, 2015 (McDonald 2015b).

Table 3-1: Identified Historic Properties in APE Assessed for Effects.

No.	Name of Resource and Key No.	Location (Municipality and County)	NRHP Status	NRHP Criterion & Area(s) of Significance	Result of Effects Assessment
1	Fairmount Park Historic District (Key No. 001364)	City of Philadelphia, Philadelphia County.	Listed	Criterion C - Architecture, Community Planning, Conservation, Landscape Architecture, & Art	No Historic Properties Affected
2	40th Street Bridge over Amtrak (BMS 67730102400122) (Key No.137498)	City of Philadelphia, Philadelphia County	Eligible	Criterion A - Transportation Criterion C – Engineering	No Historic Properties Affected
3	42nd Street Bridge over Amtrak (BMS 67730102700125) (Key No. 102489)	City of Philadelphia, Philadelphia County	Eligible	Criterion A - Transportation Criterion C - Engineering	No Historic Properties Affected
4	Parkside Historic District (Key No. 064342)	City of Philadelphia, Philadelphia County	Listed	Criterion C - Architecture & Community Planning	No Historic Properties Affected
5	Belmont Avenue Historic District (Key No. 097543)	City of Philadelphia, Philadelphia County	Eligible	Criterion C - Architecture	No Historic Properties Affected
6	Overbrook Farms Historic District (incl. Overbrook Station) (Key No. 082616)	City of Philadelphia, Philadelphia County	Listed	Criterion C - Architecture & Community Planning	No Adverse Effect

No.	Name of Resource and Key No.	Location (Municipality and County)	NRHP Status	NRHP Criterion & Area(s) of Significance	Result of Effects Assessment
7	SR 1 Bridge over Amtrak (BMS 67000100301217) (Key No. 137615)	City of Philadelphia and Lower Merion Township, Philadelphia and Montgomery Counties	Eligible	Criterion A - Transportation Criterion C - Engineering	No Historic Properties Affected
8	Merion Station (Key No. 097341)	Lower Merion Township, Montgomery County	Eligible	Criterion A - Transportation Criterion C - Architecture	No Adverse Effect
9	Wynnewood Station (Key No. 097340)	Lower Merion Township	Eligible	Criterion A - Transportation Criterion C - Architecture	No Historic Properties Affected
10	Ardmore Commercial Historic District (Key No. 097509)	Lower Merion Township	Eligible	Criterion C - Architecture	No Historic Properties Affected
11	Haverford Station (Key No. 079593)	Lower Merion Township	Eligible	Criterion A - Transportation Criterion C - Architecture	No Adverse Effect
12	Our Mother of Good Counsel Roman Catholic Church (Key No. 097325)	Lower Merion Township	Eligible	Criterion C - Architecture	No Adverse Effect
13	Villanova University Campus (Key No. 105136)	Radnor Township, Delaware County	Eligible	Criterion A - Education & Criterion C - Architecture	No Adverse Effect
14	Villanova Station (Key No. 827801)	Radnor Township, Delaware County	Eligible	Criterion A - Transportation & Education	No Adverse Effect
15	Radnor Station (Key No. 101246)	Radnor Township, Delaware County	Eligible	Criterion A - Transportation Criterion C - Architecture	No Adverse Effect
16	Louella Court Historic District (Key No. 128860)	Radnor Township, Delaware County	Eligible	Criterion C - Architecture & Community Planning	No Historic Properties Affected
17	Wayne Station (Key No. 106136)	Radnor Township, Delaware County	Listed	Criterion A - Transportation Criterion C - Architecture	No Adverse Effect

No.	Name of Resource and Key No.	Location (Municipality and County)	NRHP Status	NRHP Criterion & Area(s) of Significance	Result of Effects Assessment
18	North Wayne Historic District (Key No. 064497)	Radnor Township, Delaware County	Listed	Criterion C - Architecture & Community Planning	No Historic Properties Affected
19	Downtown Wayne Historic District (Key No. 827766)	Radnor Township, Delaware County	Listed	Criterion C - Architecture	No Historic Properties Affected
20	Strafford Station (Key No. 079668)	Tredyffrin Township, Chester County	Listed	Criterion A - Transportation Criterion C - Architecture	No Adverse Effect
21	Cramond (Key No. 050893)	Tredyffrin Township, Chester County	Listed	Criterion C - Architecture	No Historic Properties Affected
22	Grove Avenue Service Station (Key No. 112814)	Tredyffrin Township, Chester County	Eligible	Criterion A - Transportation Criterion C - Architecture	No Historic Properties Affected
23	Pennsylvania Railroad (Philadelphia to Morrisville/New York) (Key No. 125733)	City of Philadelphia, Philadelphia County	Eligible	Criterion A - Transportation & Economics; Criterion C - Engineering	No Historic Properties Affected
24	Pennsylvania Railroad Main Line (Philadelphia to Harrisburg) (Key No. 105675)	City of Philadelphia, Narberth Borough, and Easttown, Haverford, Lower Merion, Radnor, and Tredyffrin Townships, Philadelphia, Montgomery, Delaware, and Chester Counties.	Eligible	Criterion A - Transportation & Economics; Criterion C - Engineering	Adverse Effect
25	Philadelphia & Western Railroad (Norristown High Speed Line) (Key No. 128825)	Radnor Township, Delaware County	Eligible	Criterion A - Transportation	No Adverse Effect

No.	Name of Resource and Key No.	Location (Municipality and County)	NRHP Status	NRHP Criterion & Area(s) of Significance	Result of Effects Assessment
26	William Penn Mile Markers (only Ardmore marker out of 12 total is within the APE) (Key No. 101320)	Lower Merion Township, Montgomery County	Eligible	Criterion A - Transportation	No Historic Properties Affected
27	Clonmel-Rosslevyn (Key No. 065460)	Tredyffrin Township, Chester County	Eligible	Criterion C – Architecture	No Historic Properties Affected
28	Devereux Foundation (Key No. 201351)	Easttown Township, Chester County	Eligible	Criterion A – Education Criterion B – Association with Helen Trafford Devereux	No Historic Properties Affected

3.1.1 RESOURCE 1: FAIRMOUNT PARK HISTORIC DISTRICT (KEY NO. 001364)

The Fairmount Park Historic District, in the City of Philadelphia, Philadelphia County, was listed in the NRHP on February 7, 1972 (CRGIS 2015). The park is significant under Criterion C, specifically in the areas of architecture, community planning, conservation, landscape architecture, and art (including sculpture). This resource has also been recorded to HABS documentation standards (HABS NO. PA-6183). Acquisitions for Philadelphia’s Fairmount Park began in the 1860s, and over 4,000 acres were subsequently added incrementally over the next half-century. The park is vast in size. No specific boundary description is included in the 1972 nomination form, but the park is described in the form as thus: “Extends along both East and West banks of Schuylkill River and Wissahickon Creek, from Art Museum at Spring Garden Street to Northwestern Avenue (Tatum 1972).” The district’s southern boundary abuts the edge of Amtrak’s Zoo substation property; thus, the Fairmount Park Historic District is included in the APE (Figure 4, Sheet 1 of 16). The NRHP registration form states that the park is significant because it “remains unequalled among American municipal parks for its combination of unusual size, natural beauty, historical importance, and the interest and merit of the buildings and sculpture it contains.” The park is considered to be the earliest municipal park in America, and its buildings are characterized by a wide range of architectural styles, including Federal, Georgian, Classical Revival, and others. In addition to the architectural aspects of the historic

buildings within its boundary, the Fairmount Park Historic District is characterized by its natural and landscaped features, including the zoo and the gardens.

3.1.2 RESOURCE 2: THE 40TH STREET BRIDGE OVER AMTRAK (BMS 67730102400122; KEY NO. 137498)

The 40th Street Bridge over Amtrak, in the City of Philadelphia, Philadelphia County, was determined eligible for NRHP listing on March 5, 2007 (CRGIS 2015). The bridge is significant under Criterion A in the area of transportation and under Criterion C in the area of engineering. Built by the City of Philadelphia Department of Public Works, the steel, three-span bridge was built in 1924 and carries 40th Street over the Pennsylvania Railroad Main Line. It is within the APE because of its location within the railroad ROW (see Figure 4, Sheet 1 of 16). The bridge is characterized by its encased girders forming the bridge parapets, the encased floor beams (which support the stringers), and a concrete jack arch deck. The bridge is supported on concrete abutments and shaped concrete piers, which, according to the 1998 A. G. Lichtenstein survey, are characteristic of the Pennsylvania Railroad overpasses of this period in Philadelphia. The Lichtenstein bridge survey also noted that although the bridge “is common period technology finished in a style typical of the city's work and is not technologically significant,” it is “historically significant in association with the Harrisburg-Philadelphia division of the Pennsylvania Railroad’s Main Line, one of the most important and heavily engineered railroad rights-of-way in the state” (A.G. Lichtenstein & Associates 1998). The 40th Street Bridge was undergoing rehabilitation at the time of the field view and was not open for traffic.

3.1.3 RESOURCE 3: 42ND STREET BRIDGE OVER AMTRAK (BMS 67730102700125; KEY NO. 102489)

The 42nd Street Bridge over Amtrak, in the City of Philadelphia, Philadelphia County, was determined eligible for NRHP listing on March 5, 2007 (CRGIS 2015). The bridge is significant under Criterion A in the area of transportation and under Criterion C for engineering. This 1910 single-span steel bridge was designed by the City of Philadelphia Department of Public Works and carries 42nd Street over the Pennsylvania Railroad Main Line. As per the 1998 A.G. Lichtenstein survey, the bridge is characterized by its “hingeless steel thru arch with a concrete jack arch deck,” and its solid rib, built-up arches (A.G. Lichtenstein & Associates 1998). The bridge is considered technologically significant as the earliest steel thru-arch bridge in Pennsylvania. In addition, it is also considered historically significant for its association with the Pennsylvania Railroad Main Line. The bridge was rehabilitated circa 2006. The decorative arched design on the lower section of the bridge adds to the overall character-defining aspects of the structure (A.G. Lichtenstein & Associates 1998; Historicbridges.org website 2013). The bridge is included in the APE because it lies within the railroad ROW (see Figure 4, Sheet 2 of 16).

3.1.4 RESOURCE 4: PARKSIDE HISTORIC DISTRICT (KEY NO. 064342)

The Parkside Historic District, in the City of Philadelphia, Philadelphia County, was listed in the NRHP on November 17, 1983 (Hawkins 2006). It is significant under Criterion C in the areas of architecture and community planning, and its Period of Significance is 1890-1900. As noted in the statement of significance, the Parkside district is an “isolated community, framed by the Centennial ... and by the rail yards and the Park...whose German ethnic developers expressed their aesthetic tastes ... in a group of elaborately decorated row blocks, and handsome apartment houses” (Thomas 1983). Many of the residences and apartments in this district were designed by accomplished architects, and the buildings are characterized by their Germanic architectural styling. The streetscapes remain largely intact to this day. The boundary description of the 97-acre property can be described as thus: “East side of Belmont, from Parkside Avenue to Girard Avenue, north property line of railroad right-of-way to 38th Street, west side of 38th Street to Girard Avenue, then south side of Girard to the intersection of Parkside Avenue, then south side of Parkside Avenue to Belmont Avenue” (Thomas 1983). Because the historic district’s southwest boundary abuts the northeast edge of the ROW, the historic district has been included in the APE (See Figure 4, Sheet 2 of 16).

3.1.5 RESOURCE 5: BELMONT AVENUE HISTORIC DISTRICT (KEY NO. 097543)

The Belmont Avenue Historic District, in the City of Philadelphia, Philadelphia County, was determined eligible for listing in the NRHP on August 29, 1990 (CRGIS 2015). The district is significant under Criterion C in the area of architecture. The northern boundary of this late nineteenth-century residential district begins on the southern side of the PRR ROW and continues southward for six blocks along both sides of Belmont Avenue. It is intersected by West Girard Avenue, Mantua Avenue, Wyalusing Avenue, Otter Street, Merion Avenue, Pennsgrove Street, and Westminster Avenue, and then terminates at Lancaster Avenue at its southern boundary. The northern boundary of the historic district is one block south of the railroad ROW; thus, it has been included in the APE (see Figure 4, Sheet 2 of 16). This district is characterized by its three-story rowhouses, which are primarily of brick construction and one-story front porches. However, a few of the buildings toward the north end of the district have just two stories. Near the railroad tracks at the northern end of the district are several modern structures, including a 10-story commercial building at the intersection of Belmont and Mantua Avenues.

3.1.6 RESOURCE 6: OVERBROOK FARMS HISTORIC DISTRICT (KEY NO. 082616; INCLUDES OVERBROOK STATION)

The Overbrook Farms Historic District, in the City of Philadelphia, Philadelphia County, was listed in the NRHP on March 21, 1985 (CRGIS 2015). Developed by Drexel and Company, the

district is significant under Criterion C in the areas of architecture and community planning, and its Period of Significance is 1893 to 1934. It is significant for its role as an example of late 19th- and early 20th- century suburban development and for its “varied and commodious architectural styling in a pastoral setting” (Willoughby et al. 1985). This 168-acre district contains many houses designed by notable Philadelphia-area architects, such as the Boyd brothers, Horace Trumbauer, and William L. Price, and it contains approximately 413 contributing and 36 non-contributing buildings. It is generally bound by City Avenue to the northwest, 59th Street on the northeast, Woodbine Avenue to the southeast, and 66th to the southwest. The district is characterized by a variety of architectural styles, including Italianate, Colonial Revival, Tudor Revival, Gothic Revival, Arts and Crafts, and Queen Anne. Because the railroad ROW travels through it, the historic district is included in the APE (see Figure 4, Sheets 3 of 16 and 4 of 16).

The Overbrook Farms Historic District straddles the railroad corridor, with many of the contributing buildings on both sides of the railroad. With the exception of several commercial buildings in the district along 63rd Street that face the railroad corridor, most of the buildings in the district face away from the tracks. The district is primarily a residential neighborhood with single-family residences; however, there are also three historic churches within the district. The Overbrook Station (Key No. 105675), at 6200 City Line Avenue, is a Contributing Resource to the Overbrook Farms Historic District.

3.1.7 RESOURCE 7: SR 1 BRIDGE OVER AMTRAK (BMS 67000100301217; KEY NO. 137615)

The SR 1 Bridge over Amtrak, located on the Montgomery and Philadelphia County line, was determined eligible for NRHP listing on March 5, 2007 (CRGIS 2015). The bridge is significant under Criterion A in the area of transportation, and under Criterion C for engineering. The bridge is located just beyond the northern boundary of the Overbrook Farms Historic District. The SR 1 Bridge over Amtrak (also known as City Avenue Bridge) carries City Avenue over the railroad corridor. It was built by the Philadelphia Department of Public Works. According to the 1998 A.G. Lichtenstein & Associates bridge survey, this ca. 1935 bridge was considered to be “technologically significant as a rare example of pre-World War II steel rigid frame bridge,” and is significant for its association with the historic Pennsylvania RR (A.G. Lichtenstein & Associates 1998). The bridge is characterized by vivid Art Deco detailing in the concrete, including fluted and stepped parapets and sunset-like motifs along the balustrade. Because it is in the railroad ROW, the bridge is included in the APE (see Figure 4, Sheet 4 of 16).

3.1.8 RESOURCE 8: MERION STATION (KEY NO. 097341)

Merion Station, in Lower Merion Township, Montgomery County, is located in the area known as Merion. It is a brick and stucco structure constructed in 1917 and 1918 and was determined eligible for NRHP listing on November 8, 1991 (Deibler 1991). The station is significant under

Criterion A in the area of transportation, for its association with the Pennsylvania Railroad Main Line and under Criterion C in the area of architecture, for its reflection of the Craftsman style. Its Period of Significance is 1900-1924. The original survey form did not indicate boundaries for the historic property. This station comprises a complex of buildings and passenger shelters located on both sides of the railroad tracks. The east (outbound) side is a waiting room/shelter/post office and a storage building, and on the west (inbound) side is the main ticket office and another shelter. The extant complex replaced several earlier structures that were on this site, with the original station constructed in 1864. The new buildings, constructed in 1917 and 1918, have been rehabilitated, and the main station building is also used as a post office. Buildings in the station complex are generally characterized by steeply-pitched gable roofs, some with clipped gable ends and exposed rafter tails. The station is located within the railroad ROW and is included in the APE (see Figure 4, Sheet 4 of 16).

3.1.9 RESOURCE 9: WYNNEWOOD STATION (KEY NO. 097340)

Wynnewood Station, in Lower Merion Township, Montgomery County, was constructed in 1870 and was determined eligible for NRHP listing on November 8, 1991 (Deibler 1991). The station is significant under Criterion A in the area of transportation and under Criterion C in the area of architecture. Its Period of Significance is 1875-1899. The original survey form did not indicate boundaries for the historic property. Located in Wynnewood (see Figure 4, Sheet 5 of 16), the Victorian-era station was designed by the Wilson Brothers & Company architectural firm of Philadelphia and exhibits Stick-style characteristics, such as the decorative wood trusses in the gable ends and the diagonal support braces beneath the eaves. The one-story, stone-faced building has a steeply pitched roof and overhanging eaves with exposed rafter tails. A gabled dormer is centered on the south elevation facing the railroad tracks, and a brick chimney rises from the west gable end. It has been documented to Historic American Buildings Survey (HABS) standards (Historic American Buildings Survey (HABS PA-6144). Today, this station building is in good condition, and it continues to retain its historic integrity. Located within the railroad ROW, the station is included in the APE (see Figure 4, Sheet 5 of 16).

3.1.10 RESOURCE 10: ARDMORE COMMERCIAL HISTORIC DISTRICT (KEY NO. 097509)

The Ardmore Commercial Historic District, in Lower Merion Township, Montgomery County, was determined eligible for NRHP listing on October 18, 1991 (CRGIS 2015). The district is significant under Criterion C in the area of architecture. Most of the commercial buildings in the district are oriented to the south-southwest, in the opposite direction from the railroad. The proposed district contains a broad array of commercial structures, typically characterized by semi-detached properties, usually two to three stories high. Principal styles include Art Deco, Gothic Colonial Revival, Mission/Spanish Colonial Revival, and Beaux Arts (CRGIS 2015). Characteristic of downtown commercial centers, the storefronts face the district's main

street/thoroughfare (Route 30). Ardmore's former Victorian-era train station (constructed circa 1873) is no longer standing. The PRR ROW is located to the northeast of the historic district and is outside of the district. Because of the proximity of the district's northeastern half to the ROW's southwestern edge, the district has been included within the APE (see Figure 4, Sheet 6 of 16).

3.1.11 RESOURCE 11: HAVERFORD STATION (KEY NO. 079593)

Haverford Station, in Lower Merion Township, Montgomery County, was determined eligible for NRHP listing on January 25, 1982 (CRGIS 2015). The station is significant under Criterion A in the area of transportation and under Criterion C in the area of architecture. The original survey form did not indicate boundaries for the historic property. The circa 1916 eastbound station is two stories in height and is characterized by its brick and concrete construction materials, the hip roof, and the passenger shelter at track level (extending to the west). Since this building was surveyed in 1979, the original wood-framed, multiple-pane windows on the second floor were removed, a substantial addition was added, and large commercial windows were installed. In contrast to the eastbound station, the westbound station across the tracks retains some of its original features. Built with stone in circa 1870, the station received an addition of a baggage shed in 1913. The westbound complex served the dual role as a station and the railroad agent's residence, with the station portion fronting directly onto the tracks. The building retains a high degree of integrity and conveys its significance as a late Victorian, Stick-style structure. Located within the railroad ROW, the station is included in the APE (see Figure 4, Sheet 7 of 16).

3.1.12 RESOURCE 12: OUR MOTHER OF GOOD COUNSEL ROMAN CATHOLIC CHURCH (KEY NO. 097325)

Our Mother of Good Counsel Roman Catholic Church, in Lower Merion Township, Montgomery County, was determined eligible for NRHP listing on May 6, 1991 (Deibler 1991). The church is significant under Criterion C in the area of architecture, specifically for ecclesiastical architecture. The church complex also includes a rectory, school, and convent. The Romanesque Revival-style edifice was designed by the noted ecclesiastical architect, Edwin F. Durang, and constructed in 1896. It appears to be in very good condition and retains a high degree of its historic integrity. The overall form of the building is in the shape of a cross, and it is oriented from the southwest to the northeast. A large tower is located at the southwest corner of the church. Characteristic of the Romanesque Revival-style of architecture, the large structure is constructed with rusticated stone. The church property is adjacent to the southwestern edge of the ROW, and because of its proximity, is included in the APE (see Figure 4, Sheet 7 of 16).

3.1.13 RESOURCE 13: VILLANOVA UNIVERSITY CAMPUS (KEY NO. 105136)

Villanova University Campus, in Radnor Township, Delaware County, was determined eligible for NRHP listing on April 4, 1995 (CRGIS 2015). The station is significant under Criterion A in the area of education, and under Criterion C in the area of architecture. Although the campus extends on both sides of the railroad, the railroad tracks and the associated structures are part of Amtrak property and are not included as part of the eligible Villanova University Campus. State Route 320, now a large overpass, extends over the railroad tracks near the western end of the Villanova University Campus. The school was started as the Augustinian College of Villanova circa 1841-1843. This Roman Catholic university has been greatly expanded since its beginnings in the mid-nineteenth century. Today the campus buildings that are spread over areas both to the north and the south sides of the railroad embody a wide range of styles, including Art Deco and Colonial Revival. Because of the property's adjacency to the railroad ROW, it has been included in the APE (see Figure 4, Sheet 9 of 16).

3.1.14 RESOURCE 14: VILLANOVA STATION (KEY NO. 827801)

The Villanova Station, in Radnor Township, Delaware County, was given a determination of eligibility on February 9, 2009 (McDonald 2009). It is significant for transportation and education under Criterion A for its association with Villanova University Campus and the Pennsylvania Railroad Main Line. It was constructed in 1872 and enlarged in 1906 and is composed of shelters on both sides of the tracks. Constructed of stone, the main station has intersecting gables and two brick chimneys topped with corbelled chimney caps. The building also features wood brackets beneath the wide, overhanging eaves. Because of the property's location within the railroad ROW, it has been included in the APE (see Figure 4, Sheet 9 of 16).

3.1.15 RESOURCE 15: RADNOR STATION (KEY NO. 101246)

Radnor Station, in Radnor Township, Delaware County, was determined individually eligible for NRHP listing on March 22, 1993 (CRGIS 2015; Meyer 1992), and was evaluated again during a county-wide survey in 2003 (Wise 2003). The station is significant under Criterion A in the area of transportation and under Criterion C in the area of architecture. The survey forms did not indicate boundaries for the historic property. The Radnor Station structures date from 1872 and 1894, with additions and/or alterations in 1895 and 1916. The station structures include a brick station building with canopy and ticket agent's residence on the westbound side and an eastbound platform and shelter. The PHRS form prepared in 1992 noted that this station was designed by the engineering staff of the PRR and that this particular version of a station was not found elsewhere on the railroad line. The surveyor stated that this station showed "character-defining elements of the Italianate style, including the use of "a pronounced verticality of massing, a relatively thin roof plane, vertical fenestration, and prominent bracing" (Meyer 1992). The PHMC subsequently stated that this station could be more accurately classified as High

Victorian Gothic, specifically a “brick version of the Stick style.” Because of the property’s location within the railroad ROW, it has been included in the APE (see Figure 4, Sheet 10 of 16).

3.1.16 RESOURCE 16: LOUELLA COURT HISTORIC DISTRICT (KEY NO. 128860)

The Louella Court Historic District, in Radnor Township, Delaware County, was determined eligible for NRHP listing on July 14, 2004 (CRGIS 2015). The district is significant under Criterion C in the areas of architecture and community planning. The northern boundary of the district borders on the railroad, and its southern boundary is East Lancaster Avenue, with residential properties adjacent to the historic district on its east and west sides. Throughout the district, the buildings are oriented toward the Louella Court Apartments, a large, Second Empire-style structure dating from 1865 and previously known as Louella Mansion. The buildings in the north half of the district are oriented away from the railroad. Most of the structures date to circa 1926-1929. The other buildings in Louella Court typically reflect the Tudor-Revival style in their use of exterior stucco wall cladding, their steeply-pitched roofs and cross-gables, large chimneys (some with chimney pots), and the use of multiple-paned windows. The Colonial Revival style is also present in the district. Because of the property’s proximity to the railroad ROW, it has been included in the APE (see Figure 4, Sheet 11 of 16).

3.1.17 RESOURCE 17: WAYNE STATION (KEY NO. 106136)

Wayne Station, in Radnor Township, Delaware County, was listed in the NRHP on June 21, 1999 (CRGIS 2015). The station is significant under Criterion A in the area of transportation and under Criterion C in the area of architecture. Its Period of Significance is 1881 to 1948. The 2.2-acre property includes two Late Victorian-style buildings and a track-level shelter on the north, the station building on the south, and an underground tunnel connecting the two sides. Its boundary is generally delineated by Pennsylvania Avenue to the north, the eastern boundary line of a SEPTA parking lot to the east, Station Avenue to the south, and North Wayne Avenue to the west. The station was designed by the Wilson Brothers, an important architectural firm of the time period whose firm designed other PRR stations along the Main Line and in Philadelphia and the PRR’s Bryn Mawr Hotel. It is important for its incorporation of newly established standardized features into the design of the PRR’s railroad stations. The architectural style of the Wayne Station complex exhibits several different architectural styles and is significant for its departure from the earlier Stick style used on PRR stations. The Wilson Brothers’ design included elements from the Shingle style, the Queen Anne style, and Tudor Revival or “Old English” styles (Higgins et al. 1999). Because of the property’s location within the railroad ROW, it has been included in the APE (see Figure 4, Sheet 11 of 16).

3.1.18 RESOURCE 18: NORTH WAYNE HISTORIC DISTRICT (KEY NO. 064497)

The North Wayne Historic District, in Radnor Township, Delaware County, was listed in the NRHP on July 25, 1985 (CRGIS 2015). The district is significant under Criterion C in the areas of architecture and community planning. Its Period of Significance is 1886 to 1927. It is generally bounded by Eagle Road on the north, with a northwestern projection consisting of properties on Woodland Court; Radnor Street Road to the northeast; properties on the southern side of Poplar Avenue to the southeast; and properties along the western side of North Wayne Avenue on the southwest. The southernmost tip of the historic district is located at North Wayne Avenue and Poplar Avenue and is to the north of Amtrak's parking lot beyond the north side of the tracks. Because of the property's proximity to the railroad ROW, it has been included in the APE (see Figure 4, Sheet 11 of 16).

The 97-acre historic district contains a residential development by Anthony J. Drexel and George W. Childs, comprising approximately 13 blocks with over 300 dwellings. Noted architects of the day, such as Frank and William L. Price, J. C. Worthington, Horace Trumbauer, and Brown and Day designed many of the residences in the district. The historic district is significant because it is a large and remarkably well-preserved example of an American railroad commuter suburb, with numerous examples of late and post-Victorian-style domestic architecture (Noll et al. 1985)

3.1.19 RESOURCE 19: DOWNTOWN WAYNE HISTORIC DISTRICT (KEY NO. 827766)

The Downtown Wayne Historic District, in Radnor Township, Delaware County, was listed in the NRHP in 2003 (CRGIS 2015). The district is significant under Criterion C in the area of architecture. The center of Wayne dates from 1864, when developer J. Henry Askin purchased acreage, formerly owned by Thomas Maule, and developed his suburban estate, Louella. Askin added additional acreage purchased from Abraham family heirs, so that by 1870, his estate covered the center of the current area comprising downtown Wayne. Askin developed the residential community around his estate. By 1870, the railroad stop at Wayne had changed names from "Cleaver's Landing" to "Wayne" in honor of General Anthony Wayne. The easy rail access from Philadelphia enabled the community surrounding the Wayne railroad station to develop first as a summer resort for railroad executives and their families, then as a growing suburban community. The northernmost boundary line of the historic district is just over one block south of the southern edge of the railroad ROW; thus, it is included within the APE (see Figure 4, Sheet 11 of 16).

3.1.20 RESOURCE 20: STRAFFORD STATION (KEY NO. 079668)

Strafford Station, in Tredyffrin Township, Chester County, was listed in the NRHP on July 26, 1985 (CRGIS 2015). The station is significant under Criterion A in the area of transportation and

under Criterion C in the area of architecture. Its Period of Significance is 1800-1899. The 5.7-acre property is bound by Crestline Road on the north, Strafford Avenue on the south, and Old Eagle School Road on the west. Originally constructed in 1876 for the Centennial Exposition in Philadelphia, it was moved to Wayne after the close of the Exposition (circa 1880), and then again in 1887 to its current location in Strafford. This highly decorative building is a noteworthy example of the Eastern Stick Style (Goshorn et al. 1984), and it retains many of the character-defining aspects of the Stick style including the application of bands of diagonal, wood “stickwork” on the exterior walls, broad overhanging eaves, cornice brackets, and other decorative elements. Because of the station’s location within the railroad ROW, it has been included in the APE (see Figure 4, Sheet 12 of 16).

3.1.21 RESOURCE 21: CRAMOND (KEY NO. 050893)

The house known as Cramond, in Tredyffrin Township, Chester County, was listed in the NRHP on June 30, 1983 (CRGIS 2015). The property is significant under Criterion C in the area of architecture. Constructed in 1986, the house was designed by the renowned architectural firm of McKim, Mead, and White, of New York City. It is claimed to be one of the first extant houses built in the Classical-Revival Style houses and remains as an important national landmark that initiate the style in America Domestic Architecture. According to the NRHP nomination form, Daniel S. Newhall, a PRR railroad executive who commissioned the residence, probably chose this particular site for his country retreat because of the view of the railroad from its front windows (Cook et al. 1983). The rectangular-shaped property is generally bound by Old Eagle School Road to the west, the rear of the tax parcel to the north, the eastern edge of the tax parcel to the east, and the north edge of Crestline Road to the south. The southern side of the property is directly across the street from the northern edge of the Amtrak parking lot; thus, the property is included in the APE (see Figure 4, Sheet 12 of 16).

3.1.22 RESOURCE 22: GROVE AVENUE SERVICE STATION (KEY NO. 112814)

The Grove Avenue Service Station in Tredyffrin Township, Chester County, was determined eligible for NRHP listing on March 2, 2000 (CRGIS 2015). The property is significant under Criterion A for transportation, specifically for its relationship with U.S. 30, also known as the Lincoln Highway. It is also significant under Criterion C in the area of architecture as a representation of the “Colonial Revival Commercial Style,” according to records (CRGIS 2015). The former gas station (now out of service) sits on the south side of the railroad corridor and along the north side of State Route 30 at Grove Avenue. The building’s main core served as the station’s office, and a service bay was appended to the west. The service station appears to be a rendition of the circa-1929 “English Cottage” station design, developed by the Pure Oil Company. Designed to look like a small residential cottage, the building features a very steeply pitched roof sheathed with glazed blue tiles (now painted orange) and a tapered chimney with

glazed chimney pots on each gable end. Other cottage-style characteristics include the hipped-roof bay window to the west of the door and a small, arched window to the east of the door, both with multiple panes. During the late 1920s, some of the oil companies were designing stations purposely made to look like a small house in the hopes of attracting customers and helping the stations blend into the neighborhoods. Situated directly along Route 30, or the Lincoln Highway, the Grove Avenue Station is a good example of roadside architecture. The northern edge of the property abuts the southern edge of the railroad ROW; therefore, the property is included in the APE (see Figure 4, Sheet 13 of 16).

3.1.23 RESOURCE 23: PENNSYLVANIA RAILROAD (PHILADELPHIA TO MORRISVILLE/NEW YORK) (KEY NO. 125733)

The Pennsylvania Railroad Main Line (Philadelphia to Morrisville/New York) was determined eligible for NRHP listing on September 14, 1995, and again on November 16, 2007. The resource is eligible under Criterion A in the areas of transportation and economics and Criterion C for engineering. New York was the PRR's second busiest area for commuter operations, followed by Philadelphia and its suburbs, particularly since the PRR had actively engaged in promoting development of affluent communities along its Main Line since the end of the Civil War. Specifically, this portion of the Pennsylvania Railroad connected two key U.S. cities and provided the railroad with a route to move freight and passengers from America's largest port city (New York) to Philadelphia and points west. Most of the railroad's components are considered to be Contributing Resources, including the tracks and roadbed, bridges, viaducts, signals, relay boxes, stations, interlocking towers, substations, catenary structures, and other features within the NRHP-eligible Pennsylvania Railroad. The railroad intersects the Pennsylvania Railroad Main Line (Philadelphia to Harrisburg) at the project's eastern terminus at the Zoo substation; therefore it is included in the APE (see Figure 4, Sheet 1 of 16).

3.1.24 RESOURCE 24: PENNSYLVANIA RAILROAD MAIN LINE (PHILADELPHIA TO HARRISBURG) (KEY NO. 105675)

The Pennsylvania Railroad Main Line (Philadelphia to Harrisburg) historic district was determined eligible for NRHP listing on September 14, 1993, and on November 16, 2007 (CRGIS 2015). The resource meets NRHP Criteria A and C for its statewide significance in transportation, economy, and the development of Pennsylvania's industries and communities. The historic district's Period of Significance is 1832 to 1958. Its boundary can be generally described as following the railroad's engineered right of way starting at the eastern terminus at Amtrak's 30th Street station and ending at the train station at Harrisburg, Pennsylvania. A portion of the railroad corridor was historically important and was known as the "Main Line" of the Pennsylvania Railroad, running from Philadelphia to the western suburbs, extending through several counties and numerous communities from Overbrook to Paoli. The Pennsylvania Railroad (PRR) and its land acquisition and development activities adjacent to the railroad and

surrounding its stations played a critical role in developing the linear system of suburban villages along its Main Line west of Philadelphia. The railroad influenced the physical layout, politics, architecture, social and cultural patterns, and economic forces affecting the communities (Messer 2000).

The Pennsylvania Railroad Main Line (Philadelphia to Harrisburg) historic district includes many Contributing Resources. Contributing Resources of a railroad, also known as major built elements, are those that were constructed within the Period of Significance and were constructed, owned, and used for the purpose of the railroad. They are defined as features that were crucial to the railroad's continued operation and were directly related to its function. They can include, but are not limited to, train stations, bridges, tunnels, major built culverts, rail yards and associated buildings, interlocking towers, catenary structures, extant railroad shops such as substations, signal towers, freight houses, head or stub stations, train sheds, and terminals (Nagle 2012). A portion of the Pennsylvania Railroad Main Line (Philadelphia to Harrisburg) historic district, from the Philadelphia Zoo substation to the Paoli substation, is contained within the APE (see Figure 4, Sheets 1 through 16).

3.1.25 RESOURCE 25: THE PHILADELPHIA & WESTERN RAILROAD (NORRISTOWN HIGH SPEED LINE) (KEY NO. 128825)

The Philadelphia & Western Railroad (Norristown High Speed Line) was determined eligible for NRHP listing on June 21, 2004 (CRGIS 2015). The railroad is considered eligible under Criterion A for its association with the development of an early twentieth-century inter-urban railroad in Pennsylvania. The historic district can be generally described as following the railroad's engineered right of way starting at the 69th Street terminal in Upper Darby, Delaware County, and traveling in a northwest direction where it crosses over the Pennsylvania Railroad Main Line (Philadelphia to Harrisburg) to the west of State Route 476 in Radnor Township, Delaware County, before ending at Norristown in Montgomery county (Figure 4, Sheet 10 of 16),

3.1.26 RESOURCE 26: WILLIAM PENN MILE MARKERS (KEY NO. 101320)

The William Penn Mile Markers were determined eligible for listing in the NRHP on March 2, 1993 (CRGIS 2015). The markers are considered eligible under Criterion A in the area of transportation, in association with the Philadelphia and Lancaster Turnpike. Twelve markers are located in Lower Merion Township, Montgomery County, and one marker is in Radnor Township, Delaware County. One marker in Ardmore is located at the southwest edge of Lancaster Avenue. Because of its proximity to the railroad, it is included within the project APE. Another marker is located within the Downtown Wayne Historic District, which is also in the APE (Figure 4, Sheet 11 of 16),

3.1.27 RESOURCE 27: CLONMEL-ROSSLEVYN (KEY NO. 065460)

Clonmel-Rosslevyn, at 144 Old Eagle School Road, Strafford, in Tredyffrin Township, Chester County, was determined eligible for listing in the NRHP on March 16, 2015 (McDonald 2015a). The building possesses significance under Criterion C in the area of Architecture for its representation of a ca. 1910 Tudor Revival-style residence. Its Period of Significance is 1889 to 1910, and its boundary would include the current tax parcel for the mansion, in addition to the resources included in Key No. 827911 and Key No. 827912, a gatehouse and a stable that were formerly associated with the property but that currently are located on separate tax parcels. Because of its proximity to the railroad, it is included within the project APE (see Figure 4, Sheet 12 of 16).

3.1.28 RESOURCE 28: DEVEREUX FOUNDATION (KEY NO. 201351)

The Devereux Foundation at 228 Highland Avenue, Devon, Easttown Township, Chester County, was determined eligible for listing in the NRHP on April 24, 2015 (McDonald 2015b). The buildings on the property possess significance under Criterion A in the area of Education for their association with the early development of Special Education by the Devereux Foundation. The property is also eligible under Criterion B for its association with Helena Trafford Devereux, a pioneer in the field of special education. The Period of Significance for the property is 1918 to 1965, and its boundary encompasses the 7.8-acre parcel and the existing four buildings on the parcel, all of which are Contributing Resources to the historic property. The southern side of the property abuts the railroad ROW; thus it is included within the APE (see Figure 4, Sheet 13 of 16).

4.0 EFFECTS ASSESSMENT ON HISTORIC PROPERTIES

4.1 DEFINITION OF EFFECT

According to the regulations set forth in 36 CFR Part 800 (ACHP 2014), because historic properties are located within the APE for the undertaking, it is necessary to assess whether the undertaking may affect the properties. An *Effect* is defined as an alteration to the characteristics of a historic property that qualifies it for inclusion in or eligibility for the NRHP (ACHP 2014). The identification of historic resources and the application of the definition of effect results in one of two findings. If the agency official finds that there are no historic properties present in the APE or if there are historic properties present but the undertaking will have no effect on them, a finding of “No Historic Properties Affected” will be made. If the agency finds that there are historic properties present in the APE that may be affected by the undertaking, a finding of “Historic Properties Affected” will be made, and the agency shall notify all Consulting Parties and invite their views on the effects and adverse effects, if any, on the historic properties, in accordance with 36 CFR Part 800.5 (ACHP 2014).

4.2 CRITERIA OF ADVERSE EFFECT

If it is found that the undertaking may affect historic properties in the APE, according to the regulations set forth in 36 CFR Part 800, the Criteria of Adverse Effect are applied. An *Adverse Effect* is found when an undertaking may alter, either directly or indirectly, the characteristics of a historic property that qualify it for inclusion in or eligibility for the NRHP in a manner that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association. Consideration is given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property’s eligibility for inclusion in the NRHP. Adverse effects may include reasonably foreseeable impacts that could be caused by the undertaking and that may be cumulative, may occur later in time, or may occur further removed in distance (ACHP 2014). According to 36 CFR 800.5(a)(2), adverse effects on historic properties include, but are not limited to:

- Physical destruction of or damage to all or part of the property;
- Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary’s Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines;
- Removal of the property from its historic location;
- Change of the character of the property’s use or of physical features within the property’s setting that contribute to its historic significance;
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property’s significant historic features; and

- Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to a Native American tribe or a Native Hawaiian organization; and
- Transfer, lease, or sale of a property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historical significance (ACHP 2014).

If an Adverse Effect is found, the agency official shall consult further to resolve the Adverse Effect pursuant to Section 800.6 of the regulations. The resolution of adverse effects can include continuing consultation between the agency and the SHPO and preparing and enacting mitigation and minimization procedures through a Memorandum of Agreement (MOA).

4.3 EFFECTS ASSESSMENT

The effects assessment was conducted using the Preferred Alternative for the project, Alternative 1. Under this alternative, the catenary poles will be replaced between 51st Street and Paoli and new transmission poles and lines will be installed. In addition, the Bryn Mawr Switching Station building, historically known as the Bryn Mawr Substation, will be replaced with a new traction power substation. The effects of the work required for the Preferred Alternative on each of the 28 historic properties is presented below. First, the definition of effect is applied, followed by the application of the Criteria of Adverse Effect to each resource, where warranted. The results are summarized in the last column of Table 3-1. Because no catenary structures will be replaced between the Zoo Substation and 51st Street and only signal wire will be replaced on existing poles in this segment of the project, the Definition of Effect was applied jointly to all of the resources in that segment.

4.3.1 RESOURCE 1: FAIRMOUNT PARK HISTORIC DISTRICT (KEY NO. 001364)

The Fairmount Park Historic District, in the City of Philadelphia, Philadelphia County, was listed in the NRHP on February 7, 1972 (CRGIS 2015). The park is significant under Criterion C, specifically in the areas of architecture, community planning, conservation, landscape architecture, and art. The eastern terminus of the proposed undertaking is at the Zoo substation, which is adjacent to the southwestern boundary of the Fairmount Park Historic District, as shown in Figure 4: Sheet 1 of 16 (see Photographs 1 and 2). No catenary structures will be replaced in the vicinity of the NRHP-listed Fairmount Park Historic District; only signal cables will be replaced in this segment.

4.3.2 RESOURCE 2: 40TH STREET BRIDGE OVER AMTRAK (BMS 67730102400122; KEY NO. 137498)

The 40th Street Bridge over Amtrak, in the City of Philadelphia, Philadelphia County, was determined eligible for NRHP listing on March 5, 2007 (CRGIS 2015). The bridge is significant

under Criterion A in the area of transportation and under Criterion C in the area of engineering. No catenary structures will be replaced in the vicinity of the NRHP-eligible 40th Street Bridge over Amtrak (see Photographs 3 and 4). Only signal cables will be replaced in this segment.

4.3.3 RESOURCE 3: 42ND STREET BRIDGE OVER AMTRAK (BMS 67730102700125; KEY NO. 102489)

The 42nd Street Bridge over Amtrak, in the City of Philadelphia, Philadelphia County, was determined eligible for NRHP listing on March 5, 2007 (CRGIS 2015). The bridge is significant under Criterion A in the area of transportation and under Criterion C for engineering. The 42nd Street Bridge crosses over the subject railroad. No catenary structures will be replaced in the vicinity of the bridge (see Photographs 5 and 6). Only signal cables will be replaced in this segment.

4.3.4 RESOURCE 4: PARKSIDE HISTORIC DISTRICT (KEY NO. 064342)

The Parkside Historic District, in the City of Philadelphia, Philadelphia County, was listed in the NRHP on November 17, 1983 (CRGIS 2015). It is significant under Criterion C in the areas of architecture and community planning, and its Period of Significance is 1890-1900. No catenary structures will be replaced in the vicinity of the Parkside Historic District (see Photographs 7 and 8). Only signal cables will be replaced in this segment.

4.3.5 RESOURCE 5: BELMONT AVENUE HISTORIC DISTRICT (KEY NO. 097543)

The Belmont Avenue Historic District, in the City of Philadelphia, Philadelphia County, was determined eligible for listing in the NRHP on August 29, 1990 (CRGIS 2015). The district is significant under Criterion C in the area of architecture. The proposed undertaking is occurring below grade adjacent to the northern end of the NRHP-eligible Belmont Avenue Historic District (see Photographs 9 and 10). No catenary structures will be replaced at the location of the historic district. Only signal cables will be replaced in this segment.

Table 4-1 to Table 4-5: Results of Application of Definition of Effect for Fairmount Park Historic District; 40th Street Bridge over Amtrak; 42nd Street Bridge over Amtrak; Parkside Historic District; and Belmont Avenue Historic District.

Definition of Effect	Evaluation
An <i>Effect</i> may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register as defined in 36 CFR 800.16(i).	Since no catenary structures will be replaced at the location of each of the above-listed resources, there will be no introduction of an incompatible visual element. Therefore, the proposed project will not alter the characteristics that qualify each resource for listing in the NRHP.
Finding	The proposed undertaking will not have an <i>Effect</i> on the Fairmount Park Historic District; 40 th Street Bridge over Amtrak; 42 nd Street Bridge over Amtrak; Parkside Historic District; and Belmont Avenue Historic District, resulting in a finding of <i>No Historic Properties Affected</i> .

4.3.6 RESOURCE 6: OVERBROOK FARMS HISTORIC DISTRICT (KEY NO. 082616) (INCLUDES OVERBROOK STATION)

The Overbrook Farms Historic District, in the City of Philadelphia, Philadelphia County, was listed in the NRHP on March 21, 1985 (CRGIS 2015). Developed by Drexel and Company, the district is significant under Criterion C in the areas of architecture and community planning, and its Period of Significance is 1893 to 1934. The Overbrook Farms Historic District straddles the railroad ROW, lying on both sides of the APE. Most of the buildings in the historic district, however, are oriented away from the railroad tracks and toward the roadways. Seven sets of catenary structures will be replaced and will be visible from both sides of the historic district north and south of the ROW. The seven existing catenary structure heights range from 56'-2" high to 72'-2" high. The heights of the new structures will be 66'-2", 72'-2", and 82'-2". Three structures will be at 62'-2", three at 72'-2", and just one structure at the 82'-2"-height. The 82'-2"-high catenary structure will be erected in front of the Overbrook Station, a Contributing Resource to the Overbrook Farms Historic District (see Photographs 11, 12, 13, and 14).

Table 4-6a: Results of Application of Definition of Effect for Overbrook Farms Historic District.

Definition of Effect	Evaluation
An <i>Effect</i> may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register as defined in 36 CFR 800.16(i).	Seven sets of catenary structures, ranging from 56’-2” high to 72’-2” high, will be replaced by 66’-2”-high to 82’-2”-high structures along the ROW in the historic district. The 82’-2”-high structure will be directly in front of the Overbrook Station and may introduce an incompatible visual element to the setting of the historic district. Therefore, the proposed project may alter the characteristics that qualify it for listing in the NRHP, namely the district’s distinctive and varying architecture, and the visual quality of the planned community.
Finding	The proposed undertaking will have an <i>Effect</i> on the Overbrook Farms Historic District resulting in a finding of <i>Historic Properties Affected</i> . Pursuant to 36 CFR Part 800.11(e) the Criteria of Adverse Effect must be applied.

Table 4-6b: Results of Application of Criteria of Adverse Effect for Overbrook Farms Historic District.

Criteria of Adverse Effect	Evaluation
Adverse effects on historic properties include, but may not be limited to:	
(i) Physical destruction of or damage to all or part of a property	The proposed project will not result in physical destruction or damage to the Overbrook Farms Historic District.

Criteria of Adverse Effect	Evaluation
(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision for handicapped access that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines	The proposed project and replacement of the catenary structures will not alter the Overbrook Farms Historic District in a manner that is inconsistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines.
(iii) Removal of the property from its historic location	The proposed project will not remove the Overbrook Farms Historic District, or any of its elements, from their historic location.
(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance	The proposed project will not change the character of the district's use. The character of the physical features within the property's setting is being changed because of the 10'-0" increase in the structure heights. However, the change in character will be minimal. The introduction of the increased structure heights will not be incompatible with the existing setting, and it will continue to be able to convey its historic significance. Part of the historic district's history and significance is derived from its proximity to and relationship with the railroad. The railroad and its features, including catenary structures, have always been an important part of the setting of the planned suburban development and contribute to the resource's historic significance.

Criteria of Adverse Effect	Evaluation
(v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features	<p>The height increase of the seven catenary structures, ranging from 10'-0" to 20'-0", will introduce a new visual element to the historic district and the station. The introduction is not incompatible, however, and its appearance will not diminish the integrity of the historic district's character-defining features, namely the architectural diversity and visual quality of the planned suburban development. It has historically been adjacent to the railroad, and the railroad infrastructure, including catenary structures, has always been visible from the development. The tree trimming will not introduce visual elements that diminish the integrity of the property's significant historic features.</p> <p>The removal and installation of new catenary structures will introduce audible and vibration elements; however, they will be of a temporary nature and will cease upon project completion.</p>
(vi) Neglect of a property, which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization	The proposed project will not result in the neglect or deterioration of the Overbrook Farms Historic District.
(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance	The proposed project will not result in the transfer, lease, or sale of the Overbrook Farms Historic District.
Finding	The proposed project will have <i>No Adverse Effect</i> on the Overbrook Farms Historic District.

4.3.7 RESOURCE 7: SR 1 BRIDGE OVER AMTRAK (BMS 67000100301217; (KEY NO. 137615)

The SR 1 Bridge over Amtrak, located on the Montgomery and Philadelphia County line, was determined eligible for NRHP listing on March 5, 2007 (CRGIS 2015). The bridge is significant under Criterion A in the area of transportation and under Criterion C for engineering. Two sets of catenary structures will be replaced, with one set on each side of the NRHP-eligible SR 1 Bridge over Amtrak. The towers on the east side of the bridge, currently at 72'-2" high, will be located approximately 150 feet from the bridge, and the towers on the west, currently at 67'-2" high, will be approximately 100 feet from the bridge's western side. Both sets of the new towers will be 82'-2" high.

Table 4-7: Results of Application of Definition of Effect for SR 1 Bridge over Amtrak.

Definition of Effect	Evaluation
An <i>Effect</i> may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register as defined in 36 CFR 800.16(i).	Two sets of catenary structures, at 72'-2" and 67'-2" in height, will be replaced with 82'-2"-high structures, with one set on each side of the SR 1 Bridge. The structures will be located far enough from the bridge that there will be no introduction of an incompatible visual element within the bridge's setting. The proposed project will not alter the SR 1 Bridge over Amtrak, or any of the characteristics that qualify it for listing in the NRHP, including the design of the rigid steel frame bridge and the Art Deco detailing.
Finding	The proposed undertaking will not have an <i>Effect</i> on the SR 1 Bridge over Amtrak, resulting in a finding of <i>No Historic Properties Affected</i> .

4.3.8 RESOURCE 8: MERION STATION (KEY NO. 097341)

Merion Station, in Lower Merion Township, Montgomery County was determined individually eligible for NRHP listing on November 8, 1991 (CRGIS 2015). The station building complex, a combination train station and U.S. Post Office, is significant under Criterion A in the area of transportation for its association with the Pennsylvania Railroad Main Line, and under Criterion C in the area of architecture. There are currently two catenary structures near the Merion Station. One structure, located in front of the westbound station building, is currently 50'-2" in height and will be replaced with a new 75'-2" high structure. Another structure, located 8'-0"

north of a supporting building associated with the station beside the westbound tracks, is currently 50'-2" high and will be replaced with a 60'-2"-high structure (see Photographs 15 and 16). The new structure's location will be 25'-0" north of the existing structure and farther away from the station.

Table 4-8a: Results of Application of Definition of Effect for Merion Station.

Definition of Effect	Evaluation
An <i>Effect</i> may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register as defined in 36 CFR 800.16(i).	Two sets of 50'-2"-high catenary structures will be replaced with 75'-2"- and 60'-2"-high structures near the Merion Station building. Their location near the station building may introduce visual elements that are incompatible with the setting and that may alter the characteristics that qualify the station for listing in the NRHP, which include its distinctive Craftsman-style architecture.
Finding	The proposed undertaking will have an <i>Effect</i> on the Merion Station, resulting in a finding of <i>Historic Properties Affected</i> . Pursuant to 36 CFR Part 800.11(e) the Criteria of Adverse Effect must be applied.

Table 4-8b: Results of Application of Criteria of Adverse Effect for Merion Station.

Criteria of Adverse Effect	Evaluation
<i>Adverse effects on historic properties include, but may not be limited to:</i>	
(i) Physical destruction of or damage to all or part of a property	The proposed project will not result in physical destruction or damage to the Merion Station.

Criteria of Adverse Effect	Evaluation
(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision for handicapped access that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines	The replacement of the catenary structures will not alter the Merion Station in a manner that is inconsistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines.
(iii) Removal of the property from its historic location	The proposed project will not result in the removal of the Merion Station from its historic location.
(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance	The proposed project will not change the character of the station's use. The 10'-0" to 20'-0" height increase of the new catenary structures will change the character of the physical features within the property's setting. The change in character will be minimal, however. The introduction of the increased structure heights will not be incompatible with the existing setting as it contributes to the property's historic significance. The station's significance is derived from its direct relationship with the railroad. The railroad and its features, including catenary structures, have always been an important part of the station's setting.

Criteria of Adverse Effect	Evaluation
(v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features	<p>The two new catenary structures to be installed near the station building will introduce visual elements; however they will not be incompatible with the railroad-related property and will not diminish the integrity of the property and the character-defining features of its Craftsman-style architecture. The tree trimming will not introduce visual elements that diminish the integrity of the property's significant historic features.</p> <p>The removal and installation of new catenary structures will introduce audible and vibration elements; however, they will be of a temporary nature and will cease upon project completion.</p>
(vi) Neglect of a property, which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization	The proposed project will not result in the neglect or deterioration of the Merion Station.
(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance	The proposed project will not result in the transfer, lease, or sale of the Merion Station.
Finding	The proposed project will have <i>No Adverse Effect</i> on the Merion Station.

4.3.9 RESOURCE 9: WYNNEWOOD STATION (KEY NO. 097340)

Wynnewood Station, in Lower Merion Township, Montgomery County, was constructed in 1870 and was determined individually eligible for NRHP listing on November 8, 1991 (CRGIS 2015). The station is significant under Criterion A in the area of transportation and under Criterion C in the area of architecture. At the time of the survey no boundaries of the historic property were delineated. There are no catenary structures currently in front of the station buildings; however, there are two structures to the east and west of the station. Two existing 50'-2"-high catenary

structures will be replaced with 60'-2"-high structures. One structure will be placed approximately 10'-0" west of the existing structure, or 50'-0" east of the eastbound station building, and the other will be placed approximately 10'-0" west of the existing structure, or approximately 125'-0" west of the eastbound building (see Photographs 17 and 18).

Table 4-9: Results of Application of Definition of Effect for Wynnewood Station.

Definition of Effect	Evaluation
An <i>Effect</i> may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register as defined in 36 CFR 800.16(i).	Two existing 50'-2"-high catenary structures near the NRHP-eligible Wynnewood Station will be replaced. The new structures will be at distances of approximately 50'-0" and 125'-0" from the station buildings. Because of this distance, the proposed project will not introduce incompatible visual elements to the station's setting, and it will not alter any of the characteristics that qualify the station for listing in the NRHP, including its Stick style architecture.
Finding	The proposed project will not have an <i>Effect</i> on the Wynnewood Station, resulting in a finding of <i>No Historic Properties Affected</i> .

4.3.10 RESOURCE 10: ARDMORE COMMERCIAL HISTORIC DISTRICT (KEY NO. 097509)

The Ardmore Commercial Historic District, in Lower Merion Township, Montgomery County, was determined eligible for listing in the NRHP on October 18, 1991 (CRGIS 2015). The district is significant under Criterion C in the area of architecture. The Ardmore Commercial Historic District is just outside of the railroad ROW on its southwest side but was included in the APE to assess the visual effects of the project on it. Most of the historic district's commercial buildings are oriented to the southwest, in the opposite direction from the railroad (see Photographs 19 and 20). Four approximately 50'-0"-high existing catenary structures will be removed in the section of ROW that lies parallel to the historic district. In their place will be six new catenary structures ranging from 71'-8" high to 90'-4" high.

Table 4-10: Results of Application of Definition of Effect for Ardmore Commercial Historic District.

Definition of Effect	Evaluation
<p>An <i>Effect</i> may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register as defined in 36 CFR 800.16(i).</p>	<p>Four approximately 50'-0"-high catenary structures will be replaced with six structures ranging from 71'-8" to 90'-4" high. Because of the location of the ROW in relation to the historic district and the orientation of the district's buildings, there will be no introduction of incompatible visual elements to the historic district. The proposed project will not alter any of the characteristics that qualify it for listing in the NRHP, namely the district's distinctive and varying architecture, and the visual quality of the planned community.</p>
<p>Finding</p>	<p>The proposed project will not have an <i>Effect</i> on the Ardmore Commercial Historic District, resulting in a finding of <i>No Historic Properties Affected</i>.</p>

4.3.11 RESOURCE 11: HAVERFORD STATION (KEY NO. 079593)

Haverford Station, in Lower Merion Township, Montgomery County, was determined eligible for NRHP listing on January 25, 1982 (CRGIS 2015). The station is significant under Criterion A in the area of transportation and under Criterion C in the area of architecture. In the area of Haverford Station, one existing 50'-2"-high catenary structure directly in front of both the westbound building and eastbound building will be removed. Two new 60'-2"-high structures will be installed. One will be placed approximately 75'-0" northwest of the station buildings on both sides of the tracks, and the other will be located within 10'-0" of the southeastern end of the eastbound building (see Photograph 21).

Table 4-11a: Results of Application of Definition of Effect for Haverford Station.

Definition of Effect	Evaluation
An <i>Effect</i> may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register as defined in 36 CFR 800.16(i).	One 50'-2"-high catenary structure will be removed from in front of the station buildings, and two new 60'-2"-high catenary structures will be installed. . Because of the proximity of one structure near the southeastern end of the station-within 10'-0" of the building-the project may introduce an incompatible visual element to the setting, and the project may alter the characteristics that qualify it for listing in the NRHP, including its Stick-style architecture.
Finding	The proposed project will have an <i>Effect</i> on Haverford Station, resulting in a finding of <i>Historic Properties Affected</i> . Pursuant to 36 CFR Part 800.11(e) the Criteria of Adverse Effect must be applied.

Table 4-11b: Results of Application of Criteria of Adverse Effect for Haverford Station.

Criteria of Adverse Effect	Evaluation
Adverse effects on historic properties include, but may not be limited to:	
(i) Physical destruction of or damage to all or part of a property	The proposed project will not result in destruction or damage to the Haverford Station.
(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision for handicapped access that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines	The removal of a 50'-2"-structure from in front of the station buildings, the placement of a new 60'-2"-structure 75'-0" northwest of the station buildings, and the placement of a new 60'-2"-structure within 10'-0" of the southeastern end of the eastbound building will not alter the Haverford Station in a manner that is inconsistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines.

Criteria of Adverse Effect	Evaluation
(iii) Removal of the property from its historic location	The proposed project will not remove the Haverford Station, or any of its elements, from its historic location.
(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance	The proposed project will not change the character of the station's use. The removal of the structure from in front of the station and the placement of catenary structures in new locations-with one located 75'-0" northwest of the station buildings and the other located within 10'-0" of the southeast corner of the eastbound station building-will change the character of the physical features within the property's setting. Since the new structures will still be located within the station's setting, the change in character will be minimal, however, and will not be incompatible with the existing setting as it contributes to the property's historic significance.
(v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features	<p>The placement of the new structure within 10'-0" southeast of the eastbound building will introduce a new visual element in a new location; however it will not be incompatible with the existing visual elements and will not affect the integrity of the station's Stick-style architecture. The railroad infrastructure, including the catenary structures and system, was always an integral component of the station's setting. The tree trimming will not introduce visual elements that diminish the integrity of the property's significant historic features.</p> <p>The removal and installation of new catenary structures will introduce audible and vibration elements; however, they will be of a temporary nature during the work at this location and will cease upon project completion.</p>

Criteria of Adverse Effect	Evaluation
(vi) Neglect of a property, which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization	The project will not result in the neglect or deterioration of the Haverford Station.
(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance	The project will not result in the transfer, lease, or sale of the Haverford Station.
Finding	The proposed project will have <i>No Adverse Effect</i> on the Haverford Station.

4.3.12 RESOURCE 12: OUR MOTHER OF GOOD COUNSEL ROMAN CATHOLIC CHURCH (KEY NO. 097325)

Our Mother of Good Counsel Roman Catholic Church, in Lower Merion Township, Montgomery County, was determined eligible for NRHP listing on November 8, 1991 (Deibler 1991). The church is significant under Criterion C in the area of architecture, specifically for ecclesiastical architecture. One new 78'-2"-high catenary structure will replace a 50'-2"-high structure directly north of the parcel containing the church building, which is close to the ROW (see Photograph 22).

Table 4-12a: Results of Application of Definition of Effect for Our Mother of Good Counsel Roman Catholic Church.

Definition of Effect	Evaluation
An <i>Effect</i> may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register as defined in 36 CFR 800.16(i).	One new 78'-2"-high catenary structure will replace a 50'-2"-high structure directly north of the church property. Because of the new structure's location, the project may introduce a visual element that detracts from setting, and it may alter the characteristics that qualify the property for listing in the NRHP, including its Romanesque Revival-style architecture.

Definition of Effect	Evaluation
Finding	The proposed project will have an <i>Effect</i> on Our Mother of Good Counsel Roman Catholic Church, resulting in a finding of <i>Historic Properties Affected</i> .

Table 4-12b: Results of Application of Criteria of Adverse Effect for Our Mother of Good Counsel Roman Catholic Church.

Criteria of Adverse Effect	Evaluation
Adverse effects on historic properties include, but may not be limited to:	
(i) Physical destruction of or damage to all or part of a property	The proposed project will not result in destruction or damage to the Our Mother of Good Counsel Roman Catholic Church.
(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision for handicapped access that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines	The replacement of the catenary structures near the church property will not alter it in a manner that is inconsistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines.
(iii) Removal of the property from its historic location	The proposed project will not remove the church property or any of its elements from its historic location.

Criteria of Adverse Effect	Evaluation
(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance	The proposed project will not change the character of the station's use. The nearly 30'-0" increase in height of the new catenary structure north of the property will change the character of the physical features within the property's setting. The change in character will be minimal, however, because the introduction of the increased structure height will not be incompatible with the existing setting as it contributes to the church's historic significance.
(v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features	<p>The placement of the higher structure north of the church will introduce a visual element; however it is not incompatible and will not affect the character-defining Romanesque Revival-style architecture of the church building. The tree trimming will not introduce visual elements that diminish the integrity of the property's significant historic features.</p> <p>The removal and installation of the new catenary structure will introduce audible and vibration elements; however, they will be of a temporary nature and will cease upon project completion.</p>
(vi) Neglect of a property, which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization	The project will not result in the neglect or deterioration of Our Mother of Good Counsel Roman Catholic Church.
(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance	The project will not result in the transfer, lease, or sale of Our Mother of Good Counsel Roman Catholic Church.

Criteria of Adverse Effect	Evaluation
Finding	The proposed project will have <i>No Adverse Effect</i> on Our Mother of Good Counsel Roman Catholic Church.

4.3.13 RESOURCE 13: VILLANOVA UNIVERSITY CAMPUS (KEY NO. 105136)

Villanova University Campus, in Radnor Township, Delaware County, was determined eligible for NRHP listing on April 4, 1995 (CRGIS 2015). The resource is significant under Criterion A in the area of education and under Criterion C in the area of architecture. Nine 50'-2"-high catenary structures in the ROW adjacent to Villanova University Campus will be removed and replaced with 12 new catenary structures (see Photograph 23). The heights of the new structures will range from 60'-2" to 82'-2" high, with one structure at 60'-2" high, one at 65'-2" high, one at 70'-0" high, four at 72'-2" high, two at 74'-2" high, one at 75'-2" high, and two at 82'-2" high. (The 82'-2"-high poles will be on both sides of the Spring Mill Road bridge.

Table 4-13a: Results of Application of Definition of Effect for Villanova University Campus.

Definition of Effect	Evaluation
An <i>Effect</i> may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register as defined in 36 CFR 800.16(i).	Nine existing 50'-2"-high catenary structures will be replaced with 12 new catenary structures, with new structures ranging from 60'-2' to 82'-2" in height. Because the structure locations are within the ROW adjacent to the historic district, the project may introduce a visual element to the property's setting, and it may alter the characteristics that qualify the property for listing in the NRHP, including its varied architecture.
Finding	The proposed project will have an <i>Effect</i> on the Villanova University Campus, resulting in a finding of <i>Historic Properties Affected</i> . Pursuant to 36 CFR Part 800.11(e) the Criteria of Adverse Effect must be applied.

Table 4-13b: Results of Application of Criteria of Adverse Effect for Villanova University Campus.

Criteria of Adverse Effect	Evaluation
Adverse effects on historic properties include, but may not be limited to:	
(i) Physical destruction of or damage to all or part of a property	The proposed project will not result in destruction or damage to the Villanova University Campus.
(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision for handicapped access that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines	The proposed project will not result in destruction or damage to the Villanova University Campus. The replacement of the nine catenary structures with 12 higher structures will not alter the Villanova University Campus in a manner that is inconsistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines.
(iii) Removal of the property from its historic location	The proposed project will not remove Villanova University Campus from its historic location.
(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance	The proposed project will not change the character of the use of the Villanova University Campus. The 10'-0" – 32'-0" height increase in the 12 new catenary structures will, however, change the character of the physical features within the historic property's setting. The change in character will be minimal because the introduction of the increased structure height will not be incompatible with the existing setting, as it contributes to the historic significance of the campus.

Criteria of Adverse Effect	Evaluation
(v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features	<p>The placement of the 12 new catenary structures in the ROW adjacent to the Villanova University Campus will introduce new visual elements. However, they will not be incompatible with the existing visual elements and will not affect the integrity of the historic district and its ability to convey its significance in education and architecture. The tree trimming will not introduce visual elements that diminish the integrity of the property's significant historic features.</p> <p>The proposed project will introduce incompatible audible and vibration elements; however, they will be of a temporary nature and will cease upon project completion.</p>
(vi) Neglect of a property, which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization	<p>The proposed project will not result in the neglect or deterioration of the Villanova University Campus.</p>
(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance	<p>The project will not result in the transfer, lease, or sale of the Villanova University Campus.</p>
Finding	<p>The proposed project will have <i>No Adverse Effect</i> on the Villanova University Campus.</p>

4.3.14 RESOURCE 14: VILLANOVA STATION (KEY NO. 827801)

The Villanova Station, in Radnor Township, Delaware County, was given a determination of eligibility on February 9, 2009 (McDonald 2009). It is significant under Criterion A for its association with Villanova University Campus and the Pennsylvania Railroad Main Line. One 50'-2"-high catenary structure will be replaced with an 82'-2"-high structure in front of the railroad station (see Photograph 24).

Table 4-14a: Results of Application of Definition of Effect for Villanova Station.

Definition of Effect	Evaluation
An <i>Effect</i> may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register as defined in 36 CFR 800.16(i).	One existing 50'-2"-high catenary structure will be replaced with an 82'-2"-high catenary structure in front of the railroad station. Because of the structure's location, the project may introduce a visual element to the property's setting, and it may alter the characteristics that qualify the property for listing in the NRHP.
Finding	The proposed project will have an <i>Effect</i> on the Villanova Station, resulting in a finding of <i>Historic Properties Affected</i> . Pursuant to 36 CFR Part 800.11(e) the Criteria of Adverse Effect must be applied.

Table 4-14b: Results of Application of Criteria of Adverse Effect for Villanova Station.

Criteria of Adverse Effect	Evaluation
Adverse effects on historic properties include, but may not be limited to:	
(i) Physical destruction of or damage to all or part of a property	The proposed project will not result in physical destruction or damage to the Villanova Station.
(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision for handicapped access that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines	The replacement of the 50'-2'-high structure with an 82'-2'-high structure will not alter Villanova Station in a manner that is inconsistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines.
(iii) Removal of the property from its historic location	The proposed project will not remove the Villanova Station, or any of its elements, from its historic location.

Criteria of Adverse Effect	Evaluation
(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance	The proposed project will not change the character of the property's use. The 30'-0"-foot height increase in the catenary structure will change the character of the physical features within the historic property's setting. However, the introduction of the increased structure height will not be incompatible with the station's setting and will not affect its historic significance. The railroad's infrastructure, including the catenary structures and overhead system, has always been an integral part of the station's setting.
(v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features	<p>The placement of the 82'-2"-high structure in front of the railroad station will introduce a new visual element; however, it will not be incompatible with the railroad-related property and will not diminish its integrity.</p> <p>The proposed project will introduce incompatible audible and vibration elements; however, they will be of a temporary nature and will cease upon project completion.</p>
(vi) Neglect of a property, which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization	The project will not result in the neglect or deterioration of the Villanova Station.
(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance	The project will not result in the transfer, lease, or sale of the Villanova Station.
Finding	The proposed project will have <i>No Adverse Effect</i> on the Villanova Station.

4.3.15 RESOURCE 15: RADNOR STATION (KEY NO. 101246)

Radnor Station, in Radnor Township, Delaware County, was determined individually eligible for NRHP listing on March 22, 1993 (CRGIS 2015; Meyer 1992), and was evaluated again during a county-wide survey in 2003 (Wise 2003). The station is significant under Criterion A in the area of transportation and under Criterion C in the area of architecture (see Photograph 25). Two 50'-2"-high catenary structures near the station building will be replaced with two 60'-2"-high structures. One structure will be placed approximately 12'-0" west of the current structure and will be approximately 25'-0" west of the westbound station building. It is within the recommended boundary of the historic property as indicated on the Pennsylvania Historical Resource Survey Form for the station (Wise 2003). The second catenary structure will be placed approximately 25'-0" west of the current catenary structure and will be located approximately 100'-0" east of the eastbound station building. It is outside of the recommended boundary for the historic property.

Table 4-15a: Results of Application of Definition of Effect for Radnor Station.

Definition of Effect	Evaluation
An <i>Effect</i> may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register as defined in 36 CFR 800.16(i).	Two 60'-2"-high catenary structures will replace two existing 50'-2"-high structures close to their present location. One structure is within the boundaries of the historic property, and one is outside of it. Because of the new locations of the structures, the project may alter the characteristics that qualify the station for listing in the NRHP, including its Stick-style architecture.
Finding	The proposed project will have an <i>Effect</i> on the Radnor Station, resulting in a finding of <i>Historic Properties Affected</i> . Pursuant to 36 CFR Part 800.11(e) the Criteria of Adverse Effect must be applied.

Table 4-15b: Results of Application of Criteria of Adverse Effect for Radnor Station.

Criteria of Adverse Effect	Evaluation
Adverse effects on historic properties include, but may not be limited to:	

Criteria of Adverse Effect	Evaluation
(i) Physical destruction of or damage to all or part of a property	The proposed project will not result in physical destruction or damage to the Radnor Station.
(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision for handicapped access that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines	The replacement of the 50'-2"-high catenary structures with two 60'-2"-high catenary structures, one of which is within the recommended boundary of the historic property, will not alter Radnor Station in a manner that is inconsistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines.
(iii) Removal of the property from its historic location	The proposed project will not remove the Radnor Station, or any of its elements, from its historic location.
(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance	The proposed project will not change the character of the station's use. The 10'-0"-foot height increase in both of the new catenary structures, one of which is within the recommended boundary of the historic property, will change the character of the physical features within the historic property's setting. The change in character will be minimal, however, because the introduction of the increased structure height will not be incompatible with the existing setting and will not affect the property's ability to convey its historic significance. The railroad's infrastructure, including the catenary structures and overhead system, has always been an integral part of the station's setting.

Criteria of Adverse Effect	Evaluation
(v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features	<p>The replacement of the 50'-2"- high catenary structures with two 60'-2"-high catenary structures will introduce new visual elements; however, they will not be incompatible with the railroad-related property and will not diminish the integrity of the station building's Stick-style architecture. The tree trimming will not introduce visual elements that diminish the integrity of the property's significant historic features.</p> <p>The proposed project will introduce incompatible audible and vibration elements; however, they will be of a temporary nature and will cease upon project completion.</p>
(vi) Neglect of a property, which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization	The project will not result in the neglect or deterioration of the Radnor Station.
(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance	The project will not result in the transfer, lease, or sale of the Radnor Station.
Finding	The proposed project will have <i>No Adverse Effect</i> on the Radnor Station.

4.3.16 RESOURCE 16: LOUELLA COURT HISTORIC DISTRICT (KEY NO. 128860)

The Louella Court Historic District, in Radnor Township, Delaware County, was determined eligible for NRHP listing on July 14, 2004 (CRGIS 2015). The district is significant under Criterion C in the areas of architecture and community planning. Two existing 50'-2"-high catenary structures north of the NRHP-eligible Louella Court Historic District will be replaced

with two 60'-2"-high structures (see Photograph 26). Their locations are 100'-0" feet or more from the northern boundary of the historic district.

Table 4-16: Results of Application of Definition of Effect for Louella Court Historic District.

Definition of Effect	Evaluation
An <i>Effect</i> may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register as defined in 36 CFR 800.16(i).	Two 50'-2"-high existing catenary structures north of the Louella Court Historic District will be replaced with two 60'-2"-high structures. Because of the new structures' proposed distance from the historic district, the project will not introduce incompatible visual elements to the historic district's setting or alter the characteristics that qualify it for listing in the NRHP, including its architectural diversity.
Finding	The proposed undertaking will not have an <i>Effect</i> on the Louella Court Historic District, resulting in a finding of <i>No Historic Properties Affected</i> .

4.3.17 RESOURCE 17: WAYNE STATION (KEY NO. 106136)

Wayne Station, in Radnor Township, Delaware County, was listed in the NRHP on June 21, 1999 (CRGIS 2015). The station is significant under Criterion A in the area of transportation and under Criterion C in the area of architecture. One 50'-2"-high catenary structure will be replaced by one new 60'-2"-high catenary structure in the same location. The structure will be directly in front of both the eastbound and westbound stations, within the boundary of the historic property (see Photographs 27 and 28).

Table 4-17a: Results of Application of Definition of Effect for Wayne Station.

Definition of Effect	Evaluation
An <i>Effect</i> may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register as defined in 36 CFR 800.16(i).	One 50'-2"-high catenary structure will be replaced by a 60'-2"-high catenary structure directly in front of the NRHP-listed Wayne Station. Because of the structure's location, the project may alter the characteristics that qualify the station for listing in the NRHP, namely its unique, standardized railroad architecture.

Definition of Effect	Evaluation
Finding	The proposed project will have an <i>Effect</i> on Wayne Station, resulting in a finding of <i>Historic Properties Affected</i> . Pursuant to 36 CFR Part 800.11(e) the Criteria of Adverse Effect must be applied.

Table 4-17b: Results of Application of Criteria of Adverse Effect for Wayne Station.

Criteria of Adverse Effect	Evaluation
Adverse effects on historic properties include, but may not be limited to:	
(i) Physical destruction of or damage to all or part of a property	The proposed project will not result in physical destruction or damage to Wayne Station.
(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision for handicapped access that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines	The installation of the new 60'-2"-high catenary structure will not alter Wayne Station in a manner that is inconsistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines.
(iii) Removal of the property from its historic location	The proposed work will not remove Wayne Station, or any of its elements, from its historic location.

Criteria of Adverse Effect	Evaluation
(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance	<p>The proposed project will not change the character of the station's use. The increased height of the new 60'-2"-high catenary structure will change the character of the physical features within the historic property's setting. However, the change in character will be minimal, because the increased height will not be incompatible with the current setting, and it will not affect the property's ability to convey its historic significance. The railroad's infrastructure, including the nearby catenary structures and overhead system, has always been an integral part of the station's setting. The addition of a new structure to the setting will not affect it.</p>
(v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features	<p>The increased height of the new structure directly in front of the station will introduce a visual element; however, it will not be incompatible with the railroad-related property and will not diminish the integrity of the station building's distinctive form of standardized PRR railroad architecture. The tree trimming will not introduce visual elements that diminish the integrity of the property's significant historic features.</p> <p>The proposed project will introduce incompatible audible and vibration elements; however, they will be of a temporary nature and will cease upon project completion.</p>
(vi) Neglect of a property, which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization	<p>The proposed project will not result in the neglect or deterioration of the Wayne Station.</p>

Criteria of Adverse Effect	Evaluation
(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance	The proposed project will not result in the transfer, lease, or sale of the Wayne Station.
Finding	The proposed project will have <i>No Adverse Effect</i> on the Wayne Station.

4.3.18 RESOURCE 18: NORTH WAYNE HISTORIC DISTRICT (KEY NO. 064497)

The North Wayne Historic District, in Radnor Township, Delaware County, was listed in the NRHP on July 25, 1985 (CRGIS 2015). The district is significant under Criterion C in the areas of architecture and community planning. Near the southernmost point of the North Wayne Historic District, two new 60'-2"-high catenary structures will replace two existing 50'-2"-high structures. The closest structure will be almost 100 feet south of the historic district. The catenary structures will be difficult to see from the NRHP-listed North Wayne Historic District, which lies below the grade of the railroad ROW, because of the distance of the catenary structures from the historic district and the existing tree screen lining the north side of the ROW (see Photographs 29 and 30).

Table 4-18: Results of Application of Definition of Effect for North Wayne Historic District.

Definition of Effect	Evaluation
An <i>Effect</i> may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register as defined in 36 CFR 800.16(i).	Two new 60'-2"-high catenary structures will replace two existing 50'-2"-high catenary structures 100'0" from the southernmost point of the North Wayne Historic District. Because of their distance from the historic district, the project will not introduce any incompatible visual elements to the station' setting, and it will not alter the characteristics that qualify it for listing in the NRHP, including its architectural diversity.

Definition of Effect	Evaluation
Finding	The proposed project will not have an <i>Effect</i> on the North Wayne Historic District, resulting in a finding of <i>No Historic Properties Affected.</i>

4.3.19 RESOURCE 19: DOWNTOWN WAYNE HISTORIC DISTRICT (KEY NO. 827766)

The Downtown Wayne Historic District, in Radnor Township, Delaware County, was listed in the NRHP in 2003 (CRGIS 2015). The district is significant under Criterion C in the area of architecture. Two sets of catenary structures will be installed at points that are approximately 200'-0" north of the NRHP-listed Downtown Wayne Historic District. One set will replace an existing 50'-0"-high structure, and the other will be a new structure. Both structures will stand at 60'-2" high.

Table 4-19: Results of Application of Definition of Effect for Downtown Wayne Historic District.

Definition of Effect	Evaluation
An <i>Effect</i> may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register as defined in 36 CFR 800.16(i).	Two 60'-2"-high catenary structures will be installed at points that are approximately 200'-0" north of the Downtown Wayne Historic District. Because of the distance, the proposed project will not introduce incompatible visual elements to the historic district's setting, nor will it alter the characteristics that qualify the property for listing in the NRHP, including its architectural diversity.
Finding	The proposed undertaking will not have an <i>Effect</i> on the Downtown Wayne Historic District, resulting in a finding of <i>No Historic Properties Affected.</i>

4.3.20 RESOURCE 20: STRAFFORD STATION (KEY NO. 079668)

Strafford Station, in Tredyffrin Township, Chester County, was listed in the NRHP on July 26, CRGIS 2015). The station is significant under Criterion A in the area of transportation and

under Criterion C in the area of architecture. One new 60'-2"-high catenary structure will replace an existing 50'-2"-high structure at the NRHP-listed Strafford Station (see Photographs 31 and 32). The new structure will be placed approximately 10'-0" east of the existing structure, and it will be approximately 20'-0" east of the station building. The new structure will lie within the boundary of the historic property (Goshorn 1984).

Table 4-20a: Results of Application of Definition of Effect for Strafford Station.

Definition of Effect	Evaluation
An <i>Effect</i> may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register as defined in 36 CFR 800.16(i).	One new 60'-2"-high catenary structure will replace an existing 50'-2"-high structure at the NRHP-listed Strafford Station. Because of its location 20'-0" east of the station building and its location within the boundaries of the historic property, the project may introduce incompatible visual elements to the station's setting, and it may alter the characteristics that qualify the property for listing in the NRHP, including its architecture.
Finding	The proposed project will have an <i>Effect</i> on Strafford Station, resulting in a finding of <i>Historic Properties Affected</i> . Pursuant to 36 CFR Part 800.11(e) the Criteria of Adverse Effect must be applied.

Table 4-20b: Results of Application of Criteria of Adverse Effect for Strafford Station.

Criteria of Adverse Effect	Evaluation
Adverse effects on historic properties include, but may not be limited to:	
(i) Physical destruction of or damage to all or part of a property	The proposed project will not result in physical destruction of or damage to Strafford Station.

Criteria of Adverse Effect	Evaluation
(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision for handicapped access that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines	The installation of the 60'-2"-high catenary structure will not alter Strafford Station in a manner that is inconsistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines.
(iii) Removal of the property from its historic location	The proposed project will not remove Strafford Station, or any of its elements, from its historic location.
(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance	The proposed project will not change the character of the station's use. The new 60'-2"-high catenary structure will change the character of the physical features within the historic property's setting. The change in character will be minimal, however, because the increased structure height will not be incompatible with the existing setting and will not affect the property's ability to convey its historic significance. The railroad's infrastructure, including the catenary structures and overhead system, has always been an integral part of the station's setting.
(v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features	<p>The installation of the taller catenary structure in front of the station building will introduce a visual element; however it will not be incompatible with the station and will not diminish the integrity of the station's distinctive architectural features. The tree trimming will not introduce visual elements that diminish the integrity of the property's significant historic features.</p> <p>The proposed project will introduce incompatible audible and vibration elements; however, they will be of a temporary nature and will cease upon project completion.</p>

Criteria of Adverse Effect	Evaluation
(vi) Neglect of a property, which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization	The project will not result in the neglect or deterioration of the Strafford Station.
(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance	The project will not result in the transfer, lease, or sale of the Strafford Station.
Finding	The proposed project will have <i>No Adverse Effect</i> on the Strafford Station.

4.3.21 RESOURCE 21: CRAMOND (KEY NO. 050893)

The house known as Cramond, in Tredyffrin Township, Chester County, was listed in the NRHP on June 30, 1983 (CRGIS 2015). The property is significant under Criterion C in the area of architecture. Cramond is located more than 200'-0" north of the railroad ROW at Strafford Station (see Photographs 32 and 33). One new 60'-2"-high catenary structure will replace an existing 50'-2"-high catenary structure within the ROW. The structure's location will be more than 200'-0" from the house. While most residences were built facing away from the railroad corridor, this is an example of a historic resource that considers the railroad (and its associated features such as the railroad station and catenary structures) to be a salient feature of its viewshed.

Table 4-21a: Results of Application of Definition of Effect for Cramond.

Definition of Effect	Evaluation
An <i>Effect</i> may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register as defined in 36 CFR 800.16(i).	One new 60'-2"-high catenary structure will replace an existing 50'-2"-high structure, at a distance of more than 200'-0" from the historic property. Because of the new structure's distance from the property, the project will not cause the introduction of incompatible visual elements to its setting. The project will not alter the characteristics that qualify the property for listing in the NRHP, including its architectural distinction and the fact that it was designed by a notable architectural firm.
Finding	The proposed project will not have an <i>Effect</i> on Cramond, resulting in a finding of <i>No Historic Properties Affected</i> .

4.3.22 RESOURCE 22: GROVE AVENUE SERVICE STATION (KEY NO. 112814)

The Grove Avenue Service Station in Tredyffrin Township, Chester County, was determined eligible for NRHP listing on March 2, 2000 (CRGIS 2015). The property is significant under Criterion A for transportation and under Criterion C in the area of architecture (CRGIS 2015). One 50'-2"-high catenary structure will be replaced by a new 60'-2"-high structure, which will be elevated above the service station and will be at a distance of over 100'-0" northwest of it (see Photograph 34).

Table 4-22: Results of Application of Definition of Effect for Grove Avenue Service Station.

Definition of Effect	Evaluation
An <i>Effect</i> may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register as defined in 36 CFR 800.16(i).	One 60'-2"-high catenary structure will replace an existing 50'-2"-high structure approximately 100'-0" northwest of the Grove Avenue Service Station. Because of the new structure's distance from the property, the project will not cause the introduction of incompatible visual elements. It will not alter the characteristics that qualify the

Definition of Effect	Evaluation
	service station for listing in the NRHP, including its architecture.
Finding	The proposed project will not have an <i>Effect</i> on the Grove Avenue Service Station, resulting in a finding of <i>No Historic Properties Affected</i> .

4.3.23 RESOURCE 23: PENNSYLVANIA RAILROAD (PHILADELPHIA TO MORRISVILLE/NEW YORK) (KEY NO. 125733)

The Pennsylvania Railroad Main Line (Philadelphia to Morrisville/New York) was determined eligible for NRHP listing on September 14, 1995, and again on November 16, 2007. The resource is eligible under Criterion A in the areas of transportation and under economics and Criterion C for engineering. The Philadelphia to Morrisville/New York line converges with the Pennsylvania Railroad Main Line (Philadelphia to Harrisburg) in the vicinity of the Zoo Substation and goes below-grade south of the substation before extending toward 30th Street Station in Philadelphia. This portion of the railroad is part of the overall line from Washington to Boston, also now known as the Northeast Corridor, and is not part of the Main Line. Although the two lines converge in the vicinity of the Zoo Substation, there is no catenary work planned on the line.

Table 4-23: Results of Application of Definition of Effect for Pennsylvania Railroad (Philadelphia to Morrisville/New York).

Definition of Effect	Evaluation
An <i>Effect</i> may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register as defined in 36 CFR 800.16(i).	No work is planned for the railroad line in the area where the two railroads converge near the Zoo substation. There will be no introduction of incompatible visual elements and no alteration to the characteristics that qualify it for listing in the NRHP.
Finding	The proposed project will not have an <i>Effect</i> on the Pennsylvania Railroad (Philadelphia to Morrisville/New York), resulting in a finding of <i>No Historic Properties Affected</i> .

4.3.24 RESOURCE 24: PENNSYLVANIA RAILROAD MAIN LINE (PHILADELPHIA TO HARRISBURG) (KEY NO. 105675)

The Pennsylvania Railroad Main Line (Philadelphia to Harrisburg) railroad corridor historic district was determined eligible for NRHP-listing on September 14, 1993, and on November 16, 2007 (CRGIS 2015). The resource meets NRHP Criteria A and C for its statewide significance in transportation, economy, and the development of Pennsylvania's industries and communities. A total of 325 catenary structures are proposed to be removed and replaced along a 16-mile-long section between 51st Street and the Paoli Substation. The structures are Contributing Resources to the NRHP-eligible Pennsylvania Railroad Main Line (Philadelphia to Harrisburg). The Bryn Mawr Substation, constructed in 1915, is also a Contributing Resource to the historic district and is proposed to be demolished and replaced with a new facility (see Photographs 35, 36, 37, 38, and 39).

Table 4-24a: Results of Application of Definition of Effect for Pennsylvania Railroad Main Line (Philadelphia to Harrisburg).

Definition of Effect	Evaluation
An <i>Effect</i> may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register as defined in 36 CFR 800.16(i).	The proposed project will remove and replace 325 catenary structures within the ROW along a 16-mile-long section between 51st Street in Philadelphia and the Paoli Substation. The structures are Contributing Resources to the NRHP-eligible property. The proposed project also will cause the Bryn Mawr Substation building to be demolished and replaced with a new substation complex. The proposed project will alter the characteristics that qualify the historic district for listing in the NRHP.
Finding	The proposed project will have an <i>Effect</i> on Pennsylvania Railroad Main Line (Philadelphia to Harrisburg), resulting in a finding of <i>Historic Properties Affected</i> . Pursuant to 36 CFR Part 800.11(e) the Criteria of Adverse Effect must be applied.

Table 4-24b: Results of Application of Criteria of Adverse Effect for Pennsylvania Railroad Main Line (Philadelphia to Harrisburg).

Criteria of Adverse Effect	Evaluation
Adverse effects on historic properties include, but may not be limited to:	
(i) Physical destruction of or damage to all or part of a property	The proposed project will cause the removal of 325 catenary structures between 51 st Street and the Paoli Substation. It will also cause the demolition of the Bryn Mawr Substation, resulting in the physical destruction of two of the property's Contributing Resources.
(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision for handicapped access that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines	The removal of the catenary structures and the Bryn Mawr Substation will cause alterations to the property that are not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines.
(iii) Removal of the property from its historic location	The proposed project will cause the removal of the catenary structures and the Bryn Mawr Substation from their historic locations.
(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance	The proposed project will not change the character of the railroad's use. The project will change the character of the physical features within the historic property's setting. The changes in the character will be minimal, however. The change of the catenary structures within the railroad's setting will not be incompatible with the current setting. Catenary structures have historically been a part of the railroad's setting and operation, and a change in the current structures to higher ones will not affect the property's setting and the property's ability to convey historic significance.

Criteria of Adverse Effect	Evaluation
(v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features	<p>The installation of the new catenary structures will introduce new visual elements; however they will not be incompatible with the resource and will not diminish the overall integrity of the railroad and its significant features. The tree trimming will not introduce visual elements that will diminish the integrity of the property's significant historic features.</p> <p>The proposed project will, however, introduce a new substation that will diminish the integrity of the setting and feeling of the property at Bryn Mawr.</p> <p>The proposed project will introduce incompatible audible and vibration elements; however, they will be of a temporary nature and will cease upon project completion.</p>
(vi) Neglect of a property, which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization	<p>The proposed project will not result in the neglect or deterioration of the historic railroad as a whole, but instead will improve the railroad and its operation.</p>
(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance	<p>The proposed project will not result in the transfer, lease, or sale of the Pennsylvania Railroad Main Line (Philadelphia to Harrisburg) section.</p>
Finding	<p>The proposed project will have an <i>Adverse Effect</i> on the Pennsylvania Railroad Main Line (Philadelphia to Harrisburg) section.</p>

4.3.25 RESOURCE 25: PHILADELPHIA & WESTERN RAILROAD (NORRISTOWN HIGH SPEED LINE) (KEY NO. 128825)

The Philadelphia & Western Railroad (Norristown High Speed Line) was determined eligible for NRHP listing on June 21, 2004 (CRGIS 2015). The railroad is considered eligible under

Criterion A for its association with the development of an early twentieth-century inter-urban railroad in Pennsylvania. A grade separation crossing separates the Philadelphia & Western Railroad from the Pennsylvania Railroad Main Line (Philadelphia to Harrisburg), with the latter crossing over the Philadelphia and Western. At the location of the crossing, one catenary structure, approximately 45'-2" in height, will be replaced with a new 34'-0"-high structure. Two new catenary structures, 112'-2" in height, will need to be installed at the crossing because of the presence of Philadelphia Electric Company (PECO) wires at that location (see Photograph 40).

Table 4-25a: Results of Application of Definition of Effect for Philadelphia & Western Railroad (Norristown High Speed Line).

Definition of Effect	Evaluation
An <i>Effect</i> may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register as defined in 36 CFR 800.16(i).	One approximately 45'-2"-high catenary structure will be replaced with a new 34'-0"-high structure. Two new catenary structures, 112'-2" in height, will be installed at the crossing to extend over the PECO wires. The proposed project may alter the characteristics that qualify the property for listing in the NRHP.
Finding	The proposed project will have an <i>Effect</i> on the Philadelphia & Western Railroad (Norristown High Speed Line), resulting in a finding of <i>Historic Properties Affected</i> . Pursuant to 36 CFR Part 800.11(e) the Criteria of Adverse Effect must be applied.

Table 4-25b: Results of Application of Criteria of Adverse Effect for Philadelphia & Western Railroad (Norristown High Speed Line).

Criteria of Adverse Effect	Evaluation
Adverse effects on historic properties include, but may not be limited to:	
(i) Physical destruction of or damage to all or part of a property	The proposed project will not result in physical destruction of or damage to Philadelphia & Western Railroad (Norristown High Speed Line).

Criteria of Adverse Effect	Evaluation
(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision for handicapped access that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines	The replacement of a 45'-2"-high catenary structure with a new 34'-0"-high structure and the installation of two new 112'-2"-high catenary structures will not cause alterations that are inconsistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines.
(iii) Removal of the property from its historic location	The proposed project will not cause the removal of the Philadelphia & Western Railroad (Norristown High Speed Line) from its historic location.
(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance	The proposed project will not change the character of the railroad's use, nor will it change the character of the physical features within the historic property's setting. The railroad is below the grade of the Pennsylvania Railroad Main Line (Philadelphia to Harrisburg), and the structure replacement and installation in the latter's ROW will not affect the setting of the Philadelphia and Western and its ability to convey its historic significance.
(v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features	<p>The introduction of visual elements in the ROW of the Pennsylvania Railroad Main Line (Philadelphia to Harrisburg), above the ROW of the Philadelphia and Western Railroad will not be incompatible and will not diminish the overall integrity of the Philadelphia and Western Railroad and its significant features. The tree trimming will not introduce visual elements that will diminish the integrity of the property's significant historic features.</p> <p>The proposed project will introduce incompatible audible and vibration elements; however, they will be of a temporary nature and will cease upon project completion.</p>

Criteria of Adverse Effect	Evaluation
(vi) Neglect of a property, which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization	The proposed project will not result in the neglect or deterioration of the historic railroad as a whole, but instead will improve the railroad and its operation.
(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance	The proposed project will not result in the transfer, lease, or sale of the Philadelphia & Western Railroad (Norristown High Speed Line).
Finding	The proposed project will have <i>No Adverse Effect</i> on the Philadelphia & Western Railroad (Norristown High Speed Line).

4.3.26 RESOURCE 26: WILLIAM PENN MILE MARKERS (KEY NO. 101320)

The William Penn Mile Markers were determined eligible for listing in the NRHP on March 2, 1993 (CRGIS 2015). The markers are considered eligible under Criterion A in the area of transportation, in association with the Philadelphia and Lancaster Turnpike. Only one of the NRHP-eligible mile markers (Ardmore) is within the APE; however, the removal and installation of catenary structures will not occur near this marker.

Table 4-26: Results of Application of Definition of Effect for William Penn Mile Markers.

Definition of Effect	Evaluation
An <i>Effect</i> may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register as defined in 36 CFR 00.16(i).	The replacement of catenary structures and the removal of the Bryn Mawr Substation are not occurring near the William Penn Mile Marker. The project will not cause the introduction of incompatible visual elements, nor will it alter the characteristics that qualify the markers for listing in the NRHP.
Finding	The proposed project will not have an <i>Effect</i> on

Definition of Effect	Evaluation
	the William Penn Mile Marker, resulting in a finding of <i>No Historic Properties Affected</i> .

4.3.27 RESOURCE 27: CLONMEL-ROSSLEVYN (KEY NO. 065460)

Clonmel-Rosslevyn, at 144 Old Eagle School Road, Strafford, in Tredyffrin Township, Chester County, was determined eligible for listing in the NRHP on March 16, 2015. The building possesses significance under Criterion C in the area of Architecture. One 50'-2"-high catenary structure is being replaced with a 60'-2"-high structure in the ROW adjacent to the NRHP-eligible Clonmel-Rosslevyn property. The structure will be located directly south of the property but will be approximately 300 feet away from it (see Photographs 41 and 42).

Table 4-27: Results of Application of Definition of Effect for Clonmel-Rosslevyn.

Definition of Effect	Evaluation
An <i>Effect</i> may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register as defined in 36 CFR 800.16(i).	One 50'-2"-high structure will be replaced with a 60'-2"-high structure. Because of the new structure's distance from the property, the project will not introduce incompatible visual elements to the mansion and its setting. The project will not alter the characteristics that qualify the property for listing in the NRHP, including its architecture.
Finding	The proposed project will not have an <i>Effect</i> on Clonmel-Rosslevyn, resulting in a finding of <i>No Historic Properties Affected</i> .

4.3.28 RESOURCE 28: DEVEREUX FOUNDATION (KEY NO. 201351)

The Devereux Foundation at 228 Highland Avenue, Devon, Easttown Township, Chester County, was determined eligible for listing in the NRHP on April 24, 2015. The property possesses significance under Criterion A in the area of Education and under Criterion B for its association with Helena Trafford Devereux. Two 50'-2"-high catenary structures are being

replaced with two 60'-2"-high catenary structures. The structures will be located directly south of the NRHP-eligible Devereux Foundation property but will be between 300'-0" and 400'-0" away from the property's buildings (see Photographs 43, 44, and 45).

Table 4-28: Results of Application of Definition of Effect for Devereux Foundation.

Definition of Effect	Evaluation
An <i>Effect</i> may occur when there is alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register as defined in 36 CFR 800.16(i).	Two 50'-2"-high catenary structures are being replaced with two 60'-2"-high catenary structures. Because of the distance of the new structures from the property's buildings, the project will not introduce incompatible elements to the setting, nor will it alter the characteristics that qualify the property for listing in the NRHP, including its significance in the area of Education and its association with Helena Trafford Devereux
Finding	The proposed project will not have an <i>Effect</i> on The Devereux Foundation property, resulting in a finding of <i>No Historic Properties Affected</i> .

4.4 SUMMARY

The completion of the Effects Assessment for the Amtrak Philadelphia Zoo to Paoli Electrification Transmission Project has resulted in the finding that the project will have an *Adverse Effect* on historic properties, because of the adverse effect on the historic property, Pennsylvania Railroad Main Line (Philadelphia to Harrisburg) (Key No. 105675). The following is a breakdown of the findings, which are also located in Table 3-1.

- The proposed project will have an Adverse Effect on one (1) historic property;
- The proposed project will have No Adverse Effect on 10 historic properties; and
- A finding of No Historic Properties Affected has been found for 17 historic properties.

5.0 SUMMARY OF PUBLIC INVOLVEMENT

The public involvement process included meetings from 2012 through 2014 with the following parties:

- Public officials;
- General public; and
- Consulting parties.

The public officials' meetings were held on April 25, 2012, at Harcum Junior College; April 30, 2012 at Radnor Middle School; May 28, 2013 at Lower Merion Township Building; and on May 29, 2013, at the Radnor Township Building. General public meetings were held June 6, 2012, and June 6, 2013, at Villanova University. The Consulting Parties' meetings were held on June 6, 2013, at Villanova University, September 15, 2014, at the Lower Merion Township Building, and on June 1, 2015, at Bryn Mawr College. One additional Consulting Party meeting and a general public meeting are planned for the project.

During the public involvement process, the visual impacts caused by the taller catenary structures, the proposed color of the structures, and by the tree trimming were identified as primary concerns. The majority of the existing catenary poles are approximately 50 feet in height and are patina green in color. The majority of the proposed new catenary poles will be between 60 and 70 feet high, with the average height being 60 feet high. The catenary structures at bridges will require an increased height, typically under 100 feet, in order to meet the mandatory distances between structures and power sources provided in the National Electric Safety Code. The proposed structure heights are higher than the current structures but much lower than many cell towers that exist today. They have been kept as short as possible at each location. Proposed catenary structure heights at specific locations along the project corridor are shown in the detailed aerial photographs in Figure 4: Sheets 1-16. To illustrate the heights of the proposed catenary structures and the visual impacts that will result from their height difference, several photographic mock-ups were presented at the June 1, 2015 Consulting Parties meeting, showing the existing structures with line drawings of the new structures to scale. These mock-ups are included in Appendix C.

A galvanized coating was preliminarily proposed for the finish of the new catenary structures. Because Consulting Parties raised concerns over the color, an alternate color selection will be discussed at a subsequent Consulting Party meeting in September 2015.

While no tree cutting will occur during construction, there will be limited tree trimming of branches that overhang the ROW to prevent interference with construction work. Tree-trimming plans were produced to address public concerns. The plans were generated by the design team, using aerial photographs, site photographs, and field views to indicate the minimum amount of

tree trimming required for the project. The alternative—providing a blanket statement that construction crews should trim trees or perform clear-cutting along the entire project corridor—would have resulted in much more extensive trimming, and more significant visual impacts would occur.

Comments regarding the effects of the project on historic resources were received throughout the entire public involvement process from officials, the general public, and Consulting Parties. A complete list of Consulting Parties located in the four-county area and the Consulting Party response letters are found in Appendix A, as are the comments received during the public involvement process.

6.0 MINIMIZATION AND MITIGATION

The primary concerns raised during the public involvement process regarded the visual impacts caused by the taller catenary structures, the proposed color of the new structures, the potential tree removal along the ROW, the removal of the historic Bryn Mawr Substation building, and its replacement with modern prefabricated metal structures. Amtrak is using both minimization and mitigation practices to address the concerns.

6.1 MINIMIZATION

As a result of public concern, Amtrak took into account the catenary structure heights during the design process, especially in the areas of the historic properties. The raised structure heights were kept as low as possible, while still being able to accommodate the required safe height distance between railroad and commercial transmission lines and the railroad catenary. Pole heights were reduced further when a decision was made to remove commercial transmission lines from the Amtrak catenary system.

The majority of the existing catenary poles are approximately 50'-0" in height, and the majority of the proposed new catenary poles will be between 60'-0" and 70'-0" high, with the average height being 60'-0". The catenary structures at bridges will require an increased height, typically under 100'-0", in order to meet the mandatory distances between structures and power sources provided in the National Electric Safety Code. While the proposed structure heights are higher than the current structures, they are much lower than many cell towers that exist today and have been kept as short as possible at each location. Proposed catenary structure heights at specific locations along the project corridor are shown in the detailed aerial photographs in Figure 4: Sheets 1-16. In addition, to illustrate the heights of the proposed catenary structures and the visual impacts that will result from their height difference, several photographic mock-ups were presented at the June 1, 2015, Consulting Parties meeting, showing the existing structures with added line drawings of the new structures to scale. These mock-ups are included in Appendix C.

The existing catenary structures are patina green in color. A galvanized coating was proposed for the finish of the new catenary structures. Consulting Parties raised concerns over the proposed color and the possibility of painting them an alternate color was discussed. This item will be further discussed at a subsequent meeting in September 2015.

Concerns also were raised about tree removal that would occur during the project. Amtrak reported that while no tree removal will occur during construction, there will be limited tree trimming of branches that overhang the ROW to prevent interference with construction work. In response to public concern, Amtrak produced tree-trimming plans that indicate areas where trimming would occur along the ROW. The plans were generated by the design team using

aerial photographs, site photographs, and field views to indicate the minimum amount of tree trimming required for the project.

6.2 MITIGATION

When a Federally funded, licensed, or permitted project has adverse effects to a historic property, Section 106 of the NHPA requires that the agency agrees to complete preservation-minded projects to “mitigate” the impact. These projects are mutually agreed to between the agency, the SHPO, and other parties in a Memorandum of Agreement (MOA), a binding legal document. Mitigation cannot, and is not intended to, fully compensate for damage to or the loss of irreplaceable historic buildings and places. Instead, mitigation is an opportunity for a federal agency to preserve and document the past for the public’s education and appreciation.

Good mitigation is project-specific and commensurate with the undertaking’s adverse effects, taking into account the nature and magnitude of current and future impact(s) of the project and the needs of the local community. Projects may include the recordation of historic resources before they are demolished, interpretive activities, or using context sensitive solutions in the project design. MOAs may only require that the agency complete a single activity, or if the impacts are great, that several related efforts be completed. Suggestions enumerated below for potential mitigation efforts are derived from Consulting Party meetings. Other mitigation efforts may be identified that are more appropriate for this project.

6.2.1 RECORDATION OF BRYN MAWR SUBSTATION

A recordation of a historic architectural resource is designed to document a resource in its setting prior to project implementation. Recordations are not just a collection of photographs, but are final records to document the existence, history, and character of significant resources. To mitigate the adverse effects of the demolition of the Bryn Mawr Substation, Amtrak might complete a Level II or Level III recordation consistent with Historic American Engineering Record (HAER) standards, using the appropriate format for the building description—in this case, the outline format for engineering structures. The documentation would be filed with the PA State Archives, the PA SHPO, and the Railroad Museum of Pennsylvania.

6.2.2 INTERPRETIVE ACTIVITIES

Mitigation of adverse effects often includes measures to provide education to the public about the project or resource that is affected. Education may be provided through a variety of methods including websites; interpretive kiosks; museum displays; education programs; documents for public dissemination such as booklets and brochures; and public education events. One Consulting Party, the Railroad Museum of Pennsylvania, requested the acquisition of the removed catenary equipment for use in its new museum display currently being planned. Other Consulting Parties have suggested the installation of kiosks with interpretive plaques describing

the relationship between the railroad and the adjacent community, to be located at each railroad station.

6.2.3 CONTEXT SENSITIVE SOLUTIONS

Mitigation of adverse effects to historic properties may take into account measures that utilize Context Sensitive Solution (CSS) principles. The principles recognize the need to address safety and efficiency in transportation planning and design projects, while at the same time, addressing the natural and human environment. The tenets of CSS include:

- The importance of public involvement and solicitation of input in a project;
- The willingness of designers to accept and try alternative solutions that may deviate from standard designs; and
- The inclusion of specialists other than transportation designers in the design teams to provide different points of view (Transportation Research Board [TRB] 2004).

Consulting Parties meetings have highlighted the values that the community has placed on the Bryn Mawr Substation building and the appearance and visual effect of the proposed prefabricated replacement substation buildings. CSS tenets could be applied to the design of the replacement substation to respect the architecture of its predecessor. As stated by Russell Jones in his article on rail architecture, “The power house, now long since disappeared, was a typical example of early-twentieth-century industrial architecture. Massively constructed of brick, it made a profound statement of the solidity and permanence of the owning company” (Jones 2014). The Bryn Mawr Substation is an example of such a building—designed to evoke feelings of power, solidity, permanence, and monumentality—all characteristics of the Pennsylvania Railroad Company and its vast empire. With this in mind, the project designers might deviate from current practices and create an alternative design solution for this particular project to mitigate the loss of the original building from the local landscape and the introduction of metal-clad buildings. Instead of using prefabricated structures or constructing a purely utilitarian-looking Signal Power House and Control House Building, the project designers may want to incorporate elements from the original building into the new design. While the size of the original 1915 structure is not necessary for the new buildings, they could still be constructed using the same rectangular form and a flat roof as the original building. Light-colored brick very similar to the original material could be used for the wall cladding, which also is similar to the light-colored wall cladding material used on other nearby, recently constructed, buildings. Further, a corbelled brick cornice similar to that which wraps around the current building could be laid into the brickwork of the new buildings. Additionally, the existing sign from the original building might be removed and incorporated into the design of the site, possibly on a retaining wall in the parking lot (see Photograph 48).

7.0 SUMMARY AND CONCLUSIONS

The Determination of Effects assessment conducted in association with the proposed Amtrak Zoo to Paoli Electrification Transmission Line Project resulted in the overall finding that the proposed project will have an Adverse Effect on historic properties because of the direct physical effects to the Pennsylvania Railroad Main Line (Philadelphia to Harrisburg) and its Contributing Resources. Measures to mitigate the adverse effects of this project, such as the recordation of the Bryn Mawr Substation before it is demolished, the completion of interpretive activities, and the application of context sensitive solutions will be identified in consultation with the PA SHPO and the Consulting Parties. The agreed upon mitigation measures for the Undertaking will be included in a MOA between FRA, PA SHPO, and Amtrak.

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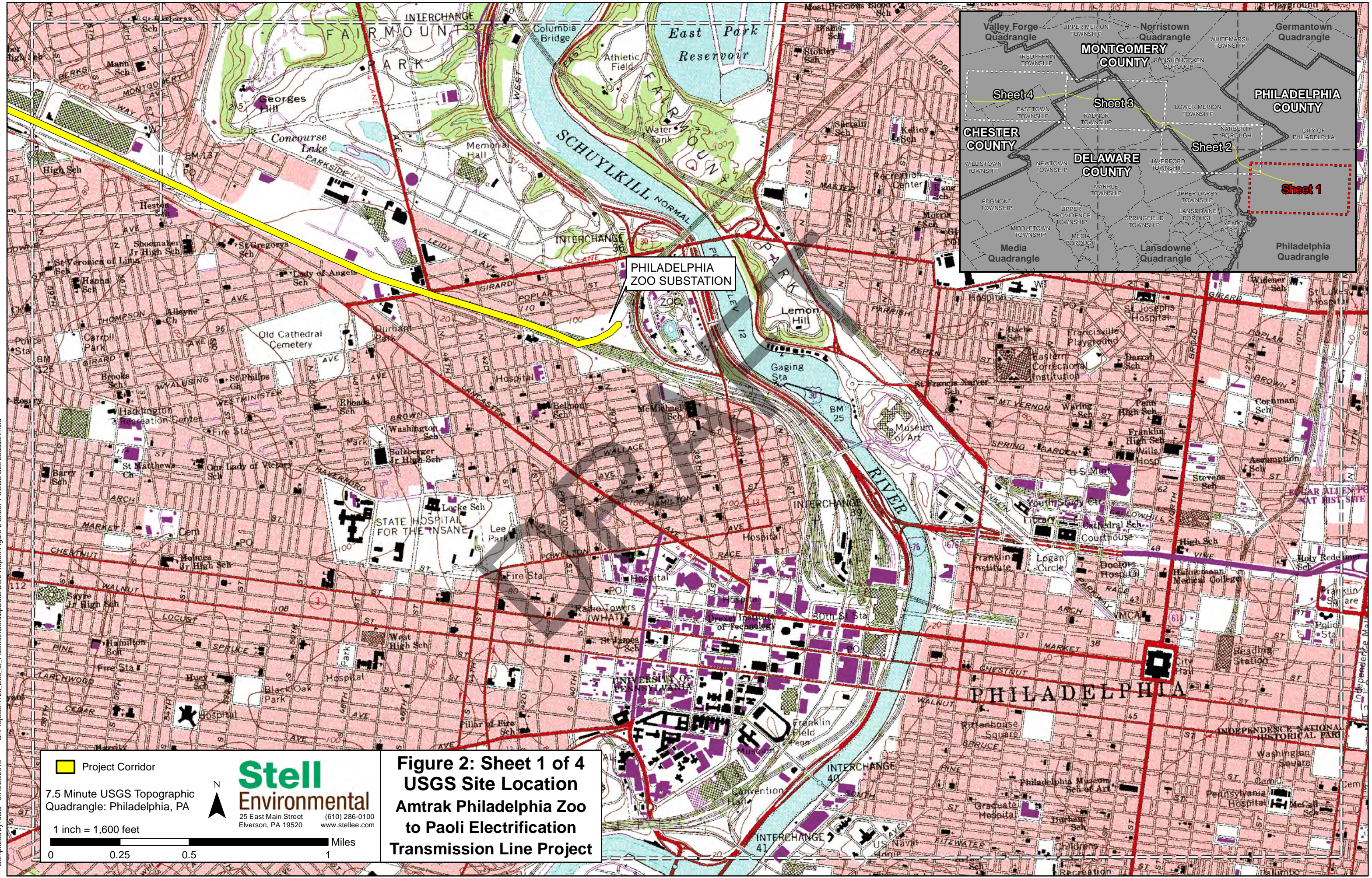
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FIGURES

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Completed by: JDD on 3/26/2015




 Project Corridor

7.5 Minute USGS Topographic
Quadrangle: Philadelphia, PA

1 inch = 1,600 feet

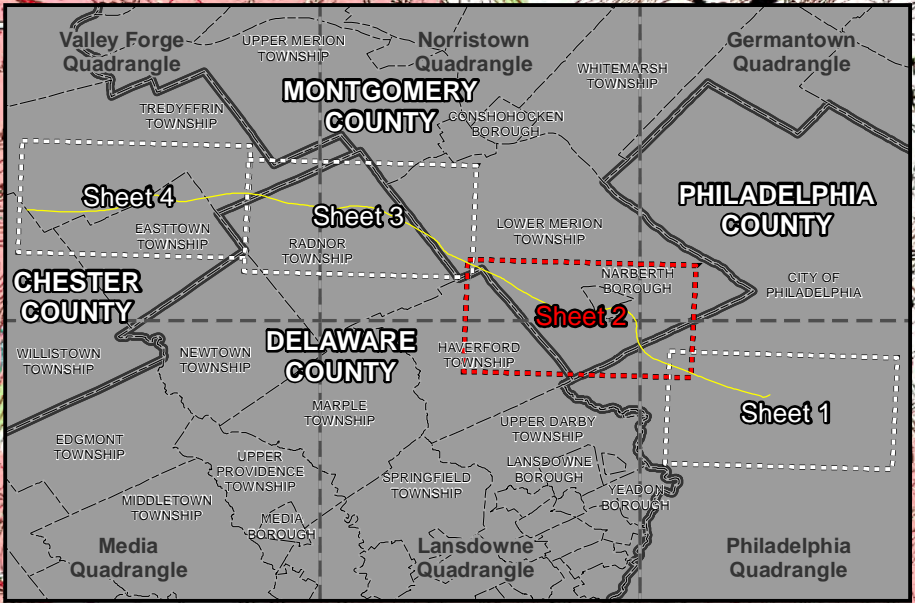
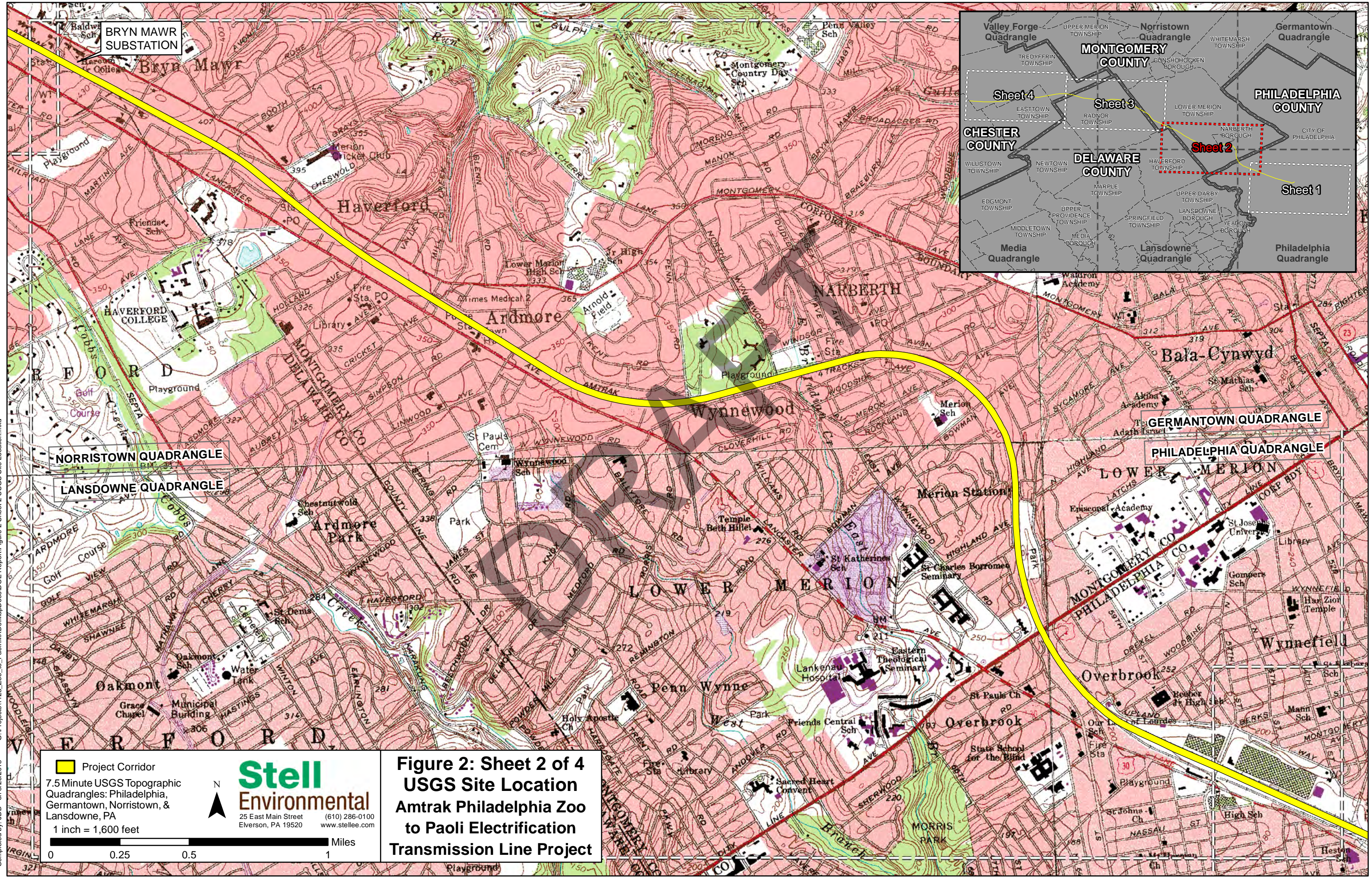

0 0.25 0.5 1 Miles


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**Figure 2: Sheet 1 of 4
USGS Site Location
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to Paoli Electrification
Transmission Line Project**

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Completed by: JDD on 3/26/2015



Project Corridor

7.5 Minute USGS Topographic
Quadrangles: Philadelphia,
Germantown, Norristown, &
Lansdowne, PA

1 inch = 1,600 feet

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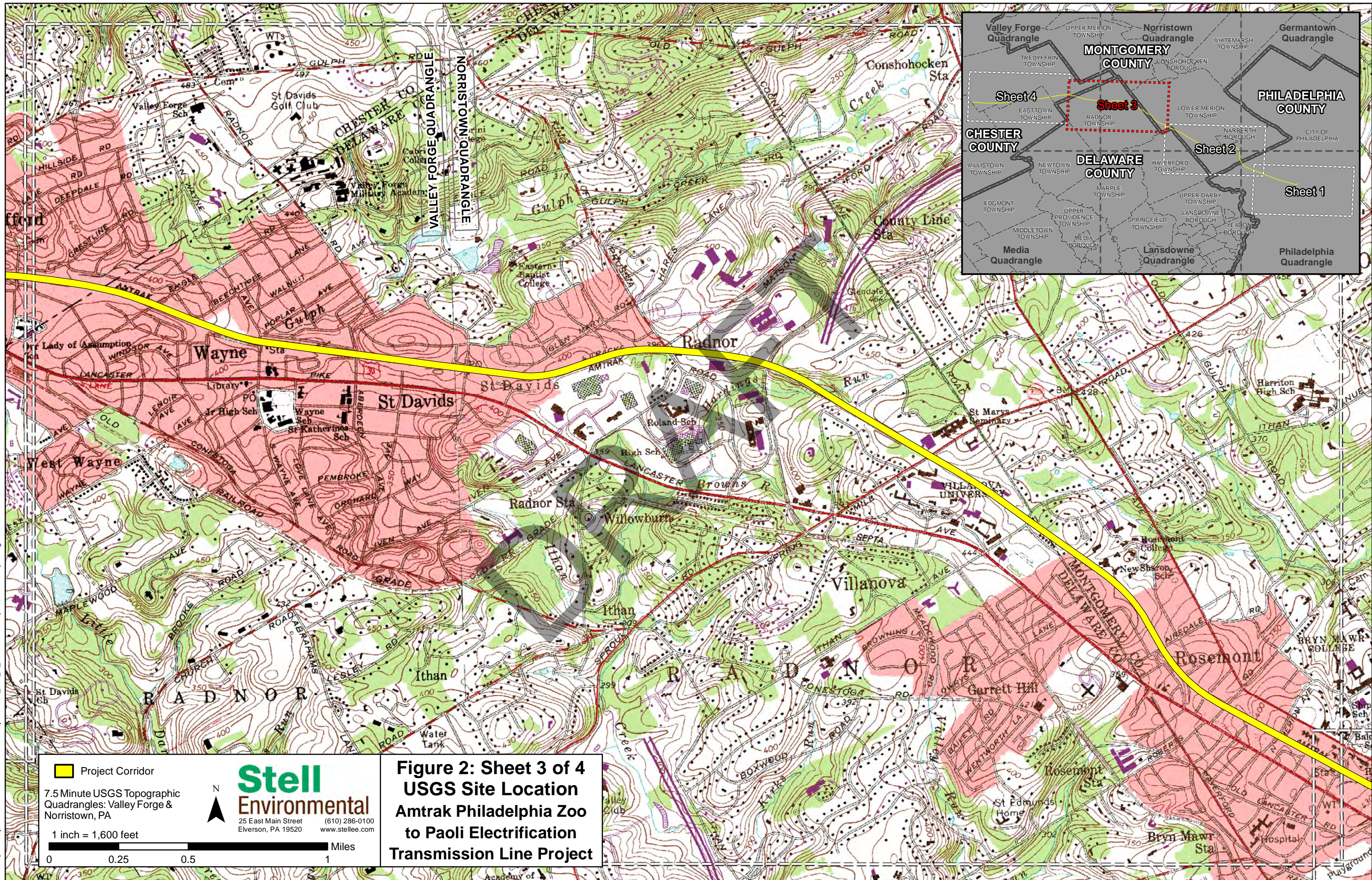
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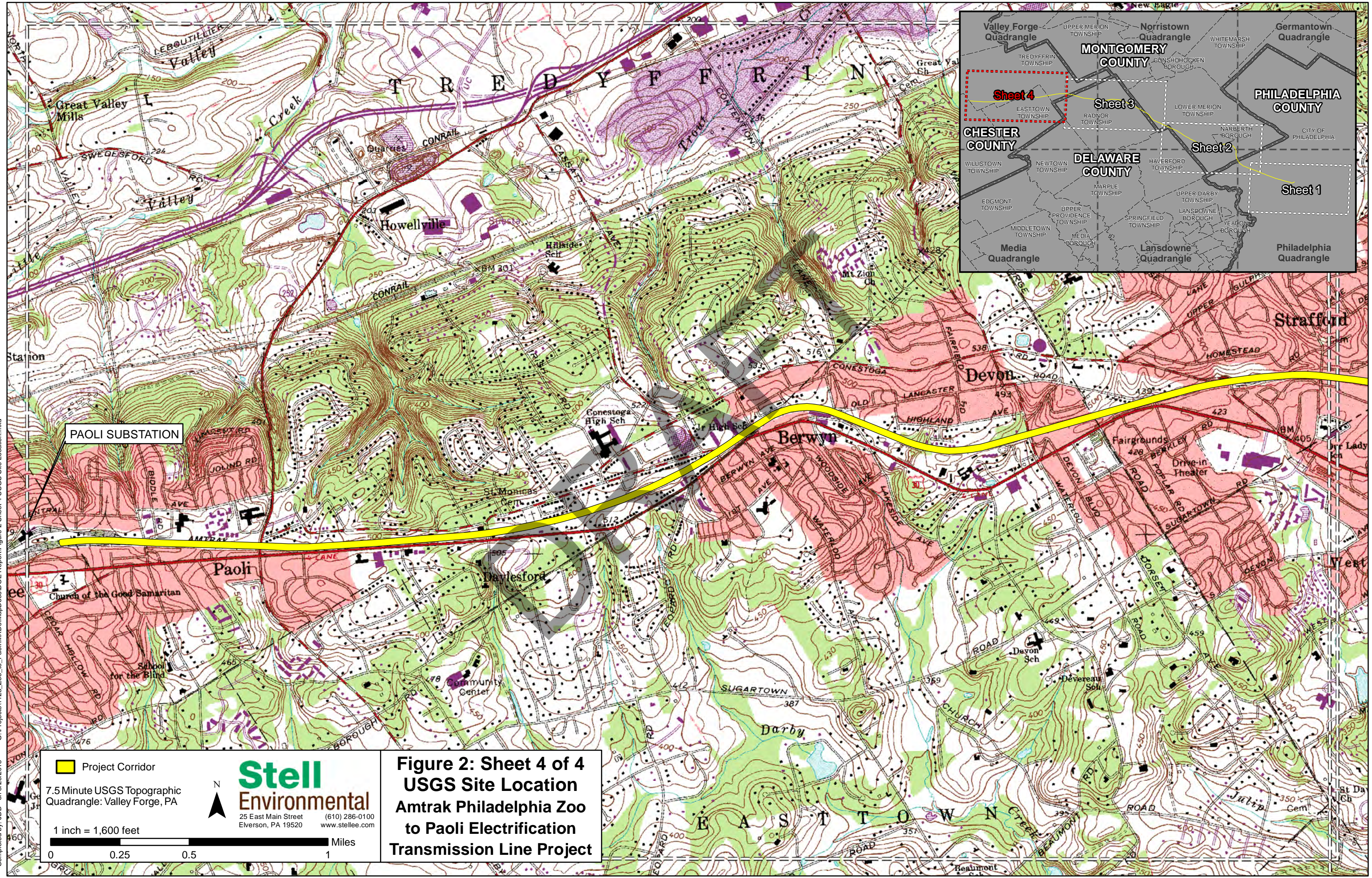
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Miles

**Figure 2: Sheet 2 of 4
USGS Site Location
Amtrak Philadelphia Zoo
to Paoli Electrification
Transmission Line Project**




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 Project Corridor

7.5 Minute USGS Topographic
Quadrangle: Valley Forge, PA

1 inch = 1,600 feet



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**Figure 2: Sheet 4 of 4
USGS Site Location
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Transmission Line Project**

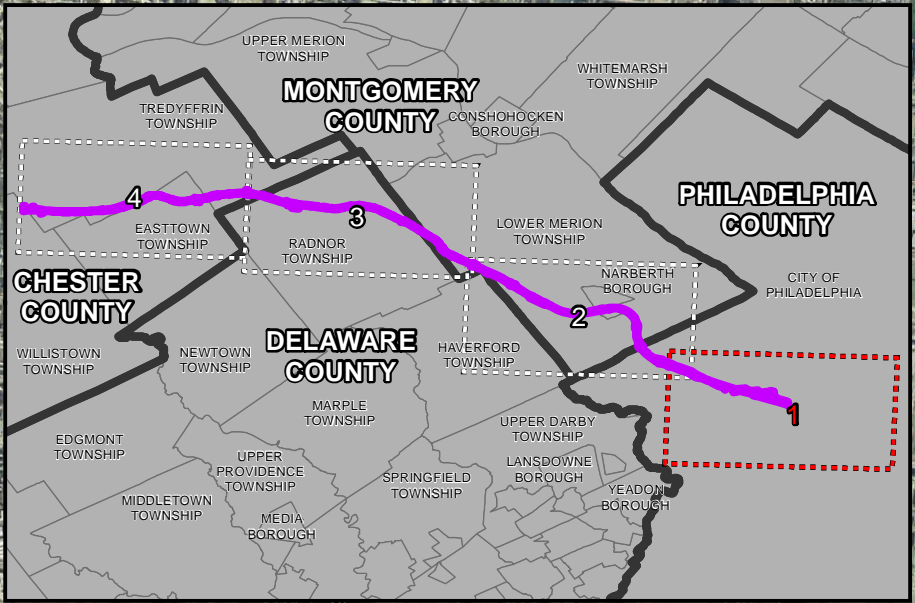
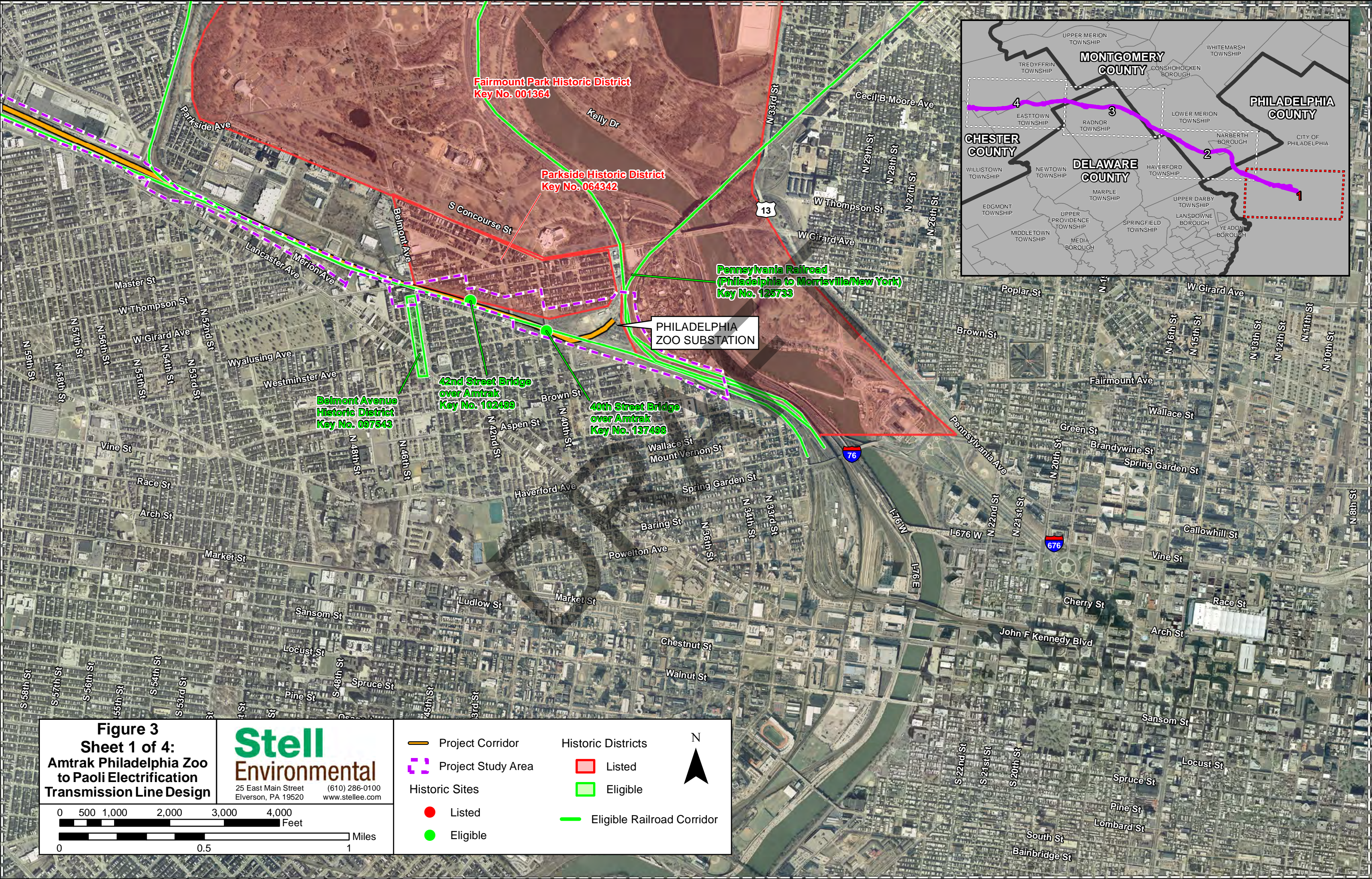


Figure 3
Sheet 1 of 4:
Amtrak Philadelphia Zoo to Paoli Electrification
Transmission Line Design

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0 500 1,000 2,000 3,000 4,000 Feet

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Project Corridor

Project Study Area

Historic Sites

Historic Districts

Listed

Eligible

Listed

Eligible

Eligible Railroad Corridor

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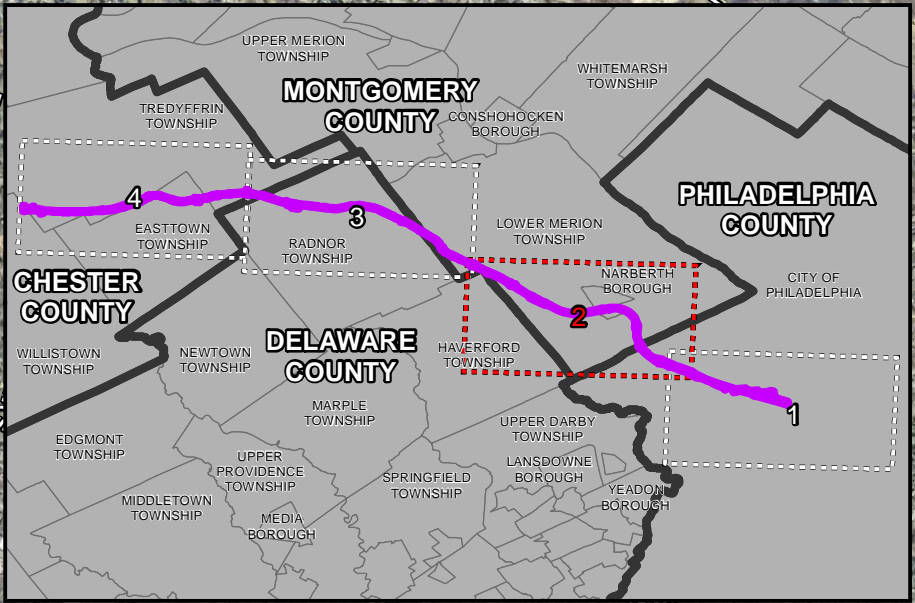
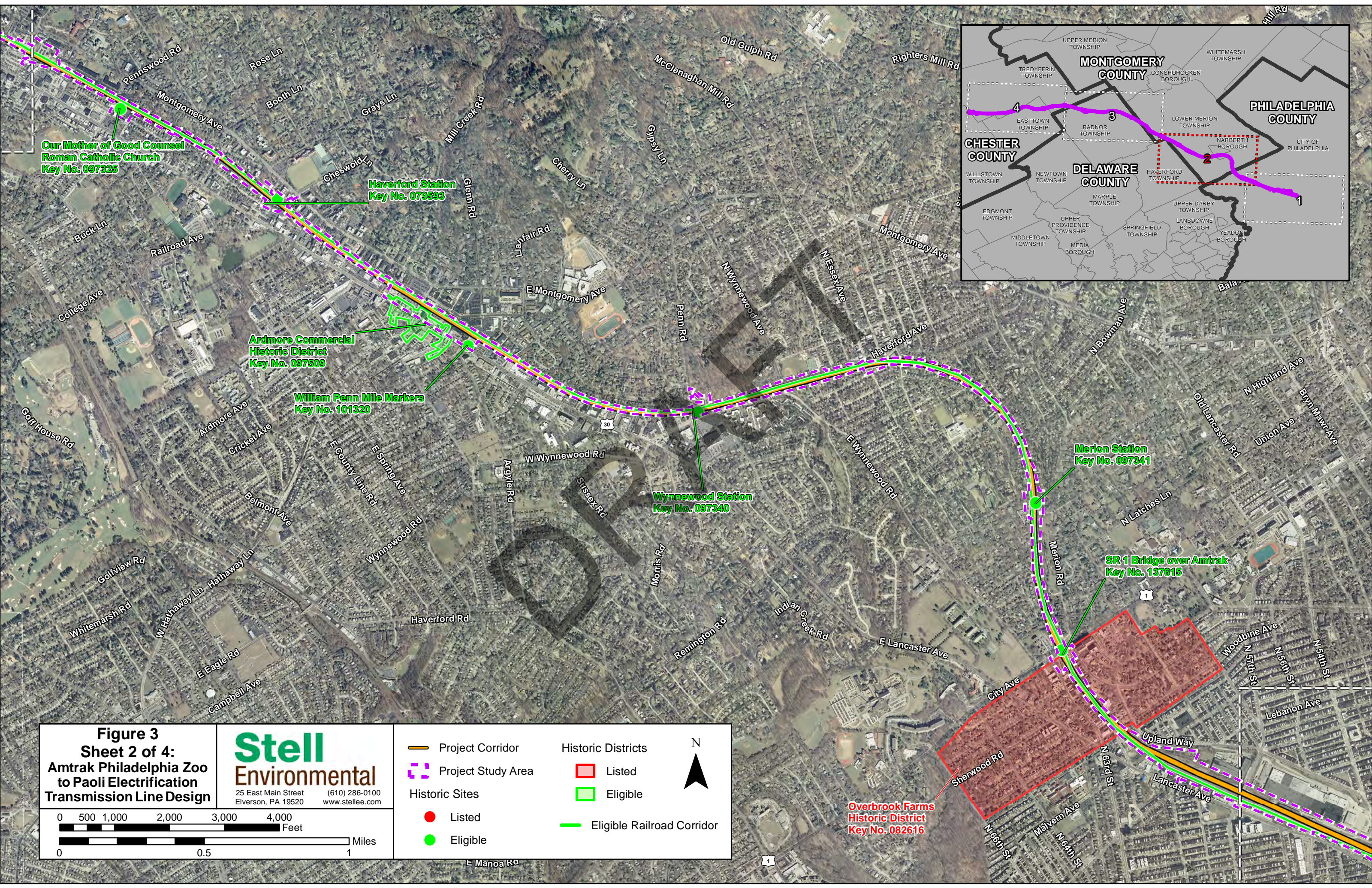








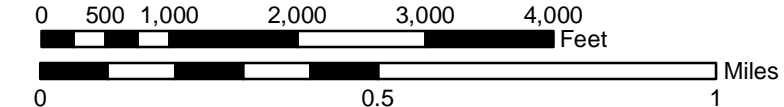


Figure 3
Sheet 2 of 4:
Amtrak Philadelphia Zoo
to Paoli Electrification
Transmission Line Design

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|  Project Corridor |  Project Study Area | Historic Districts |  |
|  Listed |  Eligible |  Listed |  Eligible |
| Historic Sites | |  Eligible Railroad Corridor | |



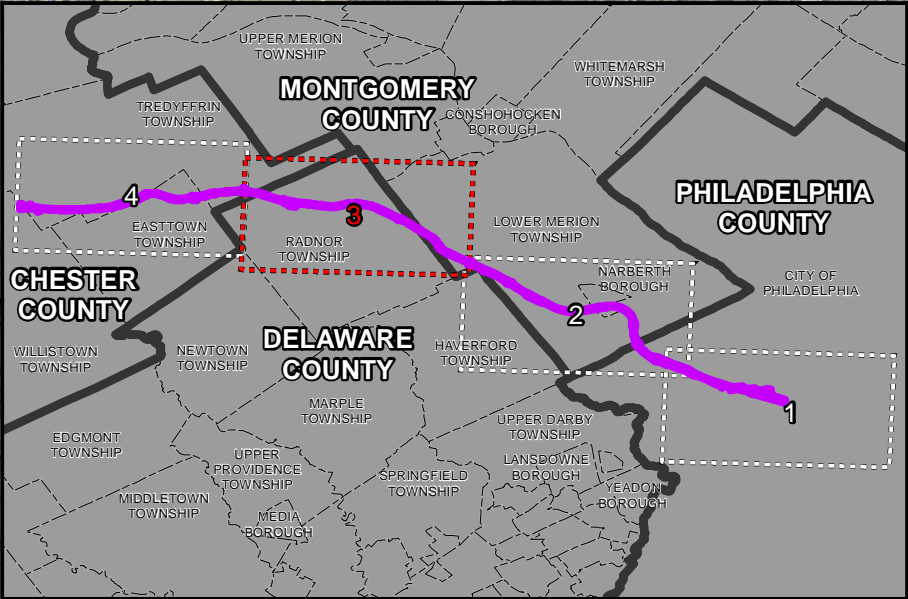
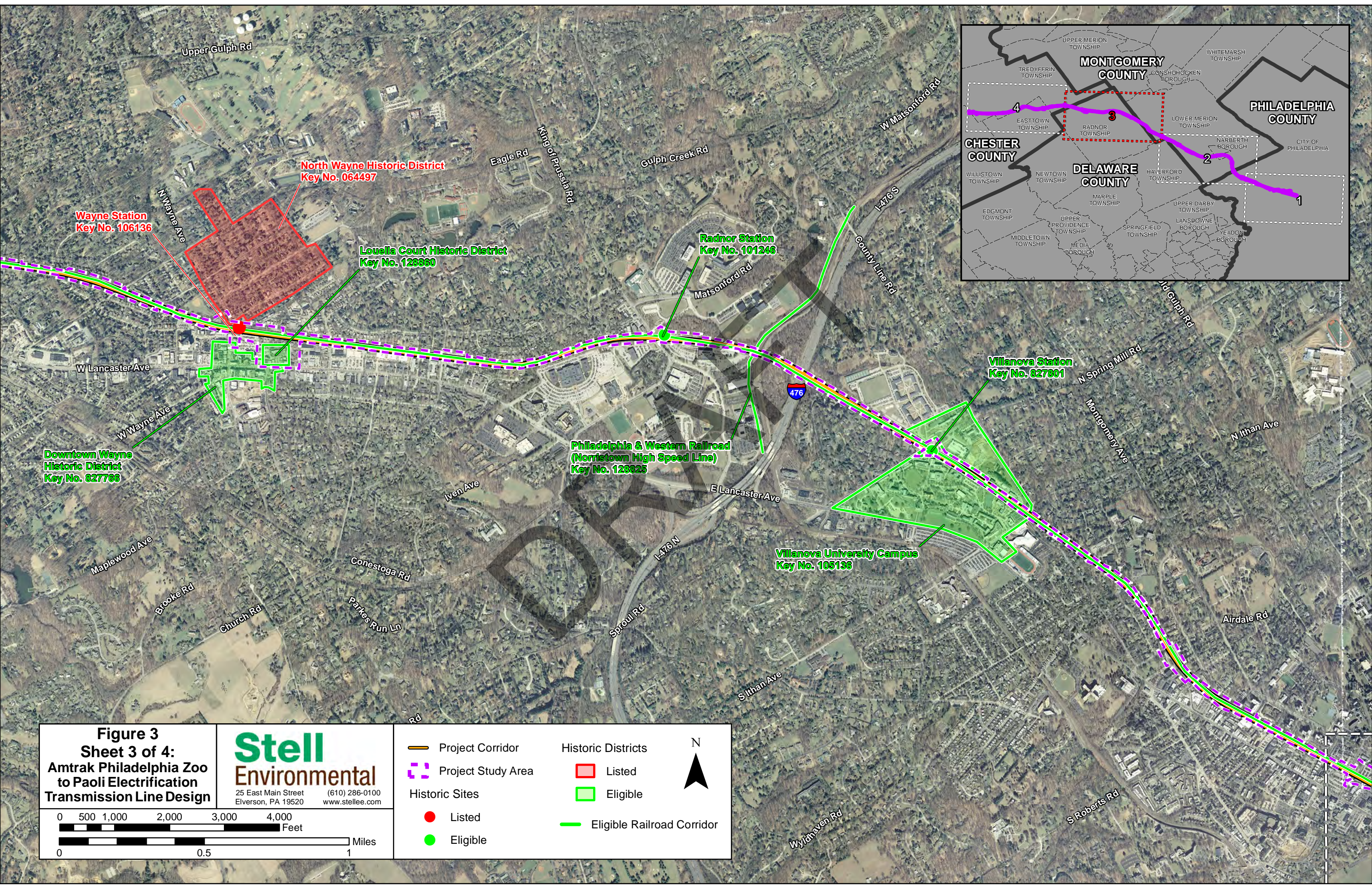


Figure 3
Sheet 3 of 4:
Amtrak Philadelphia Zoo to Paoli Electrification
Transmission Line Design

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— Project Corridor
- - - Project Study Area

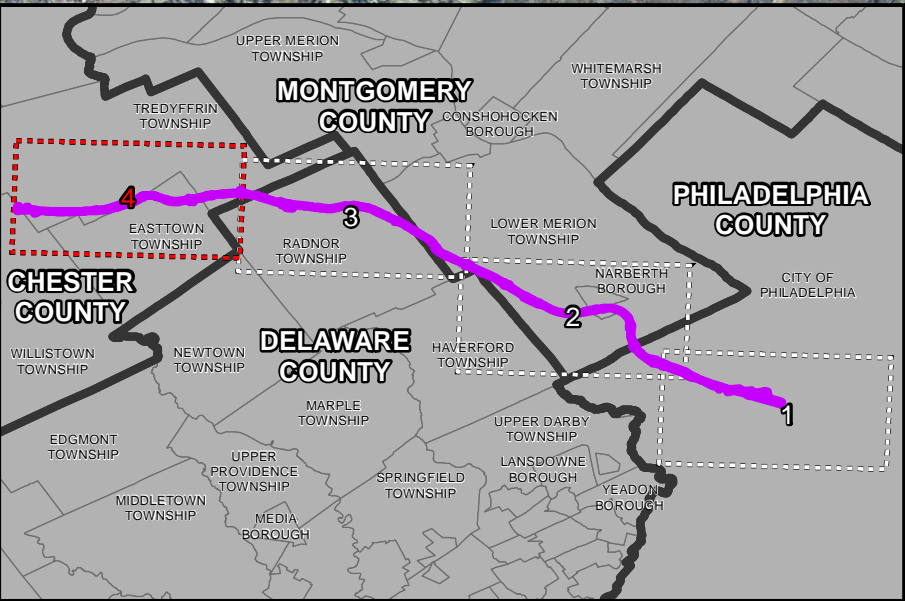
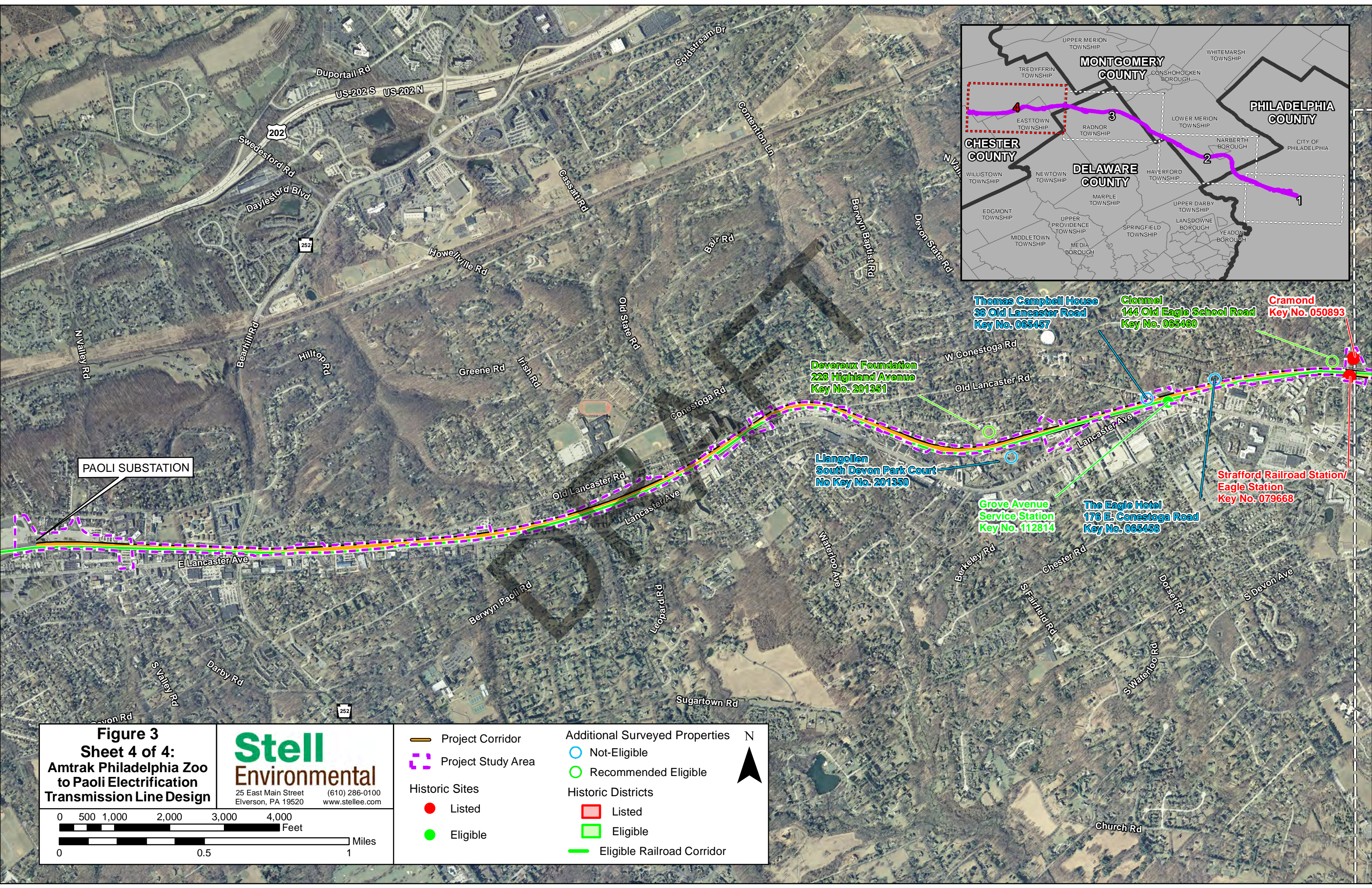
Historic Sites
● Listed
● Eligible

Historic Districts
■ Listed
■ Eligible

— Eligible Railroad Corridor

0 500 1,000 2,000 3,000 4,000 Feet
0 0.5 1 Miles

N



PAOLI SUBSTATION

Thomas Campbell House
38 Old Lancaster Road
Key No. 065457

Clonmel
144 Old Eagle School Road
Key No. 065460

Cramond
Key No. 050893

Devereux Foundation
228 Highland Avenue
Key No. 201351

Llangollen
South Devon Park Court
No Key No. 201350

Grove Avenue
Service Station
Key No. 112814

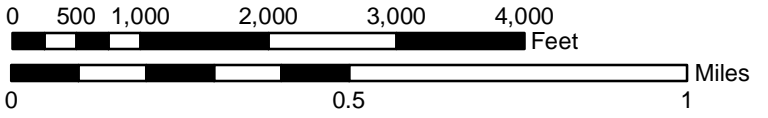
The Eagle Hotel
176 E. Conestoga Road
Key No. 065458

Strafford Railroad Station/
Eagle Station
Key No. 079668

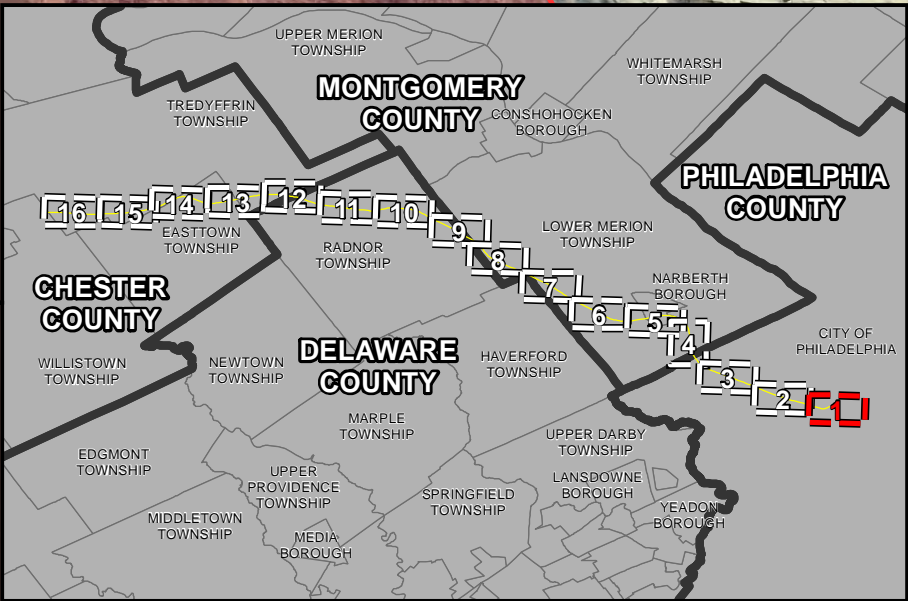
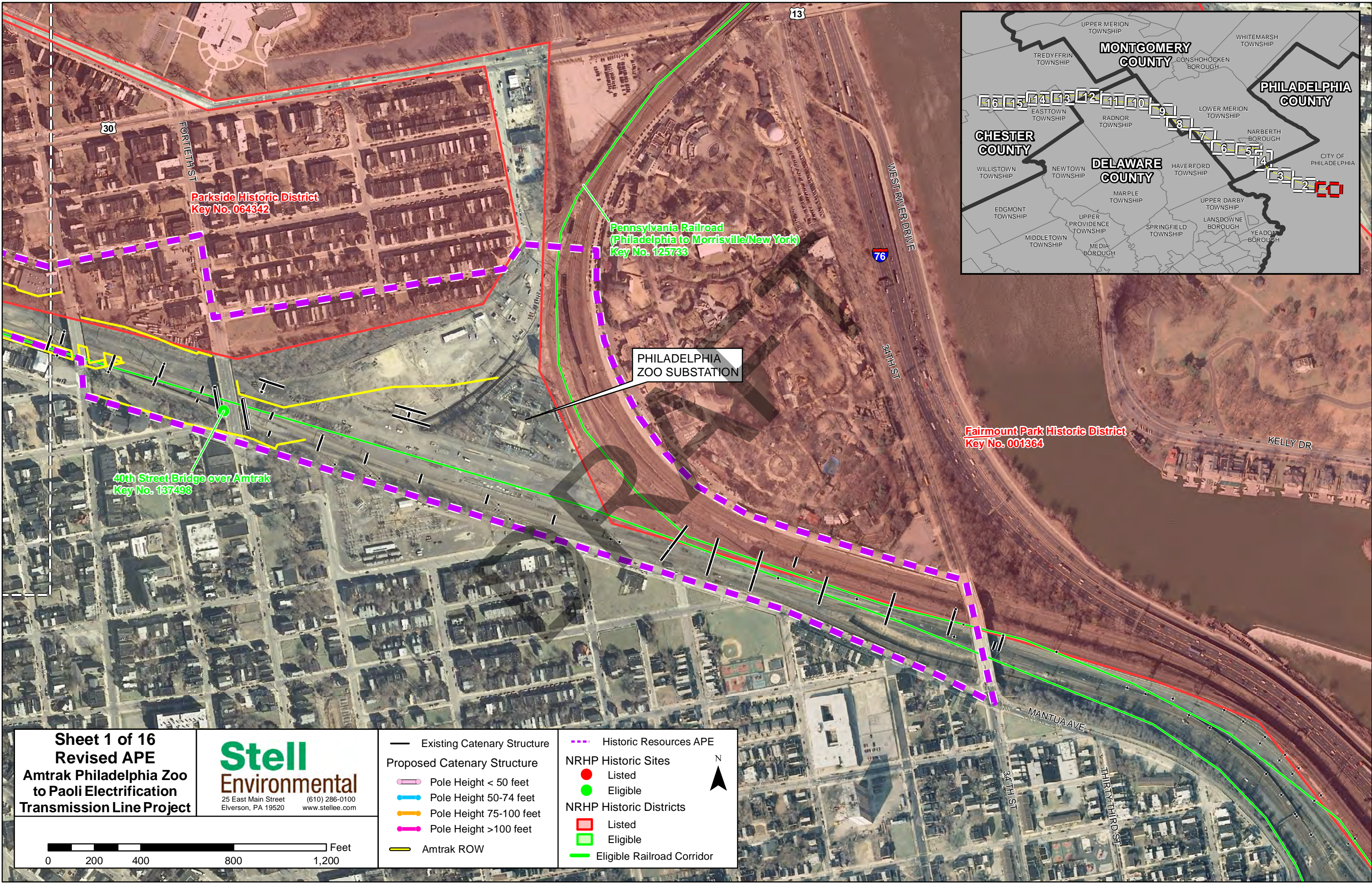
Figure 3
Sheet 4 of 4:
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Transmission Line Design

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Project Corridor	Not-Eligible	
Project Study Area	Recommended Eligible	
Historic Sites	Historic Districts	
Listed	Listed	
Eligible	Eligible	
	Eligible Railroad Corridor	



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Sheet 1 of 16
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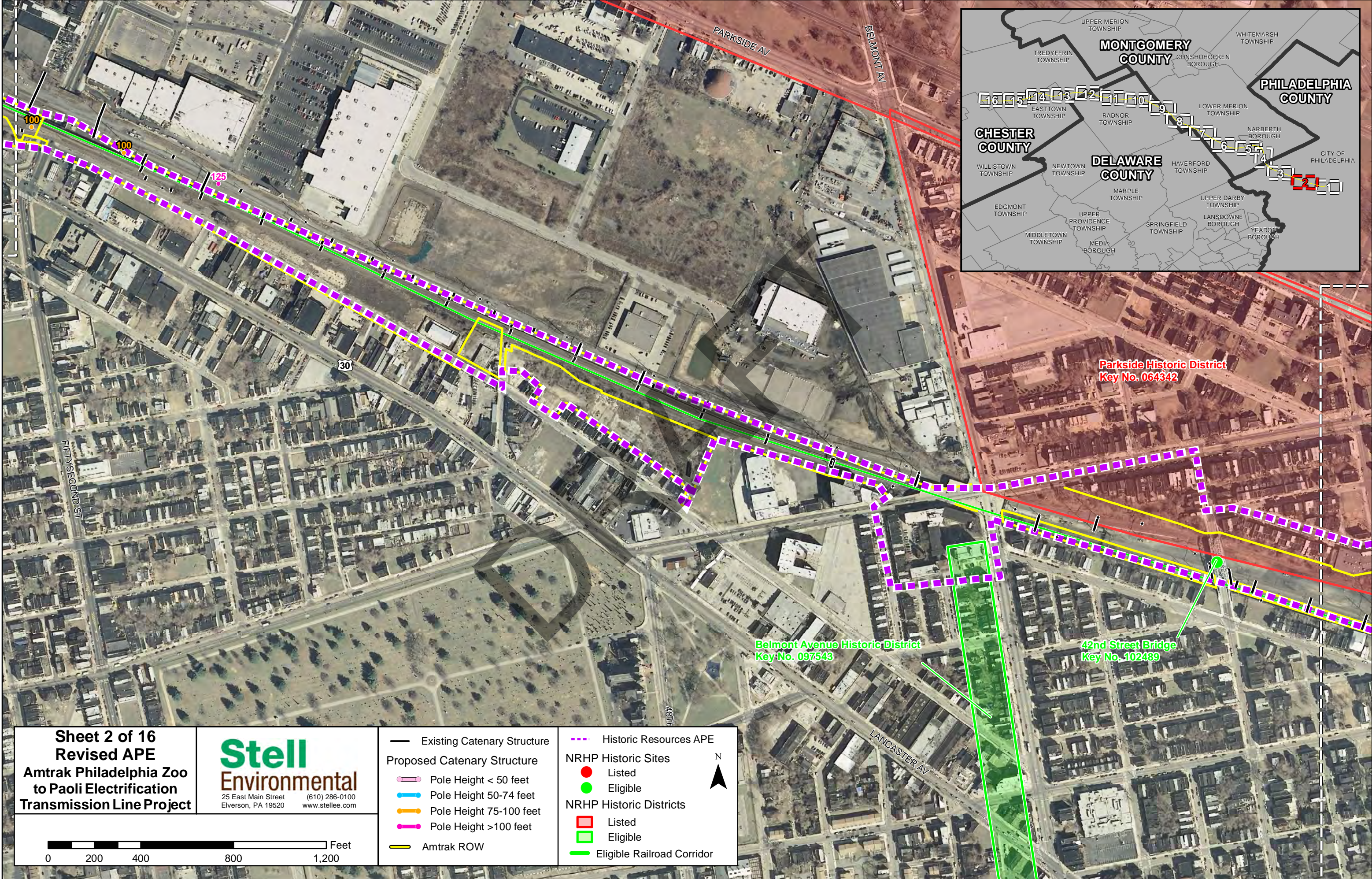


- Existing Catenary Structure
- Proposed Catenary Structure
 - Pole Height < 50 feet
 - Pole Height 50-74 feet
 - Pole Height 75-100 feet
 - Pole Height >100 feet
- Amtrak ROW

- Historic Resources APE
- NRHP Historic Sites
 - Listed
 - Eligible
- NRHP Historic Districts
 - Listed
 - Eligible
- Eligible Railroad Corridor



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|-------------------------------|------------------------------|
| — Existing Catenary Structure | --- Historic Resources APE |
| Proposed Catenary Structure | NRHP Historic Sites |
| — Pole Height < 50 feet | ● Listed |
| — Pole Height 50-74 feet | ● Eligible |
| — Pole Height 75-100 feet | NRHP Historic Districts |
| — Pole Height >100 feet | ■ Listed |
| — Amtrak ROW | ■ Eligible |
| | — Eligible Railroad Corridor |



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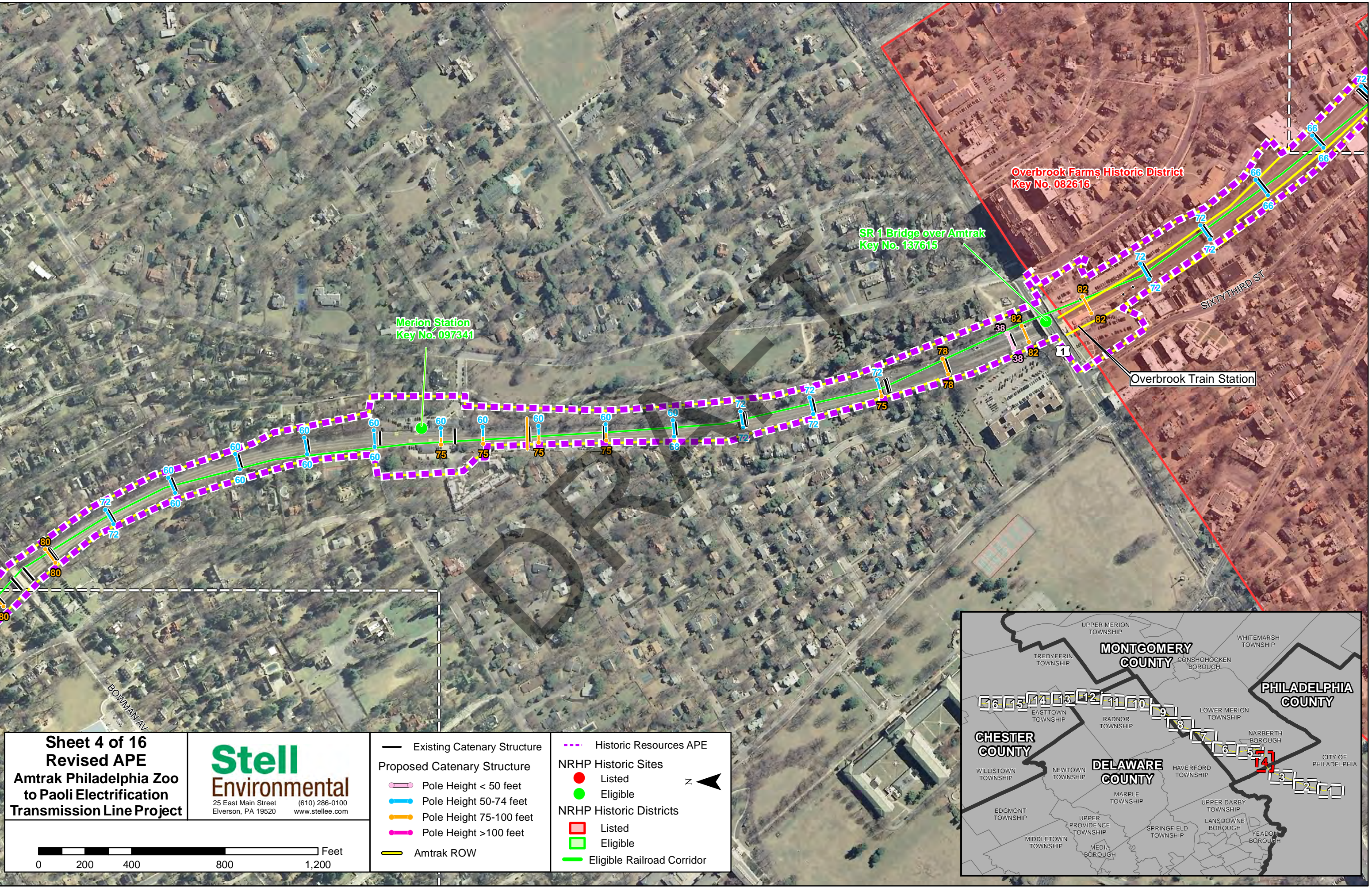


- Existing Catenary Structure
- Proposed Catenary Structure
 - Pole Height < 50 feet
 - Pole Height 50-74 feet
 - Pole Height 75-100 feet
 - Pole Height >100 feet
- Amtrak ROW

- Historic Resources APE
- NRHP Historic Sites
 - Listed
 - Eligible
- NRHP Historic Districts
 - Listed
 - Eligible
- Eligible Railroad Corridor



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Existing Catenary Structure

Proposed Catenary Structure

Amtrak ROW

Pole Height < 50 feet

Pole Height 50-74 feet

Pole Height 75-100 feet

Pole Height >100 feet

Historic Resources APE

NRHP Historic Sites

NRHP Historic Districts

Eligible Railroad Corridor

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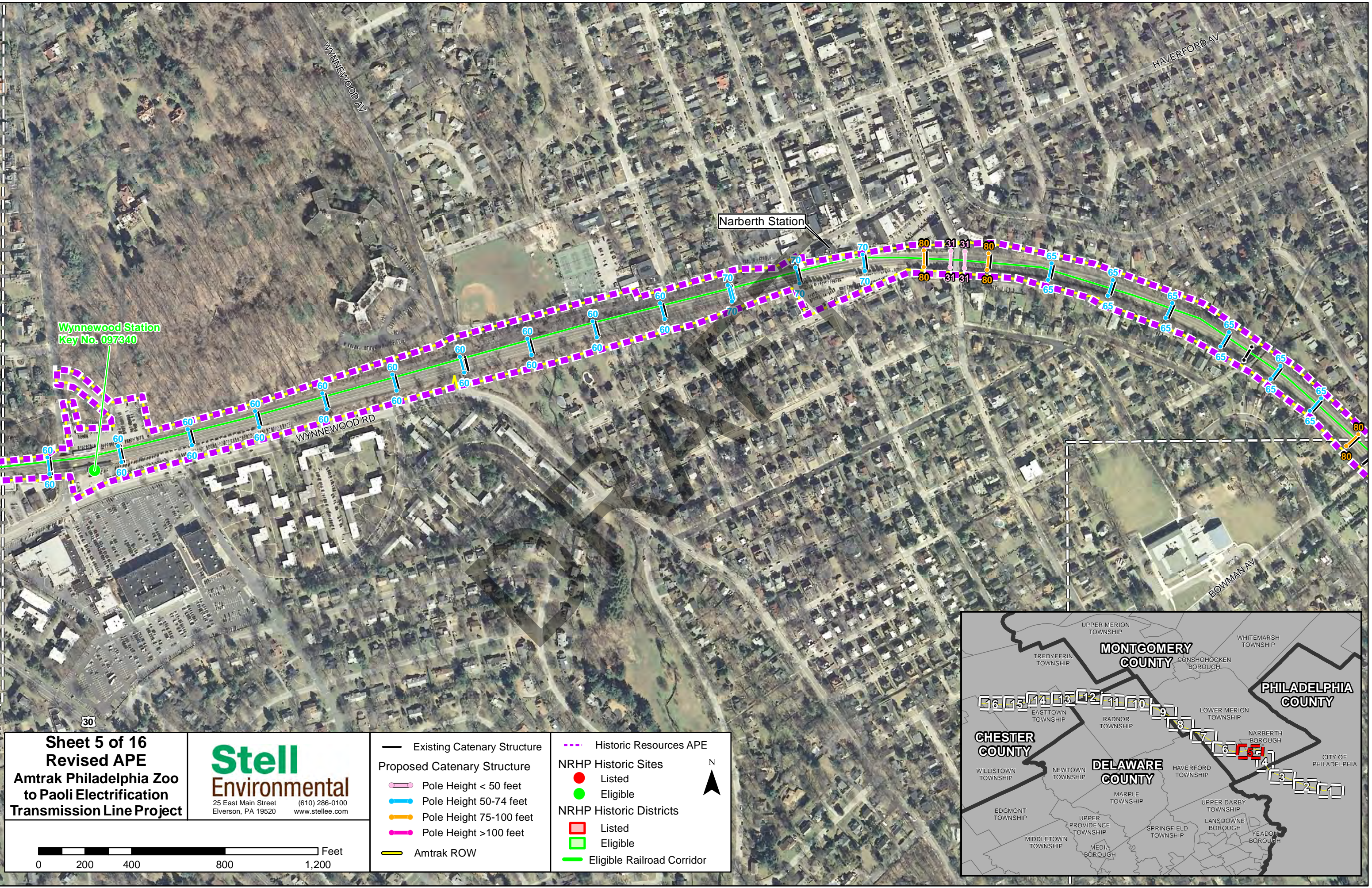
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Revised APE

Amtrak Philadelphia Zoo to Paoli Electrification Transmission Line Project

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Existing Catenary Structure

Proposed Catenary Structure

Amtrak ROW

Pole Height < 50 feet

Pole Height 50-74 feet

Pole Height 75-100 feet

Pole Height >100 feet

Historic Resources APE

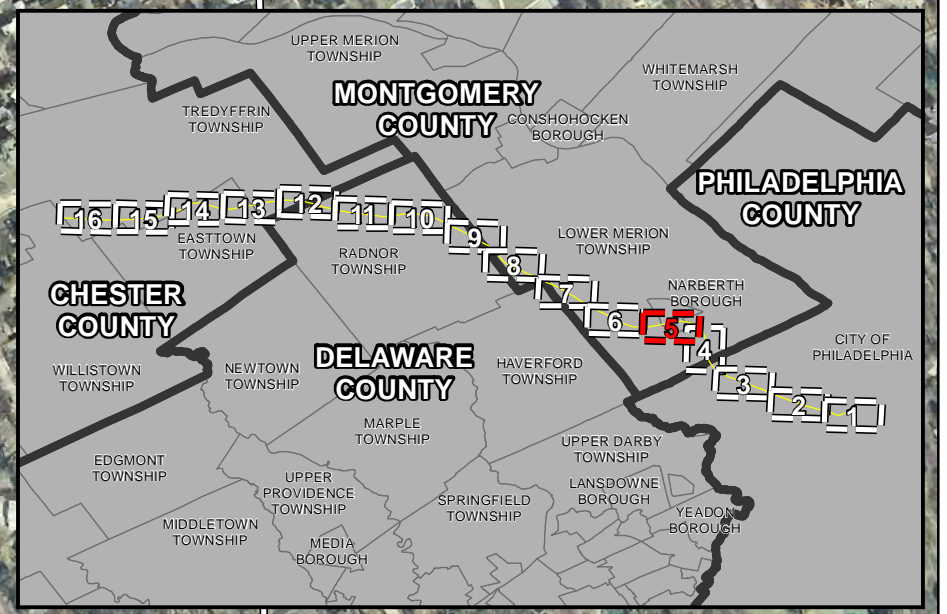
NRHP Historic Sites

NRHP Historic Districts

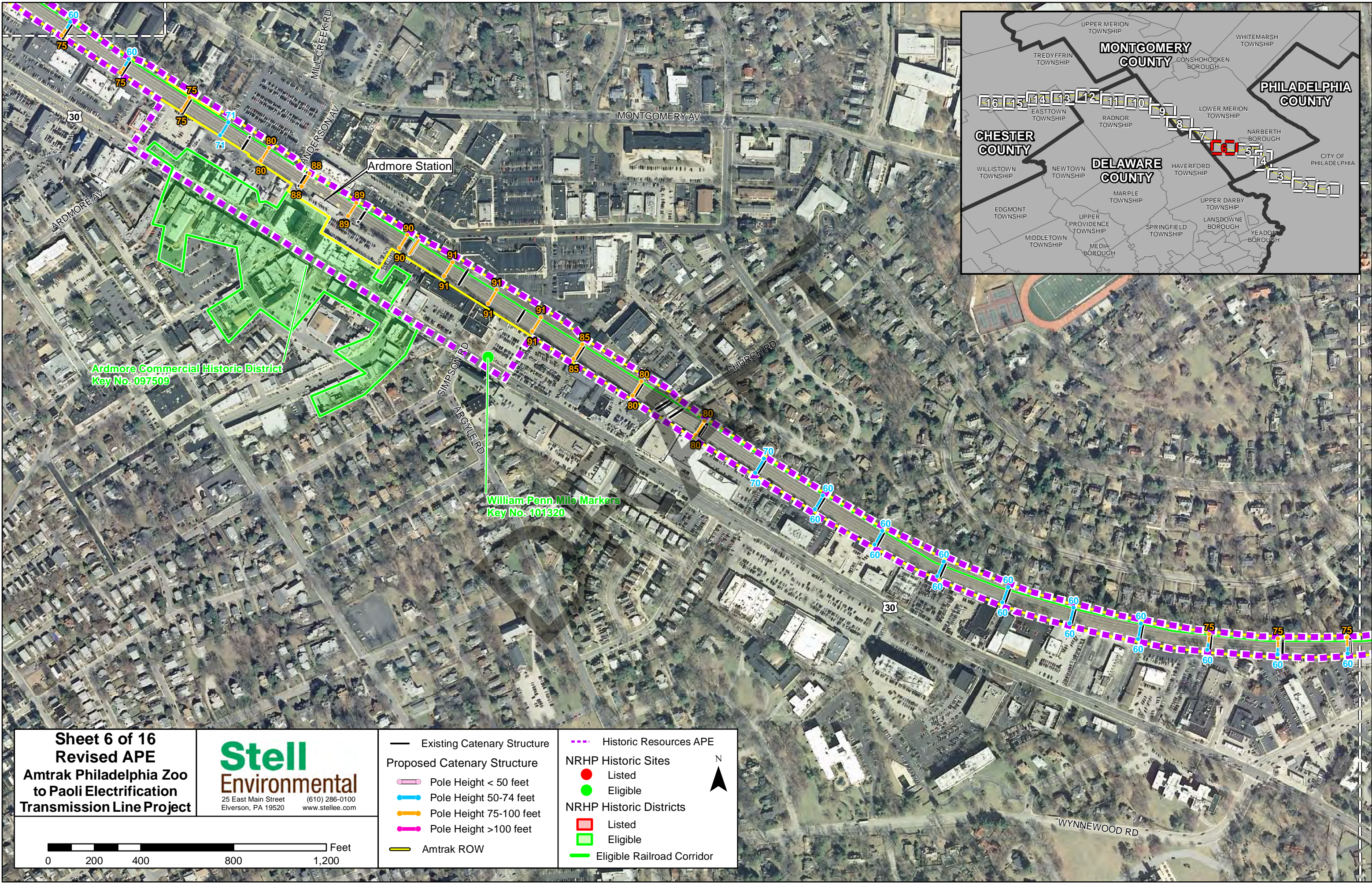
Eligible Railroad Corridor

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0 200 400 800 1,200 Feet



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Sheet 6 of 16
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- Proposed Catenary Structure
 - Pole Height < 50 feet
 - Pole Height 50-74 feet
 - Pole Height 75-100 feet
 - Pole Height > 100 feet
- Amtrak ROW

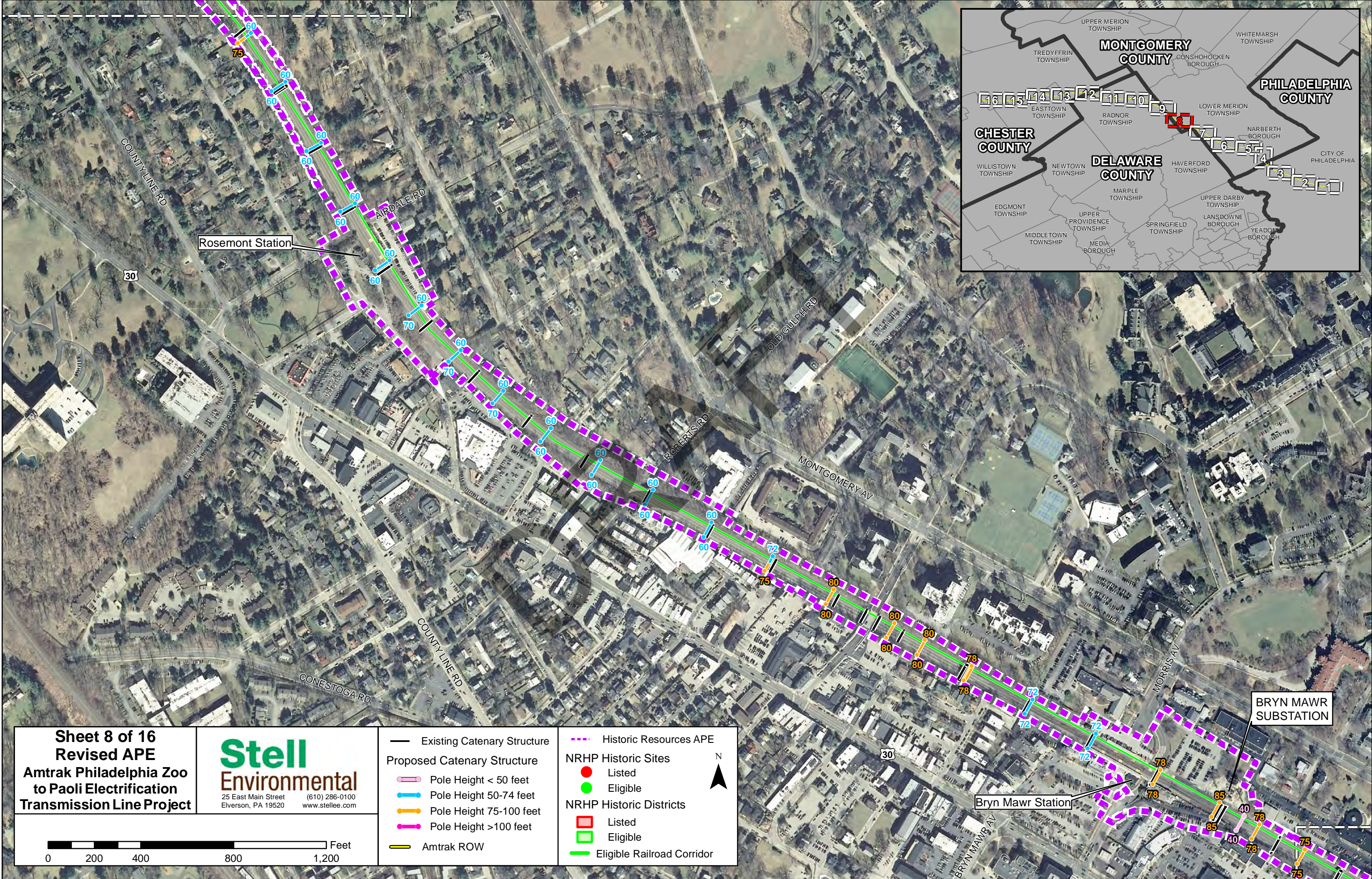
- Historic Resources APE
- NRHP Historic Sites
 - Listed
 - Eligible
- NRHP Historic Districts
 - Listed
 - Eligible
- Eligible Railroad Corridor



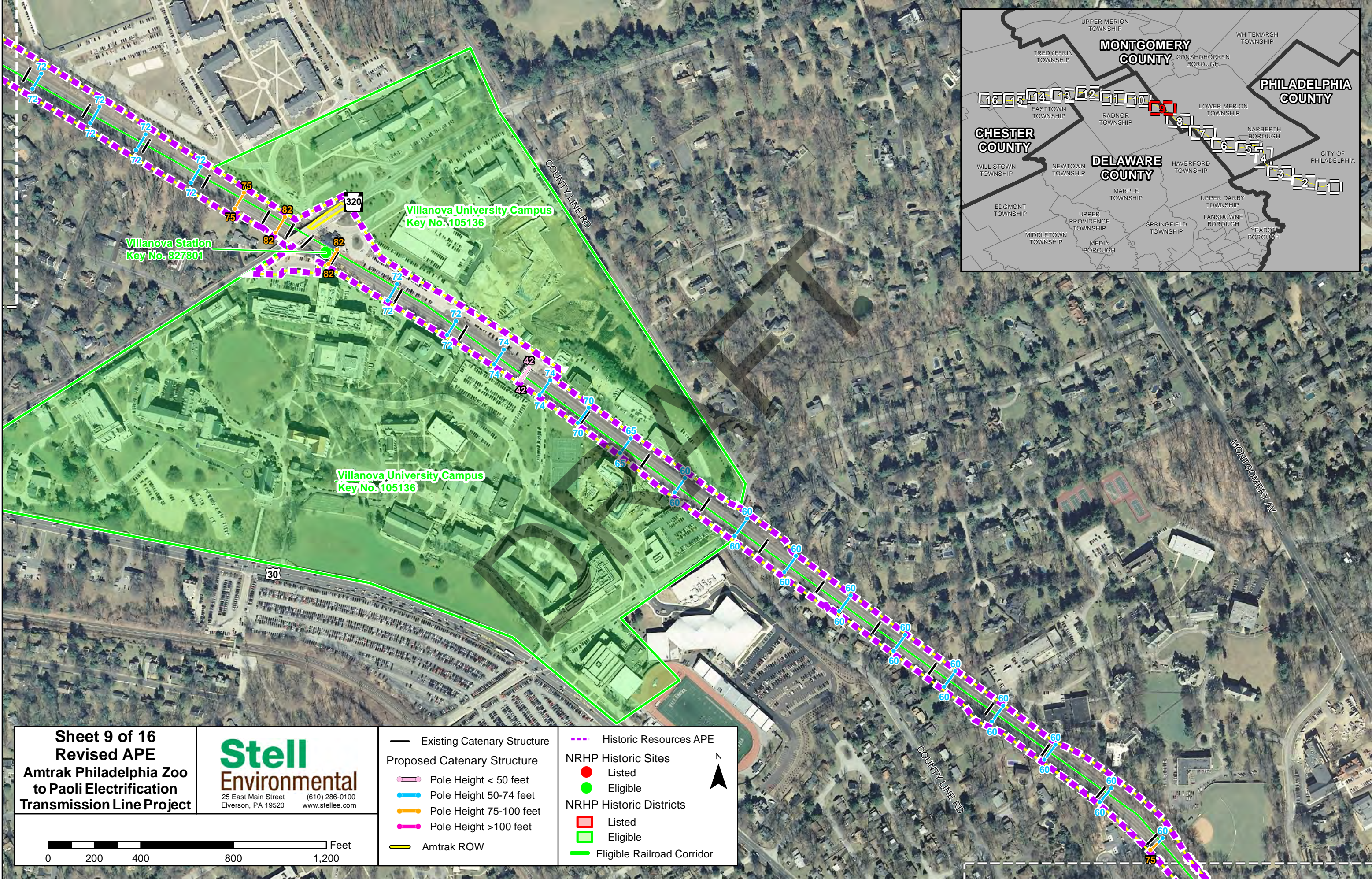
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Source: 2008 PMAP 1ft Orthorectified Digital Imagery of Chester, Montgomery, Delaware, & Philadelphia Counties, PA; PADCNr, Bureau of Topographic and Geologic Survey



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Source: 2008 PAMAP 1ft Orthorectified Digital Imagery of Chester, Montgomery, Delaware, & Philadelphia Counties, PA; PADCNR, Bureau of Topographic and Geologic Survey



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Sheet 9 of 16
Revised APE
Amtrak Philadelphia Zoo to Paoli Electrification Transmission Line Project

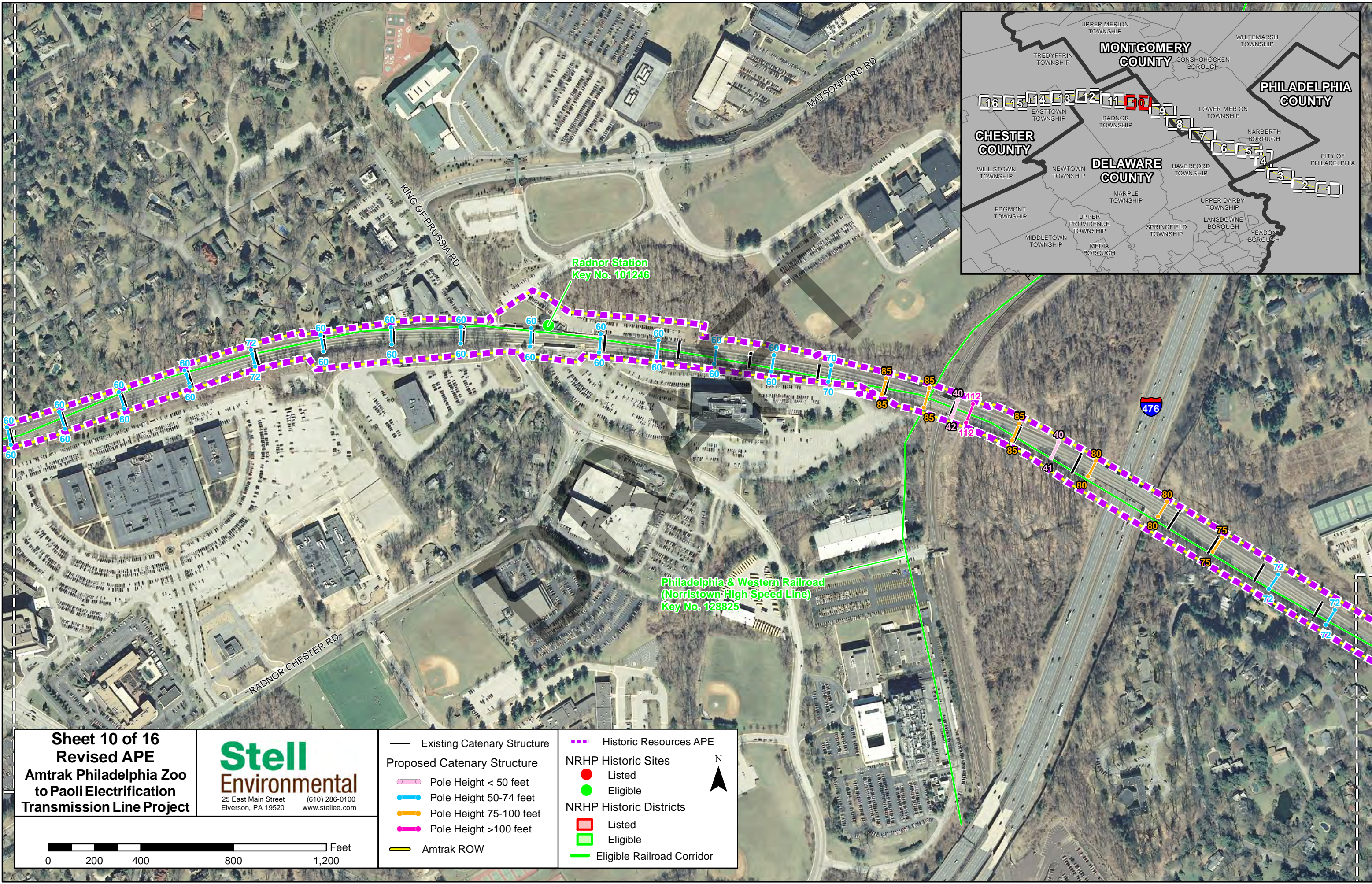
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Elverson, PA 19520
(610) 286-0100
www.stell.com



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| — Existing Catenary Structure | --- Historic Resources APE |
| Proposed Catenary Structure | ● NRHP Historic Sites |
| ○ Pole Height < 50 feet | ● Listed |
| ○ Pole Height 50-74 feet | ● Eligible |
| ○ Pole Height 75-100 feet | NRHP Historic Districts |
| ○ Pole Height >100 feet | □ Listed |
| — Amtrak ROW | □ Eligible |
| | — Eligible Railroad Corridor |



Completed by: Atuleya on 1/9/2015
Source: 2008 PAMAP 1ft Orthorectified Digital Imagery of Chester, Montgomery, Delaware, & Philadelphia Counties, PA; PADCNK, Bureau of Topographic and Geologic Survey
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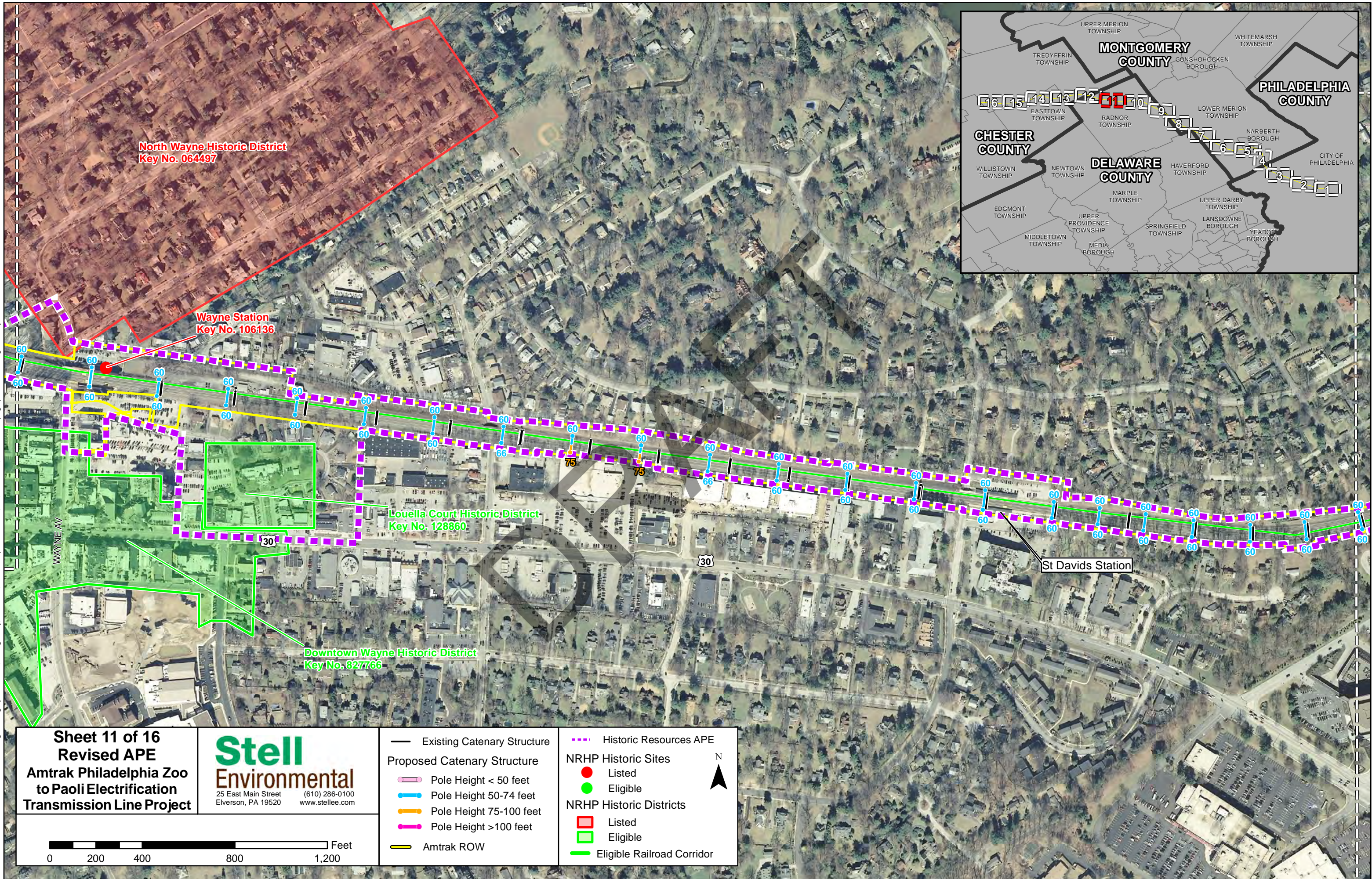
Sheet 10 of 16
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Transmission Line Project

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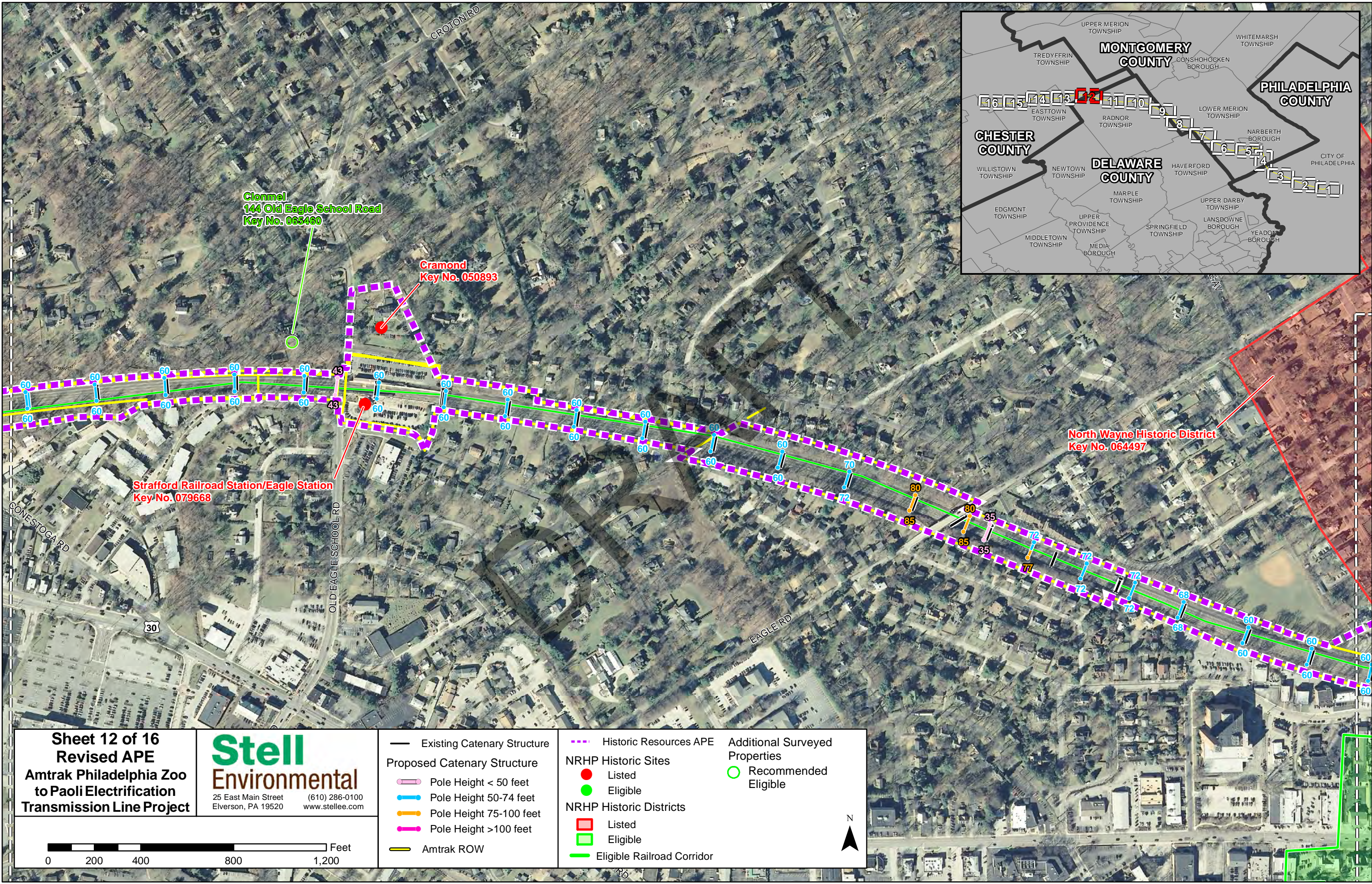


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| — Existing Catenary Structure | --- Historic Resources APE |
| Proposed Catenary Structure | NRHP Historic Sites |
| ● Pole Height < 50 feet | ● Listed |
| ● Pole Height 50-74 feet | ● Eligible |
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| ● Pole Height >100 feet | ■ Listed |
| — Amtrak ROW | ■ Eligible |
| | — Eligible Railroad Corridor |

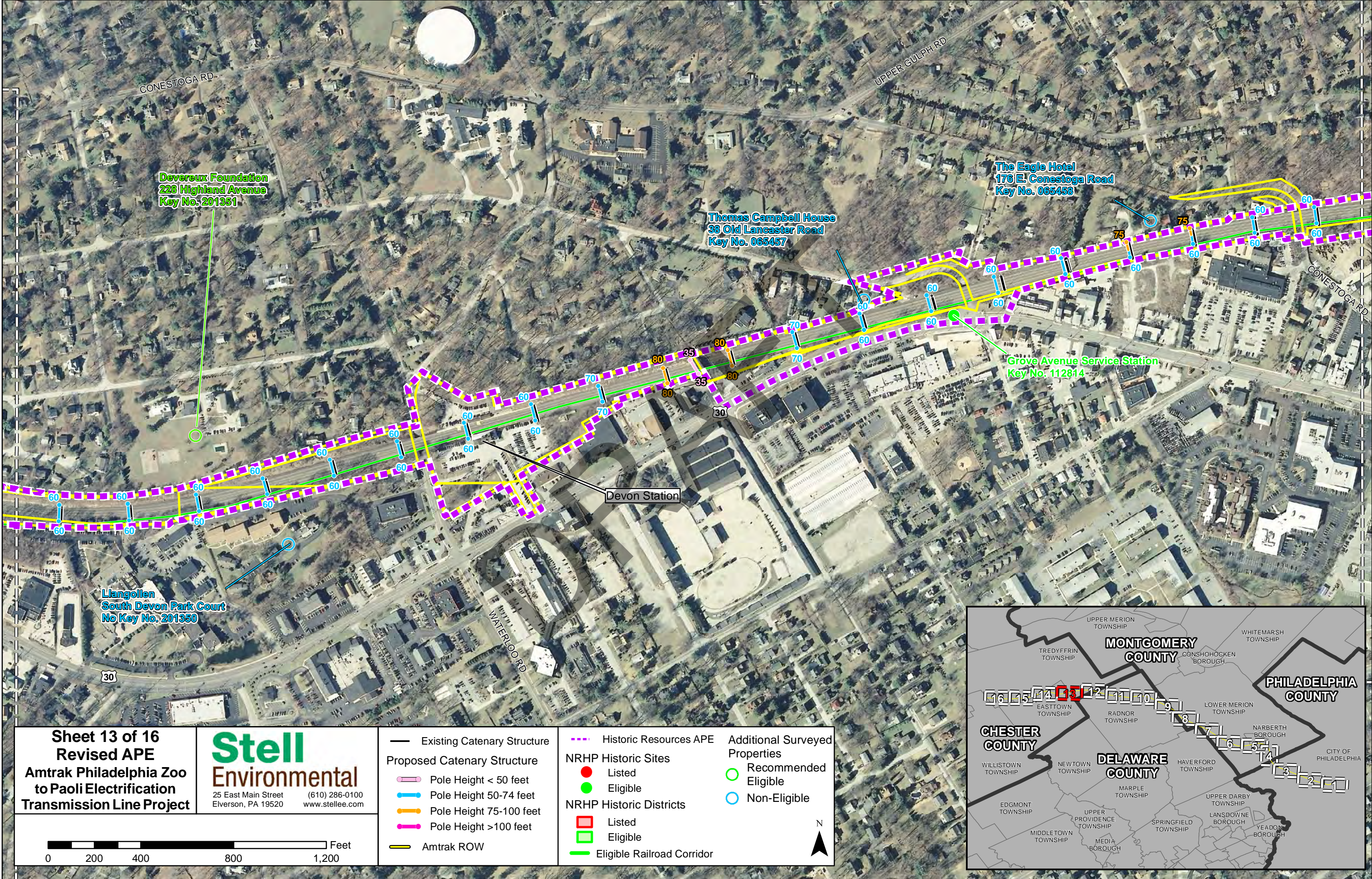




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Source: 2008 PAMAP 1ft Orthorectified Digital Imagery of Chester, Montgomery, Delaware, & Philadelphia Counties, PA; PADCNK, Bureau of Topographic and Geologic Survey



Completed by: Atuleya on 5/18/2015
Source: 2008 PAMAP 1ft Orthorectified Digital Imagery of Chester, Montgomery, Delaware, & Philadelphia Counties, PA; PADCNr, Bureau of Topographic and Geologic Survey



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Revised APE
Amtrak Philadelphia Zoo
to Paoli Electrification
Transmission Line Project

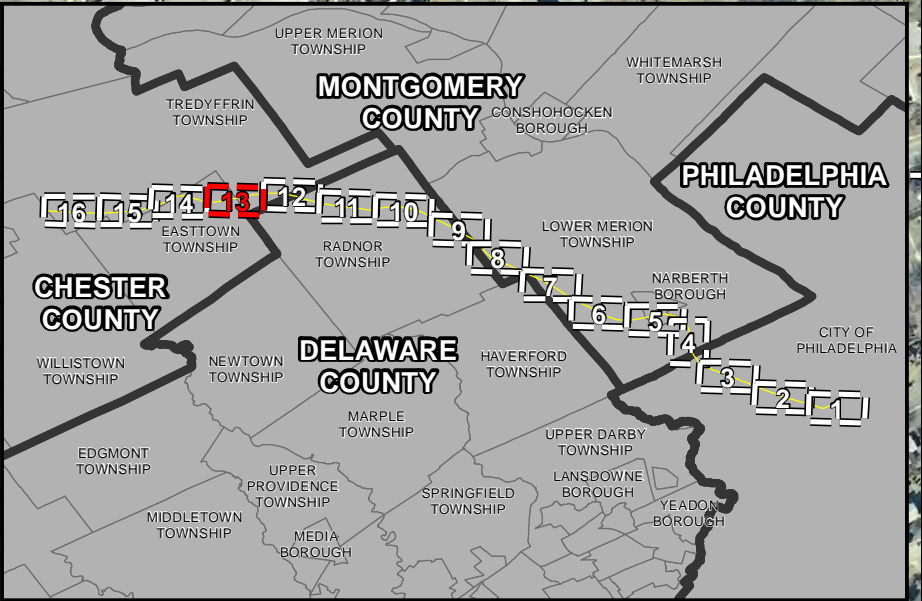
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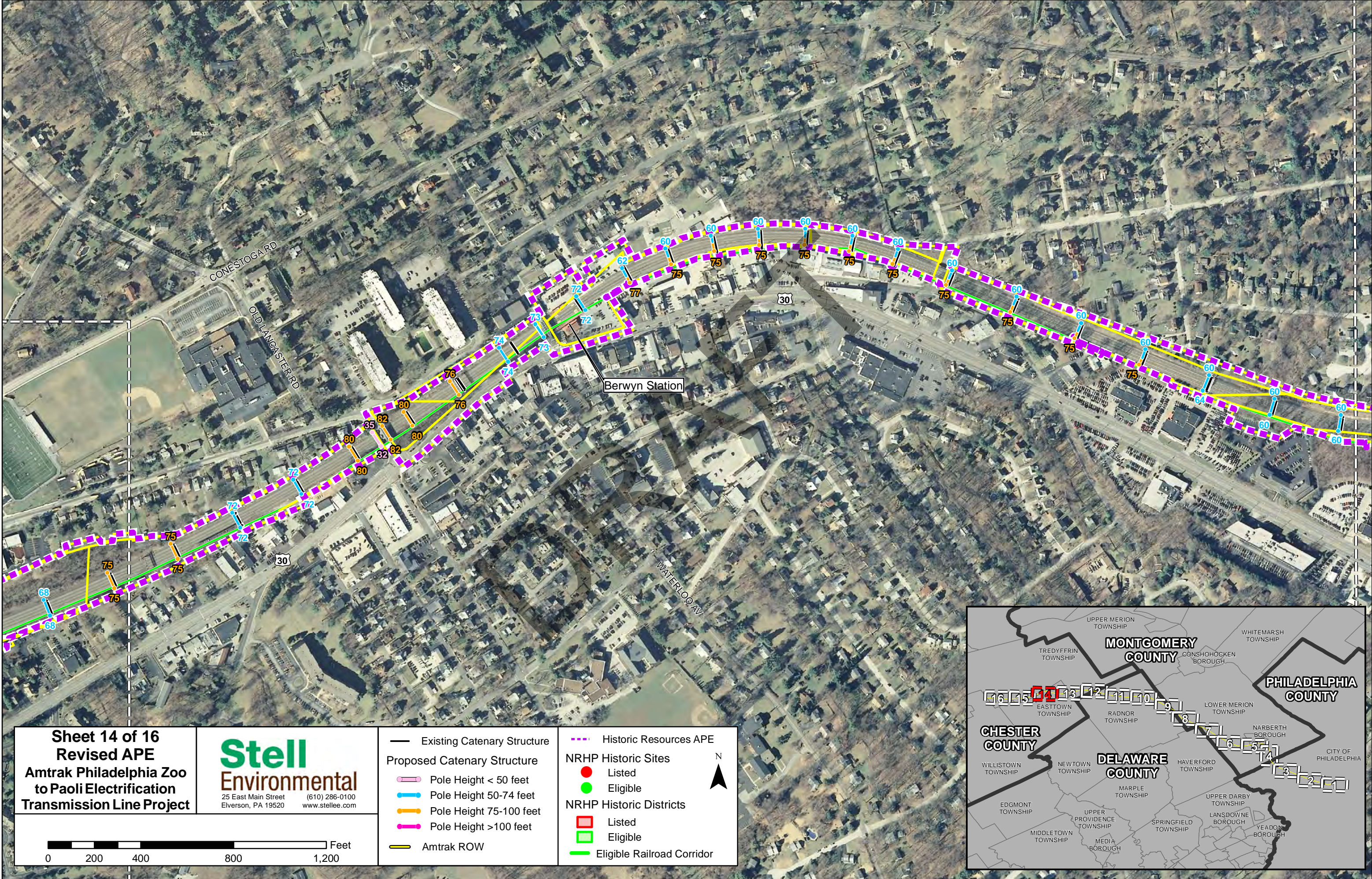
- Existing Catenary Structure
- Proposed Catenary Structure
 - Pole Height < 50 feet
 - Pole Height 50-74 feet
 - Pole Height 75-100 feet
 - Pole Height >100 feet
- Amtrak ROW

- Historic Resources APE
- NRHP Historic Sites
 - Listed
 - Eligible
- NRHP Historic Districts
 - Listed
 - Eligible
- Eligible Railroad Corridor

- Additional Surveyed Properties
 - Recommended
 - Eligible
 - Non-Eligible



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Source: 2008 PAMAP 1ft Orthorectified Digital Imagery of Chester, Montgomery, Delaware, & Philadelphia Counties, PA; PADCNr, Bureau of Topographic and Geologic Survey

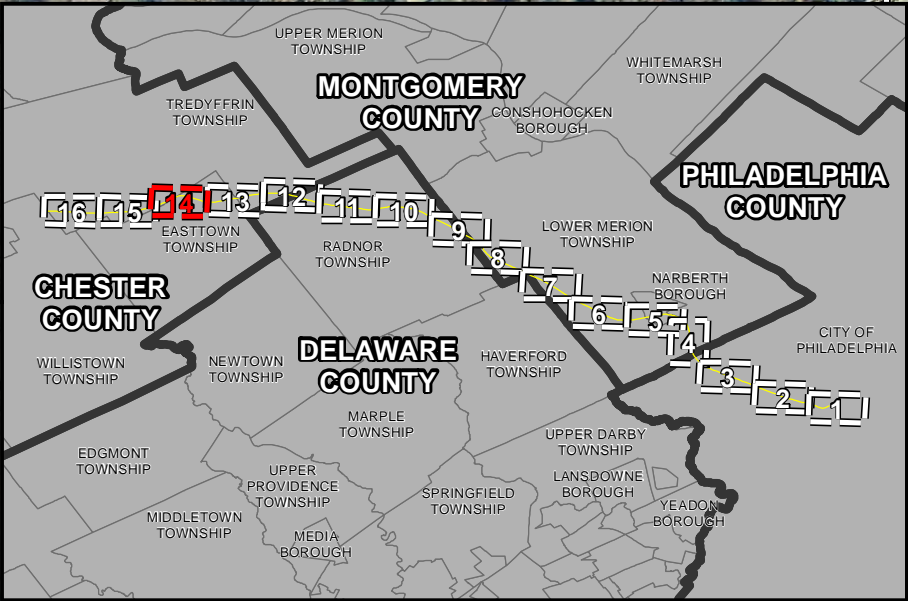


Sheet 14 of 16
Revised APE
Amtrak Philadelphia Zoo
to Paoli Electrification
Transmission Line Project

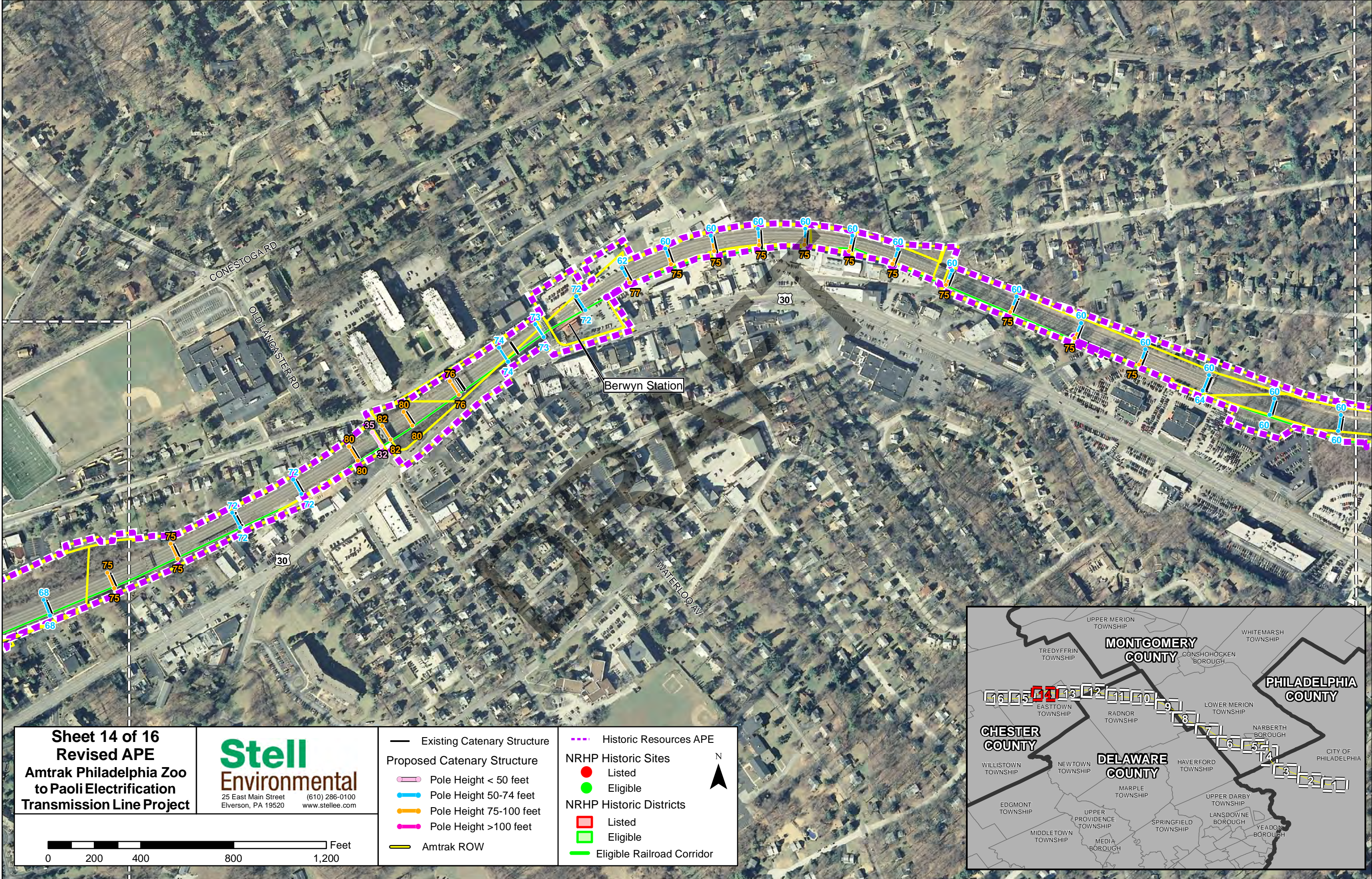
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- Existing Catenary Structure
- Proposed Catenary Structure
 - Pole Height < 50 feet
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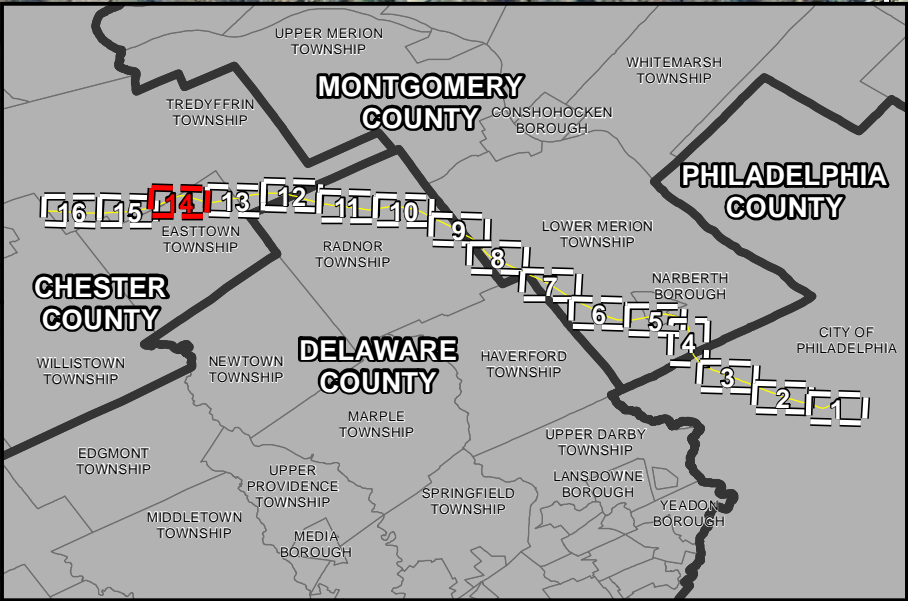


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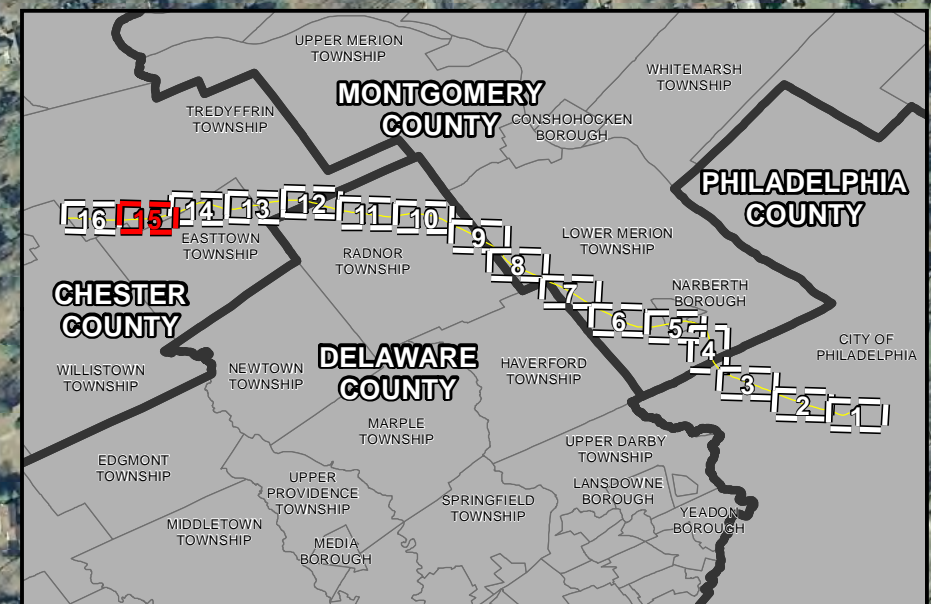


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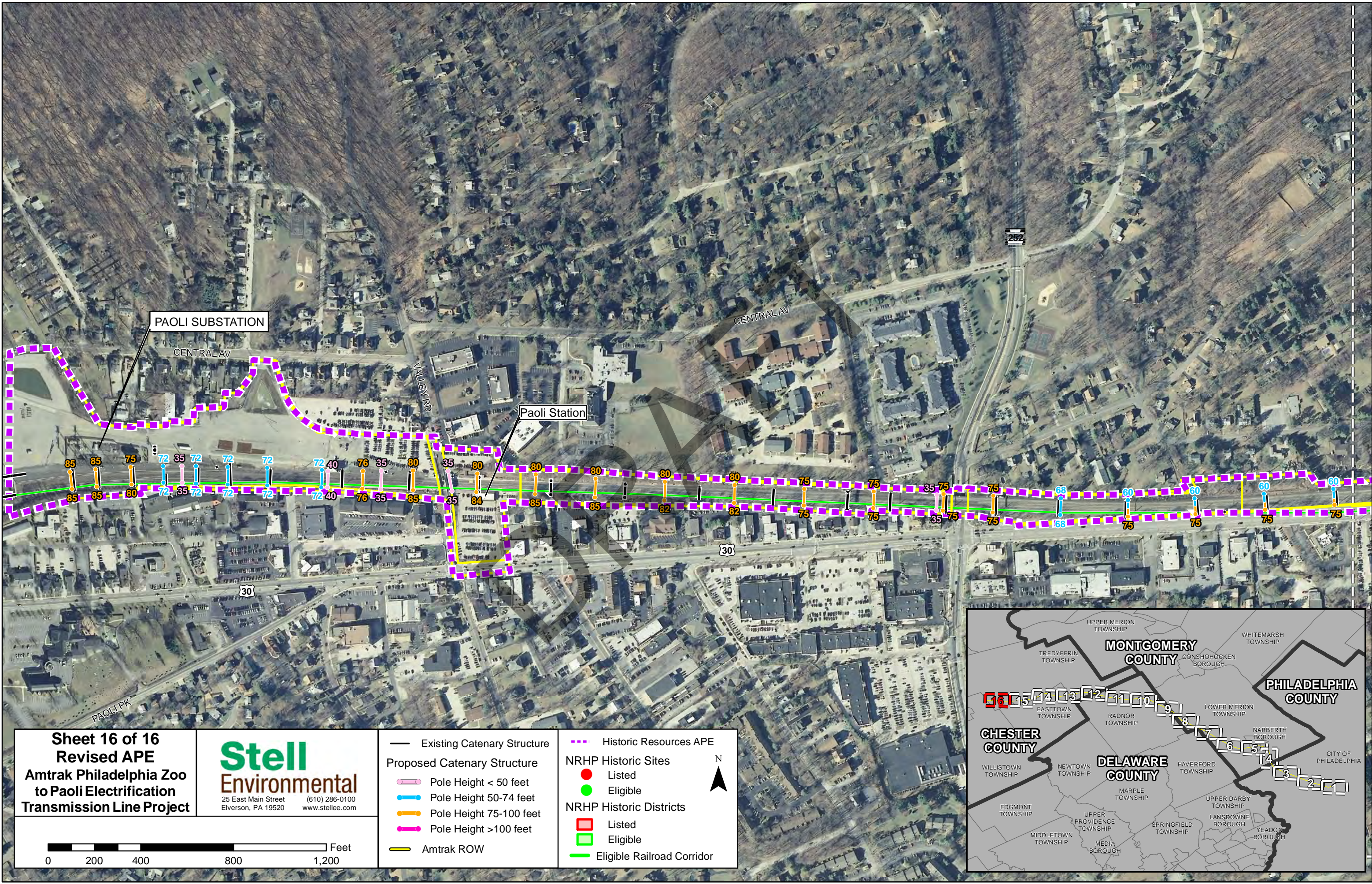
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— Eligible Railroad Corridor



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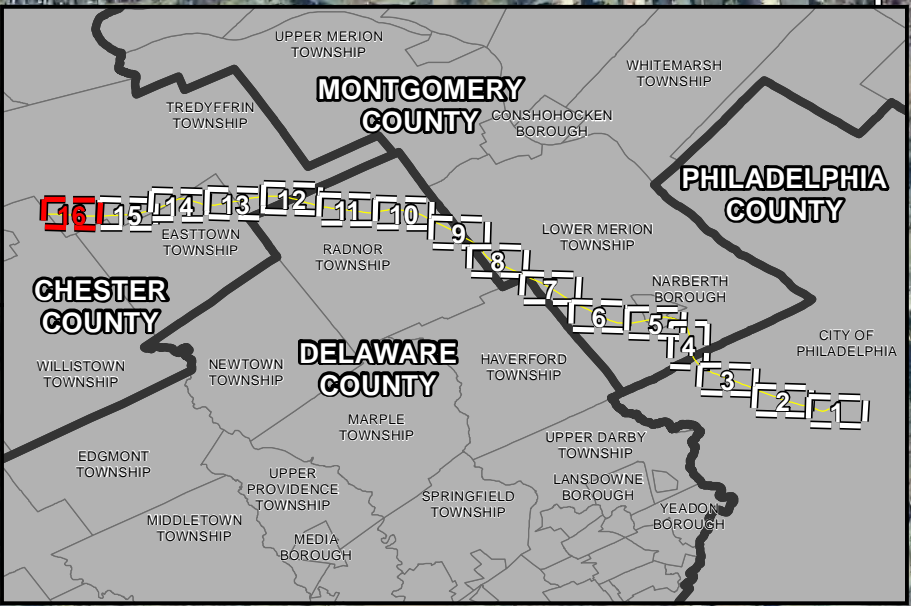


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PHOTOGRAPHS

DRAFT



Photograph 1. Amtrak's Zoo yard, with Fairmount Park / Philadelphia Zoo in background, facing east.



Photograph 2. Zoo Substation near center of photograph, facing southwest.



Photograph 3. View of Railroad ROW at 40th Street Bridge, facing southeast.



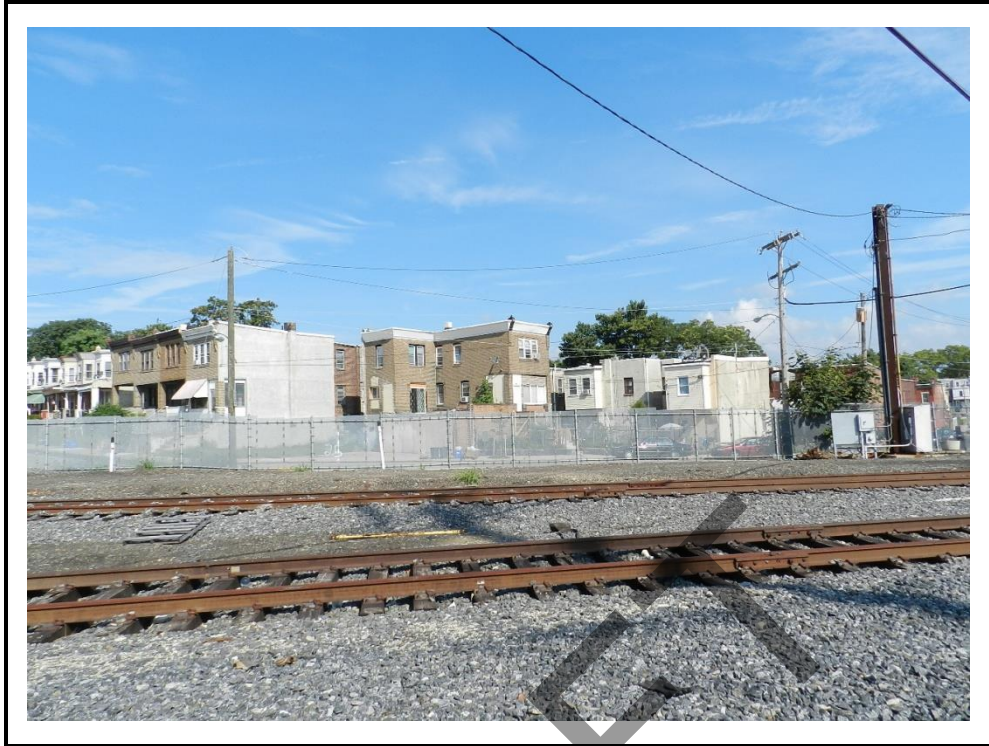
Photograph 4. Zoo Substation area from 40th Street, facing east.



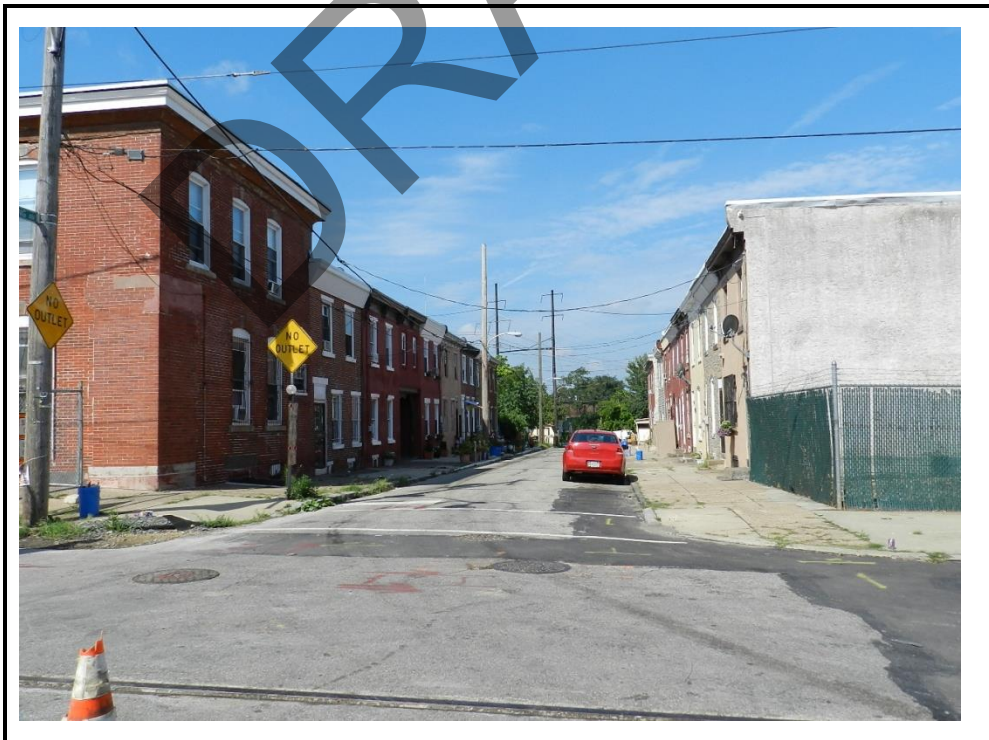
Photograph 5. Railroad ROW with 42nd Street Bridge in background, facing west.



Photograph 6. Railroad ROW from 42nd Street, facing west.



Photograph 7. View from Amtrak's Zoo Yard, looking at Parkside Historic District (at Pennsgrove Street), facing northwest.



Photograph 8. Parkside Historic District at Wyalusing and 40th Streets, facing west.



Photograph 9. Belmont Historic District, facing south; railroad corridor is behind camera and is below-ground level.



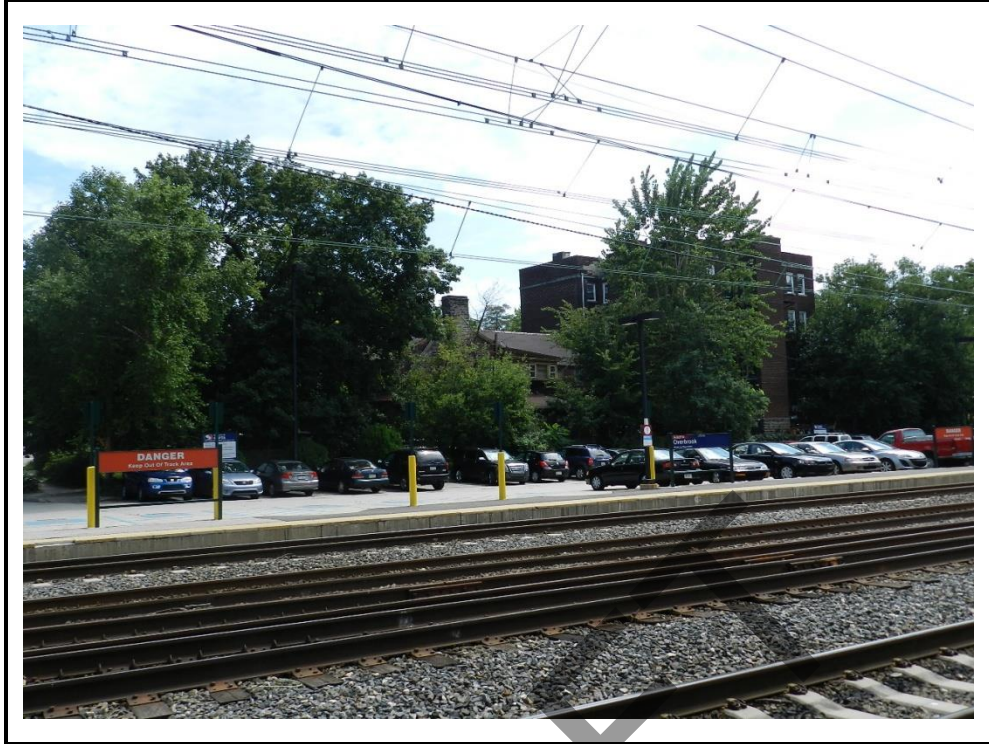
Photograph 10. View of tracks from bridge at northern end of Belmont Avenue Historic District, facing east.



Photograph 11. Overbrook Station, in Overbrook Farms Historic District, with SR 1 Bridge in background, facing north.



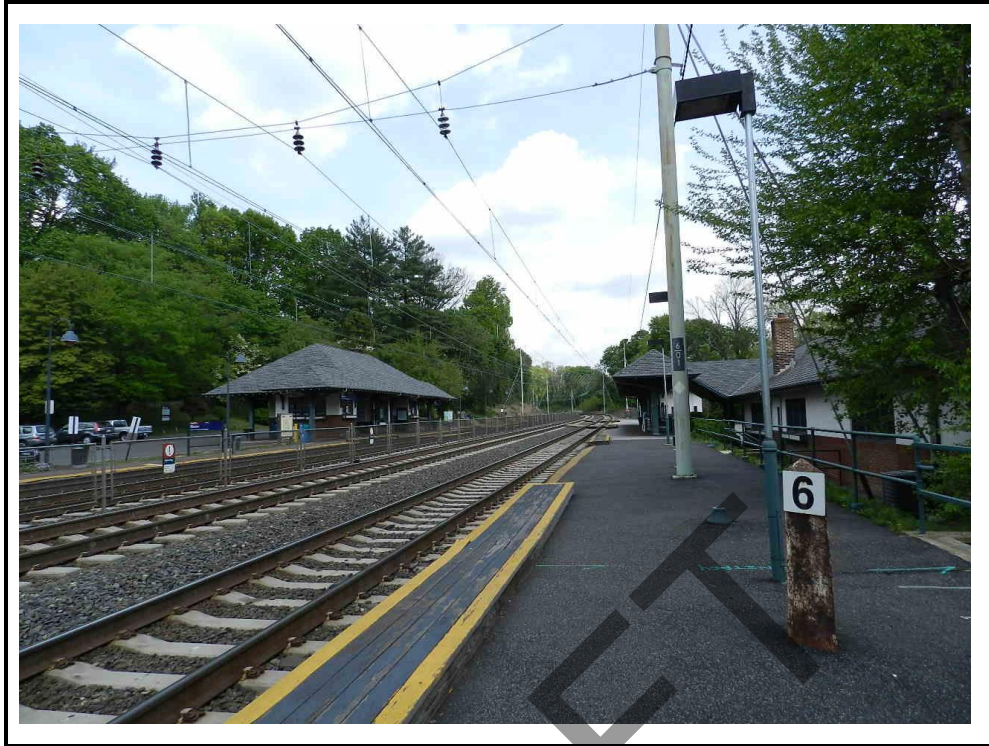
Photograph 12. Overbrook Station with Overbrook Tower, Station, and SR 1 Bridge in background; parking lot to right, facing northwest.



Photograph 13. Overbrook Farms Historic District, with tracks and station parking in foreground, and historic district buildings in background, facing northeast.



Photograph 14. Overbrook Tower and other buildings near the Overbrook Station, facing east.



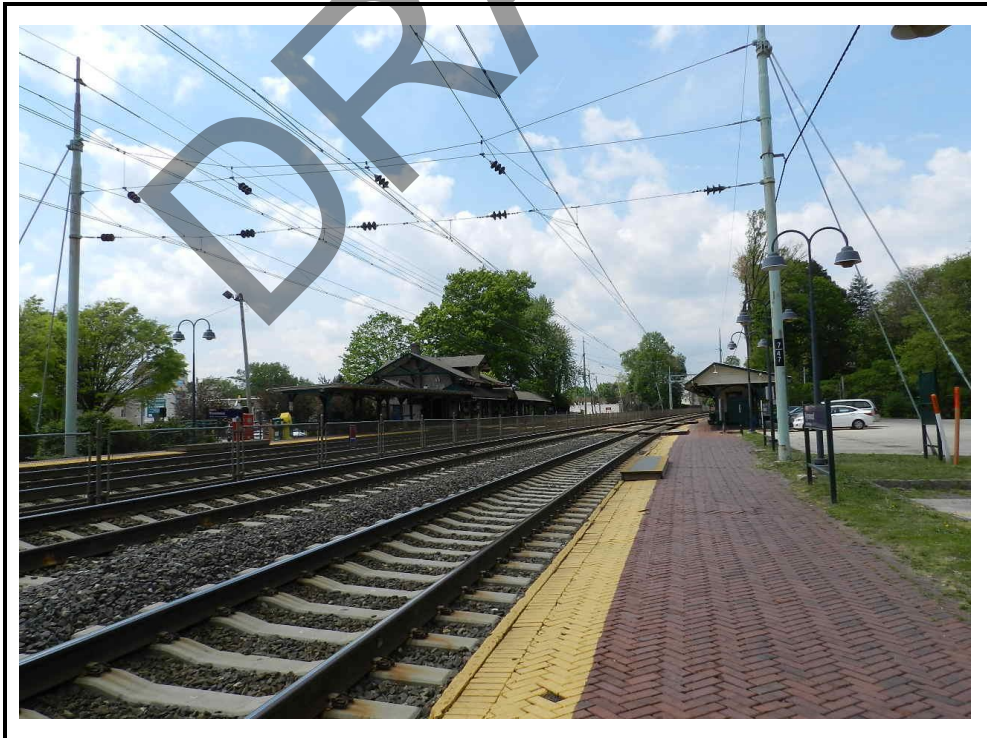
Photograph 15. Merion Station and platform, facing south.



Photograph 16. Merion Station and platform, facing north.



Photograph 17. Wynnewood Station and tracks, facing southwest.



Photograph 18. Overview of Wynnewood Station and the railroad corridor, facing west.



Photograph 19. Ardmore Commercial Historic District along Route 30 in Ardmore, facing west.



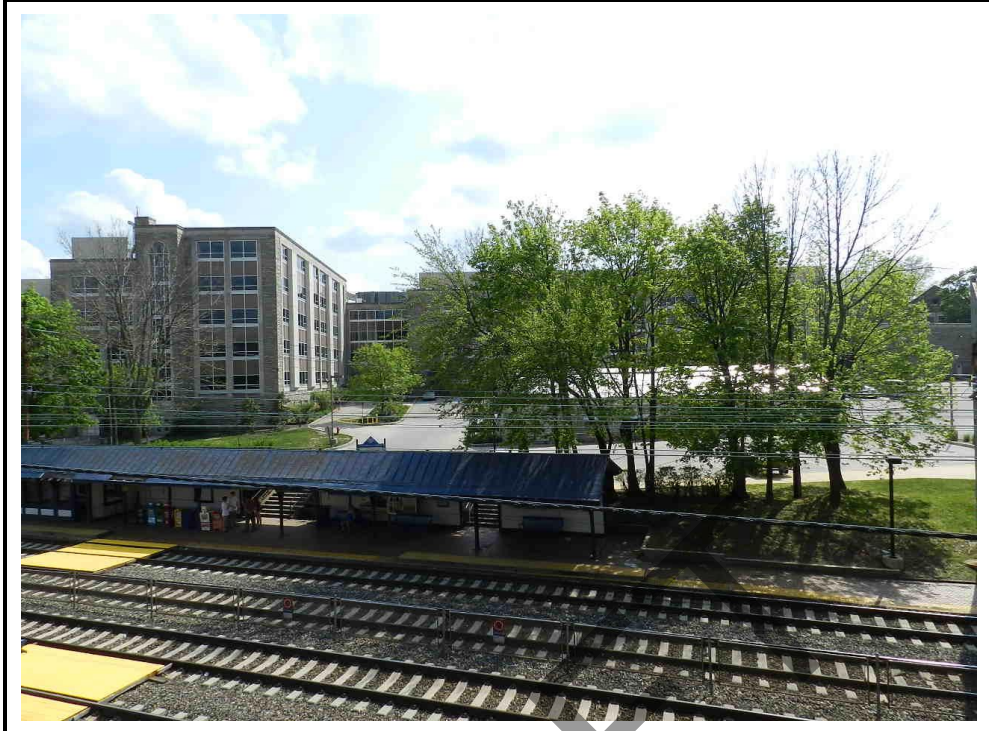
Photograph 20. Anderson Avenue in Ardmore, standing directly north of the historic district looking toward railroad bridge, facing northeast. Buildings on left and railroad corridor are outside of the district.



Photograph 21. Haverford Station, tracks, and catenary lines, facing northwest.



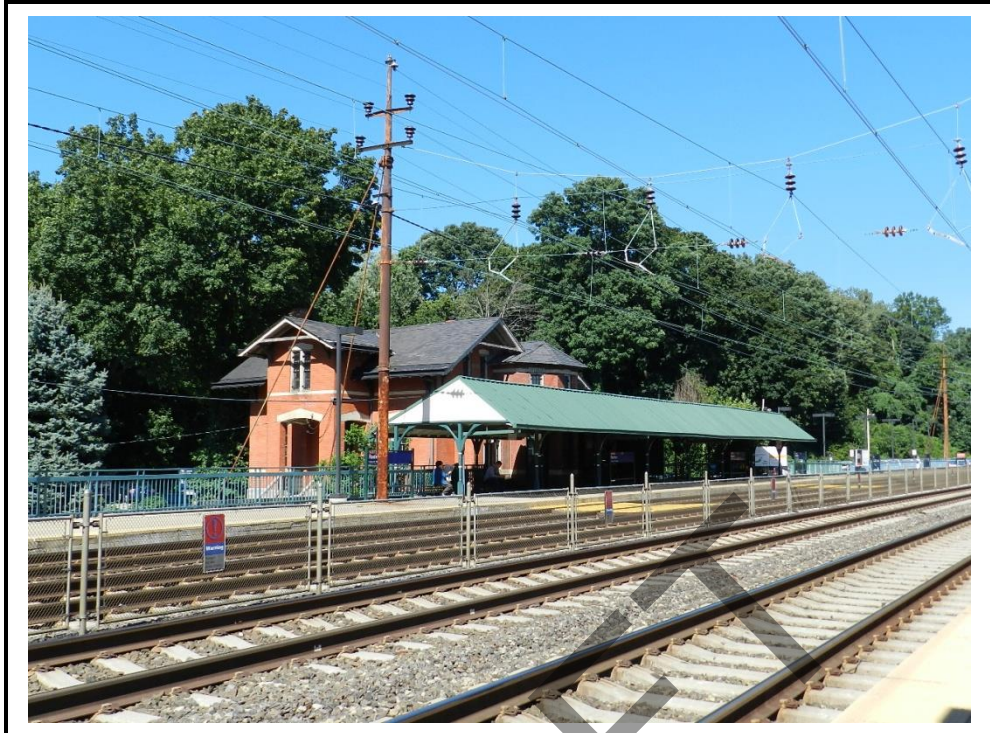
Photograph 22. Tracks and catenary structures and lines from Pennswood Avenue Bridge, facing northeast; Our Mother of Good Counsel Roman Catholic Church is to right of camera.



Photograph 23. Villanova University Campus in background with railroad tracks and shelter in foreground, facing southwest.



Photograph 24. Villanova Station, with tracks to left, facing northwest.



Photograph 25. Radnor Station, platform, tracks, and catenary structures, facing northeast.



Photograph 26. Louella Court Historic District, facing east; railroad corridor is to the left of the photograph.



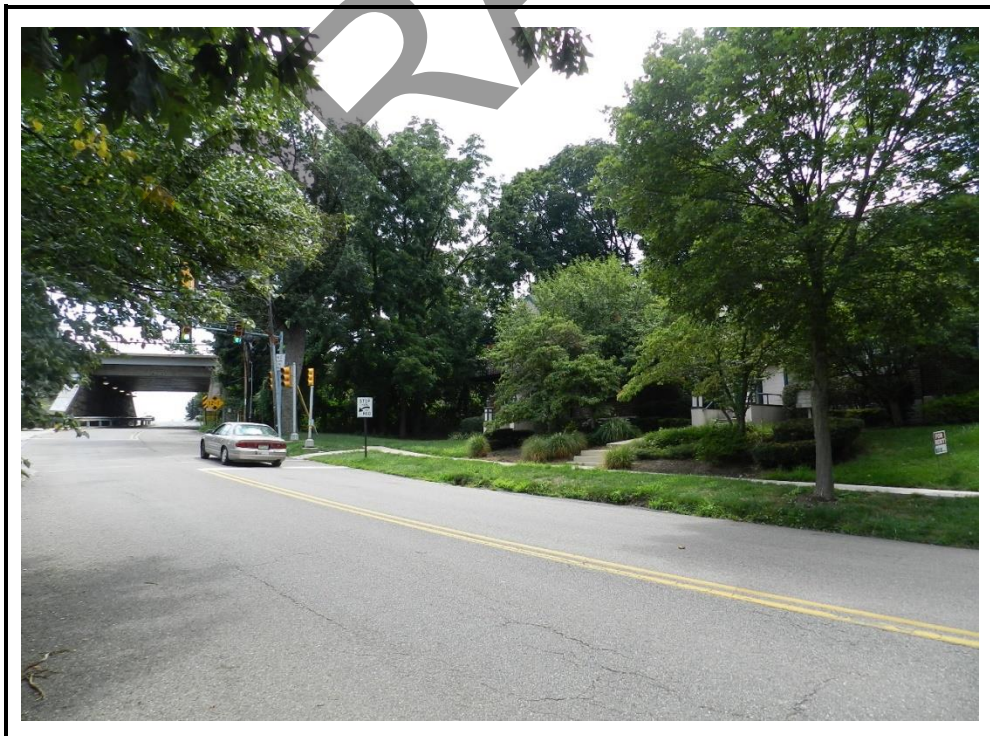
Photograph 27. Wayne Station, facing northeast; tracks and platforms in background.



Photograph 28. Wayne Station platform area, facing east.



Photograph 29. Southern edge of North Wayne Historic District (on left) and Amtrak train station parking lot (on right), facing east.



Photograph 30. View looking toward elevated tracks from the southern edge of the North Wayne Historic District, facing south.



Photograph 31. Strafford Station with depot and parking lot on left and tracks with train to right, facing west.



Photograph 32. Strafford Station, view of train shelter on left and NRHP-listed Cramond in background near center of photograph, facing north.



Photograph 33. View from Cramond, looking toward the railroad, Strafford Station, and parking lot, facing south.



Photograph 34. Grove Avenue Service Station, with railroad tracks and railroad bridge in background, facing northwest.



Photograph 35. Bryn Mawr Substation, showing southwest and southeast elevations, facing north.



Photograph 36. Bryn Mawr Substation, showing northwest and southwest elevations, facing east.



Photograph 37. Bryn Mawr Substation, showing northwest and northeast elevations, facing southeast.



Photograph 38. Bryn Mawr Substation, showing southeast and northeast elevations, facing southwest.



Photograph 39. Bryn Mawr Substation, showing northeast elevation, facing southwest.



Photograph 40. View showing Philadelphia & Western (P & W) tracks at grade; Pennsylvania Railroad (PRR) crosses the P & W above, facing northeast.



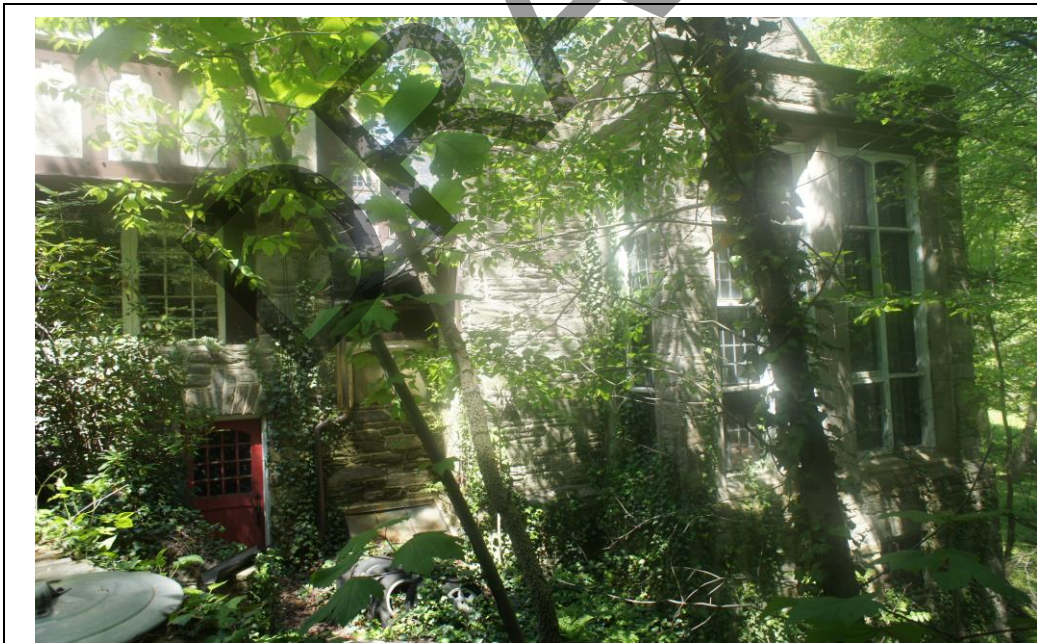
Photograph 41. Eagle Hotel, north elevation, facing southwest.



Photograph 42. Eagle Hotel, showing south (rear) elevation at the edge of westbound railroad tracks, facing east.



Photograph 43. Clonmel-Rosslevyn, east elevation, showing rear entrance on left-hand side of photograph; addition is on right-hand side, facing northwest.



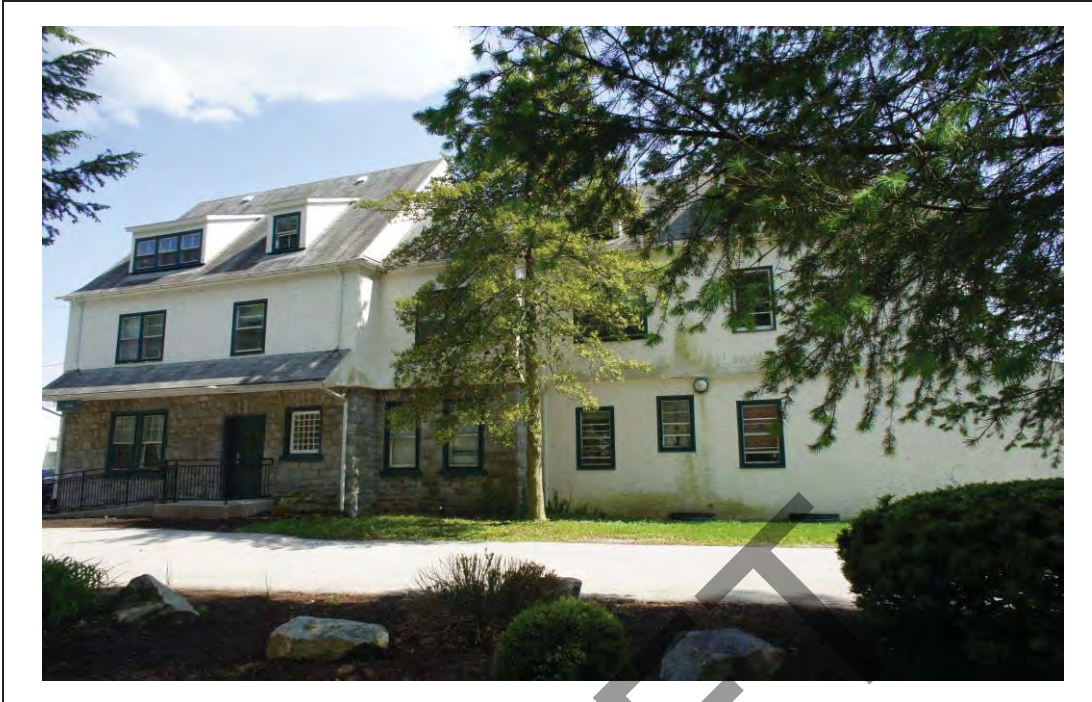
Photograph 44. Clonmel-Rosslevyn, east elevation, room addition is at right-hand side of photo, facing northwest.



Photograph 45. Overview of Devereux Foundation property, with Acerwood on left-hand side, new building in center, and Birchgate on right-hand side of photograph, facing southeast.



Photograph 46. Devereux Foundation, with Acerwood on left-hand side and new building on right-hand side, facing southeast.



Photograph 47. Devereux Foundation, Birchgate, north elevation, showing addition on western side, facing south.



Photograph 48. Bryn Mawr Substation, sign and corbelled brick cornice on southeast elevation, facing northwest.

APPENDIX A:
CORRESPONDENCE WITH CONSULTING PARTIES

DRAFT

CONSULTING PARTIES LIST

CHESTER COUNTY

Karen Marshall
Heritage Preservation Coordinator
Chester County Planning Commission
601 Westtown Road
West Chester, PA 19380

J. Michael Morrison, President
Tredyffrin Easttown Historical Society
720 First Avenue
Berwyn, PA 19312

Dr. Robert Lukens, President
Chester County Historical Society
225 North High Street
West Chester, PA 19380-2658

Anna Sicalides, Chair
Easttown Township Historical Commission
P.O. Box 79
Devon, PA 19333

Gretchen Kiernan
Tredyffrin Township Historical Commission
1100 Duportail Road
Berwyn, PA 19312-1079

Penny Goulding, Chairman
Willistown Township Historical Commission
688 Sugartown Road
Malvern, PA 19355

DELAWARE COUNTY

Ms. Beverlee Barnes, Manager
Historic Preservation Section
Delaware County Planning Department
Court House/Government Center
201 West Front Street
Media, PA 19063

Mr. Richard Paul, Chairman
Delaware County Heritage Commission
Delaware County Planning Department
Court House/Government Center
201 West Front Street
Media, PA 19063

Mr. Thomas Mahoney, Director
Delaware County Archives
201 West Front Street
Media, PA 19063

Mr. John Costello, Executive Director
Delaware County Historical Society
991 Palmers Mill Road
Media, PA 19063

Ms. Margaret F. Johnson
Director and Library Coordinator
Delaware County Historical Society Research Library and Museum
408 Avenue of the States
Chester, PA 19013

Ted Pollard, President
Radnor Historical Society
113 West Beech Tree Lane
Wayne, PA 19087

Stacey Mattox, Chairperson
Historical Commission
Township of Haverford
2325 Darby Road
Havertown, PA 19083

Vincent Snyder, President
The Haverford Township Historical Society
P.O. Box 825
Havertown, PA 19083

D. Cameron Lacy, III, Chairperson
Historic and Architectural Review Board
(Radnor Township)
301 Iven Avenue
Wayne, PA 19087

MONTGOMERY COUNTY

Karen M. Wolfe, Executive Director
The Historical Society of Montgomery County
1654 DeKalb Street
Norristown, PA 19401-5415

Kathleen M. Abplanalp, Vice-Chair
Historic Architectural Review Board
Lower Merion Township
75 East Lancaster Avenue
Ardmore, PA 19003-2323

Christian Busch, Chair
Historical Commission
Lower Merion Township
75 East Lancaster Avenue
Ardmore, PA 19003-2323

PHILADELPHIA COUNTY

Brenda Williams, President
Wynnefield Residents Association
5301 Overbrook Avenue
Philadelphia, PA 19131

Robert Cousar, Executive Director
East Parkside Community Revitalization Corporation
1109 North 40th Street
Philadelphia, PA 19104

James L. Brown IV, Executive Director
Parkside Historic Preservation Corporation
4220 Parkside Avenue
Philadelphia, PA 19104

Carol Roache, Commission Secretary
Fairmount Park Commission
One Parkway, 10th Floor
1515 Arch Street
Philadelphia, PA 19102-1512

Randal Baron, Historic Preservation Planner III
Philadelphia Historical Commission
City Hall, Room 576
Philadelphia, PA 19107

John Andrew Gallery, Executive Director
Preservation Alliance for Greater Philadelphia
1616 Walnut Street, Suite 1620
Philadelphia, PA 19103

PENNSYLVANIA RAILROAD & INDUSTRIAL HISTORY ORGANIZATIONS

Andy Hart
The Pennsylvania Railroad Technical & Historical Society
P.O. Box 54
Bryn Mawr, PA 19010-0054

Chuck Blardone, Editor
The Keystone (Journal of the PRRT&HS)
2886 Wimbledon Lane
Lancaster, PA 17601-1454

Steve Staffieri, President
The Pennsylvania Railroad Technical & Historical Society
Philadelphia Chapter
2963 Columbia Drive
Bensalem, PA 19020-2109

Gregory P. Molloy, President
National Railway Historical Society (NRHS)
100 North 20th Street
Suite 400
Philadelphia, PA 19103-1462

Frank G. Tatnall, Jr., President
National Railway Historical Society (NRHS)
Philadelphia Chapter
P.O. Box 7302
Philadelphia, PA 19101-7302

William E. Antonides, Jr., President
National Railway Historical Society (NRHS)
Delaware Valley Chapter
P.O. Box 1244
Morrisville, PA 19067-1244

Ed Hoy
Society for Industrial Archaeology (SIA)
Oliver Evans Chapter
1031 Claire Avenue
Huntington Valley, PA 19006

DRAFT

Date:

RE: Section 106 Consultation
Federal Railroad Administration (FRA)
Amtrak Philadelphia Zoo to Paoli Electrification Transmission Line Project
Chester, Delaware, Montgomery & Philadelphia Counties

Dear **xxx**,

As part of the Philadelphia Zoo to Paoli Electrification Transmission Line Project, Amtrak plans to upgrade the existing overhead electrification system along a 20-mile segment of the Keystone Corridor between the Philadelphia Zoo and the Paoli substations. The current electrification infrastructure, which is over 100 years old, will not support the proposed high voltage system. Plans include the construction of new transmission/catenary structures, as well as individual electrification structures to facilitate the complete or partial removal of existing electrification structures along the right-of-way.

Paoli substation will require upgrades to tie into the existing 138,000-volt transmission network. The Bryn Mawr substation will be expanded to include a new substation to help support the catenary voltage between Zoo and Paoli substations. The Bryn Mawr expansion will also include two gantries, approximately 85 feet high and 90 feet long, constructed of galvanized lattice steel columns and beams, to support the new 138kV transmission switches. This construction is typical for other substations on the Keystone Corridor, but will be new to Bryn Mawr.

The existing catenary towers are approximately 40-50 feet in height and are rust brown in color (please see attached photographs). The proposed new towers would be approximately 60-75 feet high, with a few towers reaching 100 feet high at overhead bridges. The new structures will be galvanized steel and will be grey in color (please see attached rendering). All of the proposed new towers will be located in the railroad right-of-way and will be spaced about 150 to 300 feet apart, depending on the track curvature. Detailed construction plans for the towers and associated structures are currently being developed for the project.

Much of the subject portion of the Keystone Corridor, as well as many of the immediately surrounding communities, have been subjected to historic resource surveys. The locations of many of these previously surveyed resources, including the National Register-eligible Amtrak corridor, are shown online at the Pennsylvania Historical and Museum Commission's (PHMC) Cultural Resources Geographic Information System (CRGIS) at (<https://www.dot7.state.pa.us/ce/Application/ASP/Security/Index.asp>).

In compliance with Section 106 of the National Historic Preservation Act., Stell Environmental Enterprises, Inc. (SEE) is preparing a cultural resources investigation to identify significant architectural and archaeological resources that may be affected by the project. Section 106 requires sponsors of federally funded projects to take into account the potential project effects on historic

properties. Section 106 entitles parties with a demonstrated interest in history or historic preservation to provide comments and suggest mitigation measures, if necessary, for the project.

If you would like to participate in the Section 106 process or can provide information regarding significant historic, architectural, or archaeological resources in the project area, please respond by mail or by fax at (610) 286-0110 on the enclosed Comment Sheet within 30 days of receipt of this letter. If the form is not returned by this date, it will be assumed that you or your organization do not/does not wish to become a consulting party in the Zoo to Paoli Electrification Transmission Line Project at this time.

Enclosed for your use are maps showing the location of the project corridor, photographs of existing conditions, and diagrams of the proposed transmission/catenary towers.

Should you have any questions or require additional information please feel free to contact our Project Manager, Mr. David J. Durofchalk, PMP, at (610) 286-0100 or ddurofchalk@stellee.com.

Sincerely,

Lauren C. Archibald, Ph.D.
Architectural Historian
Stell Environmental Enterprises
25 East Main Street
Elverson, PA 19520

Enclosures:

Project Location Maps
Photographs and Renderings
Comment Sheet

DRAFT

**TOWNSHIP
OF
LOWER MERION**

MONTGOMERY COUNTY



DEPARTMENT OF BUILDING AND PLANNING

75 E. Lancaster Ave.
Ardmore, PA 19003-2376
Telephone: (610) 645-6200
FAX: (610) 649-9598

Mr. Allen G. Heist
Project Manager
Stell Environmental Enterprises, Inc.
25 East Main Street
Elverson, PA 19520

Re: **SECTION 106 PUBLIC CONSULTATION**
FEDERAL RAILROAD ADMINISTRATION (FRA)
PHILADELPHIA ZOO TO PAOLI ELECTRIFICATION TRANSMISSION LINE
PROJECT

Dear Mr. Heist:

Enclosed is the completed Public Officials' Survey distributed at the meeting held at Lower Merion Township on May 28, 2013. In addition, please accept the following comments submitted on behalf of Lower Merion Township in response to the above referenced project and request for comments.

Properties and Districts of Local Historic Importance:

The towns of Ardmore and Haverford are both historic districts in Lower Merion Township and contain many individual historic buildings and resources that are proximate to the Paoli/Thorndale line. Haverford was not identified as a local historic district in the draft Section 106 review and should be included. Although the town of Bryn Mawr is not a designated Historic District, the area contains many National Register eligible or listed resources that could suffer adverse impacts from the project.

Since the Main Line of the Pennsylvania Railroad is itself a National Register Historic resource, the Township suggests that the Area of Potential Effect (APE) be expanded to include the areas on either side of the Main Line of the Pennsylvania Railroad between Montgomery and Lancaster Avenues. These areas include significant historic buildings in Bala Cynwyd, Merion, Wynnewood, and Rosemont and should be evaluated for potential adverse effects from the project. Many residential properties are located along the Paoli Line throughout Lower Merion Township and impacts to individual properties should be considered. Concern is expressed for visual and view-shed impacts from the increased height of the proposed new catenary structures and to impacts to landscape improvements including trees, shrubs and flowers.

The proposed project includes the demolition of the Bryn Mawr substation and replacement with a much larger building utilizing an expanded footprint that will impact the historic Paoli Line, the historic Bryn Mawr Station and the surrounding SEPTA parking area. The removal of twelve parking spaces from the already limited and crowded parking lot is a serious adverse impact to the surrounding Bryn Mawr area. The area of adverse impact has been identified in the "Bryn Mawr Master Plan" that was completed in July 2006. This area has been identified as the site for a future structured parking garage that would allow for increased ridership by SEPTA commuters and surrounding institutional uses and businesses. The removal of land from the site could impact the future potential for parking expansion. The Township recommends that the replacement of the sub-station be limited to the existing site with no removal of existing parking or further reduction of land area for future parking expansion.

In addition, the Bryn Mawr area surrounding the historic Bryn Mawr Station and village area has been designated as a Transit Revitalization Investment District (TRID) that qualifies for increased funding for public improvements under the PA TRID Act. The TRID district encompasses phase two planning and implementation of the Bryn Mawr Master Plan including planning, financing and implementing transit supportive development and infrastructure improvements in the core business area of Bryn Mawr.

Concern is also expressed for the removal of old catenary structures both on the Paoli line and on other lines affected such as the Cynwyd line. Leaving abandoned wires or poles in place is not recommended with a strong preference for full removal.

Suggested Measures to Mitigate Adverse Effects:

The Township recommends that Amtrak and its project consultants continue to coordinate mitigation of adverse effects with the Lower Merion Historical Architectural Review Board (HARB) to implement recommendations. In addition to HARB, the involvement of and final approval of proposed mitigation measures should be sought from the Pennsylvania Historical and Museum Commission. Direct notification of all property owners immediately adjacent to the rail line should be provided with opportunities given to review adverse impacts to individual properties.

Further clarification is needed as to the impact to mature trees and shrubs along the Paoli Line. A landscape plan should be included that fully describes what resources will be impacted, private property screening methodology explained, and replacement and future maintenance plans described. Further clarification is requested as to how the project will be installed, old infrastructure removed and in what timeframe. Explanation of the need for access to adjoining private property, hours of project work, impacts from noise and debris, after-hours illumination, and other construction concerns such as drilling, pile driving or earth movement should be fully described and provided to the public and individual property owners.

Concern is expressed for any public health and safety impacts from the construction and installation of proposed new infrastructure and any impacts to the normal operation of the railroad including SEPTA commuters and Amtrak riders.

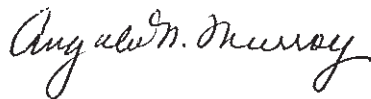
Other Comments/Suggestions:

The Township recommends that Amtrak or their consultants establish a project web site that is accessible to the public that includes all the information on the proposed Zoo to Paoli Electrification project. As the project moves through the design and engineering process, the information should be added with notification to the public that the project has advanced through its stages. It is recommended that descriptive information on how similar projects were completed in the Northeast Corridor be provided to include both before and after pictures and specifics and visuals describing how the construction was carried out.

Further, the public should be given the opportunity to join a distribution list for updates on the advance of the project through its stages. Direct connection to the website from notifications should be provided.

Lower Merion Township appreciates the opportunity to provide comment and response to Amtrak and its consultants relating to the Zoo to Paoli Transmission Line Project. We welcome you to return to the Township and offer the continued use of our facilities for future updates and public meetings. Please let us know if you require additional information or if we can offer additional suggestions.

Sincerely,



Angela N. Murray AICP
Assistant Director

CC: President and members of the Board of Commissioners
Douglas S. Cleland, Township Manager
Bob Duncan, Director
Mike Wylie, Zoning Officer
Daniel Tasker, Amtrak
Daren Petroski, Burns Engineering, Inc.
Bert Wescott, Burns Engineering, Inc.
Barbara Frederick, PHMC
Michelle Fishburne, FRA

Response to Haverford Station Historic District Neighborhood Coalition (HSHDNC)

Dear Ms. James:

We appreciate your letter, your attendance at the recent public meetings and your interest in the project. The first part of our response letter is a narrative that summarizes some of the existing and proposed catenary structure conditions. The narrative is supplemented by a detailed description of each of the structure locations, which is included as Appendix A. Following the background information, we have addressed the specific issues you raised in your letter, many of which you asked and were answered at the public meetings

Location specific background

On the north side of the Right-of-Way, between Booth Circle and Haverford Station, Haverford Station Historic District (HSHD) is about 0.35 mile long. On the south side of the Right-of-Way between Barrett Avenue and Haverford Station, HSHD is about 0.6 mile long. Between Barrett Avenue and Haverford Station, the project proposes to replace 11 catenary structures.

Based on copies of the original 1914 structural erection diagrams by Gibbs & Hill, the existing catenary structure heights along this section of railroad are typically about 40 feet. Under our project, the design calls for proposed structure heights that vary between 60 feet and 75 feet. Therefore, within HSHD, the proposed catenary structures will be between 20 feet and 35 feet higher than the existing structures.

The typical proposed structure height is 60 feet. The westernmost structure adjacent to HSHD is proposed to have a height of 72 feet, 12 feet higher than the typical structure, because the proposed structure is at the east end of a downward transmission wire transition from a section of transmission wire that will be elevated to pass above Pennswood Road Bridge.

There are two areas adjacent to the HSHD where the proposed structures transition from the typical, 60-foot height to a double-stack, 75-foot height. Transmission wires are proposed to be double-stacked at locations where Amtrak's Right-of-Way is narrow, to keep the transmission wire above Amtrak property. On the south side, there is a proposed transition to a double-stack configuration at new pole location 504+10, 200 feet west of the Booth Lane underpass. On the north side, there is a proposed transition to a double-stack configuration at new pole locations 498+10 and 495+19, 400 feet and 690 feet, respectively, east of Booth Lane underpass.

From west to east, the railroad starts in an earthwork cut section and then transitions to an embankment fill section. The transition from cut to fill is near new pole location 507+09. The 4 structures to the west of this location are in a cut and the 6 structures to the east are on embankment. This is relevant because the structures in the cut section are at a lower elevation than the surrounding topography and are therefore less visible. The converse is true for the structures on embankment, which are at a higher elevation than the surrounding topography and are therefore more visible.

Details on existing conditions and proposed structures for each of the 11 structure locations are provided in Appendix A.

Tree trimming and tree removal

The existing catenary structures have a typical overall width of 63 feet between the ends of the crossarms at the top of the structure. To provide electrical clearance, currently, Amtrak trims branches and trees back an additional 10 feet or so, on each side, roughly along a line that follows the back-guy foundations on the ground. Evidence of the tree trimming can be seen in the photographs in Appendix A. The existing overall width that is currently kept free of tree limbs and vegetation is 83 feet.

The proposed structures have a typical overall width of 88 feet from tip of crossarm to tip of crossarm. The proposed structures are a total of 15 feet wider for two reasons: 1) current Amtrak track clearances require additional space between the centerline of track and the face of the catenary structure and 2) the crossarms have to be wider due to the increase from 44 kV to 138 kV transmission lines. The corresponding width that will need to be tree- and vegetation-free will be approximately 108 feet. Therefore, for the construction of the new catenary structures, a 10-foot wide strip of tree trimming or tree removal will be required along each side of the tracks. Trees will not be clear cut as suggested in your letter. Only those trees which are within the 10-foot wide strip will be removed. Trees outside the 10-foot wide strip that have branches that extend into the 10-foot strip will be trimmed. Tree cutting and tree trimming activities will not involve the use of herbicides.

The trees that will be removed are on Amtrak's property. Amtrak does not intend to plant replacement trees on its property or on adjacent properties.

Safety Impact

As requested, we have enclosed maps (Appendix B) which show Amtrak's Right-of-Way and the adjacent properties and buildings within the HSHD.

As mentioned in the public meeting, the Project has studied both the existing and proposed levels of electric and magnetic fields that will be created by the new 138 kV transmission lines.

The existing level of magnetic field (at 25 Hz) had measured values that ranged between 12 and 51.1 mG (mG=milligauss) on the passenger platforms 1 meter above the ground. The field strength dropped significantly below these levels a few feet away from the railroad. Based on our models, the magnetic field anticipated in the final, installed condition are less than 70 mG directly under the transmission lines (e.g. on the station platform) and fall off significantly away from the platform.

The measured level of power frequency electric fields (at 25 Hz) had measured values that ranged between 155.6 and 868 V/m. Based on our models, the power frequency electrical field for the final, installed configuration is below 900 V/m.

The proposed field levels are small when compared to those associated with utility transmission lines. Within utility transmission line rights-of-way, typical magnetic fields are one order of magnitude larger and the electric fields are two orders of magnitude larger than what is anticipated adjacent the Harrisburg Line between Zoo and Paoli.

The Commonwealth of Pennsylvania requires transmission lines to be built in accordance with the requirements of the National Electrical Safety Code (NESC), which cites no restrictions for electric or magnetic field; the Federal government also has no national standard in this regard.

Physical proximity to the transmission lines would be based on clearance requirements. NESC (Rule 234) puts the horizontal clearance to 138 kV line at 11.5 feet. Amtrak's requirement for vertical clearance for a 138 kV line is 15 feet above any structure.

Vibrations during construction will be minimal. The proposed caisson foundations will be excavated by augerring (drilling) 4.5-foot diameter holes into the ground to a depth of 20 feet. There will be no hammering, pile driving or similar activities of a type that cause vibrations. The foundations will be poured-in-place concrete and the new structures will be set with cranes. The vibrations associated with these activities are not anticipated to have a negative impact on HSHD.

Vibrations associated with train traffic: this project is not being done to increase train speeds. Train speeds will not increase as a result of this project. Therefore the assertion that there will be vibrations associated with higher speed train traffic is moot.

Flooding Impact

Within HSHD, the railroad is on a downward gradient, from west to east, of 0.79%. This means that stormwater runoff in the cut section of the Right-of-Way (the west part of HSHD) flows in ditches adjacent to the tracks eastward and then leaves the Right-of-Way near Booth Lane and enters the municipal storm sewer. Runoff in the embankment fill section (the east part of HSHD) is simply flowing off the embankment and onto adjacent property. Tree trimming and tree cutting will alter the tree canopy coverage but will not change the underlying characteristics at ground level. In other words, the perviousness of the land cover is not being changed in the way a paving project would, for example. Therefore, stormwater runoff is not anticipated to be significantly altered. Amtrak does not plan to construct new stormwater infrastructure for the new catenary structures. Existing stormwater infrastructure will be maintained.

Aesthetic Considerations

The existing catenary structures are pale grayish green. The proposed catenary structures will be galvanized with zinc, which is a dull gray color. They will not be bronze, as stated in your letter. In answer to your questions:

1. The existing catenary structures are painted a grayish green color. The color is not embedded into the steel from which they are made.
2. The new catenary structures will be standard, rolled steel wide-flange shapes and will be galvanized with zinc. We are not aware of a process by which steel can be "embedded" with color.
3. As stated at the meeting, the existing and new structures will exist, side by side, for a duration that cannot be accurately estimated at this time. The actual length of time will largely depend

on the Contractor's means and methods, and Amtrak's train dispatching and operations. We understand that having the two catenary structures being visible side-by-side is not desirable from HSHD's perspective. However we would ask HSHD to understand that this will be a temporary condition. The existing structures will not be allowed to remain indefinitely after the new structures are installed and the catenary wires are transferred.

Construction Times

We understand HSHD's concerns about construction times and, in particular, construction occurring at night and on weekends. However, due to the work taking place on an active passenger railroad, it is simply not possible to honor this request. Nights and weekends are the only times available to do construction work adjacent to tracks that will not disrupt train schedules.

Amtrak will honor your request that notices to each home adjacent to the railroad Right-of-Way be provided prior to construction. As it has done on other recent construction projects, Amtrak will provide a toll-free number to call for information, to share concerns and bring issues to Amtrak's attention.

In summary, we believe that the project will be satisfactorily investigated at the level of NEPA Categorical Exclusion. We do not plan on further investigations or specific mitigation measures specifically for HSHDNC. However we welcome further dialogue with you and your group. If you have further questions or concerns, please contact me.

Sincerely yours,

FRA

Michelle Fishburne, P.E.

Appendices:

A: Photographs (Needs 1 revision)

B: Plans ET-0118 and ET-0119, pre-60% submission, showing adjacent properties. (To be added when complete)

C: SEDS (To be added)

RECEIVED MAY 7 2012

SECTION 106 PUBLIC CONSULTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)
PHILADELPHIA ZOO TO PAOLI ELECTRIFICATION TRANSMISSION LINE
PROJECT
CHESTER, DELAWARE, MONTGOMERY & PHILADELPHIA COUNTIES

Date: 5.4.12

Name: BEN LEECH

Organization/Affiliation: PRESERVATION ALLIANCE FOR GREATER PHILA

Telephone/Cell Phone Number: 215-546-1146 x5

Email Address: ben@preservationalliance.com

Please identify any properties in the project area of local importance or value:

All train stations/platforms, substation structures,
towers, bridges, etc. "Project area" is broader than
just the ROW.

Suggested means to enhance the project:

Clarify areas of impact

Other Comments/Suggestions:

The Preservation Alliance would like to be a
consulting party and would request a list of
other invited parties.

Please Return to:

Project Manager, Mr. David J. Duroschalk, PMP
Stell Environmental Enterprises, Inc.
25 East Main Street
Elverson, PA 19520



Delaware Valley Association of Rail Passengers

1601 Walnut St., Suite 1129 Philadelphia, PA 19102 215-RAILWAY www.dvarp.org

May 18, 2013

Allen G. Heist
Stell Environmental Enterprises
25 East Main St.
Elverson, PA 19520

Dear Mr. Heist;

Thank you for your letter of May 10 and enclosed draft Determination of Effects Report and Archaeology report. The Delaware Valley Association of Rail Passengers supports the proposed Zoo-Paoli transmission line project. Our statement on the project is enclosed.

The draft reports are satisfactory from our perspective, and we find no adverse effects from the proposed project. We believe that the highest historic value of the Pennsylvania Railroad Main Line is in the train service itself, and that this project will enhance the capacity and reliability of the service for generations to come.

We urge you and other project planners to make sure that the North Wayne Protective Association and other residents' groups along the Main Line are made aware of the upcoming public meetings and given the opportunity to comment on your draft reports. If you would like help in getting contact information for these people, please e-mail mail@dvarp.org or call us at 215-RAILWAY.

Yours sincerely,

Matthew D. Mitchell
President

cc: Daniel Tasker, Amtrak
Michelle Fishburne, Federal Railroad Administration



Twitter: @PhillyDVARP



Facebook: /PhillyDVARP



Statement on Proposed Paoli-Zoo Transmission Line

May 18, 2013

The Delaware Valley Association of Rail Passengers supports relocation of Amtrak power transmission lines from their present rights of way onto new structures erected over the Harrisburg Line between Paoli and Zoo interlockings.

These transmission lines supply green electricity from the Safe Harbor generating station to power Amtrak and SEPTA trains on the Keystone Corridor and portions of the NEC. Relocating the lines will put them on a shorter and more efficient route and eliminate Amtrak's reliance on rights of way over routes now owned by others. The project will also improve the reliability of SEPTA and Amtrak service on the Main Line by modernizing the catenary structures and replacing the antiquated substation at Bryn Mawr.

Fast, frequent, and reliable passenger train service was the foundation on which the Main Line communities were built, and remains a critical element of their continuing attractiveness as places to live, work, and do business. Maintaining and improving the Amtrak/SEPTA infrastructure is itself an important historic preservation project for the Main Line.

We recognize that the new electrification structures will be taller than the existing structures. While some Main Line residents are concerned about the visual appearance of the larger structures, they are necessary for the safety and reliability of the system. We urge the designers to try and make them as unobtrusive as possible. We also urge project planners to listen to the concerns of those residents and stay in communication with them.



AMTRAK'S ZOO TO PAOLI TRANSMISSION LINE PROJECT PUBLIC OFFICIALS' SURVEY

May 28, 2013 at Lower Merion Township Building
May 29, 2013 at Radnor Township Building

This is the second round of public officials' meetings to be held regarding the proposed Amtrak Re-Electrification Project for the Zoo to Paoli Rail Line. Thank you for sharing your thoughts and concerns regarding the project and the public outreach efforts. Please return the completed survey to a member of the project team.

Were you aware of AMTRAK plans to upgrade the electric service system along the rail lines between the Philadelphia Zoo and Paoli prior to this meeting? ☒ Yes ☐ No

Has the Amtrak Zoo to Paoli Re-Electrification Project been discussed at municipal public meetings since the Public Officials' meetings held on April 25 and April 30 of 2012?

☒ Yes ☐ No

Do you feel that the Public Officials' meetings have provided enough information to understand the purpose and need for the project as well as how the project may impact your community?

☐ Yes ☒ No

Are sufficient project contacts provided to allow you to have your questions addressed?

☐ Yes ☒ No

Do you have any concerns regarding the proposed improvements associated with this project? If so, please describe:

SEE letter enclosed

Please provide any additional comments regarding the proposed improvements:

SEE letter enclosed

Are there other community groups that you feel should be included in the discussions about this project? ☐ Yes ☐ No Please list them with a contact name and email, if possible.

SEE letter enclosed.

AMTRAK'S ZOO TO PAOLI TRANSMISSION LINE PROJECT PUBLIC OFFICIALS' SURVEY

May 28, 2013 at Lower Merion Township Building
May 29, 2013 at Radnor Township Building

We would also like to better understand how you use the rail network in your community.

Do you regularly travel by rail? ☒ Yes ☐ No ☐ Daily ☒ Weekly ☐ Monthly

If the service was faster/more efficient/more reliable, would you use it more frequently?
☒ Yes ☐ No

Do you use the rail line to travel for: ☒ Business ☒ Pleasure

What do you like MOST about traveling by rail?

Not driving or wasting time in traffic.

What do you like LEAST about traveling by rail?

Unknown Delays, Cost of tickets
Cost of parking at 30th St. Station

From what station to what station do you travel most frequently?

Center City / Ardmore
30th St. Station / New York City

If you have additional comments or questions about the Zoo to Paoli Re-Electrification Project, please send us an email at: ahleist@stellee.com or cgilchrist@stellee.com.

ZOO TO PAOLI RE-ELECTRIFICATION PROJECT



Haverford Station Historic District Neighborhood Coalition

July 11, 2013

United States Department of Transportation
Federal Railway Administration
1200 New Jersey Avenue SE
Washington, DC 20590
Attention: Michelle Fishburne, PE
Environmental Protection Specialist

Bureau for Historic Preservation
Pennsylvania Historical and Museum Commission
State Historic Preservation Office
Commonwealth Keystone Building, 2nd floor
400 North Street
Harrisburg, PA 17120-0093
Attention: Barbara Frederick
State Historic Preservation Officer

Amtrak
c/o Burns Engineering
Attention: Daren Petroski, PE, VP
dpetroski@burns-group.com

Re: High Tension Power Line Project Main Line

Ladies and Gentlemen:

On behalf of the Haverford Station Historic District Neighborhood Coalition ("Coalition"), I am writing to you to express our concerns and questions regarding the high tension electrification project that Amtrak proposes to install in the Haverford Station Historic District ("Historic District"). While we recognize that this project is important for the mass transit service in our community and will surely go forward, as it goes forward, we urge the Federal Railway Administration to require appropriate mitigation of the negative impact of this project on the Haverford Station Historic District ("Historic District").

Amtrak has applied for a categorical exclusion from a Section 106 environmental review. The essence of its argument is that as the train line already exists, an increase in the height of catenaries, number of power lines, and voltage/tension of power, all of those increases have no further deleterious effect on the neighborhood, which includes the Historic District. This argument lacks logic and is factually incorrect. The project will result in a degradation of the Historic District as well as other adjacent neighborhoods unless the project's spillover impact is mitigated. We

ask today for an appropriate investigation of the spillover effects.¹ If the Federal Railway Administration finds that a categorical exclusion is appropriate under the circumstances, nonetheless we ask that as part of the review and mitigation process, Amtrak be required to undertake an investigation and analysis sufficiently robust to fully identify the adverse spillover effects of the project on the Historic District, and to develop and implement a mitigation plan sufficient to offset such effects on the Historic District.

The Coalition's specific long-term concerns are as follows, and will be discussed in more detail below:

1. Deforestation (tree and foliage clearing) in the Historic District;
2. Viewshed impact on the Historic District;
3. Flooding impact on the Historic District;
- Safety impact on adjacent homes and activities within the Historic District (including impact on Historic resources from vibrations from construction and from faster trains, and potential for derailment of faster trains), and
4. Aesthetic (look, color and placement of the catenaries) impact on the Historic District.

Our specific transitory (i.e. nonpermanent) concerns are as follows, and will also be discussed in more detail below:

- Noise disruption and lighting issues during construction,
- Safety issues during construction, and
- Cell phone disruptions.

A bit of background will probably be helpful. While many homes in the Historic District grew up around and because of the railroad line, thus being an integral part of the fabric of the historic railway line, some of the homes, including 52 Booth Lane, Haverford and several other homes on Old Lancaster Avenue, predate the railroad and have historic significance on their own and as part of the Historic District. All of the Historic District is impacted, positively and negatively, by the proximity of the railway line. While we all appreciate the convenience of proximity to the train, most of us have struggled with the spillover effects of Amtrak's train line. In the last decade and a half or so, flooding due to excessive runoff from the railway right of way has been a continuing problem for the Historic District. When Amtrak did not sufficiently address the flooding issues², the neighborhood benefitted from the efforts of Representative Gerlach who personally toured the right of way areas. He facilitated a project in which Amtrak deepened and improved what had been a

¹ For example, Amtrak was not aware that its project went through the Haverford Historic District, nor that it borders the Sharpe Bird Sanctuary, until it was pointed out to them by the author of this letter at a public meeting.

² Despite repeated phone calls, letters and entreaties, it took federal political intervention for Amtrak to respond effectively. At the time the drainage project occurred, the neighborhood had not yet been designated an Historic district.

shallow and ineffective drainage ditch running through the right of way. Those efforts have to some degree, absent a significant shift in the foliation of the drainage area, alleviated some of the flooding issues. It was a long and protracted effort to obtain Amtrak's cooperation regarding the impact its activities have had on this neighborhood, and we raise this past (and continuing) relationship to provide the background and context for the neighborhood's concern about bringing Amtrak to the table in a positive and cooperative manner.³

The Coalition sent representatives to the public meetings held for township officials and for the public in May of 2013. We also met privately as a group of concerned citizens to consider collectively the impact of Amtrak's project on the Historic District – our homes. It should be noted that many citizens of this neighborhood are customers of Amtrak and are well aware of the need to balance public transportation needs with the concerns of the neighborhood through which that public transportation passes. We firmly believe that with a cooperative effort this project can go forward in a manner that respects the Historic District it serves rather than cutting an errant and thoughtless swath through a densely settled, historically designated neighborhood.

Specific Long-Term Concerns:

1. **Deforestation/Defoliation: What tree cutting, trimming and foliage removal will occur and in what specific locations?** Amtrak has stated in public that it has not yet formulated its "tree removal plan" and that it has no plans for herbicide usage. As it has no plans developed at all yet, we want to be sure that its "no plans" doesn't develop later into a plan that depends upon extensive tree removal and herbicide⁴ unless the impacts of that plan are properly and fully mitigated. Impacts include negative impact on viewshed from the historic districts.⁵ This is of great concern both due to the impact on the viewshed from the Historic District and due to the adverse impact it will have on the storm water issues in the neighborhood.⁶ Given the obvious and scientifically recognized

³ We also note that Amtrak has not regularly maintained the drainage area, which is frequently filled with downed branches (which its contactors often leave rather than remove after tree trimming) and other debris, impacting the effectiveness of the drainage area.

⁴ During previous Amtrak projects, there have been notable instances of excessive herbicide usage which ran off into private gardens, destroying them and exposing neighbors and their pets to the herbicide.

⁵ The increased height of the catenaries will be visible over the tree line and from further distances from which the present catenaries are visible; also the train tracks and trains will be more visible without the greenery barriers which are presently ubiquitous in most areas of the Historic District.

⁶ Prior to the drainage ditch dredging and improvement, some of the neighbors were considering an inverse condemnation action against Amtrak on the grounds

impacts of global climate change, resulting in the increase and severity of storms, maintaining an adequate storm water runoff plan is necessary. Clear cutting of trees and foliage will only exacerbate the problem.

2. **What is the mitigation/tree and foliage replacement plan?** At the public meeting Amtrak's representative said Amtrak has *no greening or mitigation plan* for this project. A specific and long-term mitigation agreement should be required to protect the Historic District. The agreement should define the trees and other foliage to be removed (or an ascertainable criteria for removal), the management over time of foliage incursion and removal, and a greening plan for replacing, on a tree by tree basis, each tree removed with healthy trees of similar size to those that are removed. If trees cannot be safely placed within the right of way due to proximity to the high power lines (and we absolutely agree that safety is paramount), then Amtrak should provide mature trees to the adjacent property owners for appropriate mitigation placement on their properties. A greening plan should help mitigate viewshed impact, flooding impact caused by tree and foliage removal, and the noise impact of trains.
3. **Safety Impact:** We request that Amtrak provide maps (to scale) that delineate the width of the right of way and the location of all adjacent homes within the Historic District which border the right of way. This is necessary to determine whether there are any restrictions that homeowners must take due to their proximity to the planned power lines. The map will also be helpful in determining the impact of tree clearing on sight lines, greenery barriers and other impacts on the Historic District homes. While the train line, in some cases, pre-dates the homes (and in others, post dates them), the timing of the construction of the homes is irrelevant to the safety caused by an increased or "upgraded" usage of the right of way. We also request that Amtrak communicate in writing any recommended safety measures regarding use of adjacent properties.⁷
4. **Aesthetic Considerations.** The present catenaries are a pale green which is not hugely intrusive as a color, particularly during the spring, summer and fall. The proposed catenaries are more of a bronze color.

that Amtrak was using their properties as stormwater run-off basins. Amtrak is on notice of the issue, and we want to avoid a repeat of what was a prolonged, difficult and damaging intrusion onto neighborhood private property by Amtrak stormwater.

⁷ We note that a number of other state power authorities have safety manuals for contractors working in the vicinity of high tension power lines. We would like to be aware of any safety measures that are necessary to avoid danger to homeowners. While we are researching this on our own, including with references to OSHA, NIST, ASTM and other national guidelines, as we are not experts in this area, and as Amtrak is causing the impact, they ought to provide an affirmative list. The burden should not be on the Coalition to determine the appropriate safety measures for homeowners.

Amtrak's representatives stated that painting the catenaries would cause maintenance problems. We agree that maintenance problems and flaking paint are to be avoided. However, none of the neighbors are aware that the present catenaries have been painted, nor do they appear to be flaking. Therefore, we would like Amtrak to disclose whether the current catenaries are painted or whether their green color is embedded in the material of which they are comprised. Second, whether a somewhat lighter and greener color could be embedded into the material from which the new catenaries will be fabricated, thus minimizing the impact of the catenaries on the viewshed. Third, we would like to know the length of time that a double set of catenaries (i.e. new and old) will be in place, as a 100% increase in the catenaries during the five year construction period will have a very negative impact on the neighborhood.⁸

5. **Timing of Construction.** We are concerned that construction will take place late at night, with loud sounds and bright lights disturbing the sleep of the Historic District residents, including that of the many young children who reside in it. We are also concerned about disruption to the enjoyment of our outdoor spaces during the weekends. That said, we recognize that construction must occur at some time, and it is not effective to conduct construction during rush hour due to the impact on commuters. Therefore we request that the mitigation agreement prohibit weekday construction after 10 pm and before 7 am, and permit weekend construction only between 5 pm to 10 pm. We also request that the mitigation agreement require notices to neighborhoods (to each home) at least two weeks in advance of any scheduled construction, with the scheduled hours of construction, the nature of the disruption, and a 24 hour telephone number for emergency contact and the name and cell phone number of Amtrak's project manager. This should facilitate communication and the resolution of problems early on.
6. **Issues that Amtrak has purported to provide answers about:**
 - Amtrak has stated that there will be no cell phone or WiFi interference from the new power lines, that the faster trains which use the tracks after the new power lines are installed

⁸ This would require Amtrak to provide a construction schedule which we understand may not be obtainable at this time; however, the mitigation agreement should provide for the production of a construction schedule at the appropriate time and also provide for specific actions to mitigate the impact of construction, including a shorter, rather than longer, duration, for the existence of a double set of catenaries, as that will reduce the viewshed impact. We would also like to better understand the financing of the project, at the appropriate time, to alleviate our concern that the old catenaries might end up remaining in place due to a lack of funding for removal. Additionally, we would like to know assurances as to the amount of liability insurance Amtrak maintains in the event of a construction casualty that affects adjacent properties.

will not increase vibrations on nearby structures or otherwise create a greater risk; that there is no danger to adjacent properties from falling high tension lines; that there are no alternate design possibilities (although we believe the lines could be run underground through the Historic District, which while more expensive, would only be for approximately one mile and would significantly mitigate adverse impacts); that there are no restrictions on residents activities in their own yards, irrespective of the distance between the yards and the power lines; that there will be no impact on the birds in the bird sanctuary adjacent to the Haverford Train Station; that there is no adverse health impact on the residents (although studies appear to be inconclusive, rather than conclusive one way or the other). As a matter of course, we would like some kind of independent confirmation of Amtrak's assertions. If Amtrak is not going to undertake a Section 106 review, then we request they provide the independent confirmation through some other appropriate and reputable means that includes an analysis of the facts and science and not simply a conclusion.

Please note that while our Coalition expects to be a part of the process (and we appreciate the opportunity to participate), and we expect to take all appropriate steps to protect our homes and our neighborhood, we also expect to be realistic, professional and cooperative in the process, to consider other points of view, and to work to balance and resolve the problems as they arise. We expect to hold Amtrak to the same standard, as well as to all legal standards imposed on it.

Thank you for your time and consideration.

Sincerely,

Sharon Sorokin James
on behalf of the Haverford Station Historic District Neighborhood Coalition

cc: All members of the Haverford Station Historic District Neighborhood Coalition
Representative James Gerlach
Senator Robert Casey
Senator Patrick Toomey
Lower Merion Board of Commissioners
Historic Architectural Review Board of Lower Merion
Radnor Township Board of Commissioners
Historic Architectural Review Board of Radnor Township

Allen Heist

From: Bert Wescott [BWescott@burns-group.com]
Sent: Tuesday, July 16, 2013 1:50 PM
To: Daren Petroski; Allen Heist
Subject: FW: Amtrak electrification project
Attachments: LtrFRAreAmtrak071113.docx

FYI

Herbert H. Wescott III, P.E. | Burns Engineering, Inc.
direct: 215-979-7700 x 7742 | cell: 215-495-5014 | fax: 215-405-2510
email: bwescott@burns-group.com | www.burns-group.com

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From: michelle.fishburne@dot.gov [mailto:michelle.fishburne@dot.gov]
Sent: Tuesday, July 16, 2013 1:36 PM
To: Bert Wescott
Subject: FW: Amtrak electrification project

FYI

From: Sharon James [mailto:ssorokinjames@gmail.com]
Sent: Thursday, July 11, 2013 8:42 PM
To: Fishburne, Michelle (FRA)
Cc: Daren Petroski
Subject: Amtrak electrification project

Michelle: attached is our neighborhood coalition's letter. I will look forward to hearing from you at your convenience. Please feel free to contact me.

Sincerely,

Sharon Sorokin James

Haverford Station Historic District Neighborhood Coalition

Total Control Panel

[Login](#)

To: bwescott@burns-group.com
From:
prvs=9022a1df9@michelle.fishburne@dot.gov

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APPENDIX B:
CORRESPONDENCE WITH AGENCIES

DRAFT



RECEIVED JAN 17 2013

Commonwealth of Pennsylvania
Pennsylvania Historical and Museum Commission
Bureau for Historic Preservation
Commonwealth Keystone Building, 2nd Floor
400 North Street
Harrisburg, PA 17120-0093
www.phmc.state.pa.us

January 15, 2013

Stell Environmental Enterprises, Inc.
Attn: Allen Heist, PMP
25 East Main Street
Elverson, PA 19520

RE: ER# 2012-0005-042-B
FRA: Phase IA Geomorphology/
Archaeology Reconnaissance Survey
Report, Amtrak-Zoo to Paoli
Electrification Transmission Line Project,
Chester, Delaware and Philadelphia
Counties

Dear Mr. Heist:

Thank you for submitting information concerning the above referenced project. The Bureau for Historic Preservation (the State Historic Preservation Office) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 *et seq.* (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources. Our comments are as follows:

We agree with the recommendations of this report. In our opinion, no archaeological resources will be affected by this project.

Please provide three additional copies of this report (one copy unbound) for our files and for distribution to the other report repositories. We appreciate your cooperation.

If you have any questions or comments concerning our review, please contact Mark Shaffer at (717) 783-9900.

Sincerely,

Douglas C. McLearn, Chief
Division of Archaeology and Protection



Pennsylvania Historical & Museum Commission
Tom Corbett, Governor · Andrew E. Masich, Chairman · James M. Vaughan, Executive Director



U.S. Department
of Transportation

**Federal Railroad
Administration**

DEC 12 2013

1200 New Jersey Avenue, SE
Washington, DC 20590

James M. Vaughan
State Historic Preservation Officer
Pennsylvania Historical and Museum Commission
State Museum Building
300 North Street
Harrisburg, PA 17120

RE: Amtrak Zoo to Paoli Electrification Transmission Project
Chester, Delaware, Montgomery, and Philadelphia Counties, Pennsylvania
Delineation of the Area of Potential Effect (APE)
ER # 2012-0005-042

Dear Mr. Vaughn,

The Federal Railroad Administration (FRA) is funding the above referenced project to be undertaken by the National Railroad Passenger Corporation (Amtrak). The project undertaking includes construction activities within the existing railroad right-of-way from the Philadelphia Zoo Substation to the Paoli Substation, as shown on the attached location map.

The project involves demolishing the Bryn Mawr substation and the existing catenary pole structures. The existing poles (average height 44 feet) will be replaced with new poles on a similar footprint. The new poles will be grey, a color that was intentionally chosen so that the poles would blend in more readily with the sky and landscape. Although a few poles will be as high as 112 feet and one will be 123 feet, most of the proposed new catenary structures are expected to be from 65 to 80 feet high to accommodate both new catenary wires and transmission lines. The new transmission lines will provide power that is currently being provided along an existing transmission line owned by Amtrak routed along right-of-way owned by others. The existing transmission lines (shown in the dotted blue line on the attached figure) will remain intact and under Amtrak control.

The entire railroad corridor, recorded as Pennsylvania Railroad Main Line (Philadelphia to Harrisburg) (CRGIS Key No. 105675) was determined eligible for listing in the National Register of Historic Places (NRHP) on September 14, 1995, and again on November 16, 2007. The resource meets Criteria A and C for its "statewide significance in transportation, economy, and the development of Pennsylvania's industries and communities." Since this project has the potential to affect historic properties, FRA is initiating consultation under Section 106 of the National Historic Preservation Act and has identified the project area of potential effect (APE).

The project APE shown on the attached figure was defined through a comprehensive review of the project undertaking in accordance with Sections 800.16(d) and (y). This review includes identification of the proposed project construction-related elements, review of the project area within and adjacent to the railroad right-of-way, potential historic properties within and adjacent to the railroad right-of-way (including historic districts), potential changes to the project area, and comments received from consulting parties. In addition, FRA was in receipt of your letter dated August 23, 2013, stating your concerns with the APE. Your preliminary comments and concerns in relation to the consulting parties, viewshed, and pole heights have been considered in establishing the APE.

FRA has determined that the existing transmission line is not part of the project APE since the transmission line will remain in place as is with no proposed changes or construction. The existing transmission line is privately owned by CSX, Conrail, PECO, and SEPTA. Amtrak has rights to use the transmission line and will most likely not need the use of this line after this project is complete. FRA understands the concern of potential indirect effects, however, FRA has no knowledge that the private owners will make any changes to these lines. This project will not remove any of the infrastructure and the property will remain in private ownership. FRA and Amtrak have no control of the uses of this property.

Specifically, the APE boundaries for the architectural resources were defined based on the following:

- It includes all the existing railroad right-of-way between the Philadelphia Zoo Substation and the Paoli Substation.
- It includes any NRHP-eligible and -listed resources that are within the right-of-way or that are adjacent to the right-of-way, as well as points along the railroad where the planned catenary structures would be at least 100 feet or more in height. As a result, the APE boundaries for architectural resources expand out in some places to the nearest roadway along the railroad corridor at these points (see attached).
- Some NRHP-eligible and -listed resources bordering the railroad right-of-way were constructed after the actual installation of the railroad, having been built as a direct result of the existence of the railroad. These buildings are typically oriented in the opposite direction from the rail line, with properties on the south side of the railroad facing south and those on the north side of the tracks facing north. Therefore, since these buildings do not face the railroad, are not publically accessible from the rear of the property, and are not directly or indirectly impacted by activities/improvements on the railroad, they are not included within the APE.

FRA is requesting your concurrence with the historic architectural resource APE provided. In addition, FRA also requests confirmation of your concurrence on the APE for archaeological resources that includes the current railroad corridor right-of-way footprint (also attached). Your office concurred with the conclusions and recommendations of the Phase IA Archaeology Report in a letter dated January 17, 2013, and we would appreciate your specific concurrence on the APE for archaeological resources as confirmation for our

records. Please respond within thirty days of your receipt of this letter. FRA may consider your lack of response as concurrence with the above finding, as provided in 36 CFR 800.3(c)(4).

As the next step in the project, FRA and Amtrak will be conducting a second meeting with the consulting parties to review the APE, eligible historic resources in the APE, and the potential effects from the proposed project. We anticipate this meeting will be held in January 2014 and will notify your office of the exact location, date, and time when available.

If you have any questions, please contact Michelle W. Fishburne, FRA Environmental Protection Specialist, at (202) 493-0398 or by email at michelle.fishburne@dot.gov. We look forward to receiving your response and appreciate your assistance with this project.

Sincerely,



David Valenstein
Chief, Environmental and Systems Planning Division

Attachments

Project Location Map
Amtrak Zoo to Paoli Proposed APE for Architectural Resources Maps
Amtrak Zoo to Paoli APE for Archaeological Resources Maps

cc: Daren Petroski, P.E., Burns Engineering, Inc.



Commonwealth of Pennsylvania
Pennsylvania Historical and Museum Commission
Bureau for Historic Preservation
Commonwealth Keystone Building, 2nd Floor
400 North Street
Harrisburg, PA 17120-0093
www.phmc.state.pa.us

14 January 2014

David Valenstein
Chief, Environmental and Systems Planning Division
Federal Railroad Administration
1200 New Jersey Avenue SE
Washington DC 20590

Re: 2012-0005-042-J
Zoo to Paoli Electrification Transmission Line Upgrade
Chester, Delaware, Montgomery, and Philadelphia Counties

Dear Mr. Valenstein:

Thank you for submitting information concerning the above referenced project. The Bureau for Historic Preservation (the State Historic Preservation Office) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 *et seq.* (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources.

Archaeology

As requested, we have reviewed and concur with the archaeological Area of Potential Effect for the project.

Historic Structures

We provide our following comments on the Area of Potential Effect outlined in the provided documentation:

We remain of the opinion that the proposed discontinuation of service along the former Norristown line could have an indirect effect on the associated historic railroad routes by causing a change in use and possible removal of the catenary support structures later in time. Therefore, this location should be included within the Area of Potential Effect (APE). The former Norristown line includes routes of the **Pennsylvania Railroad: Morrisville Line (Key No. 100219)**, previously determined eligible for the National Register, and the **Pennsylvania Railroad Schuylkill Valley Branch (Key No. 155997)**, previously determined **not eligible** for the National Register). The catenary support structures on the Morrisville Line are specifically called out in the National Register eligibility documentation for the Morrisville Line as *non-contributing* features. Therefore, we are of the opinion that any indirect effects caused by discontinuation of Amtrak service along the former Norristown Line would not adversely affect the National Register eligible Pennsylvania Railroad: Morrisville Line.

We agree the APE for the project should include the right-of-way between the Philadelphia Zoo Substation and the Paoli Substation; however, we require additional information to complete our review of the

proposed APE boundary. We understand it will be necessary to clear new vegetation to accommodate the power line. We recognize that many of the resources bordering the railroad right-of-way were constructed after and as a direct result of the railroad and are oriented away from the rail line. However, we believe that significant changes to the vegetative screening between the rail line and the adjacent resources would have the potential to affect integrity of setting and feeling of any adjacent historic properties if it is determined that vegetative screening was a historic design feature of the communities. Please conduct research to determine if these communities were designed to have vegetative screening between the houses that front on the railroad and the rail line.

At those points along the railroad where the catenary poles would be at least 100 feet or more in height, the proposed APE is expanded to address visual effects. There is no justification for the selection of the 100-foot height expansion. Alternatively, we suggest you provide a discussion of the difference in height between the existing catenary support structures and the proposed catenary support structures. At those points where there will be a significant increase in height please consider expansion of the APE to the nearest roadway.

Please contact Barbara Frederick at (717) 772-0921 for further information regarding this review.

Sincerely,



Douglas C. McLearn, Chief
Division of Archaeology & Protection

DCM/bcf

DRAFT





Commonwealth of Pennsylvania
Pennsylvania Historical and Museum Commission
Bureau for Historic Preservation
Commonwealth Keystone Building, 2nd Floor
400 North Street
Harrisburg, PA 17120-0093
www.phmc.state.pa.us

16 March 2015

Mr. Allen Heist, PMP
Stell Environmental
25 East Main Street
Elverson, PA 19520

Re: ER 2012-0005-042-N
FRA: Amtrak Zoo to Paoli Electrification Project
Identification of Historic Properties/Determination of
Eligibility

Dear Mr. Heist:

Thank you for submitting information concerning the above referenced project. The Bureau for Historic Preservation (the State Historic Preservation Office) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 *et seq.* (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources.

We offer the following comments on the identification of historic properties for the above-referenced project.

Historic Structures

Based on the information provided, it is the opinion of the State Historic Preservation Officer that the following properties are **not eligible** for listing in the National Register of Historic Places:

- **Thomas Campbell House (Key No. 065457)** is **not eligible** due to a lack of integrity as a result of the late-20th-century additions and changes.
- **Llanogellen/South Devon Park Apartments (Key No. 201350)** is **not eligible** due to lack of integrity resulting from the ca. 1970 conversion to an apartment complex.

Based on the information provided, it is the opinion of the State Historic Preservation Officer that the following property is **eligible** for listing in the National Register of Historic Places:

- **Clonmel-Rosslevyn (Key No. 065460)** is **eligible** under Criterion C in the area of Architecture for the year ca. 1910. Although the residence may not be the most prominent example along the Main Line, the property conveys architectural significance as a *circa*-1910 Tudor Revival-style residence by the prominent local architects Baily & Bassett. The appropriate boundary may include the gate house and stable historically associated with the property.

We are unable to complete our review of the following properties:

We request additional information for the **Eagle Hotel (Key No. 065458)**. Please provide more detail explaining the additions and renovations to the hotel building, so that we can better understand if it retains the integrity necessary to convey 19th-century significance as an inn or tavern associated with travelers along the turnpike or railroad. Also, assess if the property has any 20th-century significance for its association with the

Rosato family and their medical practices, and whether the current integrity of the property would convey that significance. Provide a site plan sketch that indicates the additions and illustrates the evolution of the building's footprint.

We request additional information for the **Devereux Foundation (Key No. 201351)**. Please provide more information about the development of Helena Devereux's private school and the impact of her programming on the evolution of education for special-needs children in the 20th century, at least to 1960. A biography for Ms. Devereux, *Reaching the Mind, Touching the Spirit*, available at the foundation's website should be a helpful reference: http://www.devereux.org/site/PageServer?pagename=about_helena_trafford_devereux Consider whether changes to the property(ies) as the school developed would fall within a potential period of significance, directly relate to the new function of the buildings, and therefore not compromise overall integrity. We are especially interested in the potential for the facility to be significant under Criterion A, for association with the educational trends for special-needs children, and the potential for Criterion B significance, for association with the productive life of Helena Devereux. We are aware of one other school in Pennsylvania that may be helpful for context, the Melmark School in Delaware County, and there may be others to identify, as well.

If you need further information concerning this review, please contact Emma Diehl at (717) 787-9121.

Sincerely,



Andrea L. MacDonald, Chief
Division of Preservation Services

ALM/ekd



Commonwealth of Pennsylvania
Pennsylvania Historical and Museum Commission
Bureau for Historic Preservation
Commonwealth Keystone Building, 2nd Floor
400 North Street
Harrisburg, PA 17120-0093
www.phmc.state.pa.us

24 April 2015

Patricia H. Baker
Stell Environmental
25 East Main Street
Elverson, PA 19520

Re: ER 2012-0005-042-O
FRA: Amtrak Zoo to Paoli Electrification Project
FedEx Ground Hub and Roadway Improvements
Determination of Eligibility: Additional Information

Dear Ms. Baker:

Thank you for submitting information concerning the above referenced project. The Bureau for Historic Preservation (the State Historic Preservation Office) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources.

We offer the following comments on the additional information submitted regarding the identification of historic properties for the above-referenced project.

Based on the additional information received, we concur with the preparer that the **Devereux Foundation (Key No. 201351)** is **eligible** for listing in the National Register of Historic Places under Criterion A in the area of Education and under Criterion B for its association with Helena Trafford Devereux. The period of significance begins in 1918, the date Helena Devereux began acquiring the property for use as a school, and extends to 1965, the 50 year age criteria consideration. The boundary would include the existing 7.8-acre parcel, with the existing four buildings considered contributing.

Based on the additional information received, it is the opinion of the State Historic Preservation Officer that the **Eagle Hotel (Key No. 065458)** is **not eligible** for listing in the National Register of Historic Places due to a lack of integrity. If the property does retain significance related to its use as a railroad hotel, it no longer retains integrity to convey any significance from the period of use.

We concur with the scope and level of effort utilized to identify historic properties for this project appropriate pursuant to 36 CFR 800.4. Our determination of eligibility is based upon the information provided and available in our files for review. If National Register designation for this property is sought in the future, additional documentation of the property's significance and integrity may be required to both verify this determination of eligibility and satisfy the requirements of the National Park Service (36 CFR Part 60). Thus, the outcome of the National Register listing process cannot be assured by this determination of eligibility.

If you need further information concerning this review, please contact Emma Diehl at (717) 787-9121.

Sincerely,



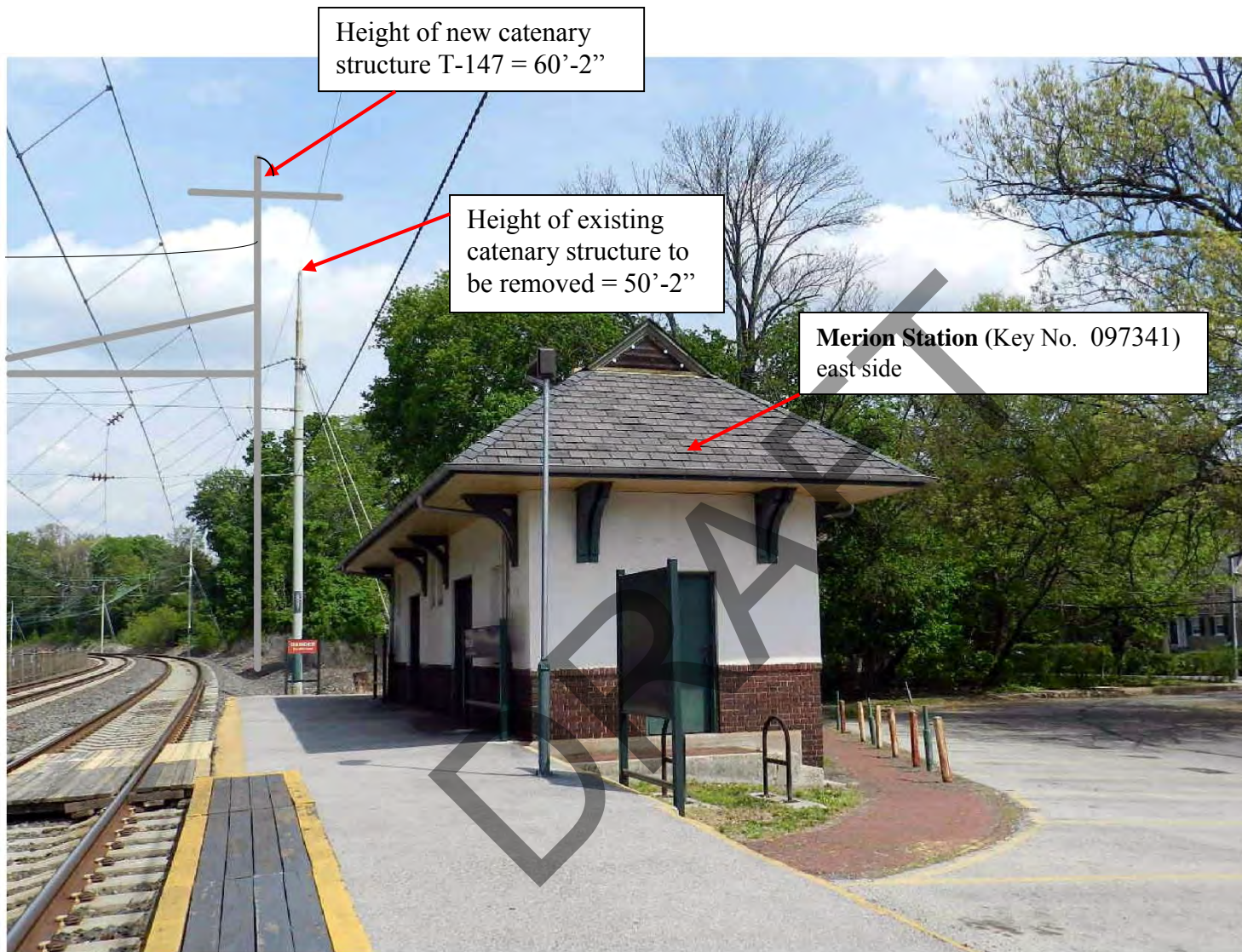
Andrea L. MacDonald, Chief
Division of Preservation Services

ALM/ekd

DRAFT

APPENDIX C:
PHOTO MOCK-UPS OF NEW CATENARY STRUCTURES

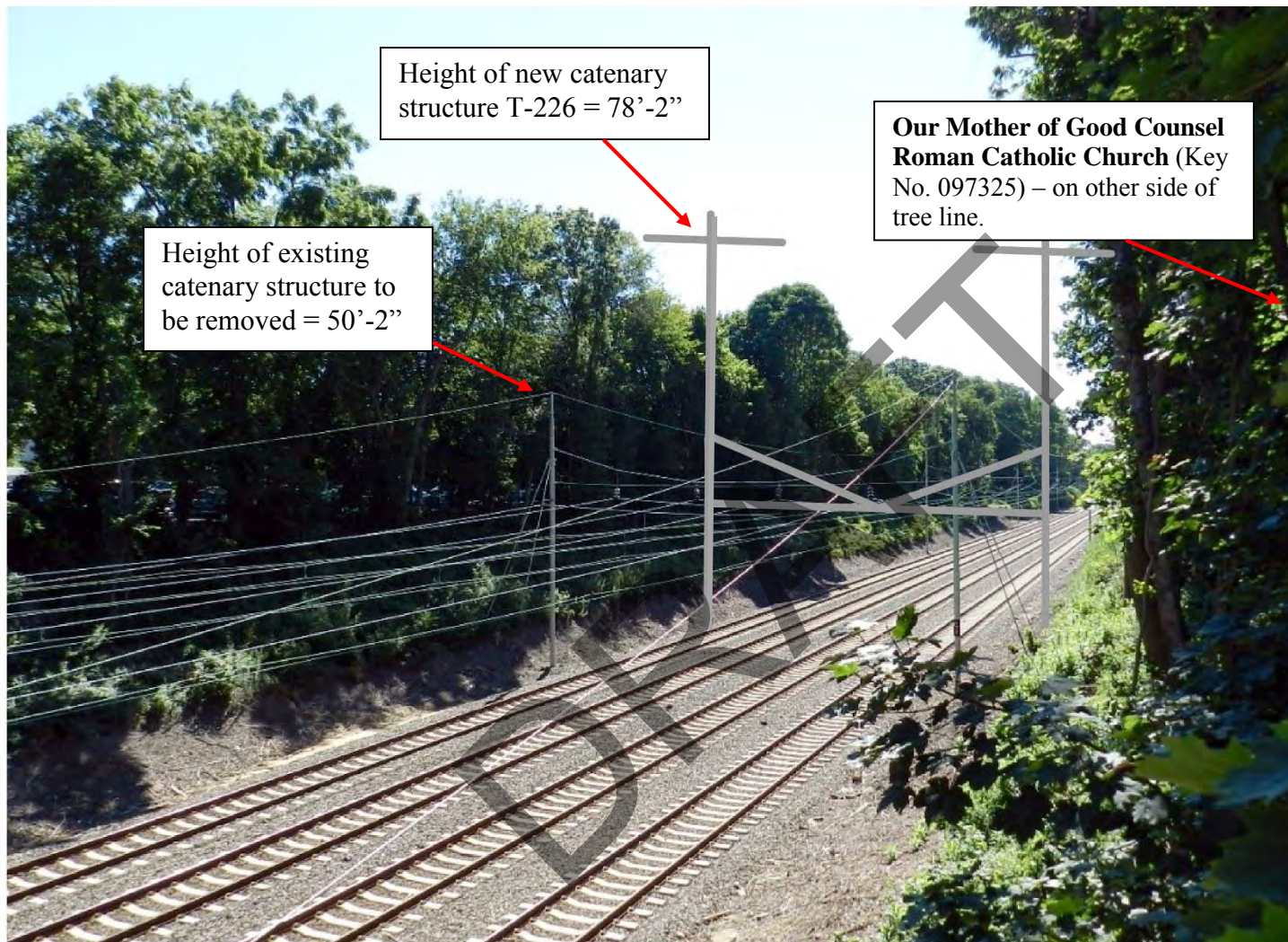
DRAFT



Merion Station - NRHP Listed (Key No. 097341)

Height of existing structure to be removed = 50'-2"

Height of new structure T-147 = 60'-2" – will be located 25'-0" north of the existing structure (railroad corridor is oriented in a north-south direction here).



Height of new catenary
structure T-226 = 78'-2"

Height of existing
catenary structure to
be removed = 50'-2"

**Our Mother of Good Counsel
Roman Catholic Church** (Key
No. 097325) – on other side of
tree line.

Our Mother of Good Counsel Roman Catholic Church - NRHP Eligible (Key No. 097325)

Height of existing catenary structure to be removed = 50'-2"

Height of new catenary structure T-226 = 78'-2"

Distance of new structure is approx. 20'-0" east of existing structure.

Height of existing catenary structure to be removed= 50'-2"

Height of new catenary structure = 60'-2"

Cramond NRHP-listed
(Key No. 050893)

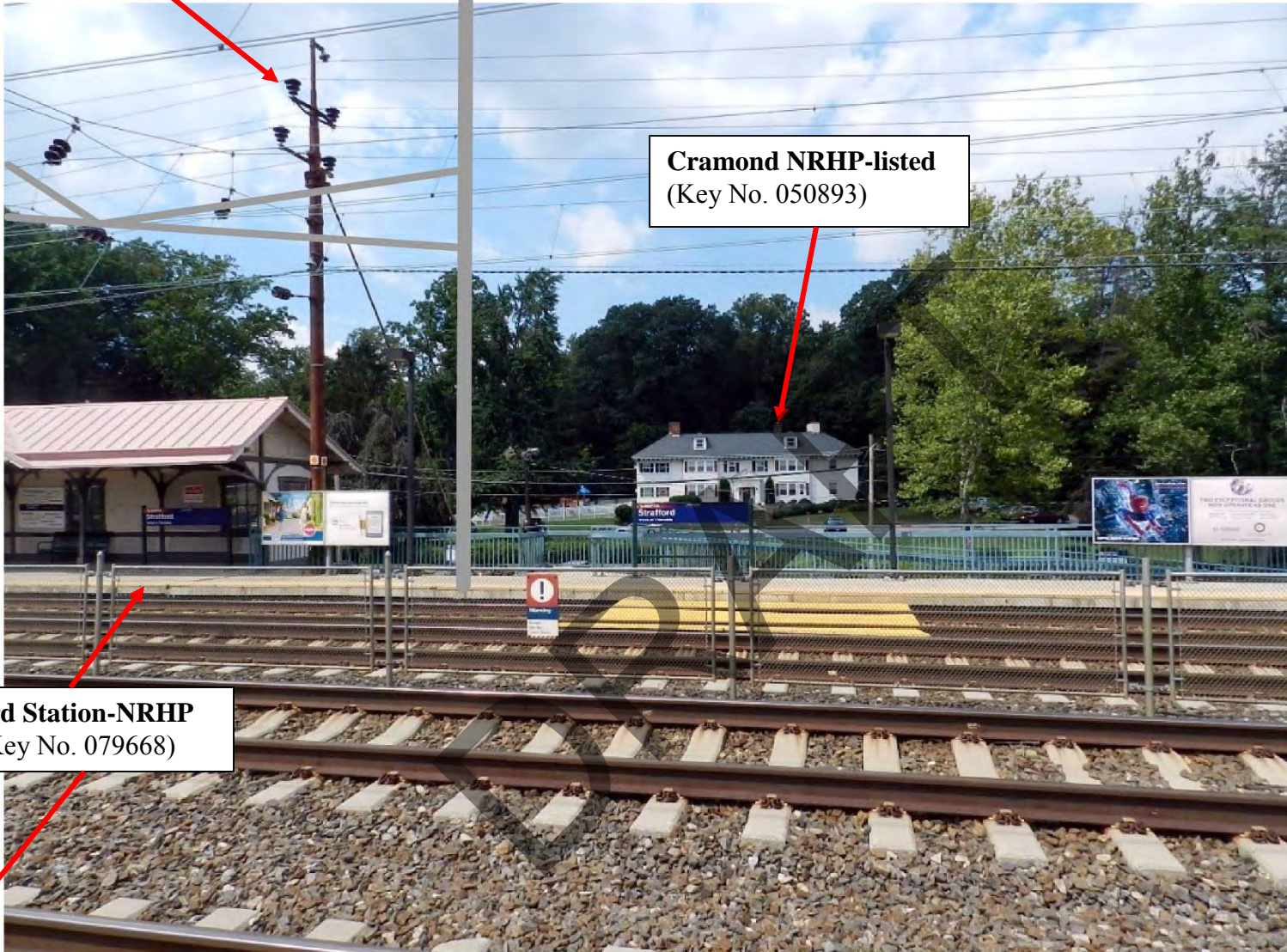
Strafford Station-NRHP listed (Key No. 079668)

Strafford Station - NRHP Listed (Key No. 079668)

Height of existing catenary structure to be removed = 50'-2"

Height of new catenary structure T-348 = 60'-2"

Distance of new catenary structure is approximately 10'-0" east of existing one.



New catenary structure will be located in this vicinity within ROW beyond southern end of historic district.

Southern end of North Wayne Historic District.



North Wayne Historic District - NRHP Listed (Key No. 064497)

Southern end of historic district. New structure T-330 will replace existing structure approximately 200'-0" west of overpass in ROW beyond trees on right-hand side of photo.

APPENDIX D:
QUALIFICATIONS OF RESEARCHERS

DRAFT

APPENDIX D

QUALIFICATIONS OF RESEARCHERS

Lauren C. Archibald, Ph.D. – Architectural Historian

B.A. – Kutztown University

M.A. – University of Delaware

Ph.D. – University of Pennsylvania

Lauren C. Archibald has over 30 years experience in historic preservation planning, architectural survey and evaluation, effects assessment, and report preparation for various types of historic resources throughout Pennsylvania, New Jersey, and Delaware.

Alison J. Ross, M.S. – Architectural Historian

B.S. – Drexel University

M.S. – University of Pennsylvania

Alison J. Ross has over 15 years experience on the local, state, and Federal level in architectural survey and evaluation, effects assessment, and report preparation for historic resources throughout Pennsylvania, New Jersey, Maryland, Delaware, Ohio, and West Virginia.