EXHIBIT B – STUDY AREA AND ROUTE DEVELOPMENT

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EXHIBIT B – STUDY AREA AND ROUTE DEVELOPMENT

1.0 Introduction

1.1 Project Need

The PJM Interconnection (PJM), an independent company that operates the electric power grid in 13 states, including Pennsylvania and New Jersey, has determined that upgrades to the existing electric system are necessary to ensure safe and reliable electric service for customers of PPL Electric Utilities Corporation (PPL Electric) and Public Service Electric and Gas (PSE&G), and for the rest of the mid-Atlantic region. In 2007, PJM conducted a 15-year planning study to forecast future transmission expansions required to maintain reliability and integrity of the power grid. Data collected during the study indicated that 23 existing power lines in northern New Jersey and eastern Pennsylvania will become overloaded within the 15-year study period, with some exceeding capacity as early as 2013. This can cause cascading transmission line outages, potentially resulting in major regional brownouts and blackouts.

As a result of PJM's study, PPL Electric and PSE&G have been ordered by PJM to construct a new 500 kV transmission line between PPL Electric's Susquehanna Substation near Berwick, Pennsylvania and PSE&G's existing Roseland Substation in Roseland Borough, Essex County, New Jersey by June 1, 2012. There are no suitable lower voltage local alternatives for providing the required relief from the significant transmission system reliability and congestion challenges identified for the northeast portion of the PJM region. A more detailed description of the project need is provided in Exhibit A – Necessity Statement.

1.2 Scope of Report and Description of the Proposed Project

PPL Electric proposes to site and construct a 500 kV transmission line from the Susquehanna Substation, near Berwick, Pennsylvania, eastward across northeastern Pennsylvania and the Delaware River, and into New Jersey. Once into New Jersey, the proposed line would continue to the east, connecting to a new switching station along the existing Branchburg to New York 500 kV transmission line, and continue farther east to a new switching station in the vicinity of the existing Roseland Substation. Based on these beginning and ending points, the proposed line is referred to as the Susquehanna-Roseland 500 kV Transmission Line project.

The siting and construction of the Pennsylvania portion of the proposed project is the responsibility of PPL Electric; PSE&G will build the section in New Jersey. PPL Electric and PSE&G have been coordinating their respective siting efforts to ensure compatibility of the proposed route alignments in both states. The PA PUC application addresses only that portion of the Susquehanna-Roseland 500 kV Transmission Line project that is in Pennsylvania. The overall study area for the Susquehanna-Roseland 500 kV Transmission Line project from the Susquehanna Substation near Berwick, Pennsylvania to the Roseland substation near Roseland,

New Jersey is shown in Figure B-1. PPL Electric's project study area in Pennsylvania from Berwick to the Delaware River is shown in Figure B-2.

1.3 Conceptual Design and Engineering Considerations

PPL Electric considered several types of structures for use on the Susquehanna-Roseland 500 kV Transmission Line. The structures used will depend on a number of factors, including available right-of-way, terrain and geology, clearance needs, limitations on height, need for double circuiting, proximity to other transmission lines (i.e., co-linear occupation or paralleling), anticipated future system needs, and cost. In sections of the proposed Susquehanna-Roseland 500 kV Transmission Line where an existing 230 kV line is present, the line will be constructed as a double circuit 500 kV line with one side designed and energized at 500 kV and the other side designed for future 500 kV but initially energized at 230 kV. The three-phase circuits will be arranged vertically in a phase-over-phase configuration with the 500 kV circuit on one side of the structure and the 230 kV circuit on the other side. In sections of the proposed Susquehanna-Roseland 500 kV Transmission Line where no 230 kV line exists, the proposed line will be designed for future double circuit 500kV line with only one side having conductors and insulators installed initially.

Generally, the line will consist of single shaft or multiple-shaft tubular steel pole structures on concrete foundations. The structures can be guyed or un-guyed depending on structure requirements/loadings and right-of-way considerations. Structures will be made with bare corrosion-resistant steel which, over time, will form a protective rust layer dark brown in color. In urban locations, the structures may be painted green to blend better with the locale. Structure heights will vary from 150 feet to 195 feet, with an average height of approximately 165 feet. The new line will be designed to comply with the National Electric Safety Code (NESC) C2-2007, PJM Facilities Design Criteria, and North American Electric Reliability Corporation (NERC) Reliability Standards. Photographs and sketches showing proposed new structure types along the Susquehanna-Roseland 500 kV Transmission Line are shown in Exhibit D.

2.0 Study Area Location and Description

The PPL Electric Study Area encompasses an area of approximately 3,165 square miles (2.03 million acres) in northeastern Pennsylvania and includes all or parts of Monroe, Pike, Wayne, Lackawanna, Luzerne, Carbon, Schuylkill, Lehigh, and Northampton counties. The general project Study Area boundaries include the area between PPL Electric's Lackawanna Substation north of Scranton in Lackawanna County in the northwest; the Frackville area in Schuylkill County in southwest; the Delaware River north of Milford in Pike County in the northeast; and the Delaware River near PPL Electric's Martins Creek and Lower Mount Bethel power plants in Northampton County in the southeast. The eastern Study Area "border" includes approximately 60 river miles of the Delaware River (see Figure B-2). Using this established Study Area, the routing team began its efforts to determine Potential Routes for the line.

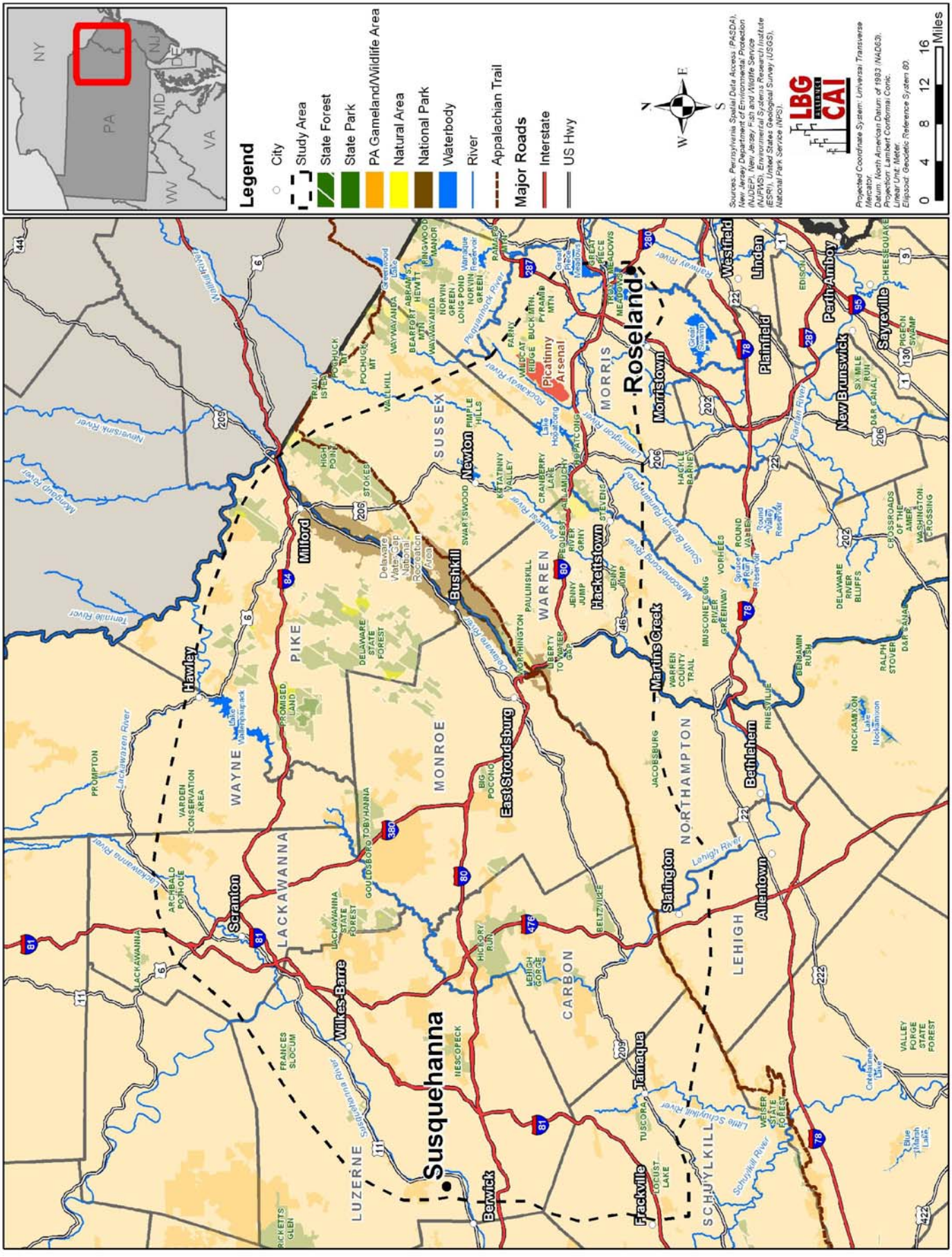

Figure B-1: Susquehanna-Roseland 500 kV Transmission Line Overall Project Study Area

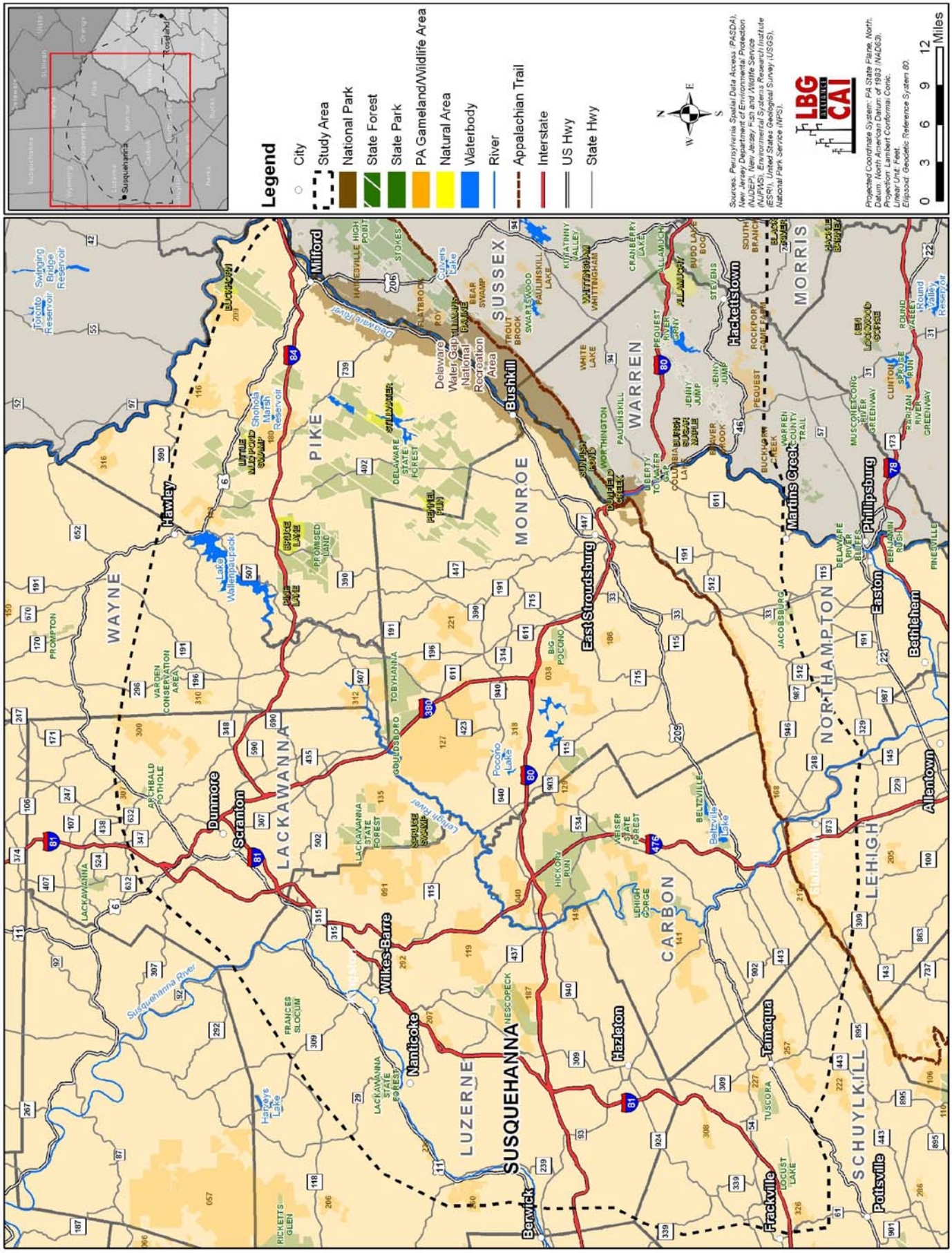

Figure B-2: PPL Electric Study Area in Pennsylvania

3.0 Siting Study Goals

The goal of the siting study was to select an appropriate route for a 500 kV electrical transmission line between the Susquehanna and Roseland substations. An appropriate route was defined as the route minimizing the impact of the transmission line on all factors of the natural and human environment, while avoiding unreasonable routes**,** high or unnecessary costs, and non-standard design requirements to the extent possible.

4.0 Route Selection Criteria

Once the Study Area was identified, the routing team met in February 2008 to develop basic route selection criteria that would be used to select and analyze potential Alternative Routes. Key members of both the PPL Electric and PSE&G routing teams were present during this initial meeting to ensure that similar route selection criteria, routing constraints (see Section 4.1), and the overall routing process to be used would adhere to applicable regulations in both Pennsylvania and New Jersey. The following route selection criteria were established and considered in the routing process:

- Minimize impacts to the natural and human environment
- Minimize route length and cost
- Use general line design parameters specified by PPL Electric and PSE&G
- Maximize the use of or paralleling of existing rights-of-way or easements
- Avoid residences
- Minimize the removal of barns, garages, or other appurtenant structures
- Maximize distance from residences, schools, cemeteries, historical resources, recreation areas, and other important cultural sites
- Minimize new crossings of designated natural resource lands such as state forests, national and state parks, wildlife management areas, designated game lands and wildlife areas, and conservation areas
- Avoid crossing large lakes.

4.1 Identification of Routing Constraints

Routing constraints in the Study Area were identified and mapped by the routing team. The constraints were defined as specific areas that should be avoided to the extent feasible during the route selection process. The constraints were divided into two groups based on the size of the geographic area encompassed by the constraint. The first group included constraints covering large areas of land (or water) in the Study Area. Large area constraints were used to eliminate to the extent possible areas in the Study Area that were considered unfavorable by the routing team for developing Potential Routes. Potential Routes are defined as those routes first identified and studied by the routing team that avoid large area constraints and meet siting objectives and criteria. The second group of constraints encompassed many other types of features covering smaller geographic areas or specific points. The large and small area constraints consisted of the following:

Large Area Constraints

- Urban areas
- National Register Historic Districts and adjacent areas
- Large recreational sites
- Large wetlands
- Critical habitat areas
- Large water bodies
- Designated State Forests, State Parks, State Game Lands, Wildlife Management Areas, natural and conservation areas, Natural Lands Trust Preserves
- Wind energy facilities or farms.

Small Area Constraints

- Individual residences (including houses, permanently established mobile homes, and multi-family buildings)
- Barns, garages, and other outbuildings
- Commercial and industrial buildings
- Recorded, designated historic buildings and sites, including any specified buffer zone around each site
- Recorded threatened, endangered, and other rare species sites or unique natural areas, including any specified buffer zone around each site
- Small wetlands and water bodies, including transition areas/buffer zones
- Small recreational sites or facilities
- Communication towers
- Windmills
- Designated scenic areas (e.g., overlooks, vistas, trails, corridors, highways)
- Orchards and vineyards
- Active surface mines.

After the Potential Routes had been initially developed to avoid large area constraints, the alignments were adjusted to the extent possible to avoid small area constraints. The constraint list was updated as the routing team developed greater familiarity with the project area.

The intent of the routing effort was to attempt to keep the Potential Routes and all areas of new or expanded right-of-way from affecting these constraints to the extent feasible. However, the team foresaw that in some instances complete avoidance of small area or point-specific constraints – and in some cases, large area constraints – would not be possible due to the large numbers of these constraints in the Study Area and the location of existing transmission corridors and rights-of-way.

5.0 Delineation of the Study Area

PPL Electric conducted a detailed siting analysis to determine a location for the Susquehanna-Roseland 500 kV Transmission Line that best balances social, environmental, engineering and economic considerations. That analysis included the determination of a Study Area, the compilation of an environmental inventory, identification and analysis of alternative line routes and finally, selection of a preferred line route corridor.

Detailed maps of the Study Area for the project are provided at the end of Exhibit C. The Study Area is that territory in which line route alternatives can be sited to feasibly meet the project's functional requirements and, at the same time, minimize environmental impacts and project costs.

The boundaries of the Study Area were determined by the geographic area encompassing the two end points in Pennsylvania (the Susquehanna Substation near Berwick on the west and the Delaware River on the east), as well as the overall eastern project endpoint, i.e., PSE&G's Roseland Substation in New Jersey. Potential logical crossing points of the Delaware River for both PPL Electric and PSE&G (e.g., points at which overhead electrical transmission lines, underground gas lines, or other developed/disturbed areas or rights-of-way already exist) were considered at this time, but were not specifically identified in order to allow more open consideration without restricting or limiting potential options that might otherwise be missed. The Study Area was intended to encompass all reasonable Potential Routes between the Susquehanna Substation and the Delaware River with consideration for line routing opportunities for the New Jersey portion of the project, as well as considering the network of existing transmission facilities or rights-of-way and new or existing switching station or substation sites in both states that were considered necessary or desired project system components.

Given these considerations, the routing team identified a large Study Area in Pennsylvania for consideration of Potential Routes. The Study Area is shown in Figure B-1. The PPL Electric Study Area encompasses an area of approximately 3,165 square miles (2.03 million acres) in northeastern Pennsylvania and includes all or parts of Monroe, Pike, Wayne, Lackawanna, Luzerne, Carbon, Schuylkill, Lehigh, and Northampton counties. The general project Study Area boundaries include the area between PPL Electric's Lackawanna Substation north of Scranton in Lackawanna County in the northwest; the Frackville area in Schuylkill County in southwest; the Delaware River north of Milford in Pike County in the northeast; and the Delaware River near PPL Electric's Martins Creek and Lower Mount Bethel power plants in Northampton County in the southeast. The eastern Study Area "border" includes approximately 60 river miles of the Delaware River. Using this established Study Area, the routing team began its efforts to determine Potential Routes for the line.

6.0 Environmental Data Collection

Many sources of information were employed to develop data for the siting study. These sources are described in the following paragraphs.

6.1 Aerial Photography

Perhaps the single most important tool in routing the proposed transmission line was aerial photography. Many sources were contacted before the routing team decided that in Pennsylvania multiple sources would be needed to provide complete coverage. Therefore, the following sources for aerial photography were used:

- Imagery from the National Agricultural Inventory Project was obtained from the United States Department of Agriculture that covered the entire Study Area in Pennsylvania (acquisition date 2005).

- Imagery from the PAMAP Program was obtained for the entire Study Area (acquisition date 2005). The PAMAP program is a statewide Department of Conservation and Natural Resources program run by the Bureau of Topographic and Geologic Survey.

A combination of this photography was formatted electronically at a scale of 1 inch to 500 feet as a set of 18-inch by 32-inch map sheets covering the study area. Updated information, such as the location of new residences and other buildings, was annotated on the photography as discovered during field inspections of Potential and Alternative Routes (see Exhibit C).

6.2 Maps

Many existing paper and electronic maps were obtained for the study and examined as part of the routing process. These included United States Geological Survey (USGS) 7.5-minute topographic quadrangle maps, various state and county road maps, transmission line map information and land ownership maps. As the project progressed, several other maps were obtained, primarily as a result of contacts made at public meetings, on-line websites, and meetings with local county agencies or interest groups, including County Planning Departments, The Nature Conservancy, and other agency contacts that are identified in Section 6.5.

6.3 GIS Data Sources

Extensive use was made in the study of information from existing Geographic Information System (GIS) data. This information was obtained from many sources, including Federal, State, and County governments. Much of this information was obtained through official agency GIS data access websites, some was provided directly by government agencies, and some was created by the routing team by either digitizing information from paper-based maps or through aerial photo interpretation.

The use of GIS data allows for the consideration and efficient use of a wide variety of information that would otherwise be unavailable or impractical to consider for a planning effort of this scope. GIS information is a highly effective tool when utilized for broad level planning studies, identifying and characterizing landscape level constraints and features, and developing environmental inventory information useful for comparisons between planning alternatives.

However, GIS data sources vary widely with respect to their accuracy and precision, and presentation, analysis, and calculations derived from these data sources require careful consideration when used for planning purposes. Therefore, GIS based calculations and maps presented in this Application should be considered reasonable approximations of the resource or geographic feature they represent, and not absolute measures or counts. They are presented to allow for general comparisons between alternatives with the assumption that the level of any inherent errors or inaccuracies would be generally equal across all alternatives.

A list of the major GIS data sources gathered, used, or otherwise considered in this routing study is listed below in Table B-1. A more detailed list of data sources used to identify and locate various resources during the routing process, and subsequently prepare the environmental and land use inventory of the three Alternative Routes identified in this study, is presented in Table C-2 in Exhibit C.

Table B-1. GIS Data Sources

Name	Owner	Resolution	Date of Source Data
GNIS for PA 2007	USGS	1:24,000	2007
Wild and Natural Areas	PA DCNR	1-5m	2006
Appalachian Trail Centerline for PA	PA DCNR	1:24,000	2003
State Forest Lands	PA DCNR	1-5m	2006
State Park Boundaries	PA DCNR	-	2006
Environmental Protection Areas	PA DEP	-	2005
State Game Lands	PGC	-	2004, 2006
GAP Conservation Stewardship	PSU	1:24,000	1998
Unsuitable Mining Areas 2002	PA DEP	1:24,000	2002
Longwall Mine Panels 2002	PA DEP	1:24,000	2002
Abandoned Mine Land Inventory	PA DEP	1:24,000	2007
Forestry Districts	PA DCNR	-	2003
Fishing & Boating Access Points	PFBC	-	2008
State Fish Hatcheries	PFBC	-	2007
Municipality Boundaries	PennDOT	1:24,000	2007
Oil and Gas Fields	PA DEP	1:24,000	1996
PADEP Oil and Gas Locations	PA DEP	-	2007
Water Trails	PFBC	1:24,000	2006
USGS DEM	USGS	10m	varies
National Wetlands Inventory	USFWS	1:80,000	2005
National Hydrography Dataset Flowline/Waterbodies	USGS	1:24,000	2004
Scenic Rivers	PA DEP	1:24,000	1996
Small Watersheds	PA DEP	1:24,000	1997
High Value Watersheds	PA DEP	-	1996
Floodplains	PA DEP	1:24,000	1996

Table B-1. GIS Data Sources			
Name	**Owner**	**Resolution**	**Date of Source Data**
Major Rivers	PA DEP	1:24,001	1997
PAMAP 2005 Orthoimagery	PA DCNR	1 foot	2005
Local Roads	PennDOT	1:24,000	2007
State Roads	PennDOT	1:24,000	2007
Unpaved Roads	PA DEP	-	2002
Active Railroads	PA DEP	1:24,000	1996
Existing Transmission Lines	PPL EU, PSEG, FE	-	-
Future Transmission Lines	PPL EU, FE	-	-
Gas Pipelines	USGS	-	-
Substations	PPL EU, PSEG, FE	-	-
Impervious Cover	Natural Lands Trust	1:24,000	2000
USGS Quads	USGS	1:24,000	varies

USFWS: U.S. Fish & Wildlife Service; USGS: U.S. Geological Survey; PFBC: Pennsylvania Fish and Boat Commission; PGC: Pennsylvania Game Commission; PennDOT: Pennsylvania Department of Transportation; PA DCNR: Pennsylvania Department of Conservation and Natural Resources; PA DEP: Pennsylvania Department of Environmental Protection; PSU: Pennsylvania State University; FE: FirstEnergy.

6.4 Field Inspections

Routing team members participated in various field reconnaissance trips throughout the study area. The team members examined the area from points of public access and correlated observed features to information shown on aerial photography, USGS 7.5 minute topographic maps, road maps, locally available development sketch maps, and other information. The initial field visits were conducted in March and April 2008 after Potential Routes were identified. The initial field reconnaissance efforts are discussed in more detail in Exhibit C.

6.5 Agency Contacts

In addition to using various federal, state, and local agency data and maps obtained in the environmental data collection process, PPL Electric and the routing team consulted or met with various agencies to gather initial information for the route planning process. Additional meetings and teleconferences were held with agencies and organizations following selection of the three Alternative Routes (see Section 7.3) to obtain additional input and data regarding the project and resources in the project Study Area, as well as potential permitting requirements and approvals. Additional information was also requested from state and federal agencies regarding threatened and endangered species, cultural resources, and other environmental and land use considerations. The following agencies and groups were consulted:

Federal Agencies

- U.S. Army Corps of Engineers, Philadelphia District
- National Park Service, Delaware Water Gap National Recreation Area
- National Park Service, Office of the Appalachian Trail
- U.S. Fish and Wildlife Service, Pennsylvania Field Office (State College)

State Agencies

- Pennsylvania Department of Environmental Protection
- Pennsylvania Department of Conservation and Natural Resources
- Pennsylvania Game Commission
- Pennsylvania Fish and Boat Commission
- Pennsylvania Historical and Museum Commission (State Historic Preservation Office)

Regional/Local Agencies

- Lehigh Valley Planning Commission
- Luzerne County Planning Department
- Lackawanna County Planning Department
- Schuylkill County Planning Department
- Wayne County Conservation District
- Wayne County Planning Department
- Pike County Conservation District
- Pike County Planning Department
- Pike County Commissioners
- Lehman Township Supervisors
- Monroe County Conservation District

Other Organizations

- The Nature Conservancy of Pennsylvania
- Blooming Grove Hunting and Fishing Club
- Saw Creek Estates Community Association.

7.0 Identification of Potential Routes

After the team developed the route selection criteria and produced maps showing the location of the large area constraints, the team located the initial Potential Routes on the 1 inch = 500 feet scale aerial photography map sheets (2005 photography). As identified previously, "Potential Routes" are defined as those routes first identified and studied by the routing team that avoid large area constraints and meet siting objectives and criteria. Where the routes intersected, "links" were formed as the segment of the route between intersections. The links were numbered for identification. Eventually, the links were assembled into routes for further analysis. These routes were referred to as "Alternative Routes" (see Section 7.3).

Wherever possible and feasible, the initial routing efforts attempted to avoid the large area constraints, take advantage of appropriate existing right-of-way opportunities, and avoid residences and as many other point-specific constraints as possible. Potential Routes were also established that met specified guidelines of the National Park Service, Office of the Appalachian Trail, that call for any new crossings of the Appalachian Trail to be located on existing rights-of-way. Also, in consultation with the PSE&G routing team, four potential crossing locations of the Delaware River were identified as possible joining points for the Pennsylvania and New Jersey segments of the line. The Potential Route identification effort resulted in a network of approximately 95 to 100 potential links that could be considered to route the new line from the Susquehanna Substation near Berwick to the Delaware River. Figure B-3 shows the resulting network of Potential Routes evaluated by the routing team between the Susquehanna Substation to the Delaware River.

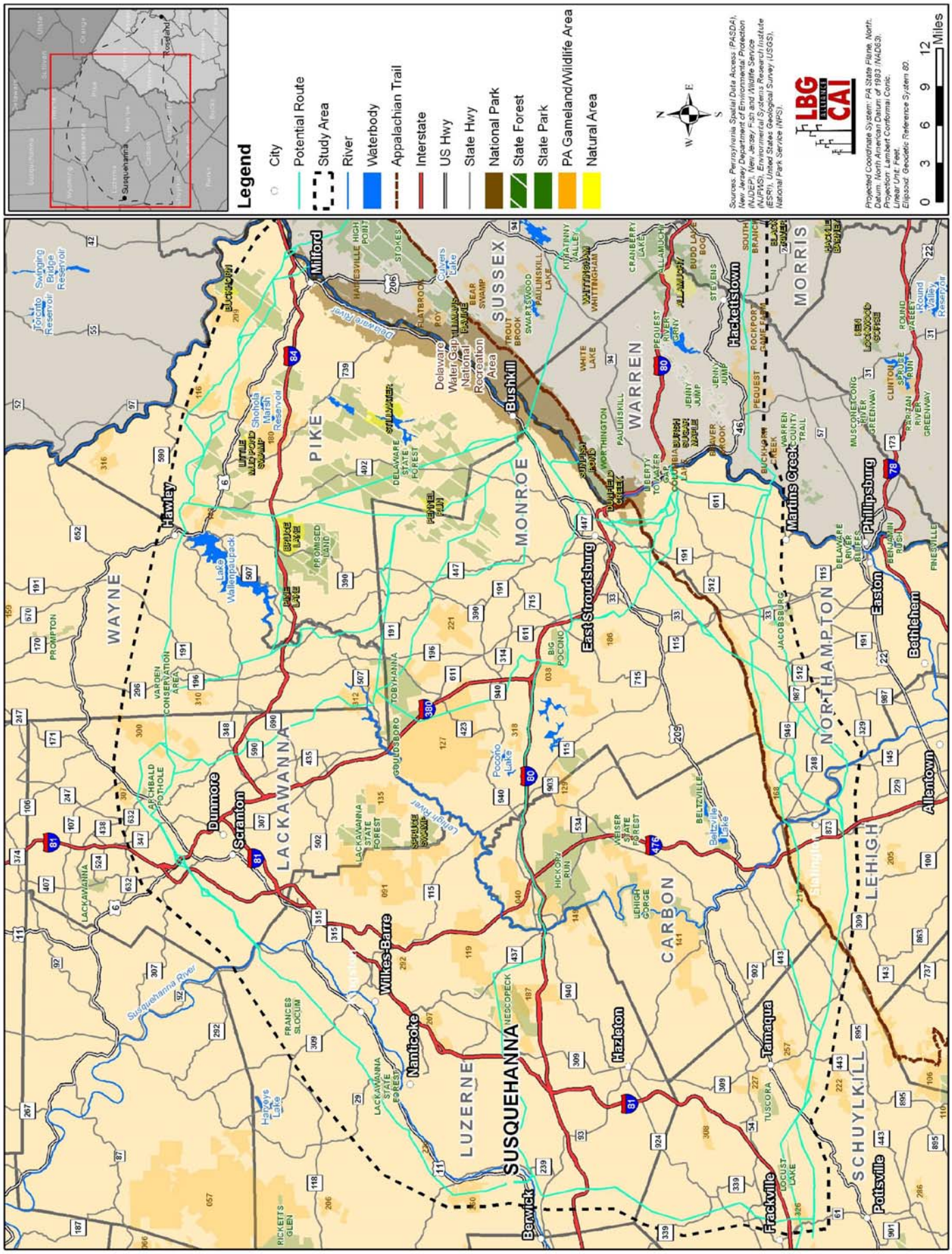

Figure B-3: Potential Route Network

After the initial Potential Routes were identified, key members of the routing team conducted the first field inspections of the routes. These inspections and all subsequent field inspections involved the visual examination of the potential and alternate routes from road crossings and other points of public access. The developed link network in the northern and southern portions of the study area was examined initially in the field between March 17 and April 23, 2008 as follows:

- March 17-20 Northern Potential Routes/Links
- March 25-28 Northern Potential Routes/Links
- April 10-11 Southern Potential Routes/Links
- April 14-17 Southern and Northern Potential Routes/Links
- April 22-23 Southern Potential Routes/Links

The team utilized a GPS unit, along with the mapped coordinates of the potential routes superimposed on road/street mapping software, to track precise locations and record the path of the field work. Residences (single family, multi-family, modular homes, and mobile homes), outbuildings (garages, sheds, barns, etc.), commercial buildings, and other potentially sensitive receptors (e.g., cemeteries, churches, and schools) within 500 feet of each potential route center line were identified and recorded using database software. At various points, e.g., in locations where homes or structures are near the existing or proposed right-of-way, areas of environmental concern were noted, and various other routing challenges were identified. Photographs were taken at selected or representative locations throughout the potential route network.

The field investigations resulted in a number of changes to the Potential Route alignments. These changes were identified in mid- to late April 2008 and were plotted on the aerial photography. Many of the changes resulted from efforts to avoid residences and other buildings, such as garages, barns, and commercial structures, or other similar constraints discovered in the field that were not identifiable on the aerial imagery, such as new residential or commercial developments constructed, under construction, or planned. Other changes were made to simplify awkward river and stream crossings, avoid unnecessary crossings of very steep land, and position the route angle points on reasonably level land if possible. Based upon these field investigations, some links were dropped altogether as they did not conform to the routing objectives or criteria.

7.1 Interstate 80

One route that was eliminated from further consideration was the Interstate 80 (I-80) corridor, which runs generally east-west through the middle of the project study area in both Pennsylvania and New Jersey. This corridor was initially thought to be a potentially attractive route that could minimize the total distance of the Susquehanna-Roseland 500 kV Transmission Line through both states while utilizing land where a linear right-of-way already exists. Upon subsequent review, it was determined that such a route would not be a viable alternative for the following reasons:

- Use of highway right-of-way itself was not allowed due to Pennsylvania Department of Transportation (Penn DOT) prohibitions.

- A complete lack of right-of-way requiring PPL Electric to secure new easement along the length of the corridor,

- Highway interchange challenges and development along many parts of the corridor. For example, the area around Stroudsburg is so congested that it would not be possible to pass through and cross to New Jersey.

- Using I-80 would require a new crossing through the Delaware Water Gap.

Subsequent discussions and investigation of the possibility of using interstate highway rights-of-way were held. PPL Electric assessed the policies of state transportation departments in four states regarding the use of limited access highway systems for transmission facilities. These included Pennsylvania, New Jersey, Virginia, and Illinois. It was found that longitudinal occupation of these limited access highways was not permitted. Perpendicular crossings and some very limited conditions for longitudinal occupancy were sanctioned under very specific criteria. PPL Electric subsequently contacted PennDOT to discuss the potential occupancy of I-80 for this project. PennDOT indicated that their policy was clear in prohibiting such use, citing the PennDOT *Design Manual, Part 5--Department Publication No. 16M*, Chapter 7, containing current utility relocation and accommodation policies (Krick, 2008 personal communication). In addition, PPL Electric contacted Real Estate Managers at other utilities, including PECO (Pennsylvania) and ComEd (Illinois) to verify their understanding of the state policies, both of which concurred with the earlier findings. Therefore, PPL Electric concluded that the potential longitudinal occupation of the Susquehanna-Roseland 500 kV Transmission Line along the limited access interstate highway system in Pennsylvania, including I-80 and other highways in the project Study Area (i.e., I-84 and I-380) was not a viable routing alternative.

7.2 Additional Eliminated Links

Another series of potential links that was eliminated from further consideration would have established a crossing of the Delaware River into New Jersey at a location near Reliant Energy's Portland Generating Station, located south of the Delaware Water Gap National Recreation Area (DEWA) near Mount Bethel in Northampton County. This potential crossing showed initial promise as a FirstEnergy transmission line crosses the Delaware River at this location.

Numerous links bringing a route from Pike and Monroe counties in the north and west to cross at the Portland location were mapped and field checked (see Figure B-3). Upon field review, however, these links proved to present environmental and development challenges that the routing team deemed to be too difficult to pursue further. For example, the potential route network through Monroe County included such environmental constraints and routing barriers as the Mount Bethel Fen Preserve, Kettle Creek Wildlife Sanctuary, and Tannersville Cranberry Bog; new residential developments such as Morgantown Homes, Saddle Creek Estates, and Eagle's Ridge; numerous new single family homes; and the generally high level of development in the Stroudsburg and East Stroudsburg area. In addition, none of these areas are currently

occupied by existing transmission lines or rights-of-way that would have accommodated replacement of existing facilities or construction of new facilities.

In addition, the routing team also looked at possible use of the existing 230 kV line corridor east of U.S. Route 209 (Milford Road) between Bushkill and East Stroudsburg to join potential routes from the north and east to cross at the Portland location. However, this 230 kV line is located in an extremely narrow right-of-way along Route 209 with townhouses and other residential areas (such as the Villas at Fairway, Great Bear Estates, Oakdale at Shawnee Valley, and North Slope III developments) to the east, making use of this corridor for a 500 kV line very challenging as well. Based on these results, the routing team determined that a crossing of the Delaware River near the Portland site was not a viable option.

Following the field verifications and subsequent link refinements, the links were evaluated using a range of factors covering project area resources, such as the number of homes and other structures within 75, 100, and 250 feet of the center line of each route link, presence of nearby sensitive receptors (e.g., cemeteries, churches, and schools), and various land use and environmental considerations. These factors were compared and taken into consideration as the links were subsequently assembled into the Alternative Routes that were carried forward for further consideration.

7.3 Identification of Alternative Routes

A series of Alternative Routes was developed from the Potential Route network by the routing team. A qualitative and quantitative screening process was employed to delete Links from the Potential Route network that were not considered suitable for additional study. This was accomplished through team meetings where comparative data, aerial photos, various additional maps, and notes taken during the field reconnaissance in March and April 2008 were reviewed. The major environmental and land use factors considered in this evaluation were: steep slopes, incremental aesthetic impact, wetlands and other stream crossings, proximity of residences and other buildings, known or suspected historic sites, threatened and endangered species sites, unique or sensitive habitat, and length of new crossings of Pennsylvania state lands (e.g., state parks, state forest, natural areas, etc.). Engineering factors were also considered during the Links evaluation, including identification of areas where rebuilding existing transmission structures to accommodate a new 500 kV line was either feasible or not feasible and areas that presented engineering and construction challenges (e.g., number of angle structures required, need to "thread" the route through developed or otherwise difficult areas, etc.).

This process led to the development of conceptual Alternative Routes that were presented to PPL Electric at an Alternative Route briefing. Following input from PPL Electric at this briefing, the Alternative Route alignments were further adjusted and a joint meeting was held with PPL Electric and PSE&G to ensure that the conceptual Alternative Routes proposed by PPL Electric would be compatible with conceptual Alternative Routes proposed by PSE&G. Upon determining compatibility of the PPL Electric and PSE&G conceptual Alternative Routes, the Alternative Routes shown in Figure B-4 (Routes A, B, and C) were carried forward for identification of a Preferred Route.

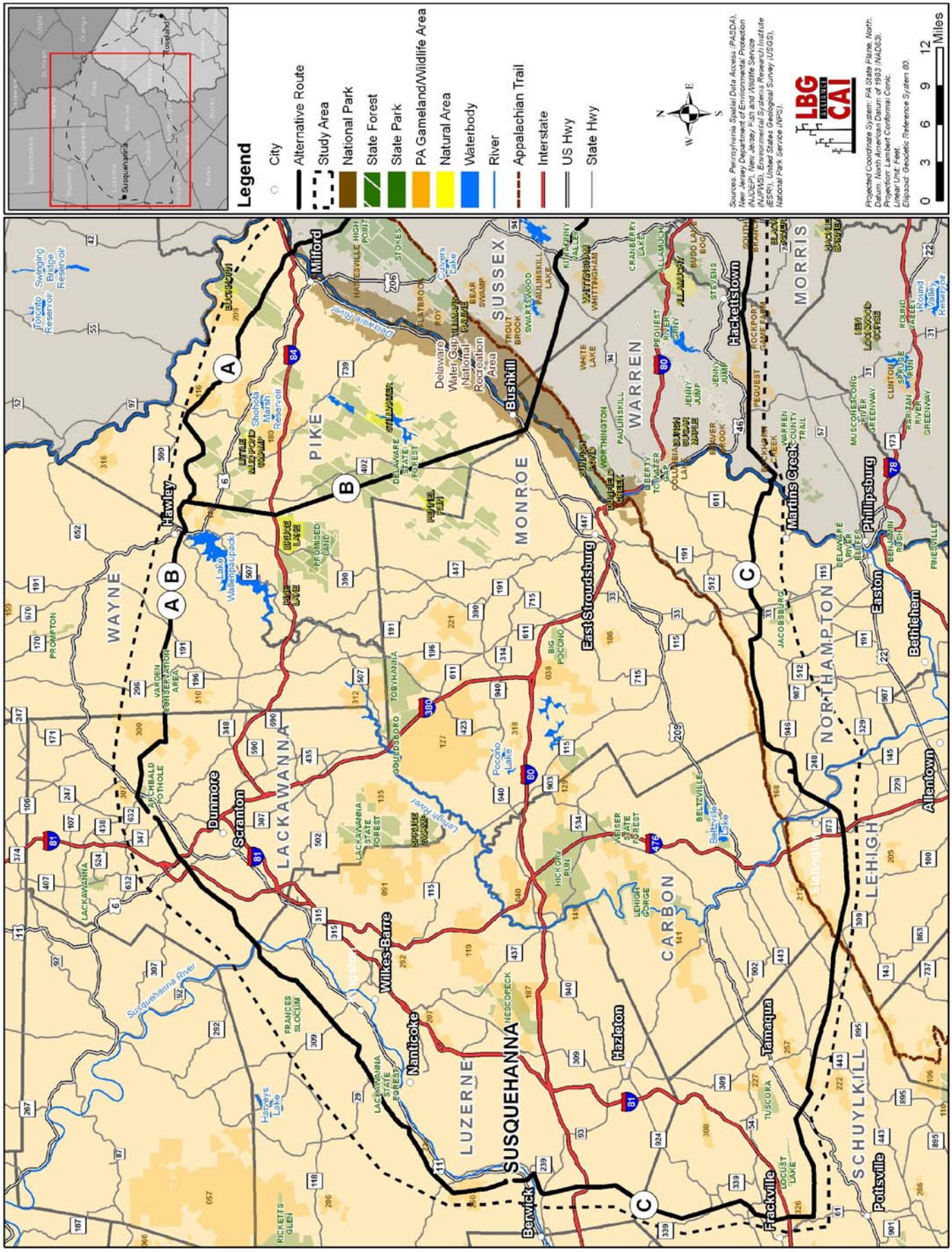

Figure B-4: Alternative Routes A, B, and C

After carefully analyzing and evaluating the potential route link network developed through the mapping and field work described previously, three Alternative Routes that could be used for the Pennsylvania portion of the Susquehanna-Roseland 500 kV Transmission Line project were identified. The three routes, identified as Routes A, B, and C, were announced publicly on June 5, 2008 via newspaper articles, the project website (www.pplreliablepower.com), and other media announcements. The three routes selected represent the routing team's identification of viable route alternatives that (1) meet the stated project purpose, goals, and objectives in the most economically and environmentally responsible manner; and (2) complement the efforts of the PSE&G routing team through New Jersey so that each utility's routes meet at common points at the Delaware River crossing. Where practical, the routes follow paths of existing power lines or where the company already owns property or has property rights through easements or other similar agreements. However, all three routes require the company to acquire some amount of new right of way. The three Alternative Routes–identified as Routes A, B, and C–are as follows:

- **Route A** begins at the PPL Electric Susquehanna Substation near Berwick and travels northeast through Luzerne and Lackawanna counties on the path of an existing 230 kV power line. The line then travels east through Lackawanna and Wayne counties primarily on the path of existing power lines before heading east-southeast through Pike County to cross the Delaware River north of Milford.

- **Route B** begins at the PPL Electric Susquehanna Substation near Berwick and travels through Luzerne, Lackawanna and Wayne counties on the same power line rights-of-way as Route A. Route B separates from Route A at a point northeast of Lake Wallenpaupack and travels south through the Delaware State Forest on the path of an existing 230 kV power line to cross the Delaware River near Bushkill.

- **Route C** begins at the PPL Electric Susquehanna Substation near Berwick and travels south primarily on existing future use right-of-way through Luzerne and Schuylkill counties. The line then travels east primarily on future use or existing transmission power line routes in Schuylkill, Lehigh and Northampton counties to cross the Delaware River adjacent to the Martins Creek and Lower Mount Bethel power plants near Martins Creek.

The Alternative Routes are discussed in greater detail in Exhibit C. Exhibit C also includes an environmental and land use assessment of all three Alternative Routes, as well as the results of the extensive public involvement process conducted as part of this project. The results of these assessments and outreach efforts were used to select the Preferred Route identified in the Application.